COPYRIGHT
© Copyright 2011 Help/Systems-IL, LLC.

The following items in SEQUEL are protected by copyright law:

• The User Guide.
• The Programmer’s Guide
• The product brochure.
• All text and titles on the software's entry and display panels, including the look and feel of the interaction of the panels along with the supporting menus, pop-up windows, and function key descriptions and layout.

The following terms are trademarked by Help/Systems:

• SEQUEL

Any individuals or corporations who violate these copyrights and trademarks will be prosecuted under both criminal and civil laws and any resulting products will be required to be withdrawn from the marketplace.

The following are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries:

- AS/400
- i5/OS
- OS/400
- System i5
- IBM
- iSeries
- System i

December 9, 2011 SJS
About this guide

This manual is intended for all users with access to the SEQUEL data retrieval system. It is a tutorial manual that provides descriptions of SEQUEL’s components (kernel, user interface, report writer, tabler) and how to use them.

This manual is divided into these sections:

Part 1 describes the basic concepts you need to know in order to use SEQUEL successfully.

Part 2 describes the SEQUEL User Interface. Examples demonstrate how to create, change, and run views using the user interface and SEQUEL’s “work with” displays.

Part 3 provides lessons on the report editor and the capabilities of SEQUEL’s report writer.

Part 4 shows you how to use the table editor to group and summarize your data for easy display and downloading.

What you should know

Before using this manual you should have a basic understanding of how to sign on to the AS/400 and how to use your terminal. If you are a new user, you may want to review IBM’s AS/400 System Operation For New Users, publication SC41-3200, a manual that provides a wealth of introductory information.

Additional information

Complete information about the topics covered in this tutorial is available in the SEQUEL User’s Guide. You should use it as your primary reference source after completing the lessons in the tutorial, or if you have additional questions as you work through the lessons.

Technical aspects of SEQUEL are documented in the SEQUEL Programmer’s Guide. You can refer to it for complete descriptions of each SEQUEL command, installation instructions, security considerations, and other details that are of interest to programmers and data administrators.
Contents

Part 1. Introduction and Concepts

Before You Begin .......................................................................................................... 1-2
What is SEQUEL? ......................................................................................................... 1-2
Information Management Concepts ............................................................................ 1-2
SEQUEL Concepts ....................................................................................................... 1-5

The Sample Database .................................................................................................. 1-7

Part 2. User Interface — Introduction

Starting View Definition ............................................................................................. 2-2
The view definition display ......................................................................................... 2-2
Selecting Interface Defaults ...................................................................................... 2-3

Getting help when you need it .................................................................................. 2-5

Simple Retrieval ........................................................................................................ 2-8
Ordering result records ............................................................................................... 2-13
Positioning the display ............................................................................................... 2-16
Saving the view ........................................................................................................... 2-17
Choosing specific fields ............................................................................................. 2-19
Record selection - Equal ............................................................................................ 2-23
Record selection - CONTAINS ................................................................................... 2-27
Record selection - Relative comparison ..................................................................... 2-30
Record selection - Summary ....................................................................................... 2-32
Calculating results in the view ................................................................................... 2-33
Printing view information ......................................................................................... 2-41
Printing in batch ......................................................................................................... 2-42
Exiting the user interface ............................................................................................ 2-43

In Review .................................................................................................................... 2-44
User Interface — Working With Views

Using the WRKVIEW facility ................................................................. 3-2
   The WRKVIEW display ................................................................. 3-3
   Run a view .................................................................................. 3-4
   View description ......................................................................... 3-5
   Library prompting ...................................................................... 3-6
   View prompting .......................................................................... 3-8

Using the WRKSEQUEL display ......................................................... 3-10
   Creating a new view .................................................................. 3-10
   Running views .......................................................................... 3-10
   Additional options .................................................................... 3-10
   Using the action bar ................................................................. 3-14
   View menu ............................................................................... 3-16
   Specifying the list subset .......................................................... 3-17
   Default values .......................................................................... 3-19

In Review ........................................................................................ 3-21

Getting more from the interface

Starting the user interface ............................................................... 4-2

Using the action bar ................................................................. 4-3
   File:Open ............................................................................... 4-5
   File:Display ............................................................................ 4-9
   File:New ................................................................................. 4-9

Prompting the FROM clause ......................................................... 4-10
   Library lists ............................................................................. 4-13
   File lists .................................................................................. 4-14

Prompting the SELECT clause .................................................. 4-17
   Create a calculated result ......................................................... 4-21

Prompting the ORDER BY Clause .............................................. 4-24
Joining and Grouping

The Joining Problem ............................................................................................................. 5-2
  Choosing a strategy ............................................................................................................. 5-3
  Select the files ..................................................................................................................... 5-5
  Specify the join relationships .............................................................................................. 5-6
  Select the fields ..................................................................................................................... 5-7
  Selecting the records ............................................................................................................ 5-13
  Running the view .................................................................................................................. 5-15
  Save the view ....................................................................................................................... 5-17

The Grouping Problem ......................................................................................................... 5-18
  Selecting the summary information ...................................................................................... 5-20
  More Joining and Grouping .................................................................................................. 5-25
  Choosing a strategy ............................................................................................................ 5-26
  Select the files ..................................................................................................................... 5-30
  Run the view ....................................................................................................................... 5-37
  Save the view ....................................................................................................................... 5-38

A final example ...................................................................................................................... 5-39
  Starting simply ..................................................................................................................... 5-40
  Save and exit ........................................................................................................................ 5-52

In Review ............................................................................................................................... 5-53

Part 3. The SEQUEL Report Writer

Starting report design .......................................................................................................... 6-2

Specifying totals and subtotals ............................................................................................. 6-4
  Report dimensions and level breaks ................................................................................... 6-4
Create the report ................................................................. 6-6

Run the report ....................................................................... 6-7
  Work with Views (WRKVIEW) ............................................. 6-7
  Work with Reports (WRKREPORT) ...................................... 6-7
  Work with SEQUEL Objects (WRKSEQUEL) ....................... 6-7
  Command Entry ................................................................ 6-7
  Example Result ............................................................... 6-8

In Review............................................................................... 6-9

Working With Reports............................................................. 7-1

Using the WRKREPORT facility .......................................... 7-2
  The WRKREPORT display .................................................. 7-3
  Showing the report description .......................................... 7-4
  Run a report interactively .................................................... 7-5
  Run a report in batch .......................................................... 7-6
  Library and report lists ...................................................... 7-7
  Report list display ............................................................. 7-8
  Designing reports from WRKVIEW and WRKSEQUEL ........ 7-9

In Review............................................................................... 7-10

Advanced Report Writing

Order Summary Information .................................................. 8-2

Subtotal Selection.................................................................... 8-4

Level Break Selection ............................................................ 8-5

Designing The Report ............................................................ 8-7
  How to exit ......................................................................... 8-7

Placing fields on the report .................................................... 8-8
  Changing the current report level ........................................ 8-10
  Cursor control ................................................................. 8-11
  Windowing the display ...................................................... 8-12
Page number ........................................................................................................ 8-14
Moving items on the report .................................................................................. 8-14
Another way to add ............................................................................................ 8-15

Report calculations ............................................................................................ 8-17
  Conditional calculation ...................................................................................... 8-18
  Counting with the report writer .......................................................................... 8-21

Line skeleton ......................................................................................................... 8-24

Total lines ............................................................................................................. 8-30

Field Editing ......................................................................................................... 8-33

More Calculations ............................................................................................... 8-35

Finishing Up ......................................................................................................... 8-40

Example result ...................................................................................................... 8-41

In Review ............................................................................................................... 8-42

SEQUEL Tabling

Starting table design ............................................................................................ 9-2
  Summary tables .................................................................................................... 9-4
  Category tables .................................................................................................... 9-12

In Review ............................................................................................................... 9-18
Part 1. Introduction and Concepts

This tutorial is designed to give you a broad overview of the features and functions of SEQUEL. It will teach you many of the basics so that you can use SEQUEL to get information that you need.

Although the tutorial begins at a fairly basic level, it assumes that you know several important concepts and that you are familiar with the AS/400. If you have never reviewed the IBM AS/400 System Operation For New Users, publication SC41-3200, you should do it before beginning this tutorial. It will teach you not only how to use your terminal and manage your AS/400 work, but also describe assistance levels, the UIM Help facility, and other aspects of AS/400 use that are important to you.

Learning to use SEQUEL is easy. If you follow this guide, you will be able to formulate your own requests (queries), run them, change them to fit your needs, and save them for later use.

As you use this tutorial, you will be guided through several exercises so that you can learn firsthand how to use SEQUEL.

This guide is not intended to replace the SEQUEL User’s Guide. You should refer to the User’s Guide to gain a full understanding of all aspects of the SEQUEL product. As you progress through the exercises, we will tell you where to look in the User’s Guide for more detailed information on each topic.

Organization

This workbook is divided into three major sections. The first will teach you the concepts of computer databases and the SEQUEL software. You will learn several terms that will permit you to understand the “lingo” of information management.

The last two sections are composed of several lessons each. Most of the exercises are designed to take about 20 minutes. The middle section begins by taking you through the basics of SQL. You will explore the SEQUEL user interface and learn to create and run your own queries and simple reports.

The final section of this tutorial will lead you through the advanced functions of the user interface and the SEQUEL report writing module. You will learn how to quickly and easily create views and design output that suits your tastes precisely. You will learn some pretty fancy formatting that will astonish your co-workers!

As you become accustomed to SEQUEL, you will quickly learn how to formulate a question, instruct the computer to answer, and format the result in an effective and appealing manner.

Experiment with SEQUEL after you go through each lesson, changing the queries you just created and trying new ones. Don’t worry about making a mistake. If you do, SEQUEL will try to point it out to you so you can try again.

Good luck and happy SEQUELING!
Before You Begin

This section of the SEQUEL Tutorial will explain some of the basics about SEQUEL and information management. It begins by giving you an overview of the SEQUEL software and what it can do for you.

Basic concepts of data base structure are discussed so that you will understand some of the “lingo” of the computer world. Obviously, if you are a programmer, you will already know this information and you can skip over this segment of the tutorial.

After discussing database concepts, SEQUEL reports and queries are presented so that you can understand how they fit into the landscape of information retrieval.

What is SEQUEL?

SEQUEL is the computer software that gives you the ability to work with information stored in your AS/400 computer. Using SEQUEL, you create your own English-like requests, run them, and see the results. You do this using Structured Query Language (SQL).

SQL is a computer language designed to make data retrieval and manipulation easier. It represents the latest generation of information management technology.

SQL was developed by IBM in the 1970s. Since then it has become an international standard. Today it is used on virtually all major computer systems around the world.

The complete SQL language provides functions for all aspects of information management. It can be used to:

- Create the database
- Insert, revise, and remove information
- Retrieve information
- Control access to the information

SEQUEL is the AS/400 software that enables you to use SQL on your computer. Although it does provide you with the ability to create and change the information in the computerized database, SEQUEL is mainly concerned with helping you to retrieve the information you are seeking — quickly and accurately.

Information Management Concepts

Before you begin using SEQUEL, it is important that you understand some of the concepts of computerized information management. The following topics introduce those elements and tell you a little about them. If you want more introductory information, refer to the AS/400 IDDU Use (SC41-5704) guide.
If you feel that you already know these concepts, scan through this section. If few of the definitions surprise you, skip to the next section and continue learning about SEQUEL.

Elements of the database

In order to use the information stored in your computer, you need to understand several terms. When you make an information request from the computer, you need to make it clear WHAT you want, and WHERE it can be found. Since your computer keeps track of so many things you must be very specific in making your request. Otherwise, you might not get what you want!

Library

A library is a place on the system that stores computer objects. Libraries help organize your system by keeping related information together. Depending on organization of your system, customer and product information could be in the same library, or they may be in different libraries.

When you are using SEQUEL, you will need to specify library names when you indicate which information you want to use. You will also need to tell SEQUEL which library to place your views and reports into when you create them.

Consult with the appropriate member of your data processing department to find out the library name(s) you will be using.

File

Information, sometimes called data, is kept in a data base file. To keep things organized, all the information within a file is related. For instance, the information for all of the customers is kept in one file and the information for all the products is kept in another.

As with libraries, every file has a name. To refer to information within a computer file, you simply need to know its name and the library it is located in.

Record

Within a file, a collection of related information is known as a record. All the information pertaining to a specific customer is grouped into a single customer record. A product record contains facts about a specific product. All of the records taken as a whole comprise the file.

Most files have a relatively small number of records. Files on your system may have a few records or many thousand - perhaps several million! The time it takes the computer to process your query request is usually related to the number of records in the file. A query over an especially large file could take hours to accomplish! If you are in doubt regarding the expected length of time for a query
to finish, consult someone from the data processing department for an estimate. Perhaps they will suggest an alternate method of acquiring the information.

Field

A single piece of information within a record is known as a field. A customer’s name, or a part number could be individual fields within a record. Each field within the record has a name. The field containing a customer’s name might be called CNAME. Your reference to CNAME will cause SEQUEL to return the customer’s name from one or more records in the customer file.

A field allows either numeric or character information. It also has a predefined maximum size that specifies a highest value (if numeric) or a maximum length (if character).

Record format

It is important to distinguish between the definition of a record or field and its values. The definition of a record, known as its record format, indicates which fields make up the record and their order in it. All records within a file usually have the same definition and thus are composed of the same set of fields.

Although the records within a file have the same definition, the values in each record are not the same. The field values actually make up the records. Naturally, the values in these fields are usually different for each record, and reflect the differences between them. The records in the customer file, for instance, have different values for name, address, etc., even though the format (definition) of the records is the same for each one.

Database Structure

It is easiest to think of files as two dimensional tables; similar to a spreadsheet. Individual rows in the table correspond to records in the file, columns correspond to fields.

The table below depicts a sample customer file.

<table>
<thead>
<tr>
<th>CUS#</th>
<th>NAME</th>
<th>CITY</th>
<th>STATE</th>
<th>LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1020</td>
<td>NBCO Corp.</td>
<td>Chicago</td>
<td>IL</td>
<td>300</td>
</tr>
<tr>
<td>1010</td>
<td>ABC Brick</td>
<td>Des Plaines</td>
<td>IL</td>
<td>100</td>
</tr>
<tr>
<td>1040</td>
<td>Designs Etc.</td>
<td>New York</td>
<td>NY</td>
<td>300</td>
</tr>
<tr>
<td>2100</td>
<td>Bells &amp; Whistles</td>
<td>Troy</td>
<td>MI</td>
<td>700</td>
</tr>
</tbody>
</table>

This file contains 4 rows. Each of these is a record.

Each record in the file is composed of 5 columns. These columns are the fields in the records. Their names are: CUSNO, NAME, CITY, STATE, and LIMIT.

Some fields allow only numbers (CUSNO, LIMIT) while others allow alphabetic characters (NAME, CITY, STATE). This is known as the data type of the field. It
Before You Begin

is important to know a field’s data type so that you know what can and cannot be done with the information in it. For instance, we can add numeric fields together but not character fields.

The amount of information that can be stored in an individual field is determined by its field size. When the file was defined to the system, the person who created it indicated both the type and length of the information each field could hold.

The length of a character field specifies the number of characters it can accept. If there are fewer characters in the field, the rightmost part of the field is blank.

The length of a numeric field is given in two parts: total number of digits and number of digits right of the decimal point. For example a field that is defined as (7,2) has 7 total digits: 5 to the left of the decimal and two to the right. The largest value that a (7,2) field can hold is thus 99,999.99

Fitting it all together

Each time you want information from the computer, you must tell it:

- which library contains the
- files you will be accessing,
- which records you are looking for,
- and the fields you want to see

Obviously, you will need to know the answers to these questions before you can instruct the computer to perform queries of your own. SEQUEL’s user interface can assist you if you forget or are unsure of some of the specifics, but you will find it easier if you have a basic understanding of your own system.

Before you begin working in earnest with SEQUEL you should get an overview of the libraries, files, records, and fields that contain the information you need to work with. The people in your data processing department are best suited to acquaint you with the database structure on your system. Once you know the basic arrangement of information within your system, you will be able to use SEQUEL to find anything that you need to know!

SEQUEL Concepts

With SEQUEL, you can create retrieval and report requests that instruct the computer to acquire the information you want from the files you select. SEQUEL creates two kinds of objects that acquire and present information. One is the SEQUEL view, the other is the SEQUEL report.

SEQUEL View

Each SEQUEL view object stores an SQL instruction. It specifies the information you want to see and which files and libraries it comes from. Views can be saved in a library so that they can be run over and over again.
Views are created using the SEQUEL user interface. You can run them in several different ways:

- from the ViewPoint PC display
- the “green screen” user interface
- the work with views (WRKVIEW) display
- the work with SEQUEL objects (WRKSEQUEL) display
- a command line

Information from the view can be sent to the display or a printout or even another file. If you use a personal computer, it can be sent to a PC document in as AS/400 folder and accessed with PC Support functions.

**SEQUEL Report**

The SEQUEL report contains special formatting and calculating instructions that produce more complex output than can be obtained using a view alone. When it is run, the report uses the underlying view for the information that will be printed.

Reports are created using the design report (DSNREPORT) command. Like views, once a report is created you can run it as many times as you want. Reports can be run by using the work with reports (WRKREPORT) display. They can also be run directly from a command entry display using the REPORT command.

**SEQUEL Table**

The SEQUEL table contains special summarized and categorized instructions that can produce more complex output than can be obtained using the view alone. Then it is run, the table uses the underlying view for the information that will be printed.

Tables are created using the design table (DSNTABLE) command. Like views, once a table is created you can run it as many times as you want. Tables can be run using the Work with SEQUEL Objects (WRKSEQUEL) display. They can also be run directly from a command entry display using the DISPLAY, PRINT and EXECUTE commands.

---

1 ViewPoint is a module of SEQUEL that lets you create and run SEQUEL requests from your PC using a Windows graphical interface.
The Sample Database

The SEQUEL software comes with a series of files that will be used in this tutorial. You can use them on your own after working through the demonstration exercises. They will assist you in becoming familiar with the features and functions of the SEQUEL product. The database is rather simple, and a very common one such as may exist in your company.

All the files in the sample database are contained in the SEQUELEX library. This library is not needed in order to use any SEQUEL functions. It only contains sample files, views, and reports that will help you to learn about SEQUEL.

There are four files in our example database. They are listed below. The file name for each file is shown in parentheses.

Customer Master (CUSTMAST)

A generic customer file containing names, addresses etc. for about 40 customers. There is one record per customer in the customer master file.

Part Master (PARTMAST)

This file contains information on the products available from our sample company, and some status information regarding activity for them. There is one record per product in the part master file.

Order Header (ORDHEAD)

The order header record indicates which customer has placed the order and contains pertinent information about the order as a whole. There is one record in the order header file for each order in process.

Order Line Item (ORDLINE)

These records are the substance of the orders. Each order line record corresponds to an individual item on the order. The records indicate the product, quantity, and price of each item on the order. There are usually several records for a given order, but sometimes there may be only one.
In this section, you will learn how to create and change SEQUEL views by using the basic assistance level of the user interface. We will explore some, but certainly not all, of the features of the user interface. As you work, SEQUEL will provide you with a fill-in menu and a series of prompts that will help you create your queries. When you are finished with this section, you will be prepared to advance to the next lesson and the exercises in Chapter 3.

The exercises in this chapter will help you learn how easy it is to start and end the SEQUEL user interface and how quickly you can create and change SEQUEL views. Specifically, you will:

1. Build a SEQUEL view over the customer master file and display the results at your workstation.
2. Change your retrieval so that customers are sequenced alphabetically.
3. Save the view for future use.
4. Change the request again so that only customers meeting certain criteria are shown.
5. Calculate a field based on values from other fields in the customer record.
6. Print the information in the view.
Starting View Definition

Starting the SEQUEL user interface is easy.

Sign on to your workstation with the password that you normally use. You will be presented with a menu or possibly with a command entry line.

There are several ways to start using the SEQUEL user interface. The method you choose will depend on your personal preference and the decisions your SEQUEL administrator has made in setting up your system.

Menu Access

If you normally use a menu, you may be able to select the SEQUEL user interface directly from your menu. If there is no “design view” option on your menu, you may be able to access the simple SEQUEL menu by selecting one of your menu options, or by typing **GO SEQUEL/SEQUEL** from command entry. If you can access the SEQUEL menu, you can start the user interface by selecting option 1, Design a View.

Work with Views (WRKVIEW) or SEQUEL Objects (WRKSEQUEL)

Alternatively, you can start the user interface from one of SEQUEL’s “work with” displays. The Work With Views (WRKVIEW) and Work With SEQUEL objects (WRKSEQUEL) commands will be discussed in one of the following lessons. If you are already familiar with them, you can access the user interface by using option 1 from the WRKVIEW menu, or by pressing **F6** from the WRKSEQUEL display.

Command Entry

You can also start the user interface from command entry display or a command line. If you have a command entry line on your display, you can proceed by using the menu or **WRKVIEW/WRKSEQUEL** commands (above) or by using the Design View (DSNVIEW) command directly. Start the user interface directly by typing the command below and pressing Enter.

**SEQUEL/DSNVIEW *CREATE**

The view definition display

Regardless of how you choose to start the interface, the SEQUEL view definition display will appear. You will use it during the next several lessons as the “main display” as you work with your views.
Selecting Interface Defaults

Before we get down to business, there are a few “housekeeping” items to attend to. We’ll begin by making certain that the user interface is appropriately configured for the tutorial by setting the basic assistance level and some default library values.

**press F10**

This activates SEQUEL’s action bar (more about that later). A small pop-up window will appear at the top of the display. Depending on current settings, your display will look like one of these two displays:

```
F4=Prompt  F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions  F21=Assist level
```
Now, activate the “Defaults” menu option.

move the cursor onto the keyword (you can press the TAB key)

press Enter.

A pull-down window will appear under the “Defaults” keyword and allow you to specify user interface control values.

Use the display to set the default from-file library and assistance level by following these steps:

With the cursor in the first entry field (from-file library)

- type SEQUELEX and blank out any remaining characters on that line.
- press TAB until the cursor moves to the assistance level option at the bottom of the window.
- type 1 to indicate that you want to use the basic assistance level.
- press Enter to carry out your request and change the current settings.

If you press Enter and haven’t actually typed any changes on the display, the “Defaults” pull-down will be removed and the action bar will remain. Remove the action bar and return to the basic assistance menu by pressing F10.
Getting help when you need it

SEQUEL incorporates a highly advanced help system. It will allow you to get the assistance you need whenever you are confused or simply want to learn more about SEQUEL and its displays. The help text is:

**Cursor sensitive** - You get information based on the current cursor location. If you have a question about a particular part of the display, move the cursor to that area and then press the Help key. You can view the help text for the entire display (all areas) by pressing F2=Extended help after a help panel is presented.

**Multi-level** - Information is organized so that related subjects can be accessed through hypertext links. They let you get in-depth details on an “as needed” basis, without forcing you to wade through pages of text you already know or aren’t interested in.

**Indexed** - You can conduct a search through all of the help text for information about a particular topic or phrase that interests you. Even if you’re not working in a related display, you can get information about any aspect of SEQUEL or the SQL language.

SEQUEL uses the AS/400 Help facility to display and manage its help text. You can learn more about AS/400 Help by pressing F13=User Support from any help panel, or by typing GO SUPPORT from any command line. You can read about the Help facility in the IBM AS/400 System Operation For New Users guide.

Take a few minutes now to get acquainted with the help system.

**move** the cursor to the command key description line at the bottom of the display (line 24) and **press** Help.
A help window overlays the display and gives specific information about the function keys available to you.

As you scroll through the text you will notice that there are several underlined and highlighted phrases within the text. These hypertext links allow you to choose to get information on an additional topic.

Select a hypertext topic

**press** Roll up (PageDn) until you can find the description for F10=Actions and the hypertext entry for the action bar.

**press** TAB to move the cursor to the underscore next to the action bar phrase and press Enter.

Once you select a hypertext topic, your previous help panel is suspended and the new topic is shown.

<table>
<thead>
<tr>
<th>5/05/98  8:51:22</th>
<th>Define View</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Help</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Using the action bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The user interface includes an action bar. It can help you learn about and quickly access the functions available to you. The action bar is a small menu that will appear when you press F10 from the view definition display. The action bar is available regardless of your assistance level (basic, intermediate, or advanced).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use the action bar when you are not certain which option or function key to use. You will be able to get the assistance you need by browsing through its pull-down menus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When you select the action bar, it will appear at the top of your display. You can close the action bar window by pressing F10. The view More...</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F3=Exit help  F6=Viewed topics  F10=Move to top  F11=Search index</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F12=Cancel  F13=User support  F14=Print help  F20=Enlarge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions  F21=Assist level</td>
<td></td>
</tr>
</tbody>
</table>

Other topics (ex. assistance level) can be accessed from this panel in the same manner.

You can return to a specific point in your Help path by pressing F6=Viewed topics. A selection window will appear and you can choose which of the previous panels you want to see.

When you are finished with the text, you can return to each previous topic in turn by pressing F12=Cancel. Use F3=Exit to exit the help facility entirely and return to your original display.

When you are finished touring the Help facility,

**press** F3=Exit to return to the view definition display.
If your display looks like the one below you are ready to begin! Otherwise, please contact your SEQUEL administrator for additional assistance.

```
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 9
SELECT   *
FROM
JOIN
WHERE
GROUP BY
HAVING
UNION
ORDER BY

Type options to specify view. Press F13 to select all.
1=Select  4=Delete
View . . : (Untitled)
Opt   View definition options
  1  Specify files that data is selected from (FROM)
  _  Select and sequence fields
  _  Select and sequence summary fields (SELECT)
  _  Choose which records are included (WHERE)
  _  Specify the order of the records (ORDER BY)
F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions F21=Assist level
```
Simple Retrieval

In the first lesson, we’ll access the information in the customer master file. Assume that you want to see all the fields for each customer record. This is one of the simplest query requests and can be accomplished by typing just a few characters. We’ll use the CUSTMAST file in the SEQUELEX library. It is in the sample database described in Chapter 1.

We begin the view definition from the empty view definition display.

```
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 19
SELECT *
FROM
JOIN
WHERE
GROUP BY
HAVING
UNION
ORDER BY

Type options to specify view. Press F13 to select all.
1=Select 4=Delete View . . . : (Untitled)
Opt View definition options
   1 Specify files that data is selected from (FROM)
   - Select and sequence fields
   - Select and sequence summary fields (SELECT)
   - Choose which records are included (WHERE)
   - Specify the order of the records (ORDER BY)
F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assist level
```

The first menu choice has already been selected for you because all queries require you to use at least one data file. The first menu option is marked:

```
1 Specify files that data is selected from
```

This menu item will allow you to indicate which file(s) you want to use.

press Enter to select the menu item.
The file selection prompt will appear so that you can choose the file you want to use. It should look similar to the one below.

Files from the SEQUELEX library are automatically selected because of the from-file default you previously set using the action bar.

```
5/05/98 11:07:26       File Selection(s) From SEQUELEX       System: ASC400
Sel Name       Attribute   Description
--- CUSTMAST   PF         SEQUEL Outfile: Customer Master
--- CVTDATE    PF         Gregorian-Julian Conversion
--- CVTDATEL1  LF         Gregorian-Julian Conversion
--- DSPFFD     PF         Outfile for DSPFFD
--- DSPOBJD    PF         Outfile for DSPOBJD
--- ORDHEAD    PF         SEQUEL Outfile: Open Orders - Header file
--- ORDLINE    PF         SEQUEL Outfile: Open Orders - Line item file
--- PARTMAST   PF         SEQUEL Outfile: Product Master
--- SOURCE     PF         Example source code
--- SQDATE     PF         Date conversion
--- TRIANGLES  PF         Leg lengths for triangles

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.
                      Library  File Name  Member  Format  Correlation
                      --------------          --------------          --------------          --------------          +
                      --------------          --------------          --------------          --------------          +
F3=Exit  F12=Accept
```

Select the CUSTMAST file by following these steps:

move the cursor up to the line to the left of CUSTMAST

type 1

press Enter

SEQUELEX and CUSTMAST will be placed into the entry fields at the bottom of the display.
The display should look like the one below. It indicates that you have selected one file (SEQUELEX/CUSTMAST) for your query.

<table>
<thead>
<tr>
<th>Sel Name</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTMAST</td>
<td>PF</td>
<td>SEQUEL Outfile:Customer Master</td>
</tr>
<tr>
<td>CVTDATE</td>
<td>PF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td>CVTDATEL1</td>
<td>LF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td>DSPFFD</td>
<td>PF</td>
<td>Outfile for DSPFFD</td>
</tr>
<tr>
<td>DSPOBJD</td>
<td>PF</td>
<td>Outfile for DSPOBJD</td>
</tr>
<tr>
<td>ORDHEAD</td>
<td>PF</td>
<td>SEQUEL Outfile:Open Orders - Header file</td>
</tr>
<tr>
<td>ORDLINE</td>
<td>PF</td>
<td>SEQUEL Outfile:Open Orders - Line item file</td>
</tr>
<tr>
<td>PARTMAST</td>
<td>PF</td>
<td>SEQUEL Outfile:Product Master</td>
</tr>
<tr>
<td>SOURCE</td>
<td>PF</td>
<td>Example source code</td>
</tr>
<tr>
<td>SQDATE</td>
<td>PF</td>
<td>Date conversion</td>
</tr>
<tr>
<td>TRIANGLES</td>
<td>PF</td>
<td>Leg lengths for triangles</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or "generic" to prompt list.

<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
</table>
| SEQUELEX | CUSTMAST   | ______ | ______ | ______      +

F3=Exit  F12=Accept

Press F12 to return to the view definition display.
When the view definition display reappears, it will look like the one below. A ‘>‘ symbol appears next to the first menu item, showing that you have already selected the file(s) to be used by your query.

Whenever you begin working on a new view, SEQUEL will automatically assume that you want to see all the fields within the file you have chosen. As we’ll see in a few minutes, choosing specific fields for your request is as easy as choosing the file.

The top part of the display shows the SQL statement that you have created. Your SQL retrieval request is:

```
SELECT * FROM sequlex/custmast
```

The asterisk is SQL “shorthand”. It indicates that all of the fields in the file(s) you chose should be included in the view.

That’s all there is to it! You have just completed your first SQL statement and SEQUEL view. You could substitute any valid file and library combination and the view will function just the same - returning all the field values from all the records in the file. Now run the view and display the contents of the customer master file.

**press F19.**
After a short delay, your screen should look like the one below. (If your display can show 132 columns, additional information will be shown on each line.)

<table>
<thead>
<tr>
<th>Customer Number</th>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>100112</td>
<td>MNB Corp.</td>
<td>155 N. Clark</td>
</tr>
<tr>
<td>100200</td>
<td>NBCO Corporation Inc.</td>
<td>7060 West Cullom Ave.</td>
</tr>
<tr>
<td>100300</td>
<td>Obell Group Sales</td>
<td>Midtown Plaza - Room 604 700 E. Water Str</td>
</tr>
<tr>
<td>100500</td>
<td>PCE Corp.</td>
<td>119 Broadway</td>
</tr>
<tr>
<td>100600</td>
<td>UCE Corp.</td>
<td>191 Seegers</td>
</tr>
<tr>
<td>100700</td>
<td>Xcmo Corp.</td>
<td>2618 Fruitland Avenue</td>
</tr>
<tr>
<td>100800</td>
<td>State Corp.</td>
<td>356 Main Street</td>
</tr>
<tr>
<td>100900</td>
<td>T-1 Corp.</td>
<td>5520 W. North Avenue</td>
</tr>
<tr>
<td>101100</td>
<td>Que Company Inc.</td>
<td>10358 South Forest</td>
</tr>
<tr>
<td>101200</td>
<td>Maple Leaf Cemetery</td>
<td>2329 West Belmont</td>
</tr>
<tr>
<td>101616</td>
<td>Sports Shop</td>
<td>8335 Ogden</td>
</tr>
<tr>
<td>102000</td>
<td>Optimum Corp</td>
<td>3332 N. Broadway</td>
</tr>
<tr>
<td>102100</td>
<td>Lim-Equipment Co.</td>
<td>2412 Far Hills Ave.</td>
</tr>
<tr>
<td>102311</td>
<td>Lawrence Design</td>
<td>155 North Wacker Drive Suite 155</td>
</tr>
<tr>
<td>102600</td>
<td>Reay Corp.</td>
<td>6322 N. Broadway</td>
</tr>
<tr>
<td>102800</td>
<td>Rider Corp.</td>
<td>4119 N. Lincoln</td>
</tr>
<tr>
<td>102900</td>
<td>Taehnrich Corp.</td>
<td>7237 Roosevelt</td>
</tr>
</tbody>
</table>

Use the roll keys to roll up and back through the data. You can position directly to any record in the file by entering the record number you want to start with at the lower right and pressing the field exit key, then the enter key.

The window control field and the function keys listed at the bottom of the display can be used to shift the window right and left. When using the window control field, type a number, press field exit, then press the Enter key.

In order to return to the SEQUEL view definition display

press F3.
Ordering result records

Let’s change the view we just created so that the customers appear in alphabetical order. To sequence records in a view you must add an ORDER BY clause to the SQL statement. Do this by selecting the final menu item and filling in the subsequent prompt display.

press Tab to move the cursor to the last menu item.

When the cursor is positioned next to the “Specify the order of the records” line,

type 1.

```
1/27/98 8:53:42    Define View    System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.    Amount to roll 9
SELECT *          
FROM sequel/ex/custmast

Type options to specify view. Press F13 to select all.
1=Select  4=Delete                                        View . . . : (Untitled)
  > Specify files that data is selected from    (FROM)
  > Select and sequence fields                  (SELECT)
  > Choose which records are included          (WHERE)
  > Specify the order of the records          (ORDER BY)
F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assistance level

press Enter when your display looks like the one above.
```
The ORDER BY prompt shown below will appear. It shows all the fields in your view (each field in the CUSTMAST file) and allows you to pick the ordering field(s).

<table>
<thead>
<tr>
<th>Sel Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTMAST</td>
<td>SEQUELEX</td>
<td>Customer Master</td>
<td>1</td>
</tr>
<tr>
<td>___ CUSNO</td>
<td>Pkd 6,0</td>
<td>Customer number</td>
<td>1</td>
</tr>
<tr>
<td>___ CNAME</td>
<td>Char 25</td>
<td>Customer name</td>
<td>1</td>
</tr>
<tr>
<td>___ CADD1</td>
<td>Char 25</td>
<td>Customer address line 1</td>
<td>1</td>
</tr>
<tr>
<td>___ CADD2</td>
<td>Char 25</td>
<td>Customer address line 2</td>
<td>1</td>
</tr>
<tr>
<td>___ CADD3</td>
<td>Char 16</td>
<td>Customer address line 3</td>
<td>1</td>
</tr>
<tr>
<td>___ CSTTE</td>
<td>Char 2</td>
<td>Customer state</td>
<td>1</td>
</tr>
<tr>
<td>___ CZIPC</td>
<td>Char 10</td>
<td>Customer zipcode</td>
<td>1</td>
</tr>
<tr>
<td>___ CPHON</td>
<td>Pkd 10,0</td>
<td>Phone number</td>
<td>1</td>
</tr>
<tr>
<td>___ CTYPE</td>
<td>Char 2</td>
<td>Customer type</td>
<td>1</td>
</tr>
<tr>
<td>___ CRLIM</td>
<td>Pkd 9,0</td>
<td>Credit limit in dollars</td>
<td>1</td>
</tr>
<tr>
<td>___ AMTDU</td>
<td>Pkd 11,2</td>
<td>Outstanding A/R balance</td>
<td>1</td>
</tr>
<tr>
<td>___ OROPN</td>
<td>Pkd 9,2</td>
<td>Total open orders in dollars</td>
<td>1</td>
</tr>
<tr>
<td>___ HIGHB</td>
<td>Pkd 9,0</td>
<td>Highest A/R balance</td>
<td>1</td>
</tr>
<tr>
<td>___ PAYAM</td>
<td>Pkd 11,2</td>
<td>Last payment amount</td>
<td>+</td>
</tr>
</tbody>
</table>

Order the selected records by:

Seq Field  Order ABS  Seq Field  Order ABS
----------  ------  ----------  ------
--- --- --- --- --- --- --- --- --- +

F3=Exit  F12=Accept

Next, choose the customer name field (CNAME).

press Tab until the cursor moves to the CNAME line

type 1

press Enter

The customer name field will be selected and placed into the entry fields at the bottom of the display. (You could also have typed the field directly into the entry fields, rather than selecting it from the top of the display.)

press F12 to return to the main display.
Once you have completed the ORDER BY prompt and returned to the main display, your screen should look like this:

```
1/27/98 8:56:57 Define View System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 10
SELECT  *
FROM    sequelex/custmast
ORDER BY cname

Type options to specify view. Press F13 to select all.
1=Select 4=Delete View . . : (Untitled)
  > Specify files that data is selected from (FROM)
  Select and sequence fields (SELECT)
  > Select and sequence summary fields
  > Choose which records are included (WHERE)
  > Specify the order of the records (ORDER BY)
F3=Exit F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assistance level
```

**press F19** to display the customer information in name order.

The information on your display should look like this:

```
12:43:22 Data Matching SQL View Request 1/27/98

<table>
<thead>
<tr>
<th>Cust No</th>
<th>Name</th>
<th>Address</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>200600</td>
<td>Baywater Drilling</td>
<td>1000 Steel Point Way</td>
<td></td>
</tr>
<tr>
<td>202311</td>
<td>Books and Things</td>
<td>255 North Wacker Dr</td>
<td>Suite 155</td>
</tr>
<tr>
<td>205400</td>
<td>Brower's Microbrew</td>
<td>2400 East Westphal</td>
<td></td>
</tr>
<tr>
<td>203800</td>
<td>Clean Liquors</td>
<td>1400 West 35th Stree</td>
<td></td>
</tr>
<tr>
<td>202100</td>
<td>Consolidate Tea Tree</td>
<td>3345 Near Valley Way</td>
<td></td>
</tr>
<tr>
<td>205700</td>
<td>Country Produce</td>
<td>1102 N. Milwaukee Ave</td>
<td></td>
</tr>
<tr>
<td>202900</td>
<td>Dietzgen Donuts, Inc.</td>
<td>7000 East Roosevelt</td>
<td></td>
</tr>
<tr>
<td>208300</td>
<td>Excellent Valves</td>
<td>6000 Leak Street</td>
<td></td>
</tr>
<tr>
<td>201100</td>
<td>Extempore Designs</td>
<td>100 North Woods</td>
<td></td>
</tr>
<tr>
<td>203616</td>
<td>Frog and Peach, Inc.</td>
<td>2500Archer</td>
<td></td>
</tr>
<tr>
<td>200300</td>
<td>Gambit Media, Inc.</td>
<td>West Plaza - Room 307</td>
<td>1700 E. Eire St</td>
</tr>
<tr>
<td>205900</td>
<td>Glen Grove Training</td>
<td>7000 West Shelly</td>
<td></td>
</tr>
<tr>
<td>203506</td>
<td>Hegemony Legal</td>
<td>100 Intima Road</td>
<td></td>
</tr>
<tr>
<td>200800</td>
<td>Horse Chestnuts, Inc.</td>
<td>1200 Swat Street</td>
<td></td>
</tr>
<tr>
<td>203100</td>
<td>Jupiter Hauling &amp; Bakery</td>
<td>1700 North Gashouse B</td>
<td></td>
</tr>
<tr>
<td>109600</td>
<td>K. Redford's Inc.</td>
<td>318 Wall Road</td>
<td></td>
</tr>
<tr>
<td>103800</td>
<td>Kelly's Corp.</td>
<td>1610 West 35th Stree</td>
<td></td>
</tr>
</tbody>
</table>

Window: 1 Starting with CNAME: Baywater D
F3=Exit F8=Window Right F20=Field Right F21/F22=Open/Close
```
Positioning the display

You can look up a customer simply by placing the cursor at the “Starting With” field, typing the first few letters of the customer name, pressing the field exit key, and then pressing the Enter key.

For example, place the cursor at the “Starting With” field.

type St

press Field Exit

press Enter

Your screen should look like this:

<table>
<thead>
<tr>
<th>Cust Number</th>
<th>Name</th>
<th>Address</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>200500</td>
<td>Starron Employment</td>
<td>110 Derpath</td>
<td></td>
</tr>
<tr>
<td>100800</td>
<td>State Corp.</td>
<td>356 Main Street</td>
<td></td>
</tr>
<tr>
<td>107110</td>
<td>T One Corp.</td>
<td>5520 W. North Ave.</td>
<td></td>
</tr>
<tr>
<td>100900</td>
<td>T-1 Corp.</td>
<td>5520 W. North Ave.</td>
<td></td>
</tr>
<tr>
<td>102900</td>
<td>Taehnrich Corp.</td>
<td>7237 Roosevelt</td>
<td></td>
</tr>
<tr>
<td>105700</td>
<td>Town &amp; Country Sports</td>
<td>6102 N. Milwaukee Ave.</td>
<td></td>
</tr>
<tr>
<td>108300</td>
<td>Toys R'Us</td>
<td>6441 Loop Street</td>
<td></td>
</tr>
<tr>
<td>111333</td>
<td>TBA Corp.</td>
<td>1001 Alphanumeric Road</td>
<td></td>
</tr>
<tr>
<td>103100</td>
<td>Urus Corp.</td>
<td>7121 West Grand</td>
<td></td>
</tr>
<tr>
<td>100600</td>
<td>UCE Corp.</td>
<td>191 Seegers</td>
<td></td>
</tr>
<tr>
<td>104000</td>
<td>V&amp;B Sporting Goods</td>
<td>535 S. Front Street</td>
<td>P.O. Box 313</td>
</tr>
<tr>
<td>105900</td>
<td>Village Sportshop</td>
<td>7831 West Lawrence Ave.</td>
<td></td>
</tr>
<tr>
<td>218211</td>
<td>Walmart</td>
<td>Billing Office</td>
<td>50 south Chris W</td>
</tr>
<tr>
<td>100700</td>
<td>Xcme Corp.</td>
<td>2618 Fruitland Ave.</td>
<td></td>
</tr>
<tr>
<td>103506</td>
<td>Xegewisch Corp.</td>
<td>13403 S. Brandon</td>
<td></td>
</tr>
<tr>
<td>123456</td>
<td>Xoba Inc.</td>
<td>3 Legal Blvd.</td>
<td></td>
</tr>
</tbody>
</table>

Window: 1

The details for the first customer starting with “St” in their name are displayed.

The ORDER BY specification allows you to change the display position by searching with a data value. Without an ORDER BY, the display can only be shifted by record number, as shown in the previous example.

press F3 to return to the SEQUEL view definition display.
Saving the view

You will usually want to save the views you create so that you can recall them and use them at a later time. Let’s save the view as it is now so that you can run it and get an alphabetic listing of all the customer information any time you want.

To save the view you have created,

press **F10**

The action bar will appear at the top of the display as it did earlier when we set the interface defaults.

With the cursor positioned on the “File” option,

press **Enter**

The pull-down “File” menu will appear.

```
: File View Defaults System Help
: ..........................................................: Amount to roll 9
: -- 1. New     F2 :                      
:  2. Open... :                          
:  3. Save :                              
:  4. Save as... :                        
:  5. Display     F19 :                  
:  6. Display... F7 :                    
:  7. Print     F20 :                    
:  8. Print... F8 :                      
:  9. Outfile... F9 :                    
: 10. Exit... F3 :                       
: : Press F13 to select all.              
: View . . : (Untitled) :                
: : View . . : {Untitled} :              
: : ........................................
: : is selected from {FROM}              
:  Select and sequence fields {SELECT}   
:  Select and sequence summary fields    
:  Choose which records are included {WHERE}  
: > Specify the order of the records {ORDER BY}
```

Select the “Save” option to indicate that you want to save the view.

**type 3** into the entry field and press **Enter**.

Since you are working with a view you have never saved before, SEQUEL will present you with a display asking you for the name and library of the view you are creating. This display is the same display that appears when you select the “Save As...” (option 4) item from the menu above.
The display below lets you tell SEQUEL what to call the view and what library you want to keep it in.

<table>
<thead>
<tr>
<th>View name</th>
<th>Library</th>
<th>Authority</th>
<th>Title</th>
<th>Optimization criteria</th>
<th>Status messages</th>
<th>Allow temporary result</th>
<th>Number of unique keys</th>
<th>Join type</th>
<th>Join order</th>
<th>Ignore decimal errors</th>
<th>Include access plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>QTEMP</td>
<td>*SAME</td>
<td></td>
<td>*TOTAL</td>
<td>*YES</td>
<td>*YES</td>
<td>*NONE</td>
<td>*INNER</td>
<td>*ANY</td>
<td>*NO</td>
<td>*NO</td>
</tr>
</tbody>
</table>

The cursor is already positioned at the view name field. Name the view by following these steps:

- **Type** your initials followed by “EXER1”. The name of the view should now be XXXEXER1 (where XXX are your initials.)
- **Press** Field Exit to move the cursor to the library line.
- **Type** over QTEMP with the library name SEQUELEX.

Move the cursor to the line next to “Title” and type the words:

**Customers in name order**

The other items on the display are optional and need not be changed. You can refer to the SEQUEL User’s Guide for information about these fields and how to use them.

- **Press** Enter to save the view.

The view will remain in the SEQUELEX library until you choose to delete it.

The primary view definition display will return. A message indicating that you have saved your view will appear at the bottom of the display. The view name will be shown on the right. Now you can continue working with your view. Any changes you make will be preserved in the permanent view only if you remember to save the view after making them.
Choosing specific fields

Next, we will change the view so that only certain fields are shown. In this exercise, we want to see only the customer number (CUSNO), name (CNAME), state (CSTTE), credit limit (CRLIM), and current A/R Balance (AMTDU) fields from the file.

The view definition display should look like this:

```
1/27/98 8:33:36    Define View    System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.

SELECT * FROM sequelex/custmast
ORDER BY cname

Type options to specify view. Press F13 to select all.
1=Select 4=Delete                       View...: GHBEXER1
Library: SEQUELEX
Opt View definition options
  > Specify files that data is selected from (FROM)
  > Select and sequence fields (SELECT)
  > Choose which records are included (WHERE)
  > Specify the order of the records (ORDER BY)

F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assist level
```

Indicate that you want to work with the fields in the query by selecting the second menu item, “Select and sequence fields”

- move the cursor next to the second menu item
- type 1
- press Enter

The field selection prompt will appear.
If your display looks like the one above, you are ready to choose the specific fields that will appear in your query request.

If your display does not look like this, press F11 until it matches the example above.

This prompt has several display modes to facilitate different selection activities. Function key F11 switches between the four different modes in a “round robin” fashion.

All five fields can be selected at the same time. The number you use to select the field determines its position within the list you are creating. As with all other selection displays, fields chosen with a ‘1’ will be placed at the end of the list. To select the fields we want to see (CUSTNO, CNAME, CSTTE, CRLIM, AMTDU) follow these steps:

**Type 1 next to each field and press Enter**
Once you have selected the fields,

press F11

to switch to the display format below that shows more items in your list. If you selected the fields in order, your display should look like the one below.

<table>
<thead>
<tr>
<th>Sel Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTMAST</td>
<td>SEQLELEX</td>
<td>Customer Master</td>
<td>1</td>
</tr>
<tr>
<td>CUSNO</td>
<td>Pkd 6,0</td>
<td>Customer number</td>
<td>1</td>
</tr>
<tr>
<td>CNAME</td>
<td>Char 25</td>
<td>Customer name</td>
<td>1</td>
</tr>
<tr>
<td>CADD1</td>
<td>Char 25</td>
<td>Customer address line 1</td>
<td>1</td>
</tr>
<tr>
<td>CADD2</td>
<td>Char 25</td>
<td>Customer address line 2</td>
<td>1</td>
</tr>
<tr>
<td>CADD3</td>
<td>Char 16</td>
<td>Customer address line 3</td>
<td>1</td>
</tr>
<tr>
<td>CSTTE</td>
<td>Char 2</td>
<td>Customer state</td>
<td>1</td>
</tr>
<tr>
<td>CZIPC</td>
<td>Char 10</td>
<td>Customer zipcode</td>
<td>+</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

<table>
<thead>
<tr>
<th>Seq Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>CUSNO</td>
<td>01</td>
<td>6,0</td>
<td>Z</td>
<td>CUSNO</td>
<td>Cust</td>
</tr>
<tr>
<td>10</td>
<td>CNAME</td>
<td>01</td>
<td>25</td>
<td></td>
<td>CNAME</td>
<td>Name</td>
</tr>
<tr>
<td>15</td>
<td>CSTTE</td>
<td>01</td>
<td>2</td>
<td></td>
<td>CSTTE</td>
<td>State</td>
</tr>
<tr>
<td>20</td>
<td>CR LIMIT</td>
<td>01</td>
<td>9,0</td>
<td>L</td>
<td>CR LIMIT</td>
<td>Credit</td>
</tr>
<tr>
<td>25</td>
<td>AMTDU</td>
<td>01</td>
<td>11,2</td>
<td>L</td>
<td>AMTDU</td>
<td>Current</td>
</tr>
</tbody>
</table>

press F12 to return to the view definition display.
Now, the top part of the display will show the fields you have selected in the SELECT clause of the SQL statement.

The view definition should look like this:

```
SELECT cusno, cname, cstte, crlim, amtdu
FROM sequelex/custmast
ORDER BY cname
```

Run the view and look at the results.

**press F19** as before.

After looking at the customer information,

**press F3** to return to this display.
Record selection - Equal

Now let’s change the view to only show customers that reside in Illinois.

**type** 1 next to the “Choose which records are included” option

**press** Enter

When you select the menu item, the record selection prompt will appear. You will be able to enter the criteria for the records you want to see.

The record selection prompt provides a great deal of flexibility in creating selection expressions. There can often be several ways to accomplish your task of creating selection criteria. As you gain familiarity with SEQUEL you will quickly learn which methods suit you best and when to use each of the entry fields on the display.

The initial record selection prompt looks like this:

To select only Illinois customers, we will test the state field (CSTTE) in each record and include only the records with a state value equal to “IL”. We can do it quickly and easily using the prompt above and the next several steps.

When following the instructions below, it is important to type the quotation marks around the value “IL”. Without them, SEQUEL would attempt to compare the CSTTE state field value against the value in a field named IL. An error would result since no field named IL exists.

Select the CSTTE field in the left column on the display

**move** the cursor next to the CSTTE field

**type** 1
Select the equals relationship

**move** the cursor next to the **=** at the top of the “Test” column

**type** 1

Indicate the test value

**move** the cursor into the entry field on the first line beneath the “Value” heading at the top of the display

**type** “IL” (including quotation marks)

When your display looks like the one above, **press Enter**. You have completed the request and your test will be placed into the entry field at the bottom of the display.
The display will reappear like this:

```
5/05/98 10:43:56 Select Records System: ASC400
1=Select Field Test Value
AND
- CUSTMAST -- = -- CUSTMAST SEQUELEX Customer Master
- CUSNO -- <> -- CUSNO Pkd 6,0 Customer number
- CNAME -- <= -- CNAME Char 25 Customer name
- CADD1 -- >= -- CADD1 Char 25 Customer address line 1
- CADD2 -- < -- CADD2 Char 25 Customer address line 2
- CADD3 -- > -- CADD3 Char 16 Customer address line 3
- CSTTE -- BETWEEN -- CSTTE Char 2 Customer state
- CZIPC -- IN -- CZIPC Char 10 Customer zipcode
- CPHON -- CONTAINS -- CPHON Pkd 10,0 Phone number
-CTYPE -- LIKE -- CTYPE Char 2 Customer type
- CRLIM -- NULL -- CRLIM Pkd 9,0 Credit limit in dollars
```

Select or type a field, test and value to move into the WHERE clause.

Press F13 to add/change a subselect.

Amount to roll 4
cstte="IL"

You could continue to add conditions to your request by using a combination of direct entry and item selection techniques.

```
press F12
```

When the view definition display returns, you will see that the WHERE clause has been added to the SQL statement at the top of the display. It indicates which records will be chosen by the view.

```
5/05/98 10:45:26 Define View System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.

SELECT cusno, cname, cstte, crlim, amtdu
FROM sequelex/custmast
WHERE cstte="IL"
ORDER BY cname
```

You could continue to add conditions to your request by using a combination of direct entry and item selection techniques.

```
p  press F19 to run the view and see only the Illinois customers.
```

Simple Retrieval 2-25
press F3 to return to the view definition display after reviewing the results.
Now let’s modify the view definition to show only the customers having the word “Sport” somewhere in their name.

Just as with the previous comparison, we will again use the WHERE clause to specify the records we want to see. Unlike the state example we cannot do an equals comparison because an equals test means that we know the exact value of the field. Since we are searching the field for a series of characters, we will use SEQUEL’s CONTAINS operator instead.

Prompt the WHERE clause by selecting the menu item.

\[\text{type} \ 1 \ \text{next to the “Choose which records are included” item}\]

\[\text{press Enter}\]

(You can also prompt the WHERE clause (or any other clause) by moving the cursor into the clause at the top part of the display and pressing $F4$.)

When the record selection prompt appears, erase the existing \texttt{cstte=“IL”} test.

\[\text{move the cursor to the entry field at the bottom of the display}\]

\[\text{press Field Exit}\]
Now, select the customer name field and the CONTAINS operator.

move the cursor to the CNAME field

type 1

move the cursor to the CONTAINS operator

type 1

press Enter

Because you did not complete the expression, a pop-up window appears prompting you to finish it. Your display should now look like this:

```
5/05/98 10:47:02               Select Records                System: ASC400
1=Select Field         Test        Value
AND ______________________ ______________________ ______________________ ______________________
    CUSTMAST            # #          CUSTMAST          SEQUELER          Customer Master
    CUSNO                # <>        CUSNO             Pkd 6,0          Customer number
    CNAME                # <=        CNAME             Char 25          Customer name
1  CADD1
    CADD2
    CADD3
    CSTTE
    CZIPC : Select those records where the field contains the string:
    CPHON
    CTYPE
    CRLIM
: F12=Cancel
Select or type a :...........................................................:
Press F13 to add/change a subselect.         Amount to roll  4

F3=Exit  F12=Accept  F13=Subquery  F14=Files  F22=Edit  F24=Keys
```

type "Sport" on the entry field in the window

press Enter.

The test will be placed onto the display just as before.

Remember that since the customer name (CNAME) field contains character information you must place the word “Sport” in double quotes. It is equally important to enter “Sport” as it is shown (in mixed case) because the names in the customer file contain lowercase and uppercase letters. Comparisons between character values are always case-dependent. You must enter the value exactly as you expect it to be found.
press F12 to return to the view definition display.

press F19 to display the view data.

You should only see customers with the word “Sport” somewhere in their name. Notice that it is sometimes at the beginning and sometimes in the middle of the customer’s name. CONTAINS is a good way to search for a series of characters - especially when you do not know where they occur in the field.

<table>
<thead>
<tr>
<th>Cust Number</th>
<th>Name</th>
<th>State</th>
<th>Credit Limit</th>
<th>Current Balance Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>123321</td>
<td>Penn Sports</td>
<td>MN</td>
<td>50000</td>
<td>16227.46</td>
</tr>
<tr>
<td>204000</td>
<td>Sports and More</td>
<td>MT</td>
<td>5000</td>
<td>2834.40</td>
</tr>
<tr>
<td>101616</td>
<td>Sports Shop</td>
<td>IL</td>
<td>20000</td>
<td>3025.14</td>
</tr>
<tr>
<td>105700</td>
<td>Town &amp; Country Sports</td>
<td>IL</td>
<td>10250</td>
<td>1089.83</td>
</tr>
<tr>
<td>104000</td>
<td>V&amp;B Sporting Goods</td>
<td>KS</td>
<td>7000</td>
<td>80.40</td>
</tr>
<tr>
<td>105900</td>
<td>Village Sportshop</td>
<td>IL</td>
<td>50000</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Starting with CNAME: Penn Sport

press F3 to return to the user interface.
Record selection - Relative comparison

Once you have completed the previous example, your display should look like this:

```
5/05/98 10:50:56 Define View System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll  9
SELECT cusno, cname, cstate, crlim, amtdu
FROM sequelex/custmast
WHERE cname CONTAINS "Sport"
ORDER BY cname
```

Type options to specify view. Press F13 to select all.
1=Select  4=Delete
View...: GHBEXER1
Library: SEQUELEX

Opt View definition options
  > Specify files that data is selected from
  > Select and sequence fields
  > Select and sequence summary fields
  > Choose which records are included
  > Specify the order of the records

F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assist level

Now we will change the WHERE clause to show only those customers whose accounts receivable balance exceeds their credit limit. The current A/R balance field is called AMTDU and the credit limit field is called CRLIM.

Rather than selecting the “Choose which records are included” menu option, prompt the WHERE clause directly.

move the cursor up to the WHERE line
press F4
The record selection prompt will appear and the cursor will be positioned at the top of the display.

Change the test in the WHERE clause directly by replacing the current test (cname CONTAINS “Sport”) with the new one (AMTDU>CRLIM)

- **move** the cursor to the top line of the bottom part of the display
  - (you can **press** Back Tab twice to do this)
- **type** AMTDU>CRLIM
- **press** Field Exit

Your display should look like the one below.

<table>
<thead>
<tr>
<th>Field</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTMAST</td>
<td>=</td>
<td>CUSTMAST</td>
</tr>
<tr>
<td>CUSNO</td>
<td>&lt;&gt;</td>
<td>CUSNO</td>
</tr>
<tr>
<td>CNAME</td>
<td>&lt;=</td>
<td>CNAME</td>
</tr>
<tr>
<td>CADD1</td>
<td>&gt;</td>
<td>CADD1</td>
</tr>
<tr>
<td>CADD2</td>
<td>&lt;</td>
<td>CADD2</td>
</tr>
<tr>
<td>CADD3</td>
<td>&gt;</td>
<td>CADD3</td>
</tr>
<tr>
<td>CSTTE</td>
<td>BETWEEN</td>
<td>CSTTE</td>
</tr>
<tr>
<td>CZIPC</td>
<td>IN</td>
<td>CZIPC</td>
</tr>
<tr>
<td>CPHON</td>
<td>CONTAINS</td>
<td>CPHON</td>
</tr>
<tr>
<td>CTYPE</td>
<td>LIKE</td>
<td>CTYPE</td>
</tr>
<tr>
<td>CRLIM</td>
<td>NULL</td>
<td>CRLIM</td>
</tr>
</tbody>
</table>

Select records where: AMTDU>CRLIM

Return to the primary display and run the view and display the results.

- **press** F12
- **press** F19 to display the data.

You will see only those customers (there is only one) with accounts receivable balance exceeding their credit limit.

**Press** F3 to return to the view definition.
Record selection - Summary

You’ve now seen how we can use SEQUEL to show only some of the records in a file. You have used:

- **equals comparison** to choose records matching a specific value
- **CONTAINS operator** to search a field for a sequence of characters
- **relational operator** (greater than) to choose records based upon the comparison of one field against another

These examples have given you an introduction to just a few of the capabilities available. You may want to refer to the SEQUEL User’s Guide for more examples and features of the WHERE clause.
Calculating results in the view

Next we will modify the SEQUEL view to calculate the available credit for each customer. This value is the difference between the customer’s credit limit (CRLIM) and their current accounts receivable balance (AMTDU). We will name the calculated field AVAIL and assign it a length of 11 with 2 decimal places (accepting values up to $1 billion).

To create the calculation we will use SEQUEL’s expression editor. It helps you create correct calculation and shows you prompts that let you know which functions are available and what they do.

From the primary view definition display, request the SELECT prompt.

- **select** the “Select and sequence fields” menu item, or
- **move** the cursor up to the SELECT clause and **press F4**

The prompt shows fields within the customer file and the items you have selected for your query.

<table>
<thead>
<tr>
<th>Field Selection(s) From All Files</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sel Name</td>
<td>Attribute Description</td>
</tr>
<tr>
<td>Custmast</td>
<td>SEQUELEX Customer Master</td>
</tr>
<tr>
<td>Cusno</td>
<td>Pkd 6,0 Customer number</td>
</tr>
<tr>
<td>Cname</td>
<td>Char 25 Customer name</td>
</tr>
<tr>
<td>Cadd1</td>
<td>Char 25 Customer address line 1</td>
</tr>
<tr>
<td>Cadd2</td>
<td>Char 25 Customer address line 2</td>
</tr>
<tr>
<td>Cadd3</td>
<td>Char 16 Customer address line 3</td>
</tr>
<tr>
<td>CSTTE</td>
<td>Char 2 Customer state</td>
</tr>
<tr>
<td>CZIPC</td>
<td>Char 10 Customer zipcode</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

If you have accidentally chosen the “Select and sequence summary fields” option from the menu, your display will look quite different. You can acquire the “correct” display by pressing F11 repeatedly and stepping through the various field selection displays until your screen matches the one above.
Access the expression editor display. It looks like the example below.

**press F22**

<table>
<thead>
<tr>
<th>Sel Function</th>
<th>Seq Field</th>
<th>Attribute</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>__ ABS()</td>
<td>__ CUSNO</td>
<td>Pkd 6,0</td>
<td>Customer number</td>
</tr>
<tr>
<td>__ ACOS()</td>
<td>__ CNAME</td>
<td>Char 25</td>
<td>Customer name</td>
</tr>
<tr>
<td>__ ATAN()</td>
<td>__ CADD1</td>
<td>Char 25</td>
<td>Customer address line 1</td>
</tr>
<tr>
<td>__ ATANH()</td>
<td>__ CADD2</td>
<td>Char 25</td>
<td>Customer address line 2</td>
</tr>
<tr>
<td>__ AVG()</td>
<td>__ CADD3</td>
<td>Char 16</td>
<td>Customer address line 3</td>
</tr>
<tr>
<td>__ AVG(,))</td>
<td>__ CSTTE</td>
<td>Char 2</td>
<td>Customer state</td>
</tr>
<tr>
<td>__ BCAT(,))</td>
<td>__ CZIPC</td>
<td>Char 10</td>
<td>Customer zipcode</td>
</tr>
<tr>
<td>__ CAT(,))</td>
<td>__ CPHON</td>
<td>Pkd 10,0</td>
<td>Phone number</td>
</tr>
<tr>
<td>__ CHAR()</td>
<td>__ CTYPE</td>
<td>Char 2</td>
<td>Customer type</td>
</tr>
<tr>
<td>__ COS()</td>
<td>__ CRLIM</td>
<td>Pkd 9,0</td>
<td>Credit limit in dollars</td>
</tr>
</tbody>
</table>

Select a function and matching field(s) that will be copied into the expression.
Or, you can enter the expression directly by typing below.
Press F4 to specify column headings, a default value and an edit code/word.

Expression Name __________ Length ______ Position to function _____________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

F3=Exit F7/F8=Last/next file  F12=Accept  F14=Files  F23=Function type  F24=Keys

Like the record selection prompt, the expression editor allows you to create expressions by selecting items on the display, typing directly into the entry field at the bottom, or both. You will usually use both keying and selecting techniques to create the expressions that you want.

Each “side” of the display is independently scrollable. The column under your cursor will shift, leaving the other column unchanged.

You could create the **CRLIM-AMTDU** expression simply by typing it into the expression entry field. To demonstrate the “expression building” features of the editor, follow these steps:

- **type 1** into the sequence next to the CRLIM field
- **press Rollup** (or **PgDn**) to scroll the field list
- **type 2** into the sequence field next to the AMTDU field
- **press Enter**
The numbers you type into the sequence field control the placement of fields as the expression is built. Fields are placed one at a time into the expression. The request with the lowest sequence (CRLIM) will be placed into the expression entry field and the cursor will be positioned after it. Any additional items (AMTDU) that you have selected will remain “selected”, waiting for a subsequent press of the Enter key to add them to the developing expression. This way you can add operators, parentheses, etc. after each field is added into the expression.

Your display should look like the one below. The CRLIM field has been added to the expression, cursor is positioned after it, and the AMTDU field remains “selected” at the top of the display.

<table>
<thead>
<tr>
<th>Sel Function</th>
<th>Seq Field</th>
<th>Attribute</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>_ ABS()</td>
<td>2 AMTDU</td>
<td>Pkd 11,2</td>
<td>Outstanding A/R balance</td>
</tr>
<tr>
<td>_ ACOS()</td>
<td></td>
<td></td>
<td>Total open orders in dollars</td>
</tr>
<tr>
<td>_ ASIN()</td>
<td></td>
<td></td>
<td>Highest A/R balance</td>
</tr>
<tr>
<td>_ ATAN()</td>
<td></td>
<td></td>
<td>Last payment amount</td>
</tr>
<tr>
<td>_ ATANH()</td>
<td></td>
<td></td>
<td>Last payment date - month</td>
</tr>
<tr>
<td>_ AVG()</td>
<td></td>
<td></td>
<td>Last payment date - day</td>
</tr>
<tr>
<td>_ AVG(,)</td>
<td></td>
<td></td>
<td>Last payment date - year</td>
</tr>
<tr>
<td>_ BCAT(,)</td>
<td></td>
<td></td>
<td>Month to date sales</td>
</tr>
<tr>
<td>_ CASE</td>
<td></td>
<td></td>
<td>Year to date sales</td>
</tr>
<tr>
<td>_ CAT(,)</td>
<td></td>
<td></td>
<td>Sales region</td>
</tr>
<tr>
<td>_ CEIL()</td>
<td></td>
<td></td>
<td>Salesman number</td>
</tr>
</tbody>
</table>

Select a function and matching field(s) that will be copied into the expression. Or, you can enter the expression directly by typing below.

Press F4 to specify column headings, a default value and an edit code/word.

Expression Name __________  Length ______  Position to function _____________

CRLIM

F3=Exit  F7/F8=Last/next file  F12=Accept  F14=Files  F23=Function type  F24=Keys

type - (a minus sign) after CRLIM on the expression entry line.

press Enter

The next field you have selected (AMTDU) will be added to the end of the expression.
Now we’ll give the calculation an appropriate length, a name, and a column heading that will clearly identify it.

**type AVAIL** into the name entry field above the expression line

**type 11,2** in the length entry to allow values up to $1 billion

**press F4** to change the prompt and show the column heading

**type Available Credit** into the column heading field

Your display should look like the one below. If not, change it so that it does.

```
<table>
<thead>
<tr>
<th>Expression Editor</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sel Function</td>
<td>Seq Field</td>
</tr>
<tr>
<td>_</td>
<td>ABS()</td>
</tr>
<tr>
<td>_</td>
<td>ACOS()</td>
</tr>
<tr>
<td>_</td>
<td>ASIN()</td>
</tr>
<tr>
<td>_</td>
<td>ATAN()</td>
</tr>
<tr>
<td>_</td>
<td>ATANH()</td>
</tr>
<tr>
<td>_</td>
<td>AVG()</td>
</tr>
<tr>
<td>_</td>
<td>AVG(,)</td>
</tr>
<tr>
<td>_</td>
<td>BCAT(,)</td>
</tr>
<tr>
<td>_</td>
<td>CAT(,)</td>
</tr>
<tr>
<td>_</td>
<td>CHAR()</td>
</tr>
<tr>
<td>_</td>
<td>COS()</td>
</tr>
</tbody>
</table>

Edit word expression name length position to function

Available Credit

________________________
Valid

---

Expression Name AVAIL Length 11,2 Position to function

CRLIM-AMTDU

---

F3=Exit F7/F8=Last/next file F12=Accept F14=Files F23=Function type F24=Keys
```

**press F12** to return to the field entry prompt.
Expand the field entry prompt so that you can see the entire field definition for each field in the prompt. Roll through the list to review each field in the SELECT clause.

press F4

press Roll up (PageDn) twice to view both pages of the list

If you change your mind and want to remove a field from the SELECT clause, updating the field list is easy. Let’s remove the first field (CUSNO) from the SELECT clause. All you need to do is blank out its sequence number and field name.

press Roll down (PageUp) once to show the first 3 fields

move the cursor to the sequence number for the CUSNO field

press Field Exit three times to remove the sequence number and CUSNO reference

Now, press F12 to return to the view definition display. It should look like the next example.

```
5/05/98 10:50:56 Define View System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor. Amount to roll 10
SELECT cname, cstte, crlim, amtdu,
       crlim-amtdu LEN(11,2) COLHDG("Available Credit") NAME(avail)
FROM sequelex/custmast
WHERE amtdu>crlim
ORDER BY cname
```

Type options to specify view. Press F13 to select all.

1=Select 4=Delete View...: GHBEXER1
Opt View definition options Library: SEQUELEX
- > Specify files that data is selected from (FROM)
- > Select and sequence fields (SELECT)
- > Select and sequence summary fields
- > Choose which records are included (WHERE)
- > Specify the order of the records (ORDER BY)

F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assistance level
Let's remove the condition in the WHERE clause so that our sample data display gets more interesting.

move the cursor to the “Choose which records are included” menu item

type 4 to indicate you want to delete the phrase

press Enter

The entire WHERE clause will be removed from the SQL statement, leaving your display looking like this:

```
SELECT  cname, cstte, crlim, amtdu, crlim-amtdu LEN(11,2) COLHDG("Available" "Credit") NAME(avail)
FROM    sequelex/custmast
ORDER BY cname
```
Make one final change to the view, causing the records to appear in descending order of credit available.

By using DESC after the field name in the ORDER BY clause, we tell SEQUEL to sequence the records in highest to lowest (descending) order rather than the normal increasing order.

Prompt the ORDER BY clause.

select the “Specify the order of the records” menu item, or

move the cursor up to the ORDER BY clause and press F4

Remove the CNAME field from the prompt and add the AVAIL field as follows:

move the cursor next to AVAIL (use the TAB key)

type 1 to select the field

press Field Exit three times to remove the CNAME item

press Enter to carry out the requests

When the display returns, the AVAIL field will be listed at the bottom. To request descending ordering for the field:

type DESC underneath the “Order” heading on the AVAIL line

If your display doesn’t look like the one below, make any necessary changes.

```
<table>
<thead>
<tr>
<th>5/05/98 11:24:37</th>
<th>Order By Field List</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sel Name</td>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>SQL VIEW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>___ CNAME</td>
<td>Char 25</td>
<td>Customer name</td>
</tr>
<tr>
<td>___ CSTTE</td>
<td>Char 2</td>
<td>Customer state</td>
</tr>
<tr>
<td>___ CRLIM</td>
<td>Pkd 9,0</td>
<td>Credit limit in dollars</td>
</tr>
<tr>
<td>___ AMTDU</td>
<td>Pkd 11,2</td>
<td>Outstanding A/R balance</td>
</tr>
<tr>
<td>___ AVAIL</td>
<td>11,2</td>
<td>CRLIM-AMTDU</td>
</tr>
</tbody>
</table>

Order the selected records by:

<table>
<thead>
<tr>
<th>Seq Field</th>
<th>Order ABS</th>
<th>Seq Field</th>
<th>Order ABS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 AVAIL</td>
<td>DESC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F3=Exit  F12=Accept

press F12 to return to the view definition display.
The view should now look like this:

```
5/05/98 11:25:50 Define View System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 9
SELECT cname, cstte, crlim, amtdu,
    crlim-amtdu LEN(11,2) COLHDG("Available credit") NAME(avail)
FROM sequex/custmast
ORDER BY avail DESC
```

Type options to specify view. Press F13 to select all.

```
1=Select 4=Delete View . . . : GHBEXER1
Library : SEQUELEX
```

- > Specify files that data is selected from (FROM)
- > Select and sequence fields (SELECT)
- > Select and sequence summary fields
- > Choose which records are included (WHERE)
- > Specify the order of the records (ORDER BY)

Type options to specify view. Press F13 to select all.

```
1=Select 4=Delete View . . . : GHBEXER1
Library : SEQUELEX
```

**Press F19** to run the view and display the output. Your result should look like the sample below.

```
11:29:10 Customers in name order 5/05/98

<table>
<thead>
<tr>
<th>Name</th>
<th>State</th>
<th>Credit Limit</th>
<th>Current Balance</th>
<th>Due</th>
<th>Available credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NBCO Corporation Inc.</td>
<td>IL</td>
<td>60000</td>
<td>1129.67</td>
<td>58,870.33</td>
<td></td>
</tr>
<tr>
<td>Maxwell House Repairs</td>
<td>CA</td>
<td>61000</td>
<td>3833.67</td>
<td>57,166.33</td>
<td></td>
</tr>
<tr>
<td>Glen Grove Training</td>
<td>NJ</td>
<td>51000</td>
<td>.00</td>
<td>51,000.00</td>
<td></td>
</tr>
<tr>
<td>Village Sports Shop</td>
<td>IL</td>
<td>50000</td>
<td>.00</td>
<td>50,000.00</td>
<td></td>
</tr>
<tr>
<td>Kmart Midwest Region</td>
<td>IL</td>
<td>40000</td>
<td>.00</td>
<td>40,000.00</td>
<td></td>
</tr>
<tr>
<td>Reay Corp</td>
<td></td>
<td>40000</td>
<td>1801.90</td>
<td>38,198.10</td>
<td></td>
</tr>
<tr>
<td>Really Marvelous Stuff</td>
<td>TX</td>
<td>41000</td>
<td>4555.90</td>
<td>36,444.10</td>
<td></td>
</tr>
<tr>
<td>Books and Things</td>
<td>IL</td>
<td>36000</td>
<td>.00</td>
<td>36,000.00</td>
<td></td>
</tr>
<tr>
<td>Dietzgen Donuts, Inc.</td>
<td>CA</td>
<td>36000</td>
<td>.00</td>
<td>36,000.00</td>
<td></td>
</tr>
<tr>
<td>T-1 Corp.</td>
<td>GA</td>
<td>35000</td>
<td>.00</td>
<td>35,000.00</td>
<td></td>
</tr>
<tr>
<td>Extempore Designs</td>
<td>GA</td>
<td>35000</td>
<td>.00</td>
<td>35,000.00</td>
<td></td>
</tr>
<tr>
<td>Hegemony Legal</td>
<td>CT</td>
<td>35000</td>
<td>.00</td>
<td>35,000.00</td>
<td></td>
</tr>
<tr>
<td>T-1 Corp.</td>
<td>IA</td>
<td>34000</td>
<td>.00</td>
<td>34,000.00</td>
<td></td>
</tr>
<tr>
<td>T One Corp.</td>
<td>IL</td>
<td>34000</td>
<td>.00</td>
<td>34,000.00</td>
<td></td>
</tr>
<tr>
<td>Penn Sports</td>
<td>MN</td>
<td>50000</td>
<td>16227.46</td>
<td>33,772.54</td>
<td></td>
</tr>
<tr>
<td>Que Company Inc.</td>
<td>LA</td>
<td>34000</td>
<td>1848.88</td>
<td>32,151.12</td>
<td></td>
</tr>
<tr>
<td>Media Plumbing</td>
<td>GA</td>
<td>31000</td>
<td>.00</td>
<td>31,000.00</td>
<td></td>
</tr>
</tbody>
</table>
```

**Press F3** when you’re ready to return to the SEQUEL view definition display.
Printing view information

SEQUEL allows you to send view information to the printer as well as to the display. To print the view using SEQUEL’s action bar:

press F10
press Enter to select the “File” pull-down menu
type 8 to select the print menu
press Enter

You will see the following display:

```
5/05/98 11:37:22                             Print SQL View Data                  System: ASC400
Print SQL summary page . . . *YES          Form length  66 Width . .  132
Output queue . . . . . . . . *JOB          Overflow line 50 LPI 6 CPI 10
                   Copies SQL Hold N Save N
Print Format Type . . . . SPL               E-mail message (F4) . . . . *NONE
E-mail/FTP Recipients (F4) . . .             Title . . . . . . . . . . . Customers in name order
Optimization criteria . . . *TOTAL          Status messages . . . . *YES         Allow temporary result . . . *YES
Number of unique keys . . . *NONE
Join type . . . . . . . . . *INNER          Join order . . . . . . . . . *ANY      Ignore decimal errors . . . *NO

F12=Previous                             F14=Submit using *LIBL / QBATCH
```

This display controls the printout characteristics for the view information. Move the cursor to the “Title” line and
type Customer credit available

The numbers for form length, width, etc. may be different from the ones above if your printer does not use 15” x 11” paper. If you are not certain what numbers to use, you should ask someone in the data processing department for assistance.

press Enter to create the printout.

The view definition display will return to your workstation. The output will be sent to the queue named on the display. Ask someone in data processing for assistance if you cannot find it.
Printing in batch

Generally speaking, printout requests should be submitted to batch where they will run at a lower priority without affecting interactive users. Our example view is so short and runs so quickly, that we chose not to send it to batch. We ran it interactively instead by pressing the Enter key.

Now submit the printout to the batch subsystem.

**press F8** to request the print display as before. (This is a shortcut to using the action bar and pull-down menus described above.)

**press F14** to submit the printout request. After the request has been submitted, the view definition display will return as before.

In a short while you will get a message at your terminal indicating that the printout has been created and is waiting for you. If you are not certain of the guidelines for submitting printout requests, contact the data processing department for clarification.
Exiting the user interface

This lesson is nearly finished. Now we can save the view definition under a new name and exit the user interface.

**Press F3** to access the exit display

The view name will already be filled in with “XXXEXER1”. Indicate that you want to save the current definition under a new name by changing the name shown on the display to XXXEXER1A. (Remember to put your initials in place of XXX)

Your display should look something like this:

```
1/21/98 8:44:23        View Definition Exit Display         System: ASC400
View name . . . . . . . . . GHBEXER1A
Library . . . . . . . . . . SEQUELEX
Authority . . . . . . . . . *SAME ( *USE, *ALL, *EXCLUDE, *SAME)
Title . . . . . . . . . . . . . Customer credit available
Status messages . . . . . *YES (*YES, *NO)
Allow temporary result . . . *YES (*YES, *NO, *IFRQD)
Number of unique keys . . . *NONE (*NONE, *ALL, numer)
Join type . . . . . . . . . *INNER (*INNER, *PARTOUT, *ONLYDFT)
Join order . . . . . . . . . *ANY (*ANY, *FILE)
Ignore decimal errors . . . *NO (*YES, *NO)
Include access plan . . . . *NO (*YES, *NO)
ENTER=Save    F3=Exit  F12=Previous  F14/F15=DsnRPT/TBL SEQUELEX / *CREATE
```

**Press Enter**

You will exit SEQUEL and return to the menu or command entry display where you began.

You have now created two permanent views: XXXEXER1 and XXXEXER1A.
In Review

This series of exercises has taught you:

How to enter and exit the SEQUEL user interface.

How to use the basic assistance menu items to navigate to, add, and remove different sections of your query statement.

How easy it is to get a complete listing of any file by simply choosing the file you want to use and accepting the SQL shorthand ‘Select * From ...’ to choose all the fields in it.

How to sort the selected records by any field you choose. (Ascending or descending sequence)

How to use decision operators such as equals (=), CONTAINS, and greater than (>) to choose some records while omitting others.

How to select individual fields rather than all of the fields from the record.

How to control the information display through scrolling, windowing, and direct positioning.

How to define a calculated field and use that field for sorting records.

How to specify printout characteristics and submit a view for batch printing.

How to save a view for future use.

Congratulations! In less than an hour, you’ve come a long way towards a working knowledge of SEQUEL!

In the next lesson we will spend more time investigating the prompting features of the user interface, expanding on the things you have learned here.
Once you have created your views, SEQUEL makes it easy to access them on a moment’s notice. This section will explain how you can make the most of SEQUEL’s “Work With” facility. We’ll explore the Work With Views (WRKVIEW) and Work With SEQUEL objects (WRKSEQUEL) commands and help you learn when to use them.

You will learn how to quickly and easily run a view, directing its output to your display, printer, or a file. We will also teach you how to find a list of views that you can use, see what they do, and how to run and/or change them.

This lesson is somewhat shorter than the previous one and should take even less time to complete. Plan on 30 minutes, and you should have time left over for a review.
Using the WRKVIEW facility

SEQUEL’s Work With Views (WRKVIEW) command will display a menu of functions that can be applied to an individual view. It looks (and works) very much like IBM’s Work With Queries (WRKQRY) command. You can use it to create new views, run existing ones, and to build reports over them.

Menu Access

If you normally use a menu, you may be able to select a “work with views” option directly from your menu. If not, you may be able to access the SEQUEL menu by selecting one of your menu options, or by typing `GO SEQUEL/SEQUEL` on a command entry line. If you can access the SEQUEL menu, you can get to the WRKVIEW display by selecting option 2.

Command Entry

Since WRKVIEW is a command, you can also access it directly from the command entry display or a command line. If you have a command entry line on your display, you can proceed by using the SEQUEL menu (above) or by using the WRKVIEW command directly by typing the command below and pressing Enter.

`SEQUEL/WRKVIEW`
The WRKVIEW display

Once you have started the work with views facility, you will see a display that looks similar to the one below. It is a menu-oriented display that lets you perform view related functions on the view of your choice.

The Work With Views display is easy to understand, simple to use. Just identify the name and library of the view you want to work with, then select an option from the list at the top of the display.

You can use the display to create a new view or to change, run, display information about, or create reports, charts, or tables over any view you are authorized to use. Each time an option completes, you will return to the display above.
Run a view

We won’t take the time now to demonstrate each of the WRKVIEW options. Instead, let’s use the 5=Display to run the view you created earlier.

- **type** option 5 and press the **Field Exit** key
- **type** xxxEXER1 in the view name field (xxx are your initials)
- **type** SEQUELEX in the library name field
- **press** Enter

Your display should show the customers in name order just as it did in Chapter 2, like this:

```
12:43:22                Data Matching SQL View Request                1/27/98

Cust    Name                      Address                  Address
Number  
200600  Baywater Drilling         1000 Steel Point Way
202311  Books and Things          255 North Wacker Drive Suite 155
205400  Brower’s Microbrew        2400 East Westphal
203800  Clean Liquors             1400 West 35th Street
202100  Consolidate Tea Tree      3345 Near Valley Way
205700  Country Produce           1102 N. Milwaukee Avenue
202900  Dietzgen Donuts, Inc.     7000 East Roosevelt
208300  Excellent Valves          6000 Leak Street
201100  Extempore Designs         100 North Woods
201616  Frog and Peach, Inc.      2500Archer
200300  Gambit Media, Inc.        West Plaza – Room 307 1700 E. Eire St
205900  Glen Grove Training        7000 West Shelly
203506  Hegemony Legal            100 Intima Road
208000  Horse Chestnuts, Inc.     1200 Swat Street
203100  Jupiter Hauling & Bakery  1700 North Gashouse Blvd
109600  K. Redford’s Inc.         318 Wall Road
103800  Kelly’s Corp.             1610 West 35th Street.

Window:     1                      Starting with CNAME: Baywater_D
F3=Exit F8=Window Right F20=Field Right F21/F22=Open/Close
```

**press** F3 to return to the work with views display.
View description

When you’re not certain what a view does, or how it is different from another view, select option 8=Describe. After you choose the option, the view’s SQL statement and execution attributes will be shown on your display station.

Try it now using the second view that you created in Chapter 2.

- **type** 8 in the option field and
- **type** xxxEXER1A in the view name field (use your initials) and
- **press** Enter. (The library should still indicate SEQUELEX)

The view definition for the “credit available” example will be shown. It looks like the display pictured below. All information about the view is included in the display.

The option runs the Display View Description (DSPVIEWD) command, described in Chapter 4 of the User’s Guide. You can refer to it for a complete description of the DSPVIEWD command and the options available when using the display.

**press** F3 to return to the work with views display.
Library prompting

As you have seen, the WRKVIEW display is quite handy when you want to work with a view, provided that you know the name (and library) of the view you want to use. It also has features that let you locate views (and libraries) even when you don’t know their names. The next examples will step you through the process of finding the libraries and views that you can use.

You have probably noticed that the view and library name entry fields on the WRKVIEW display both indicate that you can use function key F4 to obtain a list. Let’s use the prompt key to get a list of libraries you can choose from.

press Tab until the cursor rests on the library entry field

press F4 to request a list of library names

A window similar to the one below will appear on your display. It shows the libraries on your library list that contain SEQUEL views that you may use.

The libraries listed in your window will be different from those shown above. In fact, you may see an “empty” window with a message at the bottom saying:

No libraries match search criteria of *USRLIBL

If you see this message, you will know that there are no libraries on your user library list (*USRLIBL) that contain views that you may use.

The window is prompting you to select one of the libraries in this list to work with. You can place a 1 next to one of the libraries listed, or indicate that you want to work with a different set of libraries by typing a new search value into the library name field at the bottom of the display.
For instance,

**press** Tab until the cursor is positioned on the library entry field

**type** $^*$ and **press** Field Exit to blank out the rest of the line

**press** Enter

You have indicated that you want to see a list containing all the libraries beginning with the letter “S” that have SEQUEL views in them. SEQUEL responds by presenting a new list of names for you to choose from. Depending on your system, SEQUELEX may be the only one listed or there may be several.

**place** a 1 next to the SEQUELEX library

**press** Enter.

The WRKVIEW display will return and the library you selected (SEQUELEX) will be shown in the library entry field.

Once you have selected a library, you can type a view name into the view entry field (such as the ones we were using a few minutes ago), or elect to continue prompting and request a list of views in the library you have selected.
View prompting

You can also use SEQUEL’s “work with” facility to see a list of views. Once the list is presented, you can work with any view (or several views) in the list; performing SEQUEL functions with them in a similar fashion. You can also pick a view from the list and work with it individually, as you have already been doing.

Acquire the list display from the WRKVIEW display we have been using.

move the cursor to the View field and

press F4.

You should see a display similar to the one below.

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/12/98 8:21:35</td>
<td>Work with SEQUEL Views</td>
</tr>
</tbody>
</table>

Position to name... CRLIMCOMP

Position to library... SEQUELEX

Type option, then press Enter.  
2=Design  5=Display  6=Print  8=Describe  9=Outfile  10=Design report...

<table>
<thead>
<tr>
<th>Opt</th>
<th>Name</th>
<th>Type</th>
<th>Created</th>
<th>Library</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>CRLIMCOMP</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Credit Limit versus Total Amount</td>
</tr>
<tr>
<td>___</td>
<td>CUSTORD</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Customer Order Summary</td>
</tr>
<tr>
<td>___</td>
<td>FIELDICT</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>External Field Dictionary</td>
</tr>
<tr>
<td>___</td>
<td>GHBEXER1</td>
<td>SQLVIEW</td>
<td>98/05/10</td>
<td>SEQUELEX</td>
<td>Customers in name order</td>
</tr>
<tr>
<td>___</td>
<td>GHBEXER1A</td>
<td>SQLVIEW</td>
<td>98/05/10</td>
<td>SEQUELEX</td>
<td>Customer credit available</td>
</tr>
<tr>
<td>___</td>
<td>GHBEXER3</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>ORDERS - Selling price vs. List</td>
</tr>
<tr>
<td>___</td>
<td>OBJSIZ</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Object list in descending size</td>
</tr>
<tr>
<td>___</td>
<td>ORDERACK</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Order Acknowledgements</td>
</tr>
<tr>
<td>___</td>
<td>ORDERAMT</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Sum of customer orders by custo</td>
</tr>
<tr>
<td>___</td>
<td>ORDERINOQ</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Order inquiry (using 4 file join)</td>
</tr>
<tr>
<td>___</td>
<td>ORDERSUM</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Order summary - header info for</td>
</tr>
</tbody>
</table>

When you pressed F4, you switched from the WRKVIEW panel to a more general facility. It can be accessed directly through the Work With SEQUEL Objects (WRKSEQUEL) command. You can read about it in Chapter 1 of the SEQUEL User’s Guide. The WRKSEQUEL display lets you to do the same functions as WRKVIEW, and gives you more flexibility in working with the views on your system.

Depending on the way your administrator has set up your environment, you may or may not have a command line at the bottom of the display. The sample above shows that command line privileges have been enabled for the example user.

If you have command line privileges, any command you are authorized to run can be entered and executed on the command line. In addition, you can use F9 and F19 to retrieve previously entered commands. With them, you don’t need to retype previous commands when you want to use them again.
All views in the SEQUELEX library are shown to you and you can use the options listed at the top of the display in working with them. All the options on the WRKVIEW menu display (p. 3-3) are available in addition to several others as well.

Each view’s name, type, creation date, library and text description are shown on the display. The type will be presented as either SQLVIEW, SQLVIEWP, or SQLTBLV. Views that include run-time variable definitions and present a run-time prompt when they are run are listed with a type of SQLVIEWP. Views without run-time variables are listed as SQLVIEW. Tabling views that summarize data are listed with an attribute value of SQLTBLV.

Some display stations are capable of displaying 132 characters on a line. You may be using one of them. If you are, the entire text for each view will be presented. Otherwise, the rightmost part of the text is omitted because there isn’t enough room for it on your display. You can change the display and see the full text for a view.

**Press F11** to view the complete description for a view.

Your display should look similar to the one below. Note that this example shows that the user does not have command line privileges.

```
5/12/98 8:31:29  Work with SEQUEL Views                 System: ASC400
                Position to name . . . CRLIMCOMP
                Position to library . . SEQUELEX

Type option, then press Enter.
2=Design 5=Display 6=Print 8=Describe 9=Outfile 10=Design report...

Opt Name       Text
--- CRLIMCOMP  Credit Limit versus Total Amount On Order
--- CUSTLIST   Customer Inquiry
--- CUSTORD    Customer Order Summary
--- FIELDICT   External Field Dictionary
--- GHBEXER1   Customers in name order
--- GHBEXER1A  Customer credit available
--- GHBEXER3   ORDERS - Selling price vs. List price
--- OBJSIZ     Object list in descending size order
--- ORDERACK   Order Acknowledgements
--- ORDERAMT   Sum of customer orders by customer
--- ORDERINQ   Order inquiry (using 4 file joins)
--- ORDERSUM   Order summary - header info for each order by cust

F3=Exit  F4=Prompt  F15=Prompted Submit  F23=More Options  F24=More Keys
```
Using the WRKSEQUEL display

The advantage to using the WRKSEQUEL list display instead of the menu-like WRKVIEW panel is that you can work with many views at a time. You can also make several requests at once.

For instance, you can run several views one after another by selecting option 5 = Display for each view that you want to run.

\[
\text{type} \ 5 \ \text{next to views CUSTLIST, CUSTORD, and ORDERAMT}
\]

\[
\text{press Enter}
\]

The views will run and the results will be shown on your display. Each time you press F3 = Exit to exit the data display, the next view will be run. When the last view has run, the WRKSEQUEL list panel will be redisplayed.

Creating a new view

Unlike the WRKVIEW display (p. 3-7), there is no specific “option” to start the user interface and create a new view. When you are using the list display of the WRKSEQUEL command, you can start the user interface by pressing function key F6.

Running views

Use the options listed at the top of the display to run a view and direct its output to the display, printer, or an output file. If you specify the output file option, a command prompt will appear requesting you to name the output file to contain the results of your view.

Any option that you execute can be prompted by pressing function key F4 after typing the option number. The SEQUEL command corresponding to the selected option will be prompted so that you can change its parameters before the option is run.

Additional options

The option choices at the top of the display present the entire list of available options.

\[
\text{press F23 repeatedly until you are familiar with all of them.}
\]

Now let’s try using some of the additional options that WRKSEQUEL provides.
12=Work With

If you want to “focus in” on an individual view, you can use option 12 to request the WRKVIEW display and its functions. Try it.

**type 12** next to the GHBEXER1 view on your display

**press Enter.**

The WRKVIEW display that you were working with earlier will appear. At this point, you can use any (or all) of its options with the view you have selected. To return to the list display,

**press F12**

3=Copy

Copying, renaming, moving, and deleting views is easy to do from the WRKSEQUEL display. The next several steps lead you along as you first copy a view, then change its name, and finally delete it.

You can create a duplicate of any of the views in the list by using the copy option. Your copy request can include several views at once. Let’s just do one for now.

**type 3** next to the GHBEXER3 view on your display

**press Enter.**

A window like the one below will appear in the middle of your display. It lets you type the name of the object to be created and the library you want to place it into.

![Screen capture showing the WRKSEQUEL display with options for copying, renaming, moving, and deleting views.](image-url)
type \texttt{xxxEXER3} (where xxx are your initials) for the new name

press \texttt{Enter}

If an object already exists with the name you specified, a warning window will pop up and let you replace the current one or cancel your request. Once you complete the copy request, the view will be duplicated and a confirmation message will appear at the bottom of your display.

7=Rename

Changing the name of a view is just as easy. Like other options on the display, the 7=Rename option presents a pop up window that allows you to complete your request. Now, let’s rename the view you just created.

\quad \textbf{type 7} next to the \texttt{xxxEXER3} view you just created (you may need to use the roll keys to find it)

press \texttt{Enter}.

The rename window will appear asking you to type the new name that you want to assign to the view. It looks like this:

\begin{center}
\begin{tabular}{|l|l|l|l|}
\hline
5/12/98 12:11:10 & Work with SEQUEL Views & System: ASC400 & \\
\hline
\multicolumn{4}{|c|}{Position to name . . . \texttt{ORDERSUMP}} \\
\multicolumn{4}{|c|}{Position to library . . \texttt{SEQUELEX@}} \\
\hline
Type option, then press Enter. & \\
\hline
1=Select & \multicolumn{3}{|c|}{Rename Objects} \\
\hline
Opt & Name & \multicolumn{3}{|c|}{Object} \\
\hline
--- & \texttt{ORDERSUMP} & \multicolumn{3}{|c|}{} \\
--- & \texttt{PICKLIST} & \texttt{Object} & \texttt{Type} & \texttt{New object} \\
--- & \texttt{PMBALANC} & \texttt{WJCEXER3} & \texttt{USRSPC} & \texttt{WJCEXER3} \\
--- & \texttt{RECEIVAB} & \multicolumn{3}{|c|}{} \\
--- & \texttt{RUNTIME} & \multicolumn{3}{|c|}{} \\
--- & \texttt{STATECOU} & \multicolumn{3}{|c|}{} \\
--- & \texttt{TRIANGLE} & \multicolumn{3}{|c|}{} \\
\hline
7 & \texttt{WJCEXER3} & \texttt{F12=Cancel} \\
\hline
\end{tabular}
\end{center}

\begin{center}
Parameters or command
\end{center}

\begin{center}
\begin{tabular}{|l|l|l|l|}
\hline
F3=Exit & F4=Prompt & F15=Prompted Submit & F23=More Options \\
& & F24=More Keys \\
\hline
\end{tabular}
\end{center}

\quad \textbf{type \texttt{xxxEXER4} (where xxx are your initials) for the new name}

press \texttt{Enter}

As before, if an object already exists with the name you specified, a warning window will pop up and let you replace the current one or cancel your request. Once you complete the rename request, the view will be renamed and a confirmation message will appear at the bottom of your display.
11=Move

Moving a view to a new library is similar to copying or renaming it. After selecting option 7, a pop up window will ask you to name the library you want to move it to. When you press Enter, a confirmation window will appear if the library already contains a view with the name you indicated. Otherwise, the view will be moved to the new library and a confirmation message will appear at the bottom of your display.

4=Delete

Delete a view by typing option 4 next to it on the list display. As with all the other options, you can make several requests at once; they will all be carried out at the same time when you press Enter. Like other options on the display, a pop up window will appear showing you the view(s) to be deleted and allowing you to cancel your request.

Now, let’s delete the view you just renamed.

   type 4 next to the xxxEXER4 view
   press Enter.

The delete confirmation window will appear asking you to confirm your decision. It looks like this:

```
5/12/98 12:11:10 Work with SEQUEL Views System: ASC400
Position to name . . . ORDERSUMP

Type : Confirm Delete of Objects
       1 : All of the objects listed will be deleted.
       ___ : Press Enter to confirm, or press F12 to cancel.
       ___ : Object Type Text
       ___ : WJCEXER4 *USRSPC ORDERS - Selling price vs. List price

       ___  : 4

       F12=Cancel
       F3=Exit  F4=Prompt  F15=Prompted Submit  F23=More Options  F24=More Keys
```

   press Enter to carry out the request and delete the view.

The list display will reappear without the view(s) that you deleted. Confirmation messages will be shown at the bottom of your display indicating the views that were deleted.
Using the action bar

The WRKSEQUEL list display includes an action bar. It can help you learn about the functions available to you. The action bar is a small menu that will appear when you press F10 from the list display.

Use the action bar when you are not certain which option or function key to use. You will be able to get the assistance you need by browsing through its pull-down menus.

When you select the action bar, it will appear at the top of your display. Select it now.

press F10.

The action bar is displayed at the top of your screen like this:

<table>
<thead>
<tr>
<th>Opt Name</th>
<th>Type</th>
<th>Created</th>
<th>Library</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRLIMCOMP</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Credit Limit versus Total Amount</td>
</tr>
<tr>
<td>CUSTLIST</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Customer Inquiry</td>
</tr>
<tr>
<td>CUSTORD</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Customer Order Summary</td>
</tr>
<tr>
<td>FIELDICT</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>External Field Dictionary</td>
</tr>
<tr>
<td>GHBEXER1</td>
<td>SQLVIEW</td>
<td>98/05/10</td>
<td>SEQUELEX</td>
<td>Customers in name order</td>
</tr>
<tr>
<td>GHBEXER1A</td>
<td>SQLVIEW</td>
<td>98/05/10</td>
<td>SEQUELEX</td>
<td>Customer credit available</td>
</tr>
<tr>
<td>GHBEXER3</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>ORDERS - Selling price vs. List</td>
</tr>
<tr>
<td>OBJSIZ</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Object list in descending size</td>
</tr>
<tr>
<td>ORDERACK</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Order Acknowledgements</td>
</tr>
<tr>
<td>ORDERAMT</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Sum of customer orders by custo</td>
</tr>
<tr>
<td>ORDERI NQ</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Order inquiry (using 4 file join)</td>
</tr>
<tr>
<td>ORDERSUM</td>
<td>SQLVIEW</td>
<td>97/06/24</td>
<td>SEQUELEX</td>
<td>Order summary - header info for</td>
</tr>
</tbody>
</table>

The action bar has four items on it. Each of them describes a “pull-down” menu. You access a menu by pressing the Enter key when the cursor is positioned on one of the action bar’s keywords. You can quickly skip from one keyword to the next by pressing the Tab key.

The menus that pull down from the action bar offer these functions:

- **File**: Copy, delete, rename and move views; Exit
- **View**: Change the list of views; change display attributes
- **Options**: View, change, or run the user defined options
- **Help**: Help text; search index

The “Options” pull-down menu is only available if you have command line privileges. If you do not have access to the command line, the “Options” selection
will not be highlighted and the cursor will not position to it when you press the Tab key.

Once you see a pull-down menu on the display, you can select one of its options, or access another menu. To choose another menu, position the cursor to another entry on the action bar and press the Enter key. You can also press F12 to close the menu and return to the action bar. Press F10 to close both the menu and the action bar and return to the view definition display.

Some menu options are followed by an ellipsis (...). This indicates that another menu (or display) will be presented to you if you choose it. If no ellipsis is shown, the action will be carried out immediately.

In addition to selecting them from the action bar, some menu options can also be run with a function key from the primary definition display. If so, the key that performs the function is listed at the right side of the menu. You can use this function key from the view definition display, without first accessing the action bar (Ex. Exit with F3). You cannot use the indicated function key when the action bar or one of its pull-down menus is shown.

Depending on your terminal, you may be able to type and/or press the field exit key within the action bar, erasing the action label. Doing this has no effect on its function. If you accidentally key over or erase an item, you can re-display it by choosing another pull-down menu (press Enter) and then closing it with F12.

Once you are finished with this lesson, you should experiment with the different pull-down menus of the action bar.
The View menu gives you an alternative way to control which items appear in the list and how your display looks when you use it.

Access the View menu by following these steps:

**Press F10** to bring the action bar to the top of the display

**Press Tab** to move the cursor to the View label

**Press Enter** to pull down the menu. It looks like the one below.

Using the menu, you can control whether the type and text are shown, whether the list is displayed in 80 or 132 column mode (if your terminal supports 132 columns), whether the command key and option description lines are displayed, and the contents of the item list that is presented to you.

Once you are familiar with the options and function keys that are available on the display, you may want to remove them from your screen and expand the list from 12 to 17 items.

Update the view options to reflect your preference.

**Change** the width and description values

**Press Enter**.

The action bar will be removed and your display will be updated to reflect the changes you made (if any).
Specifying the list subset

The contents of the object list can be changed through the subset window. You can open the subset window by pressing F17 from the list display, or by selecting the first item on the View pull-down from the action bar. Open the subset window now.

**press** F17, or

**select** the first item on the View menu of the action bar (F10)

A display similar to the one below will appear.

![Subset Window Display](image)

The subset window shows the object name criteria used in selecting the objects on the display and also indicates which SEQUEL objects will be included in the list. When you start the list display through the WRKVIEW display, only SEQUEL views (option 1) will be included in the list. You can change the setting any time after the initial list appears.

Specify the objects to be included in the list by setting the appropriate values for library and name. You can enter a specific or generic name in the object name field, and either a specific library or one of the special values listed below.

A **generic name** consists of a sequence of characters and an asterisk (e.g. `SEQ*`). SEQUEL searches for all the items that have the **leading** characters you specify and presents them in the list. A generic name can also include characters after the asterisk (e.g. `*EX`) **ending** with the characters you specify to be included. Both leading and ending characters can be specified (e.g. `SEQ*EX`) if you want to create a search that returns only items that **start and end** with the characters you specify.
If your library name request specifies one of the following special values, all the libraries that meet the criteria will be included in the search.

*LIBL       All libraries on your current library list.

*USRLIBL    The libraries on the “user” part of your library list.

*ALLUSR[]   All user libraries (those not starting with a “Q”) on the system to which you have *USE authority.

*ALL¹       All libraries on the system to which you have *USE authority.

*CURLIB     Your “current” library. It is initially assigned by the (CURLIB) value in your user profile when you sign on. Though it is a special value, it identifies a single library. When *CURLIB is used, the list for that library will appear.

The preceding sample display shows that all SEQUEL views in the SEQUELEX library will be included in the list. Views that are not in the SEQUELEX library will not be included.

Changing the list

Change the contents of the list so that only views starting with your initials are shown.

move the cursor to the “Object name” entry field on the subset prompt

type xxx* (xxx are your initials)

press Enter.

The list display should reappear with only the EXER1 and EXER1A views on it.

¹Note: Use of *ALLUSR and *ALL may require extended processing to locate all the libraries having certain files in them, especially on large systems with many user and system libraries.
Another pop-up window lets you specify the job description and job queue that should be used when SEQUEL submits work to the batch subsystem, and configure the display to meet your preferences.

**Press F18** to access the Change Defaults window.

Your display should look similar to the one below.

![Change Defaults Window](image)

You can change elements of the display by typing over them and pressing the Enter key. **Press F12** to exit the window without changing the settings.

The first entry field determines whether your selections for the **Print and Outfile** options will be submitted automatically to the batch subsystem. Specify 'N' to run these options interactively. If you do, they will be submitted to batch only if **F14** is used. If the value is set to 'Y', the option descriptions for the affected options will include the words “in batch” to let you know that they will be automatically submitted.

The job description and job queue specified on the display will be used when submitting batch jobs, whether they are submitted automatically (see above) or via **F14**. In many cases, the QBATCH job description in library QGPL is the preferred job description. If you are not sure which job description to use, ask your data processing manager.

The ‘132 column’ option will be enabled if you are using a 132 column capable display. Specify a 'Y' value to indicate that the full 27x132 capability of your workstation should be used. Use 'N' to request 24x80 displays. This option can also be controlled from the View menu of the action bar.
The ‘Full screen’ option controls whether or not the option and function key summaries will be displayed. Specify a ‘Y’ to suppress them and use as much of the display as possible for the object list. Use a ‘N’ to indicate that you do not want to use SEQUEL in full screen mode.

**Changing the defaults**

Change the run in batch value so that your print and output file requests will automatically be submitted to the batch subsystem.

- **type** `Y` on the entry line next to the “Run in batch” prompt
- **move** the cursor to the “Full screen” prompt and
- **type** `N` (you need not do this if it is already an ‘N’)
- **press** `Enter`.

The window will close and the list display will reappear.

- **press** `F23` to cycle through the list of option descriptions.

You will notice that the Print and Outfile options now have “in batch” appended to them.

Submit a print request to the batch subsystem.

- **type** `6` next to the view you created earlier (xxxEXER1)
- **press** `Enter`

A confirmation message appears at the bottom of the display indicating that your request was submitted. You will be notified when the job is complete by another message at your display station.

This completes the demonstration of the work with views facility.

- **press** `F3` to return to your normal menu or command line.
This series of exercises has taught you:

How to enter and exit the SEQUEL work with views program.

How to use the Work With Views (WRKVIEW) display to create, change, and run a view.

How to access a view’s description and see its SQL statement and execution parameters.

How to get a list of libraries containing SEQUEL views.

How to access SEQUEL’s object list program (WRKSEQUEL) from either command entry, or the WRKVIEW display.

How to use the list display to create, change, and run views.

How to copy, move, rename, and delete views.

How to use the list display’s action bar, list subset, and user default features.

How to change your environment so that “batch” requests can be automatically submitted to a batch subsystem for execution.

We suggest that when you first start using SEQUEL, you begin by calling up the work with views display so that you can easily determine which views are available for your use. It can easily be invoked from a menu option and you may wish to have it placed on one of your menus by someone in the data processing department.

As you become more familiar with the list display, you will learn how easy it is to use and what a great advantage it offers you as a “base of operations” when using SEQUEL. You will want to refer to the WRKVIEW and WRKSEQUEL command descriptions in Chapter 1 of the User’s Guide for a complete description of this very handy facility!

In the next lesson we will cover the prompting portion of the user interface so that you can create views even when you don’t know the field (or file) names you need.
Getting more from the interface

The first lesson in this section gave you a broad overview of some of the functions of SEQUEL’s interface. Now, let’s build on what you already know and take a more methodical approach to investigating its features.

You may not always be certain of the names of the libraries, files, and fields that contain the information you are looking for. This confusion can pose a difficult problem. How can you get the information you need if you are not sure where to find it or what it is called?

Fortunately, even though you may not know where to look, SEQUEL can help you search through the objects on your system and find what you need to know.

In addition, particularly when you are just starting with SEQUEL, you may not be sure of what to type on the display in order to get the results you want. Here again SEQUEL can help.

As you have already seen, the SEQUEL prompter will assist you by presenting lists of items you can choose from. Even complex expressions and record selection tests can be constructed simply by choosing items on your display. When you make your selections, SEQUEL shows you the SQL statement or phrase you have created.

As you gain experience with SEQUEL, you will quickly learn how to construct SQL queries on your own - simply by observing the statements created using the prompter. Before long, you will be able to step up to the intermediate and advanced assistance levels and type the statement directly onto the user interface display. When you do, you’ll be even more impressed with how quickly you can perform queries, and the advanced full-screen editing functions that SEQUEL provides.

The examples in this chapter will let you continue your tour through the functions of SEQUEL’s user interface. You will learn how to use the user interface to:

1. find the names of libraries, files, and fields on your system.
2. build complete and correct queries even though you do not know the details of the SQL language (yet).

The next example is similar to the exercise in Chapter 2. You will build a view that selects some of the records in our sample part master file. You will choose some, but not all of its fields, create a calculated result, and order the records according to the calculated value. SEQUEL’s prompting features will be used to choose library, file, and field names and to build the complete SQL statement.
Starting the user interface

If you haven’t already, start the user interface as you did in the first lesson. Refer to the beginning of Chapter 2 if you’re not sure how to do this.

The empty view definition display should appear just as it did before. If it doesn’t look like the one below, use F10 and follow the instructions on page 2-3 to select the basic assistance level, just as you did before.

```
1/27/98  8:42:46  Define View                  System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll  9

SELECT  *
FROM
JOIN
WHERE
GROUP BY
HAVING
UNION
ORDER BY

Type options to specify view. Press F13 to select all.
1=Select  4=Delete                                 View . . . : (Untitled)

Opt   View definition options
  _ Specify files that data is selected from       (FROM)
  _ Select and sequence fields                      (SELECT)
  _ Select and sequence summary fields
  _ Choose which records are included              (WHERE)
  _ Specify the order of the records               (ORDER BY)
F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assistance level
```
Using the action bar

Like the “work with” facility you used in Chapter 3, the user interface includes an action bar. It is a small menu that will appear when you press F10 from the display above. You can use F10 to access the action bar regardless of your assistance level (basic, intermediate, or advanced).

The action bar will help you learn about the user interface. You can use it when you are not certain which option or function key to use. You will be able to get the assistance you need by browsing through its pull-down menus.

press F10 if the action bar is not currently shown on the display.

The action bar will appear and the cursor will be positioned on the “File” selection.

```
: File View Defaults System Help :
:.............................................................................:
SELECT  *
FROM
JOIN
WHERE
GROUP BY
HAVING
UNION
ORDER BY

Amount to roll  9

Type options to specify view. Press F13 to select all.
1=Select  4=Delete                                 View . . . : (Untitled)

Opt. View definition options
_ Specify files that data is selected from
_ Select and sequence fields
_ Select and sequence summary fields
_ Choose which records are included
_ Specify the order of the records

F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assist level
```

The action bar has five or six items on it depending on your assistance level. Each of them describes a “pull-down” menu. You can quickly skip from one selection to the next by pressing the Tab key. A pull-down menu is displayed when you press the Enter key after positioning the cursor on a menu keyword. The “Edit” pull-down menu is only available if you are using the intermediate or advanced assistance level. When you are using the basic assistance level, the “Edit” selection will not be present at all.

The pull-down menus offer these functions:

- **File**: Retrieve, save, and run views; Exit the interface
- **Edit**: Advanced full screen editing functions
  (Available in intermediate and advanced assistance levels.)
- **View**: Access the prompt displays for the SQL clauses
- **Defaults**: Enter/change From-file library, view/outfile libraries
System   Messages, submitted jobs, spooled output, etc.
Help     Help text; search index

Once you see a pull-down menu on the display, you can select an option from it. You can also press F12 to remove the pull-down menu from the display, or select another pull-down by positioning the cursor to another entry on the action bar and pressing the Enter key.

Depending on your terminal, you may be able to type and/or press the field exit key within the action bar, erasing the action label. Doing this has no effect on its function. If you accidentally key over or erase an item, you can re-display it by choosing a pull-down menu (press the Enter key) and then removing it with F12.

Access the “File” pull-down menu as shown in the steps below:

move the cursor on the “File” selection (if it isn’t there already)

press Enter to pull down the “File” menu

The pull down menu shows ten options and looks like the one below:

Options followed by an ellipsis (…) indicate that another menu (or display) will be presented to you if you choose the option. If no ellipsis is shown, the action will be carried out immediately.

If the menu option can be performed by pressing a function key from the primary definition display, the key that performs the indicated option is listed at the right side of the menu. You can use this function key from the definition display, without first accessing the action bar. (Ex. Exit with F3) You cannot use the indicated function key when the action bar or one of its pull-down menus is shown.

Options within the “File” menu perform as indicated. The File: New item (option 1) will clear the current view definition from your display, allowing you to start over
from an “empty” SQL statement. You can use this selection to make the display appear as it does when you use the DSNVIEW *CREATE command to start the user interface.

**File:Open**

Let’s use the “Open” option to begin working with an existing view.

**type 2 and press Enter** to choose the “Open” option.

If you haven’t yet opened any views through the action bar, your library list will be searched and the libraries containing SEQUEL views will be presented to you in a window. If none of the libraries on your library list have SEQUEL views in them, the window will be empty.

The SEQUELEX library should be one of those listed, depending on how your library list is configured. If it is, you can select it easily. Otherwise, you’ll need to type it onto the display.

**type 1 next to the SEQUELEX library and press Enter**, or

(if the SEQUELEX library is not in the list)

**type SEQUELEX into the Library: field and press Enter.**
Your display should now show all the views you are authorized to work with in the SEQUELEX library.

<table>
<thead>
<tr>
<th>View Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New</td>
</tr>
<tr>
<td>2. Open</td>
</tr>
<tr>
<td>3. Save</td>
</tr>
<tr>
<td>4. Save a</td>
</tr>
<tr>
<td>5. Display</td>
</tr>
<tr>
<td>6. Display</td>
</tr>
<tr>
<td>7. Print</td>
</tr>
<tr>
<td>8. Print</td>
</tr>
<tr>
<td>9. Outfile</td>
</tr>
<tr>
<td>10. Exit</td>
</tr>
<tr>
<td>Select</td>
</tr>
<tr>
<td>Choose</td>
</tr>
<tr>
<td>Specify</td>
</tr>
</tbody>
</table>

You can use the entry fields (library and view) to:

- select a different library by typing its name in the library field
- select a list of libraries by typing *LIBL, *USRLIBL, *ALLUSR, *ALL, or a generic library name into the library name field
- subset the list of views by typing a generic view name into the view name field

In addition, you can select a view for editing by choosing it with a ‘1’ and pressing Enter.
Now, restrict the display to show only the subset of the views starting with your initials.

**press** **Tab** enough times to move the cursor to the start of the view name field

**type** **XXX*** (where XXX are your initials)

**press** **Enter**

Only the views you have created thus far should be displayed. Choose the xxxEXER1 view.

**type** **1** next to the XXXEXER1 view

**press** **Enter**

The action bar, pull-down menu, and pop-up window showing your view names will be removed from the display and the view definition display and menu will return. The view you were working on in the previous lesson will be shown and you can continue working on it.
Now that you’ve successfully re-accessed your first view. The view definition display should look like the one below:

```
Type SQL statement. Press F4 to prompt the clause under your cursor.  Amount to roll 9
SELECT   *
FROM     sequelex/custmast
ORDER BY cname

Type options to specify view. Press F13 to select all.
   1=Select  4=Delete               View . . . : GHBEXER1
   Library  :   SEQUELEX

Opt  View definition options
    > Specify files that data is selected from (FROM)
    > Select and sequence fields (SELECT)
    > Select and sequence summary fields
    > Choose which records are included (WHERE)
    > Specify the order of the records (ORDER BY)

F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions  F21=Assist level
```
**File:Display**

Run the view using the action bar. (This is equivalent to pressing \texttt{F19} from the primary display)

- \textbf{press} \texttt{F10} and then \texttt{Enter} to access the “File” pull-down
- \textbf{type} 5 and \textbf{press} \texttt{Enter} to run the view and see results.
- \textbf{press} \texttt{F3} to return to the user interface.

At this point, you should feel comfortable enough to work with other items on the action bar. Try using the “System” action to display your messages, or the contents of your joblog. When you are finished, you will be returned to the primary view definition display.

**File:New**

Clear the current view definition and return to an “empty” query. Using \texttt{F2} is equivalent to selecting the File:New option using from the action bar.

- \textbf{press} \texttt{F2}

If the view definition Save Display appears, press \texttt{F2} again to reject any changes you have made to the query you were working with.

Now let’s explore the individual SQL clauses in detail, examining the functions available on each of the prompt displays.
Prompting the FROM clause

As you have probably realized by now, the FROM clause of an SQL statement names the files you want to use. SEQUEL’s prompter allows you to choose the files that will appear in the FROM clause. It helps you specify the libraries, files, and members that contain the information you want to query.

There are four different ways to acquire the prompt for the FROM clause. Use one of the methods listed below to prompt the current FROM clause for the view.

Since you are using the basic assistance level, you can select the menu item titled “Specify files that data is selected from”. You did this in Chapter 2.

You can choose the “Specify file selections” item of the “View” pull-down menu after pressing F10 to access the action bar.

You can position the cursor into the current FROM clause shown on your display and press F4.

You can press Enter immediately after clearing the view definition (using File:New) or beginning from the initial display.

When the prompt appears, it should look similar to the display below.
The FROM prompt is quite versatile. It helps you find the files you need by letting you create prompt requests and then showing you a list of items that meet your criteria. You use the entry fields at the bottom of the display to create your requests.

The prompt display can show you four types of lists:

A library list appears whenever there is more than one library that satisfies your prompt specification. SEQUEL shows you all the libraries that meet your current library name criteria. Then you can select one of them and see the list of files that meet the file name criteria you have specified.

A file list appears whenever your prompt request has selected an individual library. All the files matching the search criteria in your prompt request will appear in the list.

A member list appears whenever you select a file that contains more than one member and your prompt request doesn’t indicate which member you want to use.

A format list appears when you select a multi-format logical file and your prompt request doesn’t indicate which format you want to access.

You can enter generic names into the library and file name entry fields. A generic name consists of a sequence of characters and an asterisk (e.g. SEQ*). SEQUEL searches for all the items that have the leading characters you specify and presents them in the list. A generic name can also include characters after the asterisk (e.g. *EX) causing only items ending with the characters you specify to be included. Both leading and ending characters can be specified (e.g. SEQ*EX) if you want to create a search that returns only items that start and end with the characters you specify.

Value *ALL can be used in the library and file fields to show all libraries on the system, or all files within a specific library.
Some special library search values can be entered as well. They are:

*ALLUSR  All user libraries (those not starting with a “Q”)
*ALL      All libraries on the system
*LIBL     All libraries on your current library list
*USRLIBL  The libraries on the “user” part of your library list.
*CURLIB   Your current library

The special library values are especially useful because they cause SEQUEL to search the indicated libraries for files matching your file name criteria and return only those libraries having files that satisfy your request. For instance, if you specify library *ALLUSR and file CUST*, SEQUEL will return a library listing that shows only the libraries having one or more files beginning with the letters CUST in them.

Let’s continue the tutorial by demonstrating how you might find the file you need to use, even if you’re not really certain of its name or where to look for it.
Promoting the FROM clause

Library lists

SEQUEL will present a list of libraries whenever your current search criteria does not specifically name an individual library. If you use a generic name or of one of the special library name values (*ALLUSR, *USRLIBL, etc.) a library list will be presented to you.

The libraries meeting your search criteria will be listed. You can select one of them and see the files within it that meet your specification.

Suppose you aren’t sure which library you should access, but you think it starts with the letters SEQ. You can get a list of libraries that start with the letters SEQ by following these steps:

- move the cursor to the “Library” line
- type SEQ* and press Enter

All the libraries on your system that start with the letters SEQ will be displayed.

The display should look similar to the one below. Your list may include other names, but should include both the SEQUEL and SEQUELEX libraries. Now you can pick one of the libraries listed, or specify a different search request.

<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEQ*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.
Let’s make another request. Assume for the moment, that you know that you want to access the part information, but you are not completely certain how the file name is spelled, or which library it is in. You do know that it is called \texttt{PART}\texttt{-something} but aren’t sure what the \texttt{-something} is.

With SEQUEL’s prompter, you can search the libraries on your system and find the ones containing a file like the one you are looking for. You’ll get a library listing and you can pick one of the libraries in the list.

- **move** the cursor to the first library line.
- **type** \texttt{*ALLUSR} to indicate that you want SEQUEL to search all the “user” libraries on your system.
- **press** Field Exit to advance to the file name entry.
- **type** \texttt{PART*} to indicate that you want to search for files starting with the letters PART.
- **press** Enter to carry out your search.

After a short delay, you will see a display showing a list of libraries. Each library in the list contains at least one file beginning with the letters “PART”.

```
5/24/98 11:16:55 Library Selection(s) System: ASC400
Sel Name  Attribute Description
--- ------ ----------------
   APIASC PROD   A.P.I. -- SEQUEL Demo
   APLSAMPLE PROD
   ASCLIB  PROD   SEQUEL TESTING LIBRARY
   KRUEGER PROD
   LARRY  PROD   Larry Tinker
   NULLTST PROD
   PROB7X261 PROD Correlated subquery positioning
   ROB    PROD   Rob Peterson
   SEQEX_V2 PROD SEQUEL examples
   SEQUELEX PROD SEQUEL Examples and sample files
   SEQUELEX@ PROD
   SEQUELTEST PROD
   SHERYL  PROD   Sheryl Quinlan
   SUZETTE PROD   Suzette Piantanida Weldon +

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.
```

```
<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ALLUSR</td>
<td>PART*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
</tbody>
</table>
```

F3=Exit  F12=Accept
Choose the SEQUELEX library to see the file(s) meeting your request criteria.

**type 1** next to the SEQUELEX library

**press Enter**

<table>
<thead>
<tr>
<th>Sel. Name</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTMAST</td>
<td>PF</td>
<td>Product Master</td>
</tr>
</tbody>
</table>

The display above shows that there is only one file beginning with the characters PART in the SEQUELEX library. It’s full name is PARTMAST.

Now select the part master file and tell SEQUEL that you are done choosing files. You can do it all in a single step.

**move** the cursor next to PARTMAST

**type 1**

**press F12** to continue.
When you leave the FROM prompt, the view definition display will reappear. It should look like the one below.

```
5/25/98 11:27:45                Define View                  System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor. Amount to roll 9
SELECT   *
FROM     sequlex/partmast

Type options to specify view. Press F13 to select all.
  1=Select  4=Delete                                  View . . . : (Untitled)
Opt    View definition options
  > Specify files that data is selected from
  _ Select and sequence fields
  > Select and sequence summary fields
  _ Choose which records are included
  _ Specify the order of the records
F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions F21=Assist level
```

As you learned earlier, this is the simplest query you can construct. It returns all fields from each record in the file.

Run the query and display the results.

```
press F19
```

```
press F3 to exit the data display when you are finished reviewing the data.
```
Prompting the SELECT clause

The SELECT clause of an SQL statement identifies the fields and calculated results that will appear in the result of your query request. With it, you can indicate that you want one, several, or all the fields within the file you have chosen. You can also create new fields by specifying calculations built on fields in the database.

SEQUEL’s prompter allows you to choose fields from the files you have selected. As you saw in the introductory lesson, it also helps you build calculations that create new fields for your view.

There are three different ways to acquire the prompt for the SELECT clause. Use one of the steps listed below to prompt the current SELECT clause for the view you are constructing.

Since you are using the basic assistance level, you can select the menu item titled “Select and sequence fields”.

You can choose the “Select and sequence fields” item of the “View” pull-down menu after pressing F10 to access the action bar.

You can position the cursor into the current SELECT clause shown on your display and press F4.

Once you have requested the prompt, SEQUEL will present a list of fields you can choose from the part master file. They will be placed on the “Select” line when you are finished.
There are four different screen layouts for the SELECT clause prompt. You can cycle through them by using F11. Each variation lets you see information in a slightly different manner by letting you choose the number of fields you see. You can choose these formats:

- 15 database fields with text and attributes
- 8 database fields with text and attributes
- 40 database fields without text or attributes
- 15 database fields with text and attributes for summary selection

Your personal preference and the type of activity you are trying to perform will determine the format that you find most useful. When you leave the prompt, SEQUEL will “remember” which type of display you used and present it during your next prompt request.

Press F11 until you see the display below. If it is already shown, press F11 anyway, so that you become familiar with the different SELECT prompts.
The top part of the display shows the fields within the file(s) you specified in the FROM clause. Fields are listed after the heading line for the file that contains them. They are not listed alphabetically, but in the order the file’s designer chose when the file was created.

The heading line for each set of fields lists its file’s name, library, and descriptive text. It is shown in bold letters prior to all the fields in the file. The far right side of the display indicates the file’s sequence within the FROM clause. The entry field to the left of the file’s name can be used to choose all the fields from the file.

The entry line to the left of each item in the list lets you to select it for inclusion in your view and sequence it within the list you are building (shown at the bottom of the display). You can place a sequence number (other than ‘1’) in the ‘Sel’ column if you want to specify the position a field should occupy within the developing list.

To add an entry to the end of your list you just select a database field (or file header) with a ‘1’. You can place it into the current list at a specific sequence by entering a number where you would like it merged. You can add several fields at a time by entering several values prior to pressing the Enter key.
Now choose the product name, list price and standard cost fields. Select the three fields DESCP, LSTPC, and STDC1.

**move** the cursor next to each field in turn and **type** a 1.

Because we are using the display mode showing only 8 database fields, you will need to press the **Rollup (PageDn)** key to access the second page of fields before you can select the STDC1 field. (The cursor must be located in the top part of the display when the roll key is pressed.)

**press Enter** after you have selected the three fields.

Your display should now look like this:

```
5/25/98 13:00:08  Field Selection(s) From All Files  System: ASC400
Seq Name Attribute Description File
--- ----- ------ --------------------- ---
--- DESCP Pkd 9,4 Total std cost - base standard 1
--- UNWGT Pkd 7,3 Unit Weight 1
--- UTMES Char 2 Unit of measure 1
--- ITTYP Char 1 Item type - make, buy, phantom or planner 1
--- OPBAL Pkd 7,0 Opening balance - this period 1
--- ISSUE Pkd 7,0 Issues - this period 1
--- RECPT Pkd 7,0 Receipts - this period 1
--- ADJST Pkd 7,0 Adjustments - this period +
```

Sequence each field. **Press F4, F22 or select a field to enter an expression.**

The fields you selected are shown on the bottom half of the display. You could have achieved the same result simply by typing field names and sequence numbers into the columns on the bottom part of the display. When you add fields to the SELECT clause by typing into the lower part of the display, SEQUEL will “fill in” the blank parts of the entry line with the field’s database characteristics when you press Enter.

You can reorder items in the list at the bottom of the display by adjusting their sequence number. Let’s rearrange the list so that the product cost (STDC1) appears before its price (LSTPC).

**move** the cursor down to the **Seq** line next to the **LSTPC** field

**type** 20 and **press Field Exit** to replace its sequence number

**press Enter**

The field list will appear in its new order, listing the list price field after the standard cost field. You could have chosen the field order just as easily when you
selected them from the list by typing a sequence number (for instance 10, 30, 20) next to them instead of using a ’1’.

Create a calculated result

Next we will create a new column on the inquiry to show the difference between a product’s list price and its cost as a percentage of cost. The calculation is:

\[
\frac{\text{ListP} - \text{StdCst}}{\text{StdCst}}
\]

You will remember that we created a field in Chapter 2 to calculate the difference between a customer’s credit limit and amount due. Since we used the expression editor (f22) the last time, this time we will just type the calculation directly into the SELECT prompt.

Expand the SELECT prompt.

press F4

The bottom part of the display will change so that each item you have selected will occupy three lines on the display rather than one. This form of the prompt lets you see the complete column heading, editing, and calculation for each field in the SELECT clause.

Scroll the display to the next page so you have access to the field entry lines.

press Rollup
Now create the new column that defines the calculated result. Use the example below to create field #16. Specify the length, field name, column heading and calculation to define the field.

<table>
<thead>
<tr>
<th>Sel Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>STDC1</td>
<td>Pkd</td>
<td>Total std cost - base standard</td>
<td>1</td>
</tr>
<tr>
<td>UNWGT</td>
<td>Pkd</td>
<td>Unit Weight</td>
<td>1</td>
</tr>
<tr>
<td>UTMES</td>
<td>Char</td>
<td>Unit of measure</td>
<td>1</td>
</tr>
<tr>
<td>ITTYP</td>
<td>Char</td>
<td>Item type - make, buy, phantom or planner</td>
<td>1</td>
</tr>
<tr>
<td>OPBAL</td>
<td>Pkd</td>
<td>Opening balance - this period</td>
<td>1</td>
</tr>
<tr>
<td>ISSUE</td>
<td>Pkd</td>
<td>Issues - this period</td>
<td>1</td>
</tr>
<tr>
<td>RECPT</td>
<td>Pkd</td>
<td>Receipts - this period</td>
<td>1</td>
</tr>
<tr>
<td>ADJST</td>
<td>Pkd</td>
<td>Adjustments - this period</td>
<td>1</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

<table>
<thead>
<tr>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td></td>
<td>5,2</td>
<td></td>
<td>MARGIN</td>
<td>Margin</td>
</tr>
</tbody>
</table>

Edit word: " 0.  %"

If your display looks like the example, you have specified that the calculated field:

- has a (5,2) length. It can hold values from -999.99 to +999.99
- has a name (MARGIN) and heading (Gross Margin Percent)
- is created by the calculation \((\text{lstpc-stdc1})\div\text{stdc1} \times 100\)
- uses an edit word (two spaces before the “0.”, two after) to make the calculated value look like a percentage

When the field definition is complete, press Enter.
The display reverts to the “compressed” field prompt as before.

Now, we’re done creating the SELECT clause.

**press F12**

Your view definition display should look like the example below:

```
5/25/98 15:32:19    Define View    System: ASC400
Type SQL statement.  Press F4 to prompt the clause under your cursor.
Amount to roll  9
SELECT descp, stdc1, lstpc, (lstpc-stdc1)/stdc1*100 LEN(5,2) EDTWRD("  0.  %") COLHDG("Gross Margin" "Percent") NAME(margin)
FROM SEQUELEX/partmast
```

Type options to specify view.  Press F13 to select all.
1=Select  4=Delete

View . . . : (Untitled)

Opt View definition options
- > Specify files that data is selected from (FROM)
- > Select and sequence fields (SELECT)
- > Select and sequence summary fields
- > Choose which records are included (WHERE)
- > Specify the order of the records (ORDER BY)

F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions F21=Assist level

Run the view and display the results.

**Press F19**

Press F3 to exit the data display when you are finished reviewing the data.
Prompting the ORDER BY Clause

Let’s sequence products in descending order by their profitability. We can do this by specifying the MARGIN field in the ORDER BY clause, just as we did with the available credit field (AVAIL) at the end of the initial lesson. Try it on your own. If you need assistance, follow these steps:

- Prompt the ORDER BY clause by selecting the last menu item
- Choose or type the MARGIN field on the prompt
- Specify DESC in the ordering column for the MARGIN field

When you’re done, your display should look like this:

![Order By Field List](image)

When your display looks like the one above,

**press F12**

to indicate that you are done with the ORDER BY prompt. The view definition display will reappear showing the complete SQL statement.
Prompting the WHERE Clause

As you learned earlier, the WHERE prompt can help you choose the fields and calculations to be used for record selection.

To continue our example, we want to change the current view so that it only selects parts having an item type of “M” (made) or “B” (bought), or finished goods parts (item type “F”) with a list price below $50.

Using SEQUEL, complex conditions can be phrased like they are in English. You can combine phrases that define record tests with “and” and “or” just as you would if you were speaking. Using the example above, we can create a SEQUEL test that goes like this:

\[ \text{ITTYP} = "M" \text{ or } \text{ITTYP} = "B" \text{ or } (\text{ITTYP} = "F" \text{ and } \text{LSTPC} < 50) \]

The last two tests are surrounded by parentheses (as if they were part of a calculation) to indicate that they should be taken together. The condition above will do what we want, namely select records with either an “M” or a “B” in the ITTYP field, or records with an “F” in the ITTYP field that also have a LSTPC value less than 50.

Now, prompt the WHERE clause so that we can specify the record selection.

**select** the “Choose which records are included” menu item

**press** **Enter**.

The empty WHERE prompt will appear.
SEQUEL has a special operator that lets you test a field against a list of values. Since we want to test the ITTYP field for either “M” or “B”, we can use the IN operator and do it with one test. The IN operator allows you to replace any number of OR’ed conditions with a single test.

**press** Roll up (PageDn) to scroll the field list.

**type** 1 next to the ITTYP field

**type** 1 next to the IN operator

**press** Enter.

Since we did not complete the IN test (by typing the comparison values into the entry field at the top of the display), SEQUEL presents a pop-up window. It lets you know that you need to supply a list of values (list elements must always be separated by commas) and allows you to indicate whether you want to test for equals or not equals conditions.

**type** “M”, “B” into the pop-up prompt as shown below

Remember that since you are checking the field for a match against character values, you must surround the values with quotation marks.

**press** Enter when your display is correct.
When you complete the test by supplying values in the window, it will be appended to the developing WHERE clause at the bottom of the display.

<table>
<thead>
<tr>
<th>Field</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITYP</td>
<td>=</td>
<td>ITYP</td>
</tr>
<tr>
<td>OPBAL</td>
<td>&lt;&gt;</td>
<td>OPBAL</td>
</tr>
<tr>
<td>ISSUE</td>
<td>&lt;=</td>
<td>ISSUE</td>
</tr>
<tr>
<td>RECP</td>
<td>&gt;=</td>
<td>RECP</td>
</tr>
<tr>
<td>ADJST</td>
<td>&lt;</td>
<td>ADJST</td>
</tr>
<tr>
<td>ORQTY</td>
<td>&gt;</td>
<td>ORQTY</td>
</tr>
<tr>
<td>SQL View</td>
<td>IN</td>
<td>SQL View</td>
</tr>
<tr>
<td>DESCP</td>
<td>CONTAINS</td>
<td>DESCP</td>
</tr>
<tr>
<td>STDC1</td>
<td>LIKE</td>
<td>STDC1</td>
</tr>
<tr>
<td>LSTPC</td>
<td>NULL</td>
<td>LSTPC</td>
</tr>
</tbody>
</table>

Select or type a field, test and value to move into the WHERE clause.
Press F13 to add/change a subselect.

Amount to roll 4

F3=Exit    F12=Accept    F13=Subquery    F14=Files    F22=Edit    F24=Keys
Add the next section to the conditioning statement.

**Type** 1 next to the **ITTYP** field

**type** 1 next to the = test in the middle column

**type** “F” in the Value entry at the top of the display

**type** OR in place of AND at the top left of the display

**press** Enter

Your display should look like this:

<table>
<thead>
<tr>
<th>Field</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITTYP</td>
<td>=</td>
<td>ITTYP</td>
</tr>
<tr>
<td>OPBAL</td>
<td>&lt;&gt;</td>
<td>OPBAL</td>
</tr>
<tr>
<td>ISSUE</td>
<td>&lt;=</td>
<td>ISSUE</td>
</tr>
<tr>
<td>RECPT</td>
<td>&gt;=</td>
<td>RECPT</td>
</tr>
<tr>
<td>ADJST</td>
<td>&lt;</td>
<td>ADJST</td>
</tr>
<tr>
<td>ORDPT</td>
<td>&gt;</td>
<td>ORDPT</td>
</tr>
<tr>
<td>ORQTY</td>
<td>BETWEEN</td>
<td>ORQTY</td>
</tr>
<tr>
<td>SQL View</td>
<td>=</td>
<td>SQL View</td>
</tr>
<tr>
<td>DESC</td>
<td>-conta</td>
<td>DESC</td>
</tr>
<tr>
<td>STDC</td>
<td>LIKE</td>
<td>STDC</td>
</tr>
<tr>
<td>LSTPC</td>
<td>NULL</td>
<td>LSTPC</td>
</tr>
</tbody>
</table>

Select or type a field, test and value to move into the WHERE clause.

Press F13 to add/change a subselect.

Amount to roll 4

\[
\text{ittyp IN(“M”, “B”) OR itttyp=“F”}
\]

---

F3=Exit  F12=Accept  F13=Subquery  F14=Files  F22=Edit  F24=Keys
Now, finish the test. You already have enough practice with the “selection” technique. Simply type the remaining part of the condition onto the entry field at the bottom of the display. Place parentheses around the last two comparisons so that your complete test looks like:

```sql
ittyp IN("M","B") OR (ittyp="F" AND lstpc<50)
```

Except for the character literals inside the quotation marks, capitalization within the test is not important. You can type the fields and operators in upper, lower, or mixed case.

When you are finished, your display should look like this:

```
5/26/98 14:58:16 Select Records System: ASC400
1=Select
Field Test Value
OR ITTYP = ITTYP Char 1 Item type - make, buy, ph
OPBAL < OPBAL Pkd 7,0 Opening balance - this period
ISSUE <= ISSUE Pkd 7,0 Issues - this period
RECPT >= RECPT Pkd 7,0 Receipts - this period
ADJST > ADJST Pkd 7,0 Adjustments - this period
ORDPT ORQTY BETWEEN ORQTY Pkd 7,0 Order point
ORDPT SQL View IN SQL View
STDC1 LIKE STDC1 Pkd 9,4 Total std cost - base sta
LSTPC NULL LSTPC Pkd 9,3 List price

Select or type a field, test and value to move into the WHERE clause.
Press F13 to add/change a subselect. Amount to roll 4
ittyp IN("M","B") OR (ittyp="F" AND lstpc<50)
```

**press F12 when you have completed the comparison test**

The view definition display will appear and the WHERE clause will be included in your SQL statement.
You have finished another SQL statement and are ready to run the query using F19!

Do it now.

You should see the results quickly. The display will look like the one below.

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Std</th>
<th>List</th>
<th>Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMX Carton</td>
<td>1.0000</td>
<td>2.000</td>
<td>100.00%</td>
</tr>
<tr>
<td>Cover Features</td>
<td>5.0250</td>
<td>10.050</td>
<td>100.00%</td>
</tr>
<tr>
<td>Decal Features</td>
<td>.5545</td>
<td>1.109</td>
<td>100.00%</td>
</tr>
<tr>
<td>Flag Features</td>
<td>2.0000</td>
<td>4.0000</td>
<td>100.00%</td>
</tr>
<tr>
<td>Decorative Kit</td>
<td>2.5000</td>
<td>5.000</td>
<td>100.00%</td>
</tr>
<tr>
<td>PAL Nut bag</td>
<td>1.0000</td>
<td>2.0000</td>
<td>100.00%</td>
</tr>
<tr>
<td>Resin</td>
<td>.5000</td>
<td>1.0000</td>
<td>100.00%</td>
</tr>
<tr>
<td>5/8&quot; Screw</td>
<td>.0800</td>
<td>.150</td>
<td>87.50%</td>
</tr>
<tr>
<td>BMX 3 Rear Wheel (Std.)</td>
<td>1.5500</td>
<td>2.750</td>
<td>77.41%</td>
</tr>
<tr>
<td>Spacer Washer</td>
<td>.1500</td>
<td>.2500</td>
<td>66.66%</td>
</tr>
<tr>
<td>1 3/4&quot; Screw</td>
<td>.1500</td>
<td>.2500</td>
<td>66.66%</td>
</tr>
<tr>
<td>BMX 3 Pedal</td>
<td>.5000</td>
<td>.7500</td>
<td>50.00%</td>
</tr>
<tr>
<td>1&quot; Screw</td>
<td>.1000</td>
<td>.1500</td>
<td>50.00%</td>
</tr>
<tr>
<td>Decal - Batman</td>
<td>1.0000</td>
<td>1.5000</td>
<td>50.00%</td>
</tr>
<tr>
<td>Decal - Superman</td>
<td>1.0000</td>
<td>1.5000</td>
<td>50.00%</td>
</tr>
<tr>
<td>Flag - American</td>
<td>2.0000</td>
<td>3.0000</td>
<td>50.00%</td>
</tr>
<tr>
<td>Cover - Blue</td>
<td>5.0000</td>
<td>7.5000</td>
<td>50.00%</td>
</tr>
</tbody>
</table>

Starting with MARGIN: 100.00

When you are finished examining the display,

press F3

to return to the view definition display.
Save the view

Save the view to create a permanent copy.

**press F3**

to advance to the exit display.

```
5/26/98 15:15:37     View Definition Exit Display     System: ASC400

View name . . . . . . . . . __________
Library . . . . . . . . .   QTEMP
Authority . . . . . . . . . *SAME   (*USE, *ALL, *EXCLUDE,
                          *LIBCRTAUT, *SAME)
Title . . . . . . . . . . . __________________________________________________
Status messages . . . . . *YES     (*YES, *NO)
Allow temporary result . . *YES    (*YES, *NO, *IFROD)
Number of unique keys . . *NONE    (*NONE, *ALL, number)
Join type . . . . . . . . . *INNER  (*INNER, *PARTOUT, *ONLYDFT)
Join order . . . . . . . . . *ANY    (*ANY, *FILE)
Ignore decimal errors . . *NO     (*YES, *NO)
Include access plan . . . . *NO    (*YES, *NO)

ENTER=Save   F3=Exit   F12=Previous   F14=Design report QTEMP / *CREATE
```

**type XXXEXER2** (XXX are your initials) next to the view name

**type SEQUELEX** next to the library name

**move** the cursor to the title line and

**type Selected Products - Cost, Price, Margin** as a title

**press Enter**

Your view will be saved and can be run whenever you want. The user interface will end.
In Review

In this lesson you learned:

- How to use the action bar to retrieve and run a view.
- To use the basic assistance menu to get SEQUEL to provide you with a prompt for the part of the query you are working on.
- How to get lists of libraries and files to choose from.
- How to select some of the fields in a file.
- How to create a calculated field and use that field in ordering the displayed information.
- How to use the IN operator and multiple search criteria in selecting records.

Remember that this tutorial gives you only a broad overview of the features and functions of SEQUEL. Refer to the SEQUEL User’s Manual for a complete description of all that you can do.

The next lesson will introduce you to the concepts of joining files and grouping data into summary results. Further prompting facilities will be demonstrated so that you can become even more familiar with SEQUEL’s versatility.
Joining and Grouping

You may find that the information you need is not in a single file in your database. Often, it can be spread out among several files. If you need information from more than one file, you might try to run several retrievals over individual files and get what you need from the displays or printouts you create. This could be pretty tedious — especially if several files were involved.

Alternatively, you can join records together by using values from one file to access records in another. This lesson will demonstrate how easy it is to do. Once you understand the basic idea, joining files together will seem quite natural and very simple.

Often, you will want to access summary (rather than detailed) information. The GROUP BY phrase of the SQL language is used to do this. With it, you can reduce hundreds or thousands of detailed records into summarized groups of information, getting subtotals, averages, etc. for the elements of the groups.

The examples in this section will guide you through the process of joining files together and using the SQL grouping functions to create summary views.
The Joining Problem

Your database probably involves dozens, perhaps hundreds, of files. Unless you are looking for “master record” information, the information you need is probably split among several of them. SEQUEL lets you build views and reports that access several files at a time by linking the records in one file to the records in another. This is called joining.

Joining files with SEQUEL is simple. Once a record is retrieved from a file, its field values can be used as a “key” to retrieve a record from another file. All you need to know is which field(s) should be used from one record to access another. Often, these fields will have the same name. In many cases, your data processing department will have diagrams that map out your database and show how files can be linked together. The diagram below is a map of our sample database.

The picture shows that records from the customer master and the order header file can be linked together by using the CUSNO field. We can use the CUSNO field from either file to find a corresponding record in the other file.

Other important relationships can be understood from the diagram as well. Notice that the only “path” from the order line file to customer information goes through the order header. If we want to get customer information about items in the order line file, we must first access the order header (using the common ORDNO value) and then use the CUSNO field to access the customer record.

Let’s continue with the tutorial. Assume that we want a listing of products on order for any customer in California, Arizona, or Texas. We want to know what customer ordered which goods and how many were ordered.
Choosing a strategy

Start the user interface and acquire the list of files in the SEQUELEX library. (If you’re not sure how to do this, review Chapters 2 and 3.)

Your display should look something like the one below:

```
5/21/98 14:14:20          File Selection(s) From SEQUELEX    System: ASC400
Sel Name   Attribute Description
--- CUSTMAST PF   Customer master
--- CVTDATE PF   Gregorian-Julian Conversion
--- CVTDATE1 LF   Gregorian-Julian Conversion
--- DSPFFD PF    Output file for DSPFFD
--- DSPOBJD PF   Output file for DSPOBJD
--- ORDHEAD PF   Open Orders - Order headers
--- ORDLINE PF   Open Orders - Order line items
--- PARTMAST PF  Product master
--- SOURCE PF    Example source code
--- SQDATE PF    Date conversion
--- TRIANGLES PF  Leg lengths for triangles
```

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

```
Library    File Name    Member   Format   Correlation
----------- ----------- ------- ------ ----------

----------- ----------- ------- ------ ---------- +
```

F3=Exit    F12=Accept

Now we need to decide where to get the information we want. We know that the files are in the SEQUELEX library, but which one(s) do we need to use?

We know from the first chapter that both the customer name and number are in the CUSTMAST file along with other information about the customer.

The display above shows that two files (ORDHEAD, ORDLINE) have order information. It makes sense that we want to use one (or both) of them, but which one? SEQUEL allows you to investigate the record layout of a file by placing a question mark (?) next to the file you are curious about.

place a ? next to the ORDLINE file

press Enter
Your display will show all the fields in the ORDLINE file.

<table>
<thead>
<tr>
<th>Sel. Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDNO</td>
<td>Pkd</td>
<td>Order number</td>
<td>1</td>
</tr>
<tr>
<td>LINE#</td>
<td>Pkd</td>
<td>Order line number</td>
<td>1</td>
</tr>
<tr>
<td>PRDNO</td>
<td>Char</td>
<td>Product Number (If CORCD = R, N)</td>
<td>1</td>
</tr>
<tr>
<td>QUANO</td>
<td>Pkd</td>
<td>Quantity ordered</td>
<td>1</td>
</tr>
<tr>
<td>QUANS</td>
<td>Pkd</td>
<td>Quantity shipped and invoiced</td>
<td>1</td>
</tr>
<tr>
<td>QUANA</td>
<td>Pkd</td>
<td>Quantity allocated this time</td>
<td>1</td>
</tr>
<tr>
<td>QUANN</td>
<td>Pkd</td>
<td>Quantity shipped this time</td>
<td>1</td>
</tr>
<tr>
<td>LISTP</td>
<td>Pkd</td>
<td>List price at time order was entered</td>
<td>1</td>
</tr>
<tr>
<td>ACTSP</td>
<td>Pkd</td>
<td>Actual selling price</td>
<td>1</td>
</tr>
<tr>
<td>UNWGT</td>
<td>Pkd</td>
<td>Unit weight of line item</td>
<td>1</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F3=Exit  F12=Accept

The display shows that the records in ORDLINE contain the product, quantity and price information for each item on a particular order. Since we want to present information for each product on order we will need to use this file.

We now know that the customer and order line files will be the primary sources for the query. The database map of our files (p. 5–2) shows that the ORDHEAD file must be used to “bridge” the gap between the customer and order line information. It also shows that we can get product information from the PARTMAST file by using the PRDNO field in the line item file.

The view we are going to build will use all four files in the sample database! This may seem intimidating, but you’ll see shortly how simple it really is!

Now that we have finalized the plan, we need to tell SEQUEL which files we are going to use.

press Enter to return to the file display
Select the files

If your display looks like the one below, you are ready to select the files that will be used by your view.

<table>
<thead>
<tr>
<th>Sel. Name</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTMAST</td>
<td>PF</td>
<td>Customer master</td>
</tr>
<tr>
<td>CVTDATE</td>
<td>PF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td>CVTDATEL1</td>
<td>LF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td>DSPFFD</td>
<td>PF</td>
<td>Output file for DSPFFD</td>
</tr>
<tr>
<td>DSPOBJD</td>
<td>PF</td>
<td>Output file for DSPOBJD</td>
</tr>
<tr>
<td>ORDHEAD</td>
<td>PF</td>
<td>Open Orders - Order headers</td>
</tr>
<tr>
<td>ORDLNE</td>
<td>PF</td>
<td>Open Orders - Order line items</td>
</tr>
<tr>
<td>PARTMAST</td>
<td>PF</td>
<td>Product master</td>
</tr>
<tr>
<td>SOURCE</td>
<td>PF</td>
<td>Example source code</td>
</tr>
<tr>
<td>SQDATE</td>
<td>PF</td>
<td>Date conversion</td>
</tr>
<tr>
<td>TRIANGLES</td>
<td>PF</td>
<td>Leg lengths for triangles</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F3=Exit  F12=Accept

Select the customer master, both order files, and the product master.

**type a 1 next to CUSTMAST, ORDHEAD, ORDLNE, and PARTMAST**

**press Enter** to add them to the bottom of the display

**press F12** to indicate that you are done selecting files
Specify the join relationships

Because you selected more than one file, SEQUEL automatically provides you with a display that lets you link them together. The join path display shown below helps you do it.

The display can be used in a couple of different ways. Because our database has been defined so that “key” fields have matching field names, we can use the suggested join fields at the bottom of the display.

Using the information from the database map we reviewed earlier, you can easily see that we need to choose the first three fields listed at the bottom of the display. Even though the fourth field in the list, UNWGT, happens to exist in both the ORDLINE and the PARTMAST files, according to the diagram it should not be used in joining the files together.

Select the fields to be used in joining.

1. Type 1 next to the CUSNO, ORDNO, and PRDNO fields at the bottom of the display

2. Press F12 to accept your choices

Your join clause is finished! You have completely specified all the linking that needs to take place to perform your query.
# Select the fields

After selecting the files and specifying the joining relationships your view definition should look like this:

```sql
5/28/98 10:58:46    Define View    System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll  9
SELECT   *
FROM     sequelex/custmast, sequelex/ordhead, sequelex/ordline,
         sequelex/partmast
JOIN     cusno.01=cusno.02 AND ordno.02=ordno.03 AND prdno.03=prdno.04
```

Type options to specify view. Press F13 to select all.

<table>
<thead>
<tr>
<th>Opt</th>
<th>View definition options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select files that data is selected from (FROM)</td>
</tr>
<tr>
<td>2</td>
<td>Select and sequence fields (SELECT)</td>
</tr>
<tr>
<td>3</td>
<td>Select the order of the records (ORDER BY)</td>
</tr>
<tr>
<td></td>
<td>Choose which records are included (WHERE)</td>
</tr>
</tbody>
</table>

F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assist level

Now, let’s choose the fields for the view. Choose the “Select and sequence fields” menu item in order to prompt the SELECT clause.

- **type 1** next to the second menu item
- **press Enter** to prompt the SELECT clause
When you prompt the SELECT clause, one of the four prompt formats will appear. Press F11 until the format below is shown on your display. Because it shows so many database fields, it is especially useful when you are first creating the SELECT clause.

<table>
<thead>
<tr>
<th>5/28/98 11:01:38</th>
<th>Field Selection(s) From All Files System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sel Name</td>
<td>Attribute Description</td>
</tr>
<tr>
<td>---</td>
<td>----------------------</td>
</tr>
<tr>
<td>CUSTMAST</td>
<td>SEQUELEX</td>
</tr>
<tr>
<td>CUSNO</td>
<td>Pkd 6,0 Customer number</td>
</tr>
<tr>
<td>CNAME</td>
<td>Char 25 Customer name</td>
</tr>
<tr>
<td>CADD1</td>
<td>Char 25 Customer address line 1</td>
</tr>
<tr>
<td>CADD2</td>
<td>Char 25 Customer address line 2</td>
</tr>
<tr>
<td>CADD3</td>
<td>Char 16 Customer address line 3</td>
</tr>
<tr>
<td>CSTTE</td>
<td>Char 2 Customer state</td>
</tr>
<tr>
<td>CZIPC</td>
<td>Char 10 Customer zipcode</td>
</tr>
<tr>
<td>CPHON</td>
<td>Pkd 10,0 Phone number</td>
</tr>
<tr>
<td>CTYEPE</td>
<td>Char 2 Customer type</td>
</tr>
<tr>
<td>CRLIM</td>
<td>Pkd 9,0 Credit limit in dollars</td>
</tr>
<tr>
<td>AMTDU</td>
<td>Pkd 11,2 Outstanding A/R balance</td>
</tr>
<tr>
<td>OROPN</td>
<td>Pkd 9,2 Total open orders in dollars</td>
</tr>
<tr>
<td>HIGHB</td>
<td>Pkd 9,0 Highest A/R balance</td>
</tr>
<tr>
<td>PAYAM</td>
<td>Pkd 11,2 Last payment amount</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>-</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>----</td>
<td>-----</td>
<td>---------------</td>
</tr>
<tr>
<td>---</td>
<td>-</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
<td>----</td>
<td>-----</td>
<td>---------------</td>
</tr>
</tbody>
</table>

F6=SELECT* F7/F8=Last/next file F12=Accept F18=COUNT(*) F22=Edit F24=Keys

For our example, select the state and customer name fields from the customer master file. Specify sequence numbers so that the state field will be presented first.

**type** 20 next to the CNAME field

**type** 10 next to the CSTTE field

**press** Enter

The fields will be placed into the prompt at the bottom of the display.
Now let’s add the product description field to the view. We could begin scrolling through the field list by using the rollup (PageDn) key, but that may take a while, especially if there are lots of fields in the files you have chosen.

Instead of rolling, you can position directly to the PARTMAST fields.

press F14

The file selection window will pop up on your display and let you indicate which file you want to position to.

Select the PARTMAST file.

type 1 next to the PARTMAST file

press Enter
The field list will be repositioned and the cursor will be placed at the beginning of the PARTMAST file.

<table>
<thead>
<tr>
<th>Sel</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>QUANO</td>
<td>Pkd 7,0</td>
<td>Quantity ordered</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>QUANS</td>
<td>Pkd 7,0</td>
<td>Quantity shipped and invoiced</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>QUANA</td>
<td>Pkd 7,0</td>
<td>Quantity allocated this time</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>QUANN</td>
<td>Pkd 7,0</td>
<td>Quantity shipped this time</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>LSTP</td>
<td>Pkd 9,3</td>
<td>List price at time order was entered</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>ACTSP</td>
<td>Pkd 9,3</td>
<td>Actual selling price</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>UNWGT</td>
<td>Pkd 7,3</td>
<td>Unit weight of line item</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>PARTMAST</td>
<td>SEQUELEX</td>
<td>Product Master</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>PRDNO</td>
<td>Char 15</td>
<td>Product number</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>DESCP</td>
<td>Char 30</td>
<td>Product description or name</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>CLASS</td>
<td>Char 3</td>
<td>Product class</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>CSORD</td>
<td>Pkd 7,0</td>
<td>Quantity on customer orders</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>ONORD</td>
<td>Pkd 7,0</td>
<td>Quantity on order from WO and PO</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>SGVND</td>
<td>Pkd 6,0</td>
<td>Suggested vendor</td>
<td>4</td>
</tr>
<tr>
<td>___</td>
<td>LSTPC</td>
<td>Pkd 9,3</td>
<td>List price</td>
<td>+</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

Select the product description (DESCP) field.

**type 1** next to DESCP

**press Enter**

Because you selected the field with a ‘1’, it will be added to the end of the list.

Now, position the field list to the ORDLINE file. (Try it on your own. Follow the steps below if you have trouble.)

**press F14**

**type 1** next to the ORDLINE file

**press Enter**
We want three pieces of information from the order line file. Select the quantity ordered (QUANO), actual selling price (ACTSP), and order number fields (in that order) from the display below.

```
<table>
<thead>
<tr>
<th>Field Selection(s) From All Files</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 5/28/98 11:08:30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sel</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>SHIPV</td>
<td>Char 10</td>
<td>Ship via</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>TRMCD</td>
<td>Char 2</td>
<td>Terms code</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>TRMDS</td>
<td>Char 15</td>
<td>Special terms/comment</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>OSTAT</td>
<td>Char 1</td>
<td>Order status (1, 2, 3, 4, 5, 6)</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>OTYPE</td>
<td>Char 1</td>
<td>Order type R-Reg. B-Blanket O-Back order</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>CURLN</td>
<td>Pkd 3.0</td>
<td>Number of lines on order</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>ORVAL</td>
<td>Pkd 9.2</td>
<td>Retail value of order</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>ORTOT</td>
<td>Pkd 9.2</td>
<td>Retail value of remaining on order</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>ORWGT</td>
<td>Pkd 9.2</td>
<td>Total weight of order - original</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>HOUSE</td>
<td>Char 2</td>
<td>Shipment warehouse</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>INVNO</td>
<td>Pkd 6.0</td>
<td>Invoice number</td>
<td>2</td>
</tr>
<tr>
<td>___</td>
<td>ORDLINE</td>
<td>SEQUELEX</td>
<td>Open Orders - Line item file</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>ORDO</td>
<td>Pkd 6.0</td>
<td>Order number</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>LINE#</td>
<td>Pkd 3.0</td>
<td>Order line number</td>
<td>3</td>
</tr>
<tr>
<td>___</td>
<td>PRDNO</td>
<td>Char 15</td>
<td>Product Number (if CORCD = R, N)</td>
<td>+</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td></td>
<td>CSTTE</td>
<td>01</td>
<td>2</td>
<td>CSTTE</td>
<td>State</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>CNAME</td>
<td>01</td>
<td>25</td>
<td>CNAME</td>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>DESCP</td>
<td>04</td>
<td>30</td>
<td>DESCP</td>
<td>Product</td>
<td></td>
</tr>
</tbody>
</table>

F6=SELECT* F7/F8=Last/next file F12=Accept F18=COUNT(*) F22=Edit F24=Keys

Press Roll up (PageDn) near the bottom of the display

Type 30 next to ORDNO near the bottom of the display

Press Roll up (PageDn) to view the remaining ORDLINE fields

Type 16 next to QUANO

Type 17 next to ACTSP

Press Enter to add the fields to the SELECT clause
We’re finished selecting fields for the SELECT clause. Switch the prompt format so that you can see all the fields in the clause and review the list before returning to the view definition display.

press F11

You can use the sequence number field at the bottom of the display in addition to the selection field in the list at the top to sequence fields. If your fields aren’t in the order shown above, rearrange them by changing their sequence numbers and then pressing Enter.

If you want to see the complete definition for each field you have selected,

press F4 to expand the list

press Rollup (PageDown) until you have reviewed each field

press F12 to return to the view definition display
Selecting the records

We’re practically finished. All that’s left is to indicate that we only want customers from California, Arizona, and Texas. You already know that we’ll use the WHERE clause to do this, so prompt it now.

**type 1 next to “Choose which records are selected”**

**press Enter**

```
5/28/98 11:30:47                Define View                  System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor. Amount to roll 9

SELECT cstte.01, cname.01, descp.04, quano.03, actsp.03, ordno.03
FROM sequelex/custmast, sequelex/ordhead, sequelex/ordline,
     sequelex/partmast
JOIN cusno.01=cusno.02 AND ordno.02=ordno.03 AND prdno.03=prdno.04

Type options to specify view. Press F13 to select all.
1=Select 4=Delete                        View . . . : (Untitled)
Opt  View definition options
   > Specify files that data is selected from       (FROM)
   > Select and sequence fields                     (SELECT)
   > Select and sequence summary fields
1  Choose which records are included               (WHERE)
   > Specify the order of the records               (ORDER BY)
F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions F21=Assist level
```
In Chapter 4 you learned that SEQUEL’s IN operator can be very useful when we want to test a field for any of several values.

Use the IN operator to test the state field (CSTTE).

**type** 1 next to the CSTTE field

**type** 1 next to the IN operator

**press** Enter

The IN prompt window should pop up on your display.

Now, type the state values we want to test for and return to the view definition display.

**type** "CA", "AZ", "TX" in the IN prompt window

Once your display looks like the example above,

**press** Enter

**press** F12 to end the prompt
Running the view

Your view is finished! Considering that you had to link four files together and choose fields from three of them to appear in the result, the process to create the query has been amazingly simple! Your view definition display should look like the one below.

```
5/28/98 11:30:47                Define View                  System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 9
SELECT   cstte.01, cname.01, descp.04, quano.03, actsp.03, ordno.03
FROM     sequelex/custmast, sequelex/ordhead, sequelex/ordline,
         sequelex/partmast
JOIN     cusno.01=cusno.02 AND ordno.02=ordno.03 AND prdno.03=prdno.04
WHERE    cstte.01 IN("CA","AZ","TX")
```

Type options to specify view. Press F13 to select all.
1=Select 4=Delete View . . . : (Untitled)
Opt     View definition options
_    > Specify files that data is selected from   (FROM)
_    > Select and sequence fields               (SELECT)
_    > Select and sequence summary fields
_    > Choose which records are included        (WHERE)
_    > Specify the order of the records         (ORDER BY)
F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions F21=Assist level

Run the view and display the results.

press F19

<table>
<thead>
<tr>
<th>State</th>
<th>Name</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>Cover Features</td>
<td>20</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>Cycle Features</td>
<td>20</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>Flag Features</td>
<td>20</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>Decal Features</td>
<td>20</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>BMX Model 1833 F/O</td>
<td>30</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>BMX Formula 3 Power Cycle</td>
<td>30</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>BMX Formula 3 Deluxe Cycle</td>
<td>30</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>BMX Tandem Cycle</td>
<td>15</td>
</tr>
<tr>
<td>AZ</td>
<td>Sports Shop</td>
<td>BMX Silver Plated Edition</td>
<td>5</td>
</tr>
<tr>
<td>TX</td>
<td>Lawrence Design</td>
<td>BMX Tandem Cycle</td>
<td>15</td>
</tr>
<tr>
<td>TX</td>
<td>Lawrence Design</td>
<td>BMX Model 1833 F/O</td>
<td>45</td>
</tr>
<tr>
<td>TX</td>
<td>Lawrence Design</td>
<td>BMX Solver Plated Edition</td>
<td>50</td>
</tr>
<tr>
<td>CA</td>
<td>Rudy's Corp.</td>
<td>Cover Features</td>
<td>30</td>
</tr>
<tr>
<td>CA</td>
<td>Rudy's Corp.</td>
<td>Cover Features</td>
<td>10</td>
</tr>
<tr>
<td>CA</td>
<td>Rudy's Corp.</td>
<td>Decal Features</td>
<td>50</td>
</tr>
<tr>
<td>CA</td>
<td>Rudy's Corp.</td>
<td>Flag Features</td>
<td>30</td>
</tr>
<tr>
<td>CA</td>
<td>Rudy's Corp.</td>
<td>Cover Features</td>
<td>10</td>
</tr>
</tbody>
</table>

Window: 1 Starting at record: 4
F3=Exit F8=Window Right F20=Field Right F21/F22=Open/Close +
If you have a 132 column display, the entire result will be visible on your screen. Otherwise, use the windowing keys to shift the display. Exit with F3.
Save the view

Save the view as you did earlier by selecting the “Save” item from the File menu of the action bar.

press F10 to access the action bar

press Enter to pull down the file menu

type 3

press Enter

Since the view has never been saved before, the save prompt will appear. Type xxxEXER3 for the view name and SEQUELEX for the view library. Fill in the title so that it indicates the results of the view.

When your display looks like the one above,

press Enter

The view will be saved and the definition display will reappear.
The Grouping Problem

Sometimes, you will want to summarize the information in your database. Instead of presenting the information from each record your query retrieves, you may want to see total information for a group of records. Your query can return several grouped totals, or even a single total for the whole set of records selected by your WHERE clause.

For instance, you may want to see the number of customers in each state, or the order totals by product, or the number of orders for each customer. If you do, SEQUEL can present the information quickly and easily.

Creating subtotals for your view, or mixing both detailed and summary information in a single retrieval requires the SEQUEL report writer. We’ll show you how to do that in the next lesson. For now, let’s do some summary views so you can see how SEQUEL’s grouping functions work.
Our first summary example will be very simple. Suppose we want to know how many customers we have and the total amount due from the entire set of them. Do we have 30 customers owing $250,000 or is it closer to 50 customers and a half a million?

Creating the view that answers this question is very easy.

Begin by clearing the current view definition.

press F2

Use the menu and the FROM prompt to select the CUSTMAST file in the SEQUELEX library. You’re probably an expert by now, but these are the steps:

(type 1 next to the first menu item) press Enter
(type 1 next to the CUSTMAST file) press F12 to leave the FROM prompt

Your display should look like the one below:

```
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll  9

SELECT   *
FROM     sequelex/custmast
```

Type options to specify view. Press F13 to select all.
1=Select  4=Delete  View . . . : (Untitled)
- Specify files that data is selected from (FROM)
- Select and sequence fields (SELECT)
- Select and sequence summary fields
- Choose which records are included (WHERE)
- Specify the order of the records (ORDER BY)

F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F10=Actions F21=Assist level
Selecting the summary information

Now, we need to finish the query by creating a SELECT clause that counts the customers and totals the amount due in the file.

Since this will be a query that groups all the detailed records together, we’ll use the “summary” form of the SELECT prompt.

**type** 1 by the “Select and sequence summary fields” menu item

**press** Enter

The summary field selection prompt is one of the four forms of the SELECT prompt that you saw earlier. It is different from the others in that it lets you easily create the calculations that summarize detail information. You can select a field and indicate a summarizing calculation for it in a single step. You don’t need to use the expression editor or type the calculations directly (although you could if you really wanted to).

Your display should look like the example shown below:

```
5/27/98 11:59:39        Summary Field Selection(s)           Systme: ASC400
Sel Max Min Avg Sum Name Attribute Description File
--- --- --- --- --- CUSTMAST SEQUELEX Customer master 1
--- --- --- --- --- CUSNO Pkd 6,0 Customer number 1
--- --- --- --- --- CNAME Char 25 Customer name 1
--- --- --- --- --- CADD1 Char 25 Customer address line 1 1
--- --- --- --- --- CADD2 Char 25 Customer address line 2 1
--- --- --- --- --- CADD3 Char 16 Customer address line 3 1
--- --- --- --- --- CSTTE Char 2 Customer state 1
--- --- --- --- --- CZIPC Char 10 Customer zipcode 1
--- --- --- --- --- CPHON Pkd 10,0 Phone number 1
--- --- --- --- --- CTYPE Char 2 Customer type 1
--- --- --- --- --- CRLM Pkd 9,0 Credit limit in dollars 1
--- --- --- --- --- AMTDU Pkd 11,2 Outstanding A/R balance 1
--- --- --- --- --- ORPON Pkd 9,2 Total open orders in dollars 1
--- --- --- --- --- HIGB Pkd 9,0 Highest A/R balance 1
--- --- --- --- --- PAYAM Pkd 11,2 Last payment amount +

Sequence each field. Press F4, F22 or select a field to enter an expression.

F6=SELECT*  F7/F8=Last/next file  F12=Accept  F18=COUNT(*)  F22=Edit  F24=Keys
```

The “Sel” column is used to select a field without applying any summarizing calculations to it. Other columns on the display (MIN, MAX, SUM, AVG) let you create the summarizing calculations for the field.

In our example all we want to see is the number of customers and the total amount due included in the file.
Counting the number of customers is easy. All we have to do is count the number of records in the CUSTMAST file. SEQUEL has a function, COUNT(*), to do this. You can select the count function from the summary field prompt by pressing function key 18.

We can select the total amount due at the same time.

**type** 1 in the SUM column next to the AMTDU field

**press** F18

The two field definitions are added to the bottom of the display.

**press** F12 to leave the prompt.

That’s all there is to it! Run the view and display the results.

**press** F19

The records are displayed below:

<table>
<thead>
<tr>
<th>SUMAMTDU</th>
<th>CNTSTAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>327,811.36</td>
<td>74</td>
</tr>
</tbody>
</table>
The result window shows that there are 74 customers, and that the combined amount due is $327,811.36
Now, let’s find the breakdown by state.

Prompt the SELECT clause again by choosing the summary fields menu item and pressing the Enter key.

When the SELECT prompt appears, select the state field and put it before the other two field definitions.

**type** 4 in the Sel column next to the CSTTE field

**press** Enter to add it to the list

Your display should look like this:

```
<table>
<thead>
<tr>
<th>Sel</th>
<th>Max</th>
<th>Min</th>
<th>Avg</th>
<th>Sum</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CUSTMAST</td>
<td>SEQUELEX</td>
<td>Customer master</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CUSNO</td>
<td>Pkd</td>
<td>6,0 Customer number</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CNAME</td>
<td>Char</td>
<td>25 Customer name</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CADD1</td>
<td>Char</td>
<td>25 Customer address line 1</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CADD2</td>
<td>Char</td>
<td>25 Customer address line 2</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CADD3</td>
<td>Char</td>
<td>16 Customer address line 3</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CSTTE</td>
<td>Char</td>
<td>2 Customer state</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CZIPC</td>
<td>Char</td>
<td>10 Customer zipcode</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CPHON</td>
<td>Pkd</td>
<td>10,0 Phone number</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CTYPE</td>
<td>Char</td>
<td>2 Customer type</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>CRLIM</td>
<td>Pkd</td>
<td>9,0 Credit limit in dollars</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>AMTDU</td>
<td>Pkd</td>
<td>11,2 Outstanding A/R balance</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>OROPN</td>
<td>Pkd</td>
<td>9,2 Total open orders in dollars</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>HIGHB</td>
<td>Pkd</td>
<td>9,0 Highest A/R balance</td>
<td>1</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
<td>PAYAM</td>
<td>Pkd</td>
<td>11,2 Last payment amount +</td>
<td>1</td>
</tr>
</tbody>
</table>
```

Sequence each field. Press F4, F22 or select a field to enter an expression.

**press** F12 to exit the prompt and return to the view definition display.
The view definition display now includes the GROUP BY clause. It tells which fields will be used in creating the record groups that will be processed by the summary functions.

```
5/28/98 15:06:59  Define View                  System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 9
SELECT  cstte, SUM(amtdu) NAME(sumamtdu), COUNT(*) NAME(cntstar)
FROM sequelex/custmast
GROUP BY cstte
```

Run the view by pressing F19. Your display should look like the one below. It shows the summarized results by state: the number of customers and the amount due for the customers in each group.

```
15:09:10                Data Matching SQL View Request                 5/28/98
State                                    SUMAMTDU         CNTSTAR
AZ                                     1,801.90               1
CA                                     19,160.79               2
CO                                      33,499.76               9
CT                                      2,026.70               1
CT                                      4,770.96               2
FL                                      20.10               1
GA                                      5,892.87               4
IA                                      3,215.69               5
ID                                      3,587.62               2
IL                                      83,441.02              13
IN                                      2,754.00               3
KY                                      4,854.14               1
MA                                      21,920.50              4
MT                                      9,185.02               1
MN                                      22,613.10              3
MT                                      2,914.80               2
NJ                                      40,436.22              3
```

press F3 to return to the view definition.

press F2 twice to clear the view definition
More Joining and Grouping

In our next example we will determine the value of all open orders for each customer.

We want to see the customer’s name and the total value of all of their open orders. Like this:

<table>
<thead>
<tr>
<th>Customer</th>
<th>Order Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>123321 Penn Sports</td>
<td>$58,571.08</td>
</tr>
<tr>
<td>100112 MNB Corp.</td>
<td>$52,838.39</td>
</tr>
<tr>
<td>102900 Taehnrich Corp</td>
<td>$52,375.89</td>
</tr>
<tr>
<td>105400 Rudy's Corp.</td>
<td>$50,791.15</td>
</tr>
<tr>
<td>102311 Lawrence Design</td>
<td>$44,430.40</td>
</tr>
<tr>
<td>102800 Rider Corp.</td>
<td>$33,917.44</td>
</tr>
</tbody>
</table>
Choosing a strategy

Begin by prompting the file list for the SEQUELEX library. Your display should look like this:

<table>
<thead>
<tr>
<th>Sel</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CUSTMAST</td>
<td>PF</td>
<td>Customer master</td>
</tr>
<tr>
<td></td>
<td>CVTDATE</td>
<td>PF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td></td>
<td>CVTDATEL1</td>
<td>LF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td></td>
<td>DSPFFD</td>
<td>PF</td>
<td>Output file for DSPFFD</td>
</tr>
<tr>
<td></td>
<td>DSPOBJD</td>
<td>PF</td>
<td>Output file for DSPOBJD</td>
</tr>
<tr>
<td></td>
<td>ORDHEAD</td>
<td>PF</td>
<td>Open Orders - Order headers</td>
</tr>
<tr>
<td></td>
<td>ORDLINE</td>
<td>PF</td>
<td>Open Orders - Order line items</td>
</tr>
<tr>
<td></td>
<td>PARTMAST</td>
<td>PF</td>
<td>Product master</td>
</tr>
<tr>
<td></td>
<td>SOURCE</td>
<td>PF</td>
<td>Example source code</td>
</tr>
<tr>
<td></td>
<td>SQDATE</td>
<td>PF</td>
<td>Date conversion</td>
</tr>
<tr>
<td></td>
<td>TRIANGLES</td>
<td>PF</td>
<td>Leg lengths for triangles</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

Now we need to decide where to get the information we want. We know that the files are in the SEQUELEX library, but which one(s) do we need to use?

We know already that the customer’s name and number are in the CUSTMAST file along with other information about the customer. We also know that information about each item on the order can be found in the ORDLINE file.

Let’s look again at the ORDLINE file and see what information is available.

**Place a ? next to the ORDLINE file**

**press Enter**
Your display will show all the fields in the ORDLINE file.

<table>
<thead>
<tr>
<th>Sel</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ORDNO</td>
<td>Pkd 6,0</td>
<td>Order number</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LINE#</td>
<td>Pkd 3,0</td>
<td>Order line number</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PRDNO</td>
<td>Char 15</td>
<td>Product Number (If CORCD = R,N)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>QUANO</td>
<td>Pkd 7,0</td>
<td>Quantity ordered</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>QUANS</td>
<td>Pkd 7,0</td>
<td>Quantity shipped and invoiced</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>QUANA</td>
<td>Pkd 7,0</td>
<td>Quantity allocated this time</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>QUANN</td>
<td>Pkd 7,0</td>
<td>Quantity shipped this time</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LISTP</td>
<td>Pkd 9,3</td>
<td>List price at time order was entered</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>ACTSP</td>
<td>Pkd 9,3</td>
<td>Actual selling price</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>UNWGT</td>
<td>Pkd 7,3</td>
<td>Unit weight of line item</td>
<td>1</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F3=Exit  F12=Accept

As before, the display shows that the records in ORDLINE contain the product, quantity and price information for each item on a particular order. It is clear that we can multiply the quantity ordered (QUANO) by the price for each line on a given order. The result is the extended amount for a given line item. We can calculate the order’s total value by summarizing this amount for the entire order.

Notice that two price fields (LISTP, ACTSP) are available. Which should we use? Our choice will obviously affect the result. Unfortunately, the request does not clarify the situation. *Ambiguous query requests are a common problem.* The request must be clarified before the correct field can be chosen. In many cases, getting a complete and correct specification of the problem to be solved is the most difficult part of creating the query!

Assume that the real information need is for the actual selling price of the orders for each customer. We’ll choose the value from the ACTSP field. In any case, it is clear that we do need to use the information in the ORDLINE file.

**press Enter** to return to the file display.
We know we can calculate the total order value by multiplying the quantity by list price for each item in the order and summarizing the result. The original request was to summarize the total order value for each customer. This means that we need some way to link orders to the customers. The customer number or name is not located in the order line file. Refer back to the database map on page 5–2. It shows that the customer number is in the ORDHEAD file. We used it in an earlier example in this chapter.

**type a ?** next to the ORDHEAD file.

The format of the order header record will appear as below.

<table>
<thead>
<tr>
<th>Sel Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDNO</td>
<td>Pkd 6,0</td>
<td>Order number</td>
<td>1</td>
</tr>
<tr>
<td>CUSNO</td>
<td>Pkd 6,0</td>
<td>Customer number</td>
<td>1</td>
</tr>
<tr>
<td>COOMN</td>
<td>Znd 2,0</td>
<td>Order entry date - month</td>
<td>1</td>
</tr>
<tr>
<td>COODY</td>
<td>Znd 2,0</td>
<td>Order entry date - day</td>
<td>1</td>
</tr>
<tr>
<td>COOYR</td>
<td>Znd 2,0</td>
<td>Order entry date - year</td>
<td>1</td>
</tr>
<tr>
<td>CUSPO</td>
<td>Char 15</td>
<td>Customer PO number</td>
<td>1</td>
</tr>
<tr>
<td>SHIPV</td>
<td>Char 10</td>
<td>Ship via</td>
<td>1</td>
</tr>
<tr>
<td>TRMCD</td>
<td>Char 2</td>
<td>Terms code</td>
<td>1</td>
</tr>
<tr>
<td>TRMDS</td>
<td>Char 15</td>
<td>Special terms/comment</td>
<td>1</td>
</tr>
<tr>
<td>OSTAT</td>
<td>Char 1</td>
<td>Order status (1,2,3,4,5,6)</td>
<td>1</td>
</tr>
<tr>
<td>OTYPE</td>
<td>Char 1</td>
<td>Order type R-Reg, B-Blanket, O-Back order</td>
<td>1</td>
</tr>
<tr>
<td>CURLN</td>
<td>Pkd 3,0</td>
<td>Number of lines on order</td>
<td>1</td>
</tr>
<tr>
<td>ORVAL</td>
<td>Pkd 9,2</td>
<td>Retail value of order</td>
<td>1</td>
</tr>
<tr>
<td>ORTOT</td>
<td>Pkd 9,2</td>
<td>Retail value of remaining on order</td>
<td>1</td>
</tr>
<tr>
<td>ORWGT</td>
<td>Pkd 9,2</td>
<td>Total weight of order - original</td>
<td>+</td>
</tr>
</tbody>
</table>

Notice that the file contains both a customer number and an order number. We can use the order header as a “bridge” to connect the order line file with the customer information.

Our plan is to create order totals by summing the QUANO*ACTSP values in the ORDLINE file, link to the order header record (ORDHEAD) using the order number, then link to the customer record (CUSTMAST) using the customer number from the order header. If we can total the amount for each customer, we will have solved the problem.
Diagrammatically, our request looks like this:

<table>
<thead>
<tr>
<th>ORDLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDNO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ORDHEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORDNO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CUSTMAST</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSNO</td>
</tr>
</tbody>
</table>

This plan would definitely work, but let’s take one more look at the order header. Notice that the order value is already summarized and located in the fields ORVAL and ORTOT. Perhaps we can simplify our plan (and eliminate the need for ORDLINE) by using the appropriate field. Again we need clarification - do we need the total amount for the entire order, or only the amount left on the order?

Assume that we want to get the total amount for the entire order. We’ll use the ORVAL field in the header file.

By doing a little snooping around the database, we have found an easier (quicker) way to get the results we need. Since we found the total order value, we can eliminate the need for the ORDLINE file altogether. Of course, the original plan would have worked, it just would have been a bit more complicated! You will quickly discover that the more you know about your database, the easier you will be able to build views over it. Become a database expert, and the whole world will be at your feet!

Now that we have finalized the plan, we need to tell SEQUEL which files we are going to use.

press Enter to return to the file display.
Select the files

Select the customer master and order header files.

**type a 1 next to the CUSTMAST and ORDHEAD files**

<table>
<thead>
<tr>
<th>Sel</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CUSTMAST</td>
<td>PF</td>
<td>SEQUEL Outfile: Customer Master</td>
</tr>
<tr>
<td></td>
<td>CVTDATE</td>
<td>PF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td></td>
<td>CVTDATE1</td>
<td>LF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td></td>
<td>DSPFD</td>
<td>PF</td>
<td>Outfile for DSPFD</td>
</tr>
<tr>
<td></td>
<td>DSPBD</td>
<td>PF</td>
<td>Outfile for DSPBD</td>
</tr>
<tr>
<td>1</td>
<td>ORDHEAD</td>
<td>PF</td>
<td>SEQUEL Outfile: Open Orders - Header file</td>
</tr>
<tr>
<td></td>
<td>ORDLINE</td>
<td>PF</td>
<td>SEQUEL Outfile: Open Orders - Line item file</td>
</tr>
<tr>
<td></td>
<td>PARTMAST</td>
<td>PF</td>
<td>SEQUEL Outfile: Product Master</td>
</tr>
<tr>
<td></td>
<td>SOURCE</td>
<td>PF</td>
<td>Example source code</td>
</tr>
<tr>
<td></td>
<td>SQDATE</td>
<td>PF</td>
<td>Date conversion</td>
</tr>
<tr>
<td></td>
<td>TRIANGLES</td>
<td>PF</td>
<td>Leg lengths for triangles</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

**press F12 to accept your selections**
You now need to tell SEQUEL which fields are to be used in linking the records together. As before, the join path selection display will appear automatically because you chose more than one file.

Our plan is to use the CUSNO field (customer number) to link the files. It is the only field we need to use to completely link the files.

Since the CUSNO field exists in both files, SEQUEL lets you choose it directly - without using any additional displays. Select it now.

- type 1 next to the CUSNO field at the lower part of the display
- press F12 to accept your selection
The view definition display will reappear and a JOIN clause will have been added to your SQL statement.

So far, the statement indicates that you want to get information from both the customer master and the order header files, and that they will be linked together using the CUSNO field.

Now, we need to finish the query by creating a SELECT clause that summarizes the order amount for each customer.

Since this will be a query that groups several detailed records together, we’ll use the “summary” form of the SELECT prompt.

   type 1 by the “Select and sequence summary fields” menu item

   press Enter
The summary field selection display appears and now we can select the fields we want to see.

In our example we want to see some details for each customer in addition to showing their total order amount. We want to select these fields, but won’t be summarizing them - only the order value will be totalled.

Select the customer’s number, name, and telephone number.

1

press Enter

The fields will be added to the SELECT prompt at the bottom of the display just as before.
Now, we want to add the total order value to the SELECT clause. Scroll the field list at the top of the display to the last page, showing the ORVAL field.

**press** Roll up (PageDn) twice

![Summary Field Selections Table]

Indicate that you want to total the order value.

**type** 1 in the SUM column for the ORVAL field

**press** Enter

The new field definition will be added to the prompt.
Let’s refine the definition of the new SUMORVAL field so that the data display will look better.

**press F4** to expand the prompt

**type 9,2** in the Length column

**type Total Order Value** for its column heading

Your display should look like this:

```
5/27/98 12:24:23        Summary Field Selection(s)           Systme: ASC400

<table>
<thead>
<tr>
<th>Sel</th>
<th>Max</th>
<th>Min</th>
<th>Avg</th>
<th>Sum</th>
<th>Name</th>
<th>Attribute</th>
<th>Description</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>SHIPV</td>
<td>Char 10</td>
<td>Ship via</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>TRMCD</td>
<td>Char  2</td>
<td>Terms code</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>TRMDS</td>
<td>Char 15</td>
<td>Special terms/comment</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>OSTAT</td>
<td>Char  1</td>
<td>Order status (1,2,3,4,5,6)</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>OTYPE</td>
<td>Char  1</td>
<td>Order type R-Reg. B-Blanket O-Bac</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>CURLN</td>
<td>Pkd   3,0</td>
<td>Number of lines on order</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>ORVAL</td>
<td>Pkd   9,2</td>
<td>Retail value of order</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>ORTOT</td>
<td>Pkd   9,2</td>
<td>Retail value of remaining on order</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>ORWGT</td>
<td>Pkd   9,2</td>
<td>Total weight of order - original</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>HOUSE</td>
<td>Char  2</td>
<td>Shipment warehouse</td>
<td>2</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>INVNO</td>
<td>Pkd   6,0</td>
<td>Invoice number</td>
<td>2</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>9,2</td>
<td>-</td>
<td></td>
<td></td>
<td>SUMORVAL</td>
</tr>
</tbody>
</table>

= SUM(ORVAL)

Edit word: ________________________________              ____________________ +

F6=SELECT*  F7/F8=Last/next file  F12=Accept  F18=COUNT(*)  F22=Edit  F24=Keys

**press F12** to return to the view definition display
SEQUEL has created the SELECT clause and automatically added a GROUP BY phrase to your SQL statement.

```
Type SQL statement. Press F4 to prompt the clause under your cursor.
Type options to specify view. Press F13 to select all.
Amount to roll  9
SELECT cusno.01, cname.01, cphon.01,
     SUM(orval) LEN(9,2) COLHDG("Total Order Value") NAME(sumorval)
FROM sequelex/custmast, sequelex/ordhead
JOIN cusno.01=cusno.02
GROUP BY cusno, cname, cphon
```

The GROUP BY clause specifies which records should be grouped together. Records in a group are treated as a whole and summary values about the entire group will be returned. The customer number, name, and telephone number distinguish one group from another. These fields appear in the GROUP BY clause.

The SELECT clause includes the fields that define the groups and also calculated fields that summarize the data within them.
Run the view

Run the view and display the results. (Press F19)

<table>
<thead>
<tr>
<th>Cust Number</th>
<th>Name</th>
<th>Telephone</th>
<th>Total Order Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>100112</td>
<td>MNB Corp.</td>
<td>823/640-1258</td>
<td>52,838.39</td>
</tr>
<tr>
<td>100200</td>
<td>NBCO Corporation Inc.</td>
<td>312/457-1822</td>
<td>71,008.83</td>
</tr>
<tr>
<td>100300</td>
<td>Obell Group Sales</td>
<td>315/472-6442</td>
<td>27,632.39</td>
</tr>
<tr>
<td>100500</td>
<td>PCE Corp.</td>
<td>319/753-0303</td>
<td>1,911.98</td>
</tr>
<tr>
<td>101100</td>
<td>Que Company Inc.</td>
<td>807/264-2463</td>
<td>16,807.97</td>
</tr>
<tr>
<td>101200</td>
<td>Maple Leaf Cemetery</td>
<td>503/248-0050</td>
<td>16,807.97</td>
</tr>
<tr>
<td>101616</td>
<td>Sports Shop</td>
<td>520/442-5200</td>
<td>18,719.95</td>
</tr>
<tr>
<td>102000</td>
<td>Optimum Corp</td>
<td>407/525-9660</td>
<td>100.50</td>
</tr>
<tr>
<td>102100</td>
<td>Lim Equipment Co.</td>
<td>208/299-2960</td>
<td>17,083.92</td>
</tr>
<tr>
<td>102311</td>
<td>Lawrence Design</td>
<td>817/654-3221</td>
<td>44,430.40</td>
</tr>
<tr>
<td>102600</td>
<td>Reay Corp</td>
<td>101/743-4446</td>
<td>6,930.40</td>
</tr>
<tr>
<td>102800</td>
<td>Rider Corp.</td>
<td>617/549-1240</td>
<td>33,917.44</td>
</tr>
<tr>
<td>102900</td>
<td>Taehnrich Corp.</td>
<td>312/366-3231</td>
<td>52,375.89</td>
</tr>
<tr>
<td>103100</td>
<td>Urus Corp.</td>
<td>307/622-2914</td>
<td>30,274.57</td>
</tr>
<tr>
<td>103506</td>
<td>Xegewisch Corp.</td>
<td>912/646-2584</td>
<td>16,807.97</td>
</tr>
<tr>
<td>103800</td>
<td>Kelly’s Corp.</td>
<td>718/533-8654</td>
<td>16,807.97</td>
</tr>
<tr>
<td>104000</td>
<td>V&amp;B Sporting Goods</td>
<td>406/472-2138</td>
<td>201.00</td>
</tr>
</tbody>
</table>

In our example, all order records for a given customer have been summarized into a single line on the display.

press F3 to exit the data display

Sometimes, these types of queries can be confusing. Refer to the SEQUEL User’s Guide for a complete discussion of the Group By and Having clauses.
Save the view

We’re finished with this example, so let’s save the view definition.

**press F10** to display the action bar

**press Enter** to pull down the File menu

**type 4** to select the Save As... option

The save display will appear. Name your view `XXXEXER4` (`xxx` are your initials) and place it into the `SEQELEX` library as indicated on the display below.

| View name              | GHBEKER4 |
| Library               | SEQELEX  |
| Title                 | Summary of customer orders |
| Status messages       | *YES     | (*YES, *NO) |
| Allow temporary result | *YES    | (*YES, *NO, *IFROD) |
| Number of unique keys | *NONE    | (*NONE, *ALL, number) |
| Join type             | *INNER   | (*INNER, *PARTOUT, *ONLYDFT) |
| Join order            | *ANY     | (*ANY, *FILE) |
| Ignore decimal errors | *NO      | (*YES, *NO) |
| Include access plan   | *NO      | (*YES, *NO) |

When your display looks similar to the one above,

**press Enter**

Your view will be saved and can be run whenever you want. The view definition display will reappear.
Let’s do one more example. While we were touring the files a few minutes ago, you might have noticed that each record in the order line item file has two prices - list price and actual selling price of the product on the order. In our next example we will create a view that shows these values and compares them on a “per customer” basis.

Eventually, we want to see the customer’s name and the total value of all of their open orders. We want to compare the list price of the products they have ordered, with the actual price they were charged on their orders. The results should look something like this:

<table>
<thead>
<tr>
<th>Name</th>
<th>LIST</th>
<th>ACTUAL</th>
<th>DIFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNB Corp.</td>
<td>52,928.39</td>
<td>52,838.39</td>
<td>90.00</td>
</tr>
<tr>
<td>NBCO Corporation Inc.</td>
<td>91,085.88</td>
<td>71,008.83</td>
<td>20,077.05</td>
</tr>
<tr>
<td>Obell Group Sales</td>
<td>35,209.44</td>
<td>27,632.39</td>
<td>7,577.05</td>
</tr>
<tr>
<td>PCE Corp.</td>
<td>1,911.98</td>
<td>1,911.98</td>
<td>0.00</td>
</tr>
<tr>
<td>Que Company Inc.</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
</tbody>
</table>


Starting simply

Instead of trying to reach the desired end (a joined, grouped, summary result) all at once, we’ll do this one in steps. First, we’ll create the “detailed” view that shows the comparison for each line item order, then we’ll change it to a grouped view that shows information at the customer level. As you work with your own views you will find that in many cases it is easier to start simply and progress to the more complex result a step at a time.

From the last several examples you should already know that the customer, order header, and order line item files will be needed for the view. Prompt the file list for the SEQUELEX library and select the three files. Your display should look like the one below when you are ready to leave the FROM prompt. (If you need help selecting files, follow these steps)

press f2 to clear the current view definition.

press Enter to prompt the FROM clause

type 1 next to the CUSTM AST, ORDHEAD, and ORDLINE files

press Enter

<table>
<thead>
<tr>
<th>Sel Name</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ CUSTM AST</td>
<td>PF</td>
<td>Customer master</td>
</tr>
<tr>
<td>___ CVTDATE</td>
<td>PF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td>___ CVTDATEL1</td>
<td>LF</td>
<td>Gregorian-Julian Conversion</td>
</tr>
<tr>
<td>___ DSPFFD</td>
<td>PF</td>
<td>Output file for DSPFFD</td>
</tr>
<tr>
<td>___ DSPOBJD</td>
<td>PF</td>
<td>Output file for DSPOBJD</td>
</tr>
<tr>
<td>___ ORDHEAD</td>
<td>PF</td>
<td>Open Orders - Order headers</td>
</tr>
<tr>
<td>___ ORDLINE</td>
<td>PF</td>
<td>Open Orders - Order line items</td>
</tr>
<tr>
<td>___ PARTM AST</td>
<td>PF</td>
<td>Product master</td>
</tr>
<tr>
<td>___ SOURCE</td>
<td>PF</td>
<td>Example source code</td>
</tr>
<tr>
<td>___ SQDATE</td>
<td>PF</td>
<td>Date conversion</td>
</tr>
<tr>
<td>___ TRIANGLES</td>
<td>PF</td>
<td>Leg lengths for triangles</td>
</tr>
</tbody>
</table>

Specify up to 32 files to select data from. Use ? or *generic* to prompt list.

<table>
<thead>
<tr>
<th>Library</th>
<th>File Name</th>
<th>Member</th>
<th>Format</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEQUELEX</td>
<td>CUSTM AST</td>
<td>_______</td>
<td>_______</td>
<td></td>
</tr>
<tr>
<td>SEQUELEX</td>
<td>ORDLINE</td>
<td>_______</td>
<td>_______</td>
<td>+</td>
</tr>
</tbody>
</table>

press f12 when you have selected the three files.
This time when we create the joining specifications, we’ll pretend that there are no common fields listed at the bottom of the display. Your database might be constructed with unique names in each file, and so you may find that your files do not have matching field names. SEQUEL makes it easy to join files even when the join fields are named differently.

When there are no matching field names, you can begin the join process by defining the “join path” that connects the files together. The join path helps you plan your joining sequence so that SEQUEL can present the files’ fields to you in an easy to use format.

The top part of the display shown below is used to specify the join path. When joining this way you will not need to use the bottom of the display. In fact, if your database is not designed with matching field names, the bottom of the display will be blank.

In our example, we’ll be linking the customer master (CUSTMAST) to the order header (ORDHEAD). We will also link the order header to the order line item (ORDLINE) file.

Specify the CUSTMAST-ORDHEAD link by placing a ‘1’ next to their file names.

**type 1** next to the CUSTMAST file name

**type 1** next to the ORDHEAD file name

**press Enter** to update the path definition

The ORDHEAD file will be added to the join path and will appear underneath and to the right of the CUSTMAST file on your display.
Your display now shows that you intend to link the CUSTMAST file and the ORDHEAD file. You have not yet told SEQUEL which fields will be used, only that these files will be joined together.

Continue selecting file pairs until the join path is complete...

1=Add  4=Delete

_ CUSTMAST  Customer master
_ ORDHEAD  Open Orders - Order headers

_ ORDLINE  Open Orders - Order line items

...or select the fields common to these file pairs that will join them together.

Sel Field  From file  To file  Field text
_ CUSNO  CUSTMAST  ORDHEAD  Customer number
_ ORDNO  ORDHEAD  ORDLINE  Order number

F3=Exit  F12=Accept

Now add the ORDLINE file to the path and indicate that you will link it to the ORDHEAD file.

  type 1 next to the ORDHEAD file name

  type 1 next to the ORDLINE file name

  press Enter to update the path definition

The ORDLINE file will be added to the join path and will appear underneath and to the right of the ORDHEAD file on your display.

Since you have indicated how all the files will be linked (none are left in the “unjoined” part of the display) you can advance to the next panel and specify the fields that will be used to join the files together.

  press Enter
SEQUEL shows you all the fields in each pair of files in the join path. One file is shown on each side of the display. You will use the display to choose the fields from each file that will join them together.

Now we’ll join the CUSTMAST and ORDHEAD files by choosing the CUSNO field from both files.

<table>
<thead>
<tr>
<th>From File</th>
<th>CUSTMAST</th>
<th>To File</th>
<th>ORDHEAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seq Field</td>
<td>CUSNO</td>
<td>Seq Field</td>
<td>ORDNO</td>
</tr>
<tr>
<td>Text</td>
<td>Pkd 6,0</td>
<td>Text</td>
<td>Pkd 6,0</td>
</tr>
<tr>
<td>CNAME</td>
<td>Char 25</td>
<td>CUSNO</td>
<td>Pkd 6,0</td>
</tr>
<tr>
<td>CADD1</td>
<td>Char 25</td>
<td>COOMN</td>
<td>Znd 2,0</td>
</tr>
<tr>
<td>CADD2</td>
<td>Char 25</td>
<td>COODY</td>
<td>Znd 2,0</td>
</tr>
<tr>
<td>CADD3</td>
<td>Char 16</td>
<td>COOYR</td>
<td>Znd 2,0</td>
</tr>
<tr>
<td>CSTTE</td>
<td>Char 2</td>
<td>CUSPO</td>
<td>Char 15</td>
</tr>
<tr>
<td>CZIPC</td>
<td>Char 10</td>
<td>SHIPV</td>
<td>Char 10</td>
</tr>
<tr>
<td>CPHON</td>
<td>Pkd 10,0</td>
<td>TRMCD</td>
<td>Char 2</td>
</tr>
<tr>
<td>CTYPY</td>
<td>Char 2</td>
<td>TRMDS</td>
<td>Char 15</td>
</tr>
<tr>
<td>CRLIM</td>
<td>Pkd 9,0</td>
<td>OSTAT</td>
<td>Char 1</td>
</tr>
<tr>
<td>AMTDU</td>
<td>Pkd 11,2</td>
<td>OTYPE</td>
<td>Char 1</td>
</tr>
<tr>
<td>OROPN</td>
<td>Pkd 9,2</td>
<td>CURLN</td>
<td>Pkd 3,0</td>
</tr>
<tr>
<td>HIGHB</td>
<td>Pkd 9,0</td>
<td>ORVAL</td>
<td>Pkd 9,2</td>
</tr>
</tbody>
</table>

Select fields(s) from the from and to files that join them together.

From field From file Join Op To field To file
And __________ __________   __    __________ __________
And __________ __________   __    __________ __________
And __________ __________   __    __________ __________
And __________ __________   __    __________ __________
And __________ __________   __    __________ __________

File number 1 (CUSTMAST) remains unlinked by the join specifications. +
F7/F8=Last/next pair  F12=Accept  F16=Path  F19/F20=Last/next file  F24=Keys

*type 1 next to the CUSNO field under the CUSTMAST file

*type 1 next to the CUSNO field under the ORDHEAD file

*press Enter

The selected fields will be added to the list at the bottom of the display. That’s all there is to it. Joining files is no more complicated than indicating which fields should be matched together.
Advance to the next pair of files in the path (ORDHEAD-ORDLINE) and indicate that the 
ORDNO field should be used to join them.

**press** F8 to advance to the next pair in the list

**type** 1 next to each ORDNO field

**press** Enter

Your display should look like this:

<table>
<thead>
<tr>
<th>From File</th>
<th>ORDHEAD</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seq Field</td>
<td>SEQUELEX</td>
<td></td>
</tr>
<tr>
<td>To File</td>
<td>ORDLINE</td>
<td>3</td>
</tr>
<tr>
<td>Seq Field</td>
<td>SEQUELEX</td>
<td></td>
</tr>
<tr>
<td>From field</td>
<td>ORDNO</td>
<td>Pkd 6,0</td>
</tr>
<tr>
<td>Join Op</td>
<td>=</td>
<td></td>
</tr>
<tr>
<td>To field</td>
<td>ORDNO</td>
<td>Pkd 6,0</td>
</tr>
<tr>
<td>And</td>
<td>CUSNO</td>
<td>Pkd 6,0</td>
</tr>
<tr>
<td>And</td>
<td>COOMN</td>
<td>Znd 2,0</td>
</tr>
<tr>
<td>And</td>
<td>COODY</td>
<td>Znd 2,0</td>
</tr>
<tr>
<td>And</td>
<td>COOYR</td>
<td>Znd 2,0</td>
</tr>
<tr>
<td>And</td>
<td>CUSPO</td>
<td>Char 15</td>
</tr>
<tr>
<td>And</td>
<td>SHIPV</td>
<td>Char 10</td>
</tr>
<tr>
<td>And</td>
<td>TRMCD</td>
<td>Char 2</td>
</tr>
<tr>
<td>And</td>
<td>TRMDS</td>
<td>Char 15</td>
</tr>
<tr>
<td>And</td>
<td>OSTYPE</td>
<td>Char 1</td>
</tr>
<tr>
<td>And</td>
<td>CURLN</td>
<td>Pkd 3,0</td>
</tr>
<tr>
<td>And</td>
<td>ORVAL</td>
<td>Pkd 9,2</td>
</tr>
<tr>
<td>And</td>
<td>ORVAL</td>
<td>Pkd 9,2</td>
</tr>
</tbody>
</table>

Select fields(s) from the from and to files that join them together.

<table>
<thead>
<tr>
<th>From field</th>
<th>From file</th>
<th>Join Op</th>
<th>To field</th>
<th>To file</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSNO</td>
<td>01</td>
<td>=</td>
<td>CUSNO</td>
<td>02</td>
</tr>
<tr>
<td>And</td>
<td>ORDNO</td>
<td>02</td>
<td>ORDNO</td>
<td>03</td>
</tr>
<tr>
<td>And</td>
<td>----------</td>
<td>-------</td>
<td>--------</td>
<td>+</td>
</tr>
</tbody>
</table>

F7/F8=Last/next pair  F12=Accept  F16=Path  F19/F20=Last/next file  F24=Keys

As you probably guessed, you can also type directly into the entry fields at the 
bottom of the display. If your screen doesn’t look like the example above, change 
it by typing the desired entries directly onto the display.

You are finished with the join specification and can return to the view definition 
display. Remember that since the field names are the same in each pair of our 
sample files, we could have joined the files using the common field names part of 
the join path display (p. 5–41). Instead, we wanted to show you the specific join 
field selection process so that you will know how to link files together even if your 
database is not designed with common field names.

**press** F12 to return to the view definition display
Now choose the fields for the view by prompting the SELECT clause. Since we’re building a detail level view, you should use the “Select and sequence fields” menu choice.

**type 1** next to the Select and sequence fields menu item

If the display doesn’t show the format with only 3 entry lines at the bottom, use **F11** to cycle through the formats until it does.

**press Enter**

Choose the CUSNO and CNAME fields from the customer master, and the ORDNO field from the order line file

Try it on your own or follow these steps:

**type 1** next to the CUSNO and CNAME fields

**press Enter**

**press F14** to prompt the file list

**type 1** next to the ORDLINE file

**press Enter**

**type 1** next to the ORDNO field

**press Enter** to add it to the list

Your display should look like this:
Now, create the two calculations that will give us the extended amounts for each line item:

\[ QUANO \times LISTP \] (Extended list price)

\[ QUANO \times ACTSP \] (Extended selling price)

Let’s use the expression editor to create the first calculation.

**press F22**

type **LIST** for the field name

type **9, 2** in the length field

type **QUANO*LISTP** in the expression entry field

Your display should look like this:

<table>
<thead>
<tr>
<th>6/01/98 10:26:30</th>
<th>Expression Editor</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sel</strong></td>
<td><strong>Function</strong></td>
<td><strong>Seq Field</strong></td>
</tr>
<tr>
<td>1</td>
<td>ABS()</td>
<td>CUSTMAST</td>
</tr>
<tr>
<td>2</td>
<td>ACOS()</td>
<td>CUSNO</td>
</tr>
<tr>
<td>3</td>
<td>ASIN()</td>
<td>CNAME</td>
</tr>
<tr>
<td>4</td>
<td>ATAN()</td>
<td>CADD1</td>
</tr>
<tr>
<td>5</td>
<td>ATANH()</td>
<td>CADD2</td>
</tr>
<tr>
<td>6</td>
<td>AVG()</td>
<td>CADD3</td>
</tr>
<tr>
<td>7</td>
<td>AVG()</td>
<td>CSTTE</td>
</tr>
<tr>
<td>8</td>
<td>BCAT(,)</td>
<td>CZIPC</td>
</tr>
<tr>
<td>9</td>
<td>CAT(,)</td>
<td>CPHON</td>
</tr>
<tr>
<td>10</td>
<td>CHAR()</td>
<td>CYTYPE</td>
</tr>
<tr>
<td>11</td>
<td>COS()</td>
<td>CRLLIM</td>
</tr>
</tbody>
</table>

Select a function and matching field(s) that will be copied into the expression. Or, you can enter the expression directly by typing below.
Press F4 to specify column headings, a default value and an edit code/word.

<table>
<thead>
<tr>
<th>Expression Name</th>
<th><strong>LIST</strong></th>
<th>Length 9,2</th>
<th>Position to function</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUANO*LISTP</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**press F12** to return to the SELECT prompt

**press F11** to change the format to the one with 8 entry items
Now, create the remaining calculations by expanding the prompt and typing them directly.

**press** F4 to expand the prompt

**press** Rollup to access a new field definition

type the calculations, length and alias

The field definitions should look like the ones below when you are finished.

<table>
<thead>
<tr>
<th>Field Selection(s) From All Files</th>
<th>System: ASC400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sel</td>
<td>Name</td>
</tr>
<tr>
<td>-----</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>CUSTMAST</td>
</tr>
<tr>
<td></td>
<td>CUSNO</td>
</tr>
<tr>
<td></td>
<td>CNAME</td>
</tr>
<tr>
<td></td>
<td>CADD1</td>
</tr>
<tr>
<td></td>
<td>CADD2</td>
</tr>
<tr>
<td></td>
<td>CADD3</td>
</tr>
<tr>
<td></td>
<td>CSTTE</td>
</tr>
<tr>
<td></td>
<td>CZIPC</td>
</tr>
</tbody>
</table>

Sequence each field. Press F4, F22 or select a field to enter an expression.

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>9,2</td>
<td></td>
<td>LIST</td>
<td></td>
</tr>
<tr>
<td></td>
<td>=</td>
<td>quano*</td>
<td></td>
<td>listp</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td>9,2</td>
<td></td>
<td>ACTUAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>=</td>
<td>quano*</td>
<td></td>
<td>actsp</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>9,2</td>
<td></td>
<td>DIFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>=</td>
<td>list-</td>
<td></td>
<td>actual</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Don’t be confused by the several different places that you can create a calculation. You may find that you prefer to use a specific screen all the time; you may choose to create calculations from each screen. SEQUEL is designed so that you can use your preference. You decide how and where you want to create the calculations in your view.
The view is complete. It should look like this:

```
6/01/98 11:08:14                Define View                  System: ASC400
Type SQL statement. Press F4 to prompt the clause under your cursor.
Amount to roll 9
SELECT   cusno.01, cname.01, ordno.03, quano*listp LEN(9,2) NAME(list),
          quano*actsp LEN(9,2) NAME(actual),
          list-actual LEN(9,2) NAME(diff)
FROM     sequelex/custmast, sequelex/ordhead, sequelex/ordline
JOIN     cusno.01=cusno.02 AND ordno.02=ordno.03
```

Type options to specify view. Press F13 to select all.
1=Select 4=Delete                                 View . . . : (Untitled)

```
Opt View definition options
  _ > Specify files that data is selected from       (FROM)
  _ > Select and sequence fields                     (SELECT)
  _ > Select and sequence summary fields
  _ Choose which records are included                (WHERE)
  _ Specify the order of the records                 (ORDER BY)
F3=Exit F7/F19=Display  F8/F20=Print  F9=Outfile  F10=Actions F21=Assist level
```

Now, run the view and examine the results. You’ll see values for every line item on each customer’s order.

press F19 to run the view

press F20 to shift the results one column to the right (if your display doesn’t have 132 column capability)

press Roll Up (PageDn) to roll forward through the results
press F3 to return to the view definition
Now, we’ll change the view to summarize the information for each customer. The next view will produce a single line for each customer, totalling all the order amounts we saw in the last display.

Begin by prompting the SELECT clause again.

**type** 1 next to Select and sequence fields

**press** Enter

Remove the ORDNO field from the list of fields. The order number has no place in the result since we’re totalling values for all of each customer’s orders.

**move** the cursor to the ORDNO line (sequence 15)

**press** the Field Exit key to blank out the ORDNO field name

Change the extended amount calculations so that they provide summary results; giving total values for the customer rather than detail values for each line item.

**press** F4 to expand the prompt

**press** Roll up (PageDn) to access the calculation definitions

**type** SUM( before and a parenthesis ) after the LIST and ACTUAL definitions

The calculation for DIFF remains the same. Now it will determine the difference between the total amounts for the customer, rather than the amounts for each line item on the order. The calculations should look like this:

<table>
<thead>
<tr>
<th>Seq</th>
<th>Exp</th>
<th>Field</th>
<th>File</th>
<th>Length</th>
<th>Edit</th>
<th>Alias</th>
<th>Column heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>9.2</td>
<td></td>
<td>LIST</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>= sum(quano*listp)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td>9.2</td>
<td></td>
<td>ACTUAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>= sum(quano*actsp)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>9.2</td>
<td></td>
<td>DIFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>= list-actual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Edit word: _________________________</td>
<td></td>
<td>________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**press** F12 to return to the view definition display
The summarized view is finished. Notice that the GROUP BY clause has been added for you. As a general rule, the GROUP BY clause will match the SELECT clause except for calculated fields. SEQUEL will automatically build a GROUP BY clause for you when you are using the basic assistance level.

Your display should look like this:

```
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cusno</td>
<td>01</td>
<td>cmae</td>
</tr>
<tr>
<td>01</td>
<td>100,12</td>
<td>MNB Corp.</td>
</tr>
<tr>
<td>02</td>
<td>100,200</td>
<td>NBCO Corporation Inc.</td>
</tr>
<tr>
<td>03</td>
<td>100,300</td>
<td>Obell Group Sales</td>
</tr>
<tr>
<td>04</td>
<td>100,500</td>
<td>PCE Corp.</td>
</tr>
<tr>
<td>05</td>
<td>101,100</td>
<td>Que Company Inc.</td>
</tr>
<tr>
<td>06</td>
<td>101,200</td>
<td>Maple Leaf Cemetery</td>
</tr>
<tr>
<td>07</td>
<td>101,600</td>
<td>Sports Shop</td>
</tr>
<tr>
<td>08</td>
<td>102,000</td>
<td>Optimum Corp.</td>
</tr>
<tr>
<td>09</td>
<td>102,100</td>
<td>Lim-Equipment Co.</td>
</tr>
<tr>
<td>10</td>
<td>102,300</td>
<td>Lawrence Design</td>
</tr>
<tr>
<td>11</td>
<td>102,600</td>
<td>Reay Corp.</td>
</tr>
<tr>
<td>12</td>
<td>102,800</td>
<td>Rider Corp.</td>
</tr>
<tr>
<td>13</td>
<td>102,900</td>
<td>Taehnrich Corp.</td>
</tr>
<tr>
<td>14</td>
<td>103,100</td>
<td>Urus Corp.</td>
</tr>
<tr>
<td>15</td>
<td>103,500</td>
<td>Xegewisch Corp.</td>
</tr>
<tr>
<td>16</td>
<td>103,800</td>
<td>Kelly's Corp.</td>
</tr>
<tr>
<td>17</td>
<td>104,000</td>
<td>V&amp;B Sporting Goods</td>
</tr>
</tbody>
</table>
```

Now, run the view and examine the results. You’ll see one value for each customer.

press F19 to run the view
Compare the results of the grouping query to those on page 5–48. The order detail information has been summarized to a single line for each customer.

Save and exit

We’re finished with this lesson, so let’s save the view definition.

press F3

The exit display will appear. Name your view XXXEXERS (xxx are your initials) and place it into the SEQUELEX library as indicated on the display below. Type an appropriate title so that you’ll know what it does.

When your display looks similar to the one above,

press Enter.

Your view will be saved and can be run whenever you want. The user interface will end.
These exercises have taught you:

- How to join two or more files together.
- How to use SQL grouping to produce summary information from a series of detail records.
- That requests for information are not always given in the specific terms required to answer them.
- That you may need to rephrase, reword or gain clarification on the meaning of a request before it can be answered.

This concludes the tutorial section on the SEQUEL user interface. You have learned much, but certainly not all, about it. To get more understanding about the facilities available in the SEQUEL user interface and the functions of the SQL language, refer to the SEQUEL User’s Guide. It gives a comprehensive explanation of all that is available to you.

The next section of this guide will begin your tour through the SEQUEL report writer. Use it to discover how to produce reports that cannot be created using view definition alone.
In this section, you will learn how to use the SEQUEL report writer. You can use the report writer when a simple view is not enough to give you the information that you need. For instance, a view cannot show you subtotal or total amounts for the detail information or present information in a special format. The SEQUEL report writer can.

The first set of exercises will help you learn how easy it is to create the most common reports over SEQUEL views. Specifically, you will:

1. Learn to start and end the report design process.
2. Build a SEQUEL report over the view you created in Chapter 5 of the tutorial.
3. Learn how to request subtotaling for numeric columns in your view.
4. Find out how to run a report that you have created.

We’ll begin with the view you created at the end of the last lesson. It compares the total retail (list price) value to the actual selling price for all the orders for each customer.

Now we want to print the information but we also want a grand total - comparing the total retail amount on order vs. the total actual selling price. This is a simple request and probably the most common use for the report writer - namely, producing subtotals and totals for numeric columns.

At the end of the last lesson you should have saved the view under $xxxEXER5$ where xxx are your initials. If so, you are ready to begin creating the report definition for the view. Otherwise, take a few minutes to review the previous section and create this view.
Starting report design

Starting the report design process is similar to beginning the view definition. As with the user interface, there are several ways to begin. You can choose which is easiest for you.

Menu Access

If you normally use a menu, you may be able to select the SEQUEL report writer directly from your menu. If there is no “design report” option on your menu, you may be able to access the simple SEQUEL menu by selecting one of your menu options, or by typing GO SEQUEL/SEQUEL from command entry. If you can access the SEQUEL menu, you can begin working with reports by using “work with” option 2, 3, or 5.

Work with Views (WRKVIEW)

If you have been using the WRKVIEW menu or can get to it from your menu, use option 10=Design Report and type the view name (xxxEXER5) and library (SEQUELEX) and then press Enter.

Work with SEQUEL Objects (WRKSEQUEL)

If you have been working from the WRKSEQUEL list display or can get to it from your menu, place option 10 next to the view name (xxxEXER5) and then press Enter.

Work with Reports (WRKREPORT)

The Work With Reports (WRKREPORT) menu will be discussed in the next lesson. If you are already familiar with it and wish to use it to start the report design tool, select option 1, press Enter, and then enter the view name (xxxEXER5) and library (SEQUELEX) on the DSNREPORT command prompt that follows.

Command Entry

You can also start the report design tool from the command entry display or a command line. If you have a command entry line on your display, you can proceed by using the Design View (DSNVIEW) command directly. Start the report design tool directly by typing the command below and pressing Enter.

```sql
SEQUEL/DSNREPORT *CREATE VIEW SEQUELEX/xxxEXER5
```
Once you start the report design tool, several messages will appear at the bottom of your display. They indicate that the report design process is beginning and in a few moments you will see the following display:

```
6/03/98  9:48:31              Total Selection                System: ASC400

Type a 'Y' next to each field that you want to subtotal.

<table>
<thead>
<tr>
<th>Tot</th>
<th>Field</th>
<th>Len</th>
<th>Len, Dec</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>CUSNO</td>
<td>6</td>
<td>6,00</td>
<td>Cust Number</td>
</tr>
<tr>
<td>N</td>
<td>LIST</td>
<td>9</td>
<td>9,02</td>
<td>LIST</td>
</tr>
<tr>
<td>N</td>
<td>ACTUAL</td>
<td>9</td>
<td>9,02</td>
<td>ACTUAL</td>
</tr>
<tr>
<td>N</td>
<td>DIFF</td>
<td>9</td>
<td>9,02</td>
<td>DIFF</td>
</tr>
</tbody>
</table>
```

F3=Exit
Specifying totals and subtotals

This display shows you the numeric fields defined in your view and asks which one(s) you want totalled. Values will be summed down the page and can be printed at the end (grand total) and at each summary level of the report (subtotal).

Since we want to total the retail, actual, and difference fields on the report,

\textbf{type} \textit{Y} next to the \textit{LIST}, \textit{ACTUAL}, and \textit{DIFF} fields

If you needed to you could make the total field larger than the column fields in order to hold the subtotal. We will not do this since we don’t expect the number to be that large. (Remember that a 9,2 field allows a value up to 9,999,999.99)

After changing the display,

\textbf{press} \textit{Enter}

Report dimensions and level breaks

The next display asks for formatting information. You must find out the size of the paper you intend to use for your report. On this display you tell SEQUEL how many lines and characters per inch you want, and the size of the paper - its length (in lines) and width (in characters).

Usually you will not need to change the standard settings that are automatically supplied when this display appears.
Let’s supply a title for the report.

**move** the cursor to the title line

**type** *Total retail value Vs. Total selling price*

**press** Field Exit to move the cursor to the footing line.

**Type** Confidential Information and **press** Enter

SEQUEL will format the report and present it to you. It should look like this:

```
*LIBL*/CREATE Format @HEADING Forms width: 132

10      20       30       40       50       60       70
1 - 01/11/11 22:22:22 ASC
2 - Report: aaaaaaaaaa Total retail value Vs. Tot
3 - Cust
4 - Number Name LIST ACTUAL
 5 111110 aaaaaaaaaaaaaaaa 2,222,220.22- 3,333,330.33- 4,444
 6 1,111,110.11- 2,222,220.22- 3,333
```

The display shows a representation of the report that you will receive. We will consider some of its features and functions in a moment. Right now, let’s finish this report definition.

**press** F3 to progress to the exit display.

Specifying totals and subtotals 6-5
Create the report

Now you need to name the report and place it in a library. You cannot give it the same name as the view, but a useful convention is to simply place an ‘R’ at the end of the view name.

Save your report definition.

**type** `XXXEXER5R` as a report name and `SEQULEX` for the library

In addition to saving the report definition, you could choose to run the report now by submitting it to batch by pressing **F14**. We’ll run it later. Right now, simply

**press** `Enter`

The report design session will end and return you to the menu, work with views/reports display, or command entry.
Run the report

How you run the report depends on the display you are using.

Work with Views (WRKVIEW)

If you have been using the WRKVIEW menu you can switch to the Work With Reports (WRKREPORT) menu to work with the report you just created.

press F14

Work with Reports (WRKREPORT)

If you are using the Work With Reports (WRKREPORT) menu you can run the report and display the results with the following steps:

- type 16 for the option number
- type xxxEXER5R for the report name
- type SEQUELEX for the report library
- press Enter

Work with SEQUEL Objects (WRKSEQUEL)

If you have been working from the WRKSEQUEL list display or can get to it from your menu, place option 5 next to the report name (xxxEXER5R) and then press Enter. The report will be run and the results displayed at your terminal.

Command Entry

You can also run the report from the command entry display or a command line. Type the command below and press Enter.

REPORT SEQUELEX/XXXEXER5R
When you run it, you will see a few messages at your workstation as the report is printed. It will print at your standard output queue so you may need to walk to the printer to pick it up.

Your printout should look like the one below.

<table>
<thead>
<tr>
<th>Cust Number</th>
<th>Name</th>
<th>LIST</th>
<th>ACTUAL</th>
<th>DIFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>100112</td>
<td>MNB Corp.</td>
<td>52,928.39</td>
<td>52,838.39</td>
<td>90.00</td>
</tr>
<tr>
<td>100200</td>
<td>NBCO Corporation Inc.</td>
<td>90,583.38</td>
<td>70,531.48</td>
<td>20,051.90</td>
</tr>
<tr>
<td>100300</td>
<td>Obe l Group Sales</td>
<td>34,706.94</td>
<td>27,155.04</td>
<td>7,551.90</td>
</tr>
<tr>
<td>100500</td>
<td>PCE Corp.</td>
<td>1,911.98</td>
<td>1,911.98</td>
<td>.00</td>
</tr>
<tr>
<td>101100</td>
<td>Que Company Inc.</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>101200</td>
<td>Maple Leaf Cemetery</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>101616</td>
<td>Sports Shop</td>
<td>18,749.95</td>
<td>18,719.95</td>
<td>30.00</td>
</tr>
<tr>
<td>102000</td>
<td>Optimum Corp</td>
<td>100.50</td>
<td>100.50</td>
<td>.00</td>
</tr>
<tr>
<td>102100</td>
<td>Lim-Equipment Co.</td>
<td>17,113.92</td>
<td>17,083.92</td>
<td>30.00</td>
</tr>
<tr>
<td>102300</td>
<td>Lawrence Design</td>
<td>57,976.95</td>
<td>44,430.40</td>
<td>13,546.55</td>
</tr>
<tr>
<td>102600</td>
<td>Reay Corp.</td>
<td>7,976.95</td>
<td>6,930.40</td>
<td>1,046.55</td>
</tr>
<tr>
<td>102800</td>
<td>Rider Corp.</td>
<td>33,977.44</td>
<td>33,917.44</td>
<td>60.00</td>
</tr>
<tr>
<td>102900</td>
<td>Taehnrich Corp</td>
<td>52,465.89</td>
<td>52,375.89</td>
<td>90.00</td>
</tr>
<tr>
<td>103100</td>
<td>Urus Corp.</td>
<td>37,096.37</td>
<td>30,274.57</td>
<td>6,821.80</td>
</tr>
<tr>
<td>103500</td>
<td>Xegewisch Corp.</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>103800</td>
<td>Kelly's Corp.</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>104000</td>
<td>V &amp; B Sporting Goods</td>
<td>201.00</td>
<td>201.00</td>
<td>.00</td>
</tr>
<tr>
<td>104100</td>
<td>Lickton's City Corp.</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>104400</td>
<td>Mister C's</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>105300</td>
<td>Quick Corp.</td>
<td>3,823.96</td>
<td>3,823.96</td>
<td>.00</td>
</tr>
<tr>
<td>105400</td>
<td>Rudy's Corp.</td>
<td>70,802.95</td>
<td>50,791.15</td>
<td>19,291.80</td>
</tr>
<tr>
<td>105500</td>
<td>Sauganash Inc.</td>
<td>5,703.94</td>
<td>5,418.69</td>
<td>285.25</td>
</tr>
<tr>
<td>105700</td>
<td>Town &amp; Country Sports</td>
<td>1,911.98</td>
<td>1,911.98</td>
<td>.00</td>
</tr>
<tr>
<td>108300</td>
<td>Toys R'Us</td>
<td>16,837.97</td>
<td>16,807.97</td>
<td>30.00</td>
</tr>
<tr>
<td>109600</td>
<td>K. Redford's Inc.</td>
<td>17,139.47</td>
<td>17,109.47</td>
<td>30.00</td>
</tr>
<tr>
<td>111333</td>
<td>TBA Corp.</td>
<td>19,051.45</td>
<td>19,021.45</td>
<td>30.00</td>
</tr>
<tr>
<td>111444</td>
<td>LBC Supplies</td>
<td>67,351.88</td>
<td>67,231.88</td>
<td>120.00</td>
</tr>
<tr>
<td>121321</td>
<td>Penn Sports</td>
<td>61,856.33</td>
<td>49,071.08</td>
<td>12,785.25</td>
</tr>
<tr>
<td>123456</td>
<td>Xoba Inc.</td>
<td>7,976.95</td>
<td>6,930.40</td>
<td>1,046.55</td>
</tr>
<tr>
<td>126500</td>
<td>L.M. Corp.</td>
<td>201.00</td>
<td>201.00</td>
<td>.00</td>
</tr>
<tr>
<td>151515</td>
<td>NBO Inc.</td>
<td>18,789.95</td>
<td>18,759.95</td>
<td>30.00</td>
</tr>
<tr>
<td>215113</td>
<td>NBO</td>
<td>7,976.95</td>
<td>6,930.40</td>
<td>1,046.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>805,522.26</td>
<td>721,328.16</td>
<td>84,194.10</td>
</tr>
</tbody>
</table>
That’s all there is to it! You have just completed all of the work required to produce most of your reports. The steps are:

Create a view that indicates the fields and records you wish to see.

Design the report by using an option from one of the “work with” displays or the DSNREPORT command. Remember that you must indicate the view to be used by the report.

Select the fields to be subtotaled and tell when (which breaks) to print them.

End the report design phase and create the report.

Run the report using the REPORT command or an option from one of SEQUEL’s “work with” displays.

Sometimes, you will want to add special formatting, calculations, or output specifications to your reports. In these cases, the simplest reports like we created in this exercise will not be sufficient. The last lesson in this section will teach you some of the features available through the report writer so that you can produce nearly any report you can imagine!
The work with views (WRKVIEW) command has a report counterpart called the Work With Reports (WRKREPORT) command. It allows you to access your reports quickly and easily. Using WRKREPORT you can quickly change, run, or submit your reports to the batch subsystem. Additionally, you can use a report as a starting point for creating a new one.

This section will explain how you can make the most of SEQUEL’s Work With Reports (WRKREPORT) facility. You will find that there is really very little to learn since you already know about WRKVIEW.

Like the work with views lesson, this section is somewhat shorter than the previous one and should take only 5 - 10 minutes to complete.
Using the WRKREPORT facility

SEQUEL’s Work With Reports (WRKREPORT) command will display a menu of functions that can be applied to an individual report. It looks (and works) very much like the Work With Views (WRKVIEW) menu. You can use it to create new reports, change or run existing ones, and to display information about them.

Menu Access

If you normally use a menu, you may be able to select a “work with reports” option directly from your menu. If not, you may be able to access the SEQUEL menu by selecting one of your menu options, or by typing GO SEQUEL/SEQUEL on a command entry line. If you can access the SEQUEL menu, you can get to the WRKREPORT display by selecting option 3.

Command Entry

Since WRKREPORT is a command, you can also access it directly from the command entry display or a command line. If you have a command entry line on your display, you can proceed by using the SEQUEL menu (above) or by using the WRKREPORT command directly by typing the command below and pressing Enter.

    SEQUEL/WRKREPORT
The WRKREPORT display

Once you have started the work with reports facility, you will see a display that looks similar to the one below. It is a menu-oriented display that lets you perform report related functions on the report of your choice.

The Work With Reports display is easy to understand, simple to use. Just identify the name and library of the report you want to work with, then select an option from the list at the top of the display.

You can use the display to create a new report or to change, run, display information about any report you are authorized to use. Each time an option completes, you will return to the display above.

We won’t take the time now to demonstrate each of the WRKREPORT options. Instead, let’s use a few of the options to show you a sample of what you can do.
Showing the report description

You may want to know the report attributes or the SQL statement that retrieves the information printed on the report. You can find out what the report uses by choosing WRKREPORT option 8.

For example, request a description of the view used in the ORDERPRINT report.

- **type** option 8 and **press** the **Field Exit** key
- **type** ORDERPRINT in the report name field
- **type** SEQUELEX in the library name field
- **press** Enter

You will see a display showing descriptive information about the report. It should look like the one below:

```
Report: ORDERPRINT     Title: Order Acknowledgement
Library: SEQUELEX
Form type: *STD       Length: 068  Width: 132  Overflow: 064  LPI: 8  CPI: 10
Copies: 001  Hold: *NO   Save: *NO
View:  ORDERACK
Library: SEQUELEX     Encapsulated SQL

SELECT   cusno.ordhead, cname LEN(20), cadd1.custmast, cadd2.custmast,
cadd3.custmast, cstte.custmast, czipc.custmast, cphon.custmast,
cuspo, shipv, trmcd, trmds, ordno,
coom*1000+coody*100+cooyr LEN(6,0) EDTCDE(Y) NAME(ordate),
line#, prdno, descp LEN(19), quano COLHDG("Quantity" "Ordered"),
actsp COLHDG("Price" "Each"),
quano*actsp LEN(7,2) EDTCDE(L$) COLHDG("Amount") NAME(extend),
unwgt.ordline
FROM     ordline, ordhead, custmast, partmast
JOIN BY  ordno.1=ordno.2 AND prdno.1=prdno.4 AND cusno.2=cusno.3

F3=Exit Amount to roll: 10
```

**press** F3 to return to the WRKREPORT display
Run a report interactively

You can use WRKREPORT option 16=Run to run reports either interactively or from the batch subsystem. Usually, you will want to submit your reports to batch so that your workstation is not occupied by a long running report request, and so that you don’t slow down other interactive users.

If your report is small and runs quickly, you may choose to run it interactively. Do this now and run the ORDERPRINT example in the SEQUELEX library. Since we used the ORDERPRINT report in the last request, we don’t need to retype its name or library onto the display.

    type option 16

    press Enter

You will see several messages indicating the progress of the report and then after a short delay SEQUEL will present the report at your workstation. The report will be sent to the printer as always, and you will also see it at your display. It should look like this:

<table>
<thead>
<tr>
<th>File</th>
<th>ORDERPRINT</th>
<th>Page/Line</th>
<th>1/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>------</td>
<td>Columns</td>
<td>1 - 78</td>
</tr>
<tr>
<td>Find</td>
<td>-----------------</td>
<td>Order Acknowledgement</td>
<td></td>
</tr>
<tr>
<td>9/03/98 11:05:00</td>
<td>100112</td>
<td>MNB Corp.</td>
<td></td>
</tr>
<tr>
<td>155 N. Clark</td>
<td>Las Vegas</td>
<td>NV 54511-4411</td>
<td></td>
</tr>
<tr>
<td>833/640-1258</td>
<td>110010</td>
<td>1/09/97</td>
<td>S-T5-506</td>
</tr>
<tr>
<td>OVERTON</td>
<td>2%</td>
<td>10</td>
<td>NET 30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantity</th>
<th>List</th>
<th>Selling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordered</td>
<td>Price</td>
<td>Price</td>
</tr>
<tr>
<td>1</td>
<td>BMX</td>
<td>BMX Model 1833-F/O</td>
</tr>
<tr>
<td>2</td>
<td>BMX100</td>
<td>BMX Formula 3 Power</td>
</tr>
<tr>
<td>3</td>
<td>BMX101</td>
<td>BMX Formula 3 Delux</td>
</tr>
<tr>
<td>4</td>
<td>BMX4000</td>
<td>BMX Tandem Cycle</td>
</tr>
<tr>
<td>5</td>
<td>BMX8000</td>
<td>BMX Silver Plated E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acknowledgement Totals</th>
<th>5 Lines</th>
<th>110</th>
</tr>
</thead>
</table>

You can scroll through the report using the roll keys. Use the command keys listed at the bottom of the display to shift it right and left so that you can see the entire width of the report.

    press F3

when you are finished and you want to return to the work with reports display.
Run a report in batch

You should submit a long running report to the batch subsystem. You do it by using WRKREPORT’s prompting facility. All WRKREPORT options can be prompted by pressing F4 while the cursor is positioned in the option entry field. Pressing F3 from any prompt will return the WRKREPORT or WRKVIEW display to your workstation.

Now, submit the CUSTLISTR report to the batch subsystem.

- type option 16
- type CUSTLISTR in the report name field
- press F15 to prompt the submit request
- press Enter to submit your request for execution
Library and report lists

As you have seen, the WRKREPORT display is quite handy when you want to work with a report, provided that you know the name (and library) of the view you want to use.

Like its WRKVIEW counterpart, you can use the WRKREPORT display to access lists of libraries containing reports, and to transfer to the WRKSEQUEL list display to view a list of reports. Because the WRKVIEW and WRKREPORT displays work nearly the same, you can review Chapter 3 to learn about the listing functions of the menu. Some of the information in it has been reproduced on the following pages so that you can gain more experience using WRKSEQUEL and a list of reports.

Now, let’s transfer to the WRKSEQUEL list and run some of its functions.
Report list display

Acquire the list display from the WRKREPORT display we have been using.

move the cursor to the Report field and

press F4.

You should see a display similar to the one below.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Description</th>
<th>Library</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/03/98</td>
<td>13:44:09</td>
<td>Work with SEQUEL Reports</td>
<td>System: ASC400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Position to name: CUSTLSTR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Position to library: SEQUELEX</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type option, then press Enter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2=Design 5=Display 6=Print 8=Describe 12=Work with 13=Change...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opt</td>
<td>Name</td>
<td>Type</td>
<td>Created</td>
<td>Library</td>
</tr>
<tr>
<td>3</td>
<td>CUSTLSTR</td>
<td>SQLRPT</td>
<td>98/05/27</td>
<td>SEQUELEX</td>
</tr>
<tr>
<td>3</td>
<td>CUSTORDR</td>
<td>SQLRPT</td>
<td>98/05/27</td>
<td>SEQUELEX</td>
</tr>
<tr>
<td>3</td>
<td>GHBEXER5R</td>
<td>SQLRPT</td>
<td>98/06/03</td>
<td>SEQUELEX</td>
</tr>
<tr>
<td>3</td>
<td>GHBEXER6R</td>
<td>SQLRPT</td>
<td>98/06/03</td>
<td>SEQUELEX</td>
</tr>
<tr>
<td>3</td>
<td>ORDERPRINT</td>
<td>SQLRPT</td>
<td>98/05/27</td>
<td>SEQUELEX</td>
</tr>
</tbody>
</table>

When you pressed F4, you switched from the WRKREPORT panel to the more general Work With SEQUEL Objects (WRKSEQUEL) facility. You can read about it in Chapter 1 of the SEQUEL User's Guide. The WRKSEQUEL display lets you to do the same functions as WRKREPORT, and gives you more flexibility in working with the reports on your system.

Depending on the way your administrator has set up your environment, you may or may not have a command line at the bottom of the display. The sample above shows that command line privileges have been enabled for the example user.

If you have command line privileges, any command you are authorized to run can be entered and executed on the command line. In addition, you can use F9 and F19 to retrieve previously entered commands. With them, you don’t need to retype previous commands when you want to use them again.

All reports in the SEQUELEX library are shown to you and you can use the options listed at the top of the display in working with them. All the options on the WRKREPORT menu display (p. 7-3) are available in addition to several others as well.

If your display can show 132 characters on a line, the entire text for each report will be presented. Otherwise, the rightmost part of the text is omitted because
there isn’t enough room for it on your display. You can change the display and see the full text by pressing F11.

**press F11** to view the complete description for a report.

Your display should look similar to the one below. Note that this example shows that the user does not have command line privileges.

```
6/03/98 13:44:09      Work with SEQUEL Reports               System: ASC400
                       Position to name . . . CUSTLISTR
                       Position to library. . SEQUELEX

Type option, then press Enter.
    2=Design  5=Display  8=Describe  12=Work with  13=Change...

    Opt Name       Text
    ___ CUSTLISTR  Customer A/R Amounts
    ___ CUSTORDR  Customer Order Summary
    ___ GHBEXER5R  Total retail value Vs. Total selling price
    ___ GHBEXER6R  Order summary by customer
    ___ ORDERPRINT Order Acknowledgement

F3=Exit  F4=Prompt  F15=Prompted Submit  F23=More Options  F24=More Keys
```

Many options on the WRKSEQUEL display work the same as they did when you accessed the view list in Chapter 3. Move, copy, rename, and delete functions are identical. Other options are specific to reports. You can read about them in the **SEQUEL User’s Guide**.

The action bar is available and can be accessed using F10 just as you did earlier.

### Designing reports from WRKVIEW and WRKSEQUEL

One last item to note is that you can use the WRKVIEW and WRKSEQUEL displays to design a report over a given view. By placing option 10=Design Report next to a view, you can start using the SEQUEL report designer.

We will do this in the next exercise.
In Review

This short series has taught you:

- How to enter and exit the Work With Reports (WRKREPORT) environment.
- How to use the Work With Reports (WRKREPORT) display to create, change, and run a report.
- How to view a report’s description and see its SQL statement and execution parameters.
- How to run reports interactively and display the results at your workstation, or to submit them to the batch subsystem.
- How to prompt WRKREPORT, WRKVIEW, and WRKSEQUEL options.
- How to switch between the WRKREPORT and WRKVIEW displays.
- How to start report design from the WRKVIEW and WRKSEQUEL displays.

As always, there are other features that we haven’t covered here. You should read about them in the SEQUEL User’s Guide so that you can make full use of the options available to you.

In the final lesson of our tutorial we will cover advanced aspects of the report writer. You will learn some of the finer points of report writing and see some pretty astonishing results. Take a break now, the next chapter is spellbinding!
This section will demonstrate some of the more advanced features of the SEQUEL report writer. As the first report writing lesson showed, you can create many, perhaps most, of the reports you need simply by filling in two displays presented by the report writer. This lesson will cover other, more complex aspects of report design.

This lesson is purely optional and is designed for those who are ready to examine some of the more challenging features of the SEQUEL system. Perhaps you will want to gain experience with the simpler parts by designing several views and reports of your own before trying to tackle this portion of the report writer.

In this lesson, you will use the report writer to create a specially formatted report showing summary information about the orders for each customer. In doing this, you will learn:

1. Several ways to place fields onto your report exactly where you want them.
2. How to rearrange fields and move them from one location to another.
3. How to window the report display in order to work with the entire width of the report.
4. How to use SEQUEL’s conditional assignment to translate database codes into words.
5. How to create your own calculations and a special trick to count items on the report.
6. How to use special formatting and report writing techniques to print some portions of the report while suppressing others.

You should set aside some extra time to complete this lesson. There are so many things that it covers, that you will probably want to spend a little longer digesting the displays. Plan to spend about 45 minutes on this section and you will be able to cover it without feeling rushed.

Before beginning this lesson, please take a few minutes to read it through. You will become familiar with the displays, the flow of our example, and the functions you will accomplish. You will find that if you read through it first, it will make more sense and be less confusing while you are actually working at your terminal.

And now...  Advanced Report Writing!
Order Summary Information

The ORDERSUM view in the SEQUELEX library assembles information about customer orders from both the order header (ORDHEAD) and customer master (CUSTMAST) files.

Specifically, it joins these two files in order to bring the customer’s number, name, and address, together with order information such as order number, date, customer P.O., etc.

To become familiar with the information, display the view information at your terminal. You could acquire a command line and type:

```plaintext
DISPLAY VIEW(SEQUELEX/ORDERSUM)
```

or use the work with views display.

Since we will be designing a report over this view, let's use WRKVIEW to do the review. Get to a command entry line and type:

```plaintext
WRKVIEW SEQUELEX/ORDERSUM
```

Once you receive the display,

```plaintext
5
Enter
```

The view information will appear and you will see customer information on your display. Window right using $F8$ to see the order information. When you are finished windowing and scrolling through the displays,

```plaintext
F3
```
Now you are ready to begin designing a report to represent this information in a more appealing manner. The manner in which you start the report design process depends on the display you are starting from.

From the work with views menu,

- **type 10** in the option entry field
- **type ORDERSUM** for the view name
- **type SEQUELEX** for the library name
- **press Enter**

From the work with reports menu,

- **type 1** in the option entry field
- **press Enter**

- **type ORDERSUM** for the view name on the next prompt
- **type SEQUELEX** for the library name
- **press Enter**

From the WRKSEQUEL list display (showing views in SEQUELEX),

- **type 10** next to the ORDERSUM view
- **press Enter**

From command entry or a command line,

```
DSNREPORT *CREATE VIEW(SEQUELEX/ORDERSUM)
```
Subtotal Selection

Regardless of how you start the report design tool, you will shortly see the total selection display. It shows all the numeric fields used in the view and allows you to indicate the fields you want subtotalled.

Select the four fields CURLN, ORVAL, ORTOT and ORWGT for totalling as shown below:

```
6/03/98 14:50:44               Total Selection               System: ASC400
Type a ‘Y’ next to each field that you want to subtotal.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
<th>Len, Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURLN</td>
<td>Number of lines</td>
<td>3,00</td>
</tr>
<tr>
<td>ORVAL</td>
<td>Retail Value</td>
<td>9,02</td>
</tr>
<tr>
<td>ORTOT</td>
<td>Amount Remaining</td>
<td>9,02</td>
</tr>
<tr>
<td>ORWGT</td>
<td>Total Weight</td>
<td>9,02</td>
</tr>
<tr>
<td>COOYR</td>
<td>Order Year</td>
<td>2,00</td>
</tr>
<tr>
<td>COODY</td>
<td>Order Day</td>
<td>2,00</td>
</tr>
<tr>
<td>COOMN</td>
<td>Order Month</td>
<td>2,00</td>
</tr>
<tr>
<td>CPHON</td>
<td>Telephone</td>
<td>10,00</td>
</tr>
<tr>
<td>ORDATE</td>
<td>Order Date</td>
<td>6,00</td>
</tr>
<tr>
<td>ORDNO</td>
<td>Order Number</td>
<td>6,00</td>
</tr>
<tr>
<td>CUSNO</td>
<td>Customer Number</td>
<td>6,00</td>
</tr>
</tbody>
</table>

F3=Exit
```

When your display looks like the one above,

press Enter

SEQUEL will present the level break selection so that you can specify page dimensions and subtotal levels.
The report “levels” are created by the view’s Order By clause. The view has four ordering fields so the report will have four subtotal levels, plus a grand total level.

Since we will be “custom designing” this report, tell SEQUEL that you do not want it to create a default report layout.

move the cursor to the default format name (*AUTO)

**type** *NONE

move the cursor to the title line

**type** Order summary by customer into the title

Indicate that you do not want your four subtotals (CURLN, ORVAL, ORTOT and ORWGT) printed at the day, month, and year levels.

**type** N in the subtotal column for lines COODY, COOMN, and COOYR

Leave the subtotal request for the customer and grand total lines as a ‘Y’. This will cause subtotals to be printed after each customer, and grand totals to be printed at the end of the report.

Specify that a new page should be started after each customer total.

move the cursor to the customer number line (level 4)

**type** P in the Space After column.
When your display looks exactly like the one above, press Enter.
Designing The Report

After you have pressed Enter, the report display will appear. Unlike our earlier example, it will show an empty report with no fields or headings defined on it. It should look like this:

```
*LIBL/*CREATE     Format @HEADING     Forms width: 132
                    ........10........20........30........40........50........60........70
1
2
3
4
5
6
7
```

Window:    1    Roll factor:    4
F1/2=Next/Previous format    F3=Exit    F4=Fold display    F5=Display SQL
F7/8=Window left/right    F9=Calculations    F10=Print    F11/23=Toggle blanks/names +

Obviously, we have our work cut out for us. Our job is to place all the fields and headings we want printed in their correct places on the display above. You will see that this is really a simple task and requires only a few steps.

How to exit

Before we begin painting the report on the display, you need to know that if you get stuck and things are not going properly and you are hopelessly lost (none of which should happen if you follow the tutorial precisely), you can exit the report design process by repeatedly pressing F3 until you return to command entry. As we progress through the report design you will learn how to correct some mistakes you may make, but always remember your escape route of F3.
Placing fields on the report

Begin creating your report by telling SEQUEL that we want to put the date, time, and title at the top of the page.

**press** Tab to move the cursor to the first position of the first line on the report (underneath the leftmost edge of the ruler)

**type** +@date

**move** the cursor to position 10 on line 1 (right 2 spaces)

**type** +@time

You should use the arrow keys to move the cursor around the display rather than the space bar. You will learn why this is important in a few moments.

**move** the cursor right 3 more spaces (use the arrow key)

**type** +@title

That’s all there is to adding fields to the report! Review the display and examine your request. The display should look like this:

```
*LIBL/*CREATE Format @HEADING Forms width: 132
........10........20........30........40........50........60........70
1 _ +@date  +@time   +@title
2
3
4
5
6
7
```

The plus sign indicates that we want to add a field onto the report beginning at the location of the plus. Date, time, and report title are three special fields available for each report. Other special fields are described in the SEQUEL User’s Guide.

**press** Enter to add the fields to the report.
The report display will return and the field patterns for date, time, and title will appear.
Changing the current report level

We are finished defining the heading information, printed at the top of each page. We want to progress to the detail level of the report that has the information from the database.

**press** F1

The display should reappear with the date, time, and title showing at the upper left of the report, and an underline next to line 2. Like this:

```
*LIBL/CREATE     Format @DETAIL     Forms width: 132
........10.......20........30........40........50........60........70
1 01/11/11 22:22:22 Order summary by customer
2
3
4
5
6
7
```

Window: 1  Roll factor: 4

F1/2=Next/Previous format  F3=Exit  F4=Fold display  F5=Display SQL
F7/8=Window left/right  F9=Calculations  F10=Print  F11/23=Toggle blanks/names +

We have lots of information to print at the detail level of the report. It will not fit on a single line. We need more room to lay it out the way we want.

**press** Back Tab to move the cursor onto the underline next to line 2.

**type** 6

**press** Enter

This will add six new detail lines to the report.
Now we will place the customer name and address fields onto the report. As with the date, time, and title, all we need to do is place a plus sign followed by the field name where we want the field to appear when the report is printed. The display below shows how to place them. Remember to use the arrow keys (or the tab keys) when moving the cursor around on the display.

After typing all the customer fields, add headings on lines 6 and 7 to describe the order heading information. You do not need to type a plus sign when adding headings (literals) onto the report. Simply type whatever text you want to see, where you want to see it.

**Cursor control**

The reason for using cursor control (arrow) keys rather than the space bar now becomes apparent. If you use the space bar, SEQUEL will not be able to distinguish between the end of one heading and the beginning of the next. If the headings on line 7 were separated by pressing the space bar, SEQUEL would treat them all as a single heading. You would not be able to move individual headings within this line, or add or delete elements from within it. Only under special circumstances (such as underlining) would you want to use spaces between fields on your report.

On line 8, add the order fields as shown below:

```
  *LIBL/*CREATE        Format @DETAIL         Forms width: 132
  10           20           30           40           50           60           70
  1 01/11/11 22:22:22  Order summary by customer
  2 +cusno  +cname  +cphon
  3 +cadd1
  4 +cadd2
  5 +cadd3 +ctste+czipc
  6 Order
  7 Date  Number  Customer P.O.  Terms
  8 +ordate +ordno +cuspo +trmcd
  9
 10
 11
 12
 13
```

When your display looks like the one above,

**press Enter**

The report facsimile will reappear with the field names you typed now replaced by a representation of the field.
Use the same procedure to add the terms description field to line 8 position 37, the ship via field at position 56, and type a heading for the ship via field on line 7. Now your display should look like this:

```
*LIBL*CREATE Format @DETAIL Forms width: 132
..............10..............20..............30..............40..............50..............60..............70
1 01/11/11 22:22:22 Order summary by customer
2 111111 aaaaaaaaaaaaaaaaaaaaaaaaa 222/222-2222
3 - aaaaaaaaaaaaaaaaaaaaaaaaa
4 - aaaaaaaaaaaaaaaaaaaaaaaaa
5 - aaaaaaaaaaaaaaaaa aa bb cccccccccc
6 - Order
7 - Date Number Customer P.O. Terms Ship Via
8 - 01/11/11 222220 aaaaaaaaaaaaaa bb +trmds +shipv
9
10
11
12
13
```

Window: 1 Roll factor: 4

F1/2=Next/Previous format F3=Exit F4=Fold display F5=Display SQL
F7/8=Window left/right F9=Calculations F10=Print F11/23=Toggle blanks/names +

**Windowing the display**

You can see that we are running out of room to add things to the report. The display only shows the first 70 positions however and we can shift our “window” on the report to access the remaining positions.

**move** the cursor to the window field at the lower left of the display

**type** 30

**press** Field Exit

**press** Enter

The ship via and terms fields will be placed on the report and the display is shifted when it reappears. You will now see the report beginning with column 30.
Type headings for order type, line count, and weight on line 6 and 7 and add two new fields (current line count and order weight) on line 8 as shown below:

```
*LIBL/*CREATE         Format @DETAIL                  Forms width: 132
0........40........50........60........70........80........90.......10
1   ary by customer
2   aaaaa     222/222-2222
3   aaaaa
4   aaaaa
5   b     ccccccccccc
6   _   _     _   _   _   _   _   _   _   _   _   _   _   _   _   _
7   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _   _
8   _     _     _     _     _     _     _     _     _     _     _     _
9
10
11
12
13
```

Window: 60  Roll factor: 4

F1/2=Next/Previous format   F3=Exit   F4=Fold display   F5=Display SQL
F7/8=Window left/right F9=Calculations F10=Print  F11/23=Toggle blanks/names +

Now shift the window farther right by moving to the window field, **typing** 60, pressing field exit, and then **Enter**.

When the display shifts, add the remaining two fields (retail value and order total) at positions 105 and 119 of line 8, and their headings on lines 6 and 7. See below.

```
*LIBL/*CREATE         Format @DETAIL                  Forms width: 132
0........70........80........90.......100.......110.......120.......13
1
2
3
4
5
6
7
8
9
10
11
12
13
```

Window: 60  Roll factor: 4

F1/2=Next/Previous format   F3=Exit   F4=Fold display   F5=Display SQL
F7/8=Window left/right F9=Calculations F10=Print  F11/23=Toggle blanks/names +

When you have done this
The display should reappear with the new information shown to you.

Page number

Since the window is shifted to show the right hand side of the page, now would be a good time to add the page number to the report. Just as you earlier used @@DATE, @@TIME, and @@TITLE, you use @@PAGE to request the report writer to print the page number.

move the cursor to line 1, under position 118 of the ruler

type Page

move the cursor right one position

type +@@page

Moving items on the report

Notice that the “Weight” heading does not line up correctly over the field underneath it. Generally, headings for numeric fields should align over the rightmost portion of the field rather than the left part. We can move the heading by placing an arrow character next to the field pointing in the direction to be moved.

move the cursor to the right of the “Weight” heading (line 7 position 96)

type four greater than symbols (>)
press Enter when your display looks like the one above

The heading will shift right and should realign over the field. If other fields are not lined up correctly, align them by placing as many greater than (>) symbols to the right, or less than (<) symbols to the left, of the fields or headings as you wish.

There are several ways to move fields on the report. To learn about them and about the other things you can do with fields and literals, refer to the report writing section of the SEQUEL User’s Guide.

---

**Another way to add**

Type a plus sign on line 8 position 69 (under the “T” in the order type heading)

press Enter

This is another way to place a field onto the report and is especially helpful when you do not know the name of the field you want to add.

The field attributes display shows each field that can be put on the report and allows you to choose one and specify editing or special output characteristics (bold, underline, etc.) for it.

The display you see should look like the one below:
<table>
<thead>
<tr>
<th>Seq Bk Field</th>
<th>Description</th>
<th>Seq Bk Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>@@CMPNAM</td>
<td>11</td>
<td>@@SYSDATE2 System Date</td>
</tr>
<tr>
<td>2</td>
<td>@@DATE</td>
<td>12</td>
<td>@@TIME System Time</td>
</tr>
<tr>
<td>3</td>
<td>@@DATE1</td>
<td>13</td>
<td>@@TITLE Report Title</td>
</tr>
<tr>
<td>4</td>
<td>@@DATEC</td>
<td>14</td>
<td>@@PAGE System Page</td>
</tr>
<tr>
<td>5</td>
<td>@@DAY</td>
<td>15</td>
<td>@@RPTNAM Report Name</td>
</tr>
<tr>
<td>6</td>
<td>@@DAYC</td>
<td>16</td>
<td>@@VIEWNAM View Name</td>
</tr>
<tr>
<td>7</td>
<td>@@MONTH</td>
<td>17</td>
<td>@@QDA Local Data area</td>
</tr>
<tr>
<td>8</td>
<td>@@MONTHC</td>
<td>18</td>
<td>@@USER User Name</td>
</tr>
<tr>
<td>9</td>
<td>@@YEAR</td>
<td>19</td>
<td>@@OB Job Name</td>
</tr>
<tr>
<td>10</td>
<td>@@SYSDATE</td>
<td>20</td>
<td>@@OBNBR Job Number</td>
</tr>
</tbody>
</table>

When there are lots of fields (such as in our example) you can use the roll keys to scroll through the available fields listed on the display.

**press F9** to access the calculations used in the report.
This display shows the four calculations that are currently defined. They are responsible for creating subtotals of the line count, order value, total amount, and weight. SEQUEL created them when you filled in the total selection display at the beginning of the report definition.

<table>
<thead>
<tr>
<th>Seq Brk Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 @@CURLN</td>
<td>SUM(CURLN)</td>
</tr>
<tr>
<td>101 @@ORVAL</td>
<td>SUM(ORVAL)</td>
</tr>
<tr>
<td>102 @@ORTOT</td>
<td>SUM(ORTOT)</td>
</tr>
<tr>
<td>103 @@ORWGT</td>
<td>SUM(ORWGT)</td>
</tr>
</tbody>
</table>

Number of breaks = 5

press F11

The bottom of the display will change, allowing a more complex specification to be entered.

You are now going to create the “calculation” that translates the order type code into a more readable form. This is a common requirement since codes and abbreviations are frequently employed to save storage space on the computer.
Conditional calculation

When you are finished with this step, your display will look like this:

<table>
<thead>
<tr>
<th>Seq</th>
<th>Brk Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>@@CURLN</td>
<td>SUM(CURLN)</td>
</tr>
<tr>
<td>101</td>
<td>@@ORVAL</td>
<td>SUM(ORVAL)</td>
</tr>
<tr>
<td>102</td>
<td>@@ORTOT</td>
<td>SUM(ORTOT)</td>
</tr>
<tr>
<td>103</td>
<td>@@ORWGT</td>
<td>SUM(ORWGT)</td>
</tr>
</tbody>
</table>

Len, dec 10, __ Edtcde __ Edit word ________________________________

| 104 | ORDTYPE   | = "Regular"         |

If OTYPE="R" Else = OTYPE

Number of breaks = 5 3 @@DATEC Long Date
1 @@CMPNAM Company Name 4 @@DAY Job Day (Number)
2 @@DATE Job Date 5 @@DAYC Job Day (Alpha) +
F3=Exit F5=Display calculated fields F12=Return to edit display

We will create a new field to hold up to ten characters so

type 10 in the length portion of the field

press Field Exit to erase the J in the edit code field

move the cursor to the field name

type ORDTYPE

This is the name of the result field that will contain the translated value. Now create the actual “calculation” that will be run.

press Tab to move the cursor next to the equals sign

type "Regular"

press Field Exit, moving the cursor next to the If entry field

type OTYPE="R"

press Field Exit to advance the cursor to the Else line.

type OTYPE and press Enter when your display looks like the one above
The statement is added to the list. Add a similar statement that translates OTYPE code “O” to “Back Order”. Use the same procedure as before, entering the result field name (ORDTYPE), the assignment text (“Back Order”), and the conditional (IF) statement (OTYPE="O").

This time you should not fill in the Else portion of the statement. When several conditional calculations will be used to set a single result, as in our example, only the first calculation should include an Else clause. Otherwise, succeeding calculations will “undo” the effect of previous ones.

When you are finished and your display looks like the one below

<table>
<thead>
<tr>
<th>press Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:18:41 Calculation Entry 6/03/98</td>
</tr>
<tr>
<td>Seq Brk Field Value</td>
</tr>
<tr>
<td>----- Sequences 100-999 are done after record read -----</td>
</tr>
<tr>
<td>100 @@CURLN = SUM(CURLN)</td>
</tr>
<tr>
<td>101 @@ORVAL = SUM(ORVAL)</td>
</tr>
<tr>
<td>102 @@ORTOT = SUM(ORTOT)</td>
</tr>
<tr>
<td>103 @@ORWGT = SUM(ORWGT)</td>
</tr>
<tr>
<td>104 ORDTYPE = &quot;Regular&quot;</td>
</tr>
</tbody>
</table>

| Len, dec 10, _ Edtcde _, Edit word ________________________________ |

105 _ ORDTYPE = "Back Order" ______________________________________

If "OTYPE="O" ____________________________________________________

Else = __________________________________________________________

Number of breaks = 5 3 @@DATEC Long Date

1 @CMPNAM Company Name 4 @@DAY Job Day (Number)

2 @@DATE Job Date 5 @@DAYC Job Day (Alpha) +

F3=Exit F5=Display calculated fields F12=Return to edit display
Since there are three possibilities for the order type code and we want to translate all three, you need to enter one more conditional statement. It will be just like the last one, except that it will test for an OTYPE value of “B” and set the resulting field to “Blanket”. Enter the calculation as shown below:

<table>
<thead>
<tr>
<th>Seq Brk Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>@CURLN</td>
<td>SUM(CURLN)</td>
</tr>
<tr>
<td>@ORVAL</td>
<td>SUM(ORVAL)</td>
</tr>
<tr>
<td>@ORTOT</td>
<td>SUM(ORTOT)</td>
</tr>
<tr>
<td>@ORWGT</td>
<td>SUM(ORWGT)</td>
</tr>
</tbody>
</table>

104    ORDTYPE = "Regular"

105    ORDTYPE = "Back Order"

106    ORDTYPE = "Blanket"

If otype="B"
Else =

When you have done so,

**press Enter**

and add this statement to the list.
Counting with the report writer

There is one more calculation we want to perform. We want to print the total number of orders for each customer and a final total at the end of the report. We can make SEQUEL count the number of orders, or the number of records on any report, quickly and easily.

We will create another calculation which stores the number of orders processed in a field named ORDCNT.

press Back Tab to move the cursor back to the Length (Len) field

type 5

press Field Exit

type 0 for the decimal positions

type J in the edit code field.

move the cursor to the field name

type ORDCNT

press Field Exit

type SUM(1) as the calculation

If your display looks like the one below,

press Enter
Good work! You have just finished the hardest part of this report. You have entered four new calculations and created two new field definitions that can be placed on the report.

Now, return to the previous display

**press F12**

The field attributes display will reappear.

The upper right of the display reminds you that you are placing a field at line 8, position 69. We want the ORDTYPE field that we just created to go here, so

**type ORDTYPE for the field name.**

**press Enter** when your display looks like this:
The report design display will appear and the order type field will be placed where we wanted it. The design display should look like this:

```
*LIBL/*CREATE Format @DETAIL Forms width: 132
0........70........80........90.......100.......110.......120.......131

Page 3333

Window:  60 Roll factor:    4

F1/2=Next/Previous format   F3=Exit   F4=Fold display   F5=Display SQL
F7/8=Window left/right F9=Calculations F10=Print  F11/23=Toggle blanks/names +
```

We are finished placing detail items onto the report and now want to add some special formatting and printing instructions. Specifically, we need to specify that the customer information and the order headings should print only when the customer changes. We do not want this information repeated for each order that a customer has placed.

**move** the cursor to the underlined entry field next to line 2

**type** S into the field

Do this for each succeeding line so that lines 2 through 7 all have an ‘S’ in them. Do not place an ‘S’ next to line 8. This line oriented command causes SEQUEL to present a “skeleton display” for the line(s) you indicate.

**press** F7

The window will shift left and carry out the command requests. You will be presented with a display like the one on the next page.
This display, called the field selection display, allows you to see all the elements defined on a given line of the report. It also allows you to make changes or deletions to the fields located on the line.

As indicated earlier, we want all the fields on this line to print only when the customer changes. The customer number is fourth from the end of our ORDER BY clause, so SEQUEL identifies a customer change as occurring at break level 4.

**type** 3 in the Selection (Sel) column for each of the three fields

This tells SEQUEL that you want to change all the fields listed.

**press** Tab to advance the cursor to the “Break >=“ field (at the lower right)

**type** 4

**press** Field Exit

This causes the selected fields to be suppressed until a customer change occurs.

**press** Tab to move the cursor to the Space Before field

**type** 3

**press** Field Exit

SEQUEL will print three blank lines before printing this one.
When your display looks like the one below,

press **Enter**

The display will be presented to you again, showing the changes you have made.

You should see a 4 in the “Lvl” column next to each field like this:

press **Enter** again to advance to the skeleton display for the next line you requested.
Process this display in a manner similar to the last one.

**type** 3 in the selection field for the address field

**press** Tab twice to position to the **Print if blank?** field

**type** N

This causes the field to be suppressed if it is all blanks, preventing a blank line from printing in the middle of our address block.

**press** Tab to move the cursor to the **Break >=** field

**type** 4

**press** Field Exit just as you did before.

We do not want to change the spacing information for this line, so when your display looks like the one below,

**press** Enter

---

<table>
<thead>
<tr>
<th>Sel Field</th>
<th>Len</th>
<th>Dc</th>
<th>Pos</th>
<th>Lvl</th>
<th>K</th>
<th>D</th>
<th>H</th>
<th>Cde</th>
<th>Edit word/literal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>25</td>
<td>10</td>
<td></td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Underline? _ Bold? _ Print if blank? N Print on overflow? _ Break >= 4
Line Spacing: Skip: Before ___ After ___ Space: Before ___ After ___
F3=Exit F9=Calculated field definition F12=Edit display

---

Review the changes, make certain that the field will print at level 4 by checking the “Lvl” column and that it will not print if blank by checking the “Blk” column.

If the display is correct,

**press** Enter

and advance to the next line.
The display for line 4, the second address line, looks so much like the previous one that you may not notice that the field name and the line number have changed. Be careful not to skip right by it.
Make the same changes to the display for line 4 as you did to the first address line. Change the print if blank indicator to an 'N' and the level field to a 4.

**press** Enter when you are finished, and again when you have reviewed the changes.

The final line in the address block contains city, state, and zipcode specifications. As before, we will change the level field to a 4. Since it is the last line in the block, change the spacing control so that a 2 appears in the space after field. Leave the space before field set to a 1.

When your display looks like the one below,

**press** Enter twice.
The next two report lines define the headings for the order records. As before, we will change each field in them so that they print only at level 4. Specify a space after value of 1 for the second heading record, line 7.

After making your changes, the displays should look like this:

```
16:24:10                       Field Selection                          6/03/98
Format: @DETAIL                                                      Line:    6
* Field keywords  D=Delete Field  3=Change field attributes
B O U H                      L F N G  Edt
Sel Field  Len Dc Pos Lvl  K L D H Cde Edit word/literal
  1  Y N N N      'Order'
  1  Y N N N      'Order'
  1  Y N N N      'Line'
  1  Y N N N      'Retail'
  1  Y N N N      'Amount'

Underline? _   Bold? _   Print if blank? _   Print on overflow? _  Break >=   4
Line Spacing:     Skip: Before ___  After ___   Space: Before  1  After __
F3=Exit     F9=Calculated field definition     F12=Edit display
```

and this:

```
16:24:10                       Field Selection                          6/03/98
Format: @DETAIL                                                      Line:    7
* Field keywords  D=Delete Field  3=Change field attributes
B O U H                      L F N G  Edt
Sel Field  Len Dc Pos Lvl  K L D H Cde Edit word/literal
  1  Y N N N      'Date'
  1  Y N N N      'Number'
  1  Y N N N      'Customer'
  1  Y N N N      'P.O.'
  1  Y N N N      'Terms'
  1  Y N N N      'Ship'
  1  Y N N N      'Via'
  1  Y N N N      'Type'
  1  Y N N N      'Count'
  1  Y N N N      'Weight'
  1  Y N N N      'Value'
  1  Y N N N      'Remaining'

Underline? _   Bold? _   Print if blank? _   Print on overflow? _  Break >=   4
  Line Spacing:     Skip: Before ___  After ___   Space: Before  1  After __
F3=Exit     F9=Calculated field definition     F12=Edit display
```

When you have finished with the last line you placed an “S” next to, the report design display will reappear.
Now we will construct the part of the report that prints customer subtotals.

**press** F1 four times to advance the underline to the report line for the customer total format.

You will notice that the format name at the top of the display changes from @DETAIL to COODY, then COOMN, COOYR, and finally CUSNO with each press of the function key.

The cursor should be located to the right of the underline.

**type** +ordcnt so that your display looks like the one below.

```
+LIBL/*CREATE         Format CUSNO                    Forms width: 132
........10........20........30........40........50........60........70
1  01/11/11 22:22:22  Order summary by customer
2  111111 aaaaaaaaaaaaaaaaaaaaaaaaaa 222/222-2222
3  aaaaaaaaaaaaaaaaaaaaaaaaaa
4  aaaaaaaaaaaaaaaaaaaaaaaaaa
5  aaaaaaaaaaaaaaaaaaaaaaaaa
6  Order
7  Date   Number  Customer P.O.  Terms  Ship Via  Ty
8  01/11/11 222220 aaaaaaaaaaaaaaa bb cccccccccccccccc dddddddddd ee
9
10
11
12 +ordcnt
13
```

**press** Enter

when you have added the new field to the report. The order count subtotal that you created in your last calculation will appear on the report beginning in position 1.
The report is redisplayed with the order count field substituted. Now, position the cursor adjacent to the minus sign (position 8), and

**type** Orders for +c_name

This will create a heading and add the customer name field to the total line.

**press** Enter

Substitutions will take place and the report should look like this:

<table>
<thead>
<tr>
<th>*LIBL/*CREATE</th>
<th>Format CUSNO</th>
<th>Forms width: 132</th>
</tr>
</thead>
<tbody>
<tr>
<td>............10........20........30........40........50........60........70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 01/11/11 22:22:22 Order summary by customer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 111111 aaaaaaaaaaaaaaaaaaaaaaaaaaa 222/222-2222</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 aaaaaaaaaaaaaaaaaaaaaaaaaaa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 aaaaaaaaaaaaaaaaaaaaaaaaaaa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 aaaaaaaaaaaaaaaaaaa bb ccccccccccc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Order</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Date Number Customer P.O. Terms Ship Via Ty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 01/11/11 222220 aaaaaaaaaaaaaaaaa bb ccccccccccccccccc cccccc cccccc dddddddd ee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 _ 11,101-Orders for aaaaaaaaaaaaaaaaaaaaaaaaaaa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Window: 1 Roll factor: 4

F1/2=Next/Previous format  F3=Exit  F4=Fold display  F5=Display SQL
F7/8=Window left/right  F9=Calculations  F10=Print  F11/23=Toggle blanks/names +

Shift the window to the right

**change** the window control field to 30

**press** Enter
Add another label and field on line 12 at position 56 by aligning the cursor under the ship via heading and field.

**type** Value remaining: +@@ORTOT

When your display looks like the one below,

**press** Enter

```
Li BL/*CREATE   Format CUSNO   Forms width: 132
0........40........50........60........70........80........90........10
1   ary by customer
2   aaaaa    222/222-2222
3   aaaaa
4   aaaaa
5   b   ccccccccc
6
7   . Terms   Ship Via   Type   Count   Weight
8   aaa bb ccccccccccccc   dddddddd   eeeeee   330   444440.44
9
10
11
12 _ aaaaaaaaaaaaaa   Value remaining: +@@ortot
13
Window: 30 Roll factor: 4
```

**move** the cursor onto the leftmost digit of the order value subtotal on line 12

**type** an asterisk (*) over the first 2 of the order value field

**press** Enter

The field attributes display shown on the next page will appear.
Field Editing

We will use this display to change the appearance of the subtotal field.

**press** Tab twice and advance the cursor to the edit code field

**type** J and then a $

This will cause the number to appear with comma separation and a leading currency sign.

Your display ought to look like this:

<table>
<thead>
<tr>
<th>Seq Bk Field</th>
<th>Description</th>
<th>Seq Bk Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>@@CMPNAM Company Name</td>
<td>11</td>
<td>@@SYSDATE1 System Date</td>
</tr>
<tr>
<td>2</td>
<td>@@DATE Job Date</td>
<td>12</td>
<td>@@TIME System Time</td>
</tr>
<tr>
<td>3</td>
<td>@@DATE1 Job Date</td>
<td>13</td>
<td>@@TITLE Report Title</td>
</tr>
<tr>
<td>4</td>
<td>@@DATEC Long Date</td>
<td>14</td>
<td>@@PAGE System Page</td>
</tr>
<tr>
<td>5</td>
<td>@@DAY Job Day (Number)</td>
<td>15</td>
<td>@@RPTNAM Report Name</td>
</tr>
<tr>
<td>6</td>
<td>@@DAYC Job Day (Alpha)</td>
<td>16</td>
<td>@@VIEWNAM View Name</td>
</tr>
<tr>
<td>7</td>
<td>@@MOONTHC Job Month (Char)</td>
<td>17</td>
<td>@@LDA Local Data area</td>
</tr>
<tr>
<td>8</td>
<td>@@MONTH Job Month (Num)</td>
<td>18</td>
<td>@@USER User Name</td>
</tr>
<tr>
<td>9</td>
<td>@@YEAR Job Year</td>
<td>19</td>
<td>@@OB Job Name</td>
</tr>
<tr>
<td>10</td>
<td>@@SYSDATE System Date</td>
<td>20</td>
<td>@@OBNBR Job Number</td>
</tr>
</tbody>
</table>

**press** Enter to return to the report design display.
Adjust the spacing for the customer total line just as you did earlier.

**type** 5 in the entry field to the right of the line 12

**press** F7 to shift the window left.

**type** 2 in the “Space: Before” value of the skeleton display

Leave the skip after value as a 1. When the customer number changes, two blank lines will print before the subtotals, and a page eject will occur afterwards so that the next customer begins on a new page.

**press** Enter to return to the design display.

**press** F1 to advance to the grand total level

**type** 5 in the underlined field next to line 13

**press** Enter

Your display should look like this:

*LIBL*/*CREATE Format @TOTAL Forms width: 132

......10......20......30......40......50......60......70

1 01/11/11 22:22:22 Order summary by customer

2 111111 aaaaaaaaaaaaaaaaaaaaaaaaa 222/222-2222

3 aaaaaaaaaaaaaaaaaaaaaaaaa

4 aaaaaaaaaaaaaaaaaaaaaaaaa

5 aaaaaaaaaaaaaaaaaaa bb ccccccccc

6 Order Or

7 Date Number Customer P.O. Terms Ship Via Ty

8 01/11/11 2222220 aaaaaaaaaaaaaaa bb cccccccccccccccc dddd ed ee

9

10

11

12 11,101-Orders for aaaaaaaaaaaaaaaaaaaaaaaaa Value remaining

13 -

14 -

15 -

16 -

Window: 1 Roll factor: 4

F1/2=Next/Previous format F3=Exit F4=Fold display F5=Display SQL

F7/8=Window left/right F9=Calculations F10=Print F11/23=Toggle blanks/names +

**move** the cursor to report position 1 on line 13

**type** Report summary:

**type** a plus sign on line 14 position 16 (adjacent to and underneath the colon on line 13)

**press** Enter

**press** F9 from the field attributes display to access the calculations display.
We are going to add a calculation that will count the number of customers listed on the report. Earlier we used the calculation \( \text{ORDCNT} = \text{SUM}(1) \) to count the number of orders. Counting the customers is done differently since we do not want subtotals.

**press** Back Tab to move the cursor to the Length field

**type** 3

**press** Field Exit

**type** 0 in the decimal positions entry field

**press** Tab four times to advance the cursor to the “Brk” column

**type** 4

**press** Field Exit

You have indicated that this calculation should occur only when the customer number changes.

**type** CUSCNT

**press** Field Exit

**type** CUSCNT+1 in the expression entry field

Your display should look like the one below:

<table>
<thead>
<tr>
<th>Seq</th>
<th>Brk Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>@@CURLN</td>
<td>= SUM(CURLN)</td>
</tr>
<tr>
<td>101</td>
<td>@@ORVAL</td>
<td>= SUM(ORVAL)</td>
</tr>
<tr>
<td>102</td>
<td>@@ORTOT</td>
<td>= SUM(ORTOT)</td>
</tr>
<tr>
<td>103</td>
<td>@@ORWGT</td>
<td>= SUM(ORWGT)</td>
</tr>
<tr>
<td>104</td>
<td>ORDTYPE</td>
<td>= “Regular”</td>
</tr>
<tr>
<td>105</td>
<td>ORDTYPE</td>
<td>= “Back Order”</td>
</tr>
<tr>
<td>106</td>
<td>ORDTYPE</td>
<td>= “Blanket”</td>
</tr>
<tr>
<td>107</td>
<td>ORDCNT</td>
<td>= \text{sum}(1)</td>
</tr>
</tbody>
</table>

Number of breaks = 5

Number of breaks = 5

F3=Exit F5=Display calculated fields F12=Return to edit display
**press** Enter when your calculation is correct

**press** F12 to return to the field attributes display

When the field attributes display reappears,

**type** CUSCNT as the field name

**press** Enter

The report display should appear looking like the one below.

```
*LBL/*CREATE         Format @TOTAL       Forms width: 132
                      .........10.........20.........30.........40.........50.........60.........70
1 01/11/11 22:22:22 Order summary by customer
2 111111 aaaaaaaaaaaaaaaaaaaaaaaaa 222/222-2222
3 aaaaaaaaaaaaaaaaaaaaaaaaa
4 aaaaaaaaaaaaaaaaaaaaaaaaa
5 aaaaaaaaaaaaaaaaa bb ccccccccccc
6 Order Date    Number Customer P.O.   Terms   Ship Via     Ty
7 01/11/11 222220 aaaaaaaaaaaaaaa bb cccccccccccccccc dddddddddd ee
9
10
11
12 11,101-Orders for aaaaaaaaaaaaaaaaaaaaaaaaa Value remaining
13 Report summary:
14 - 
15 - 
16 - +

Window: 1 Roll factor: 4
```

Now add the remaining items to the total lines:

**move** the cursor next to the CUSCNT field

**type** Customers on this report

**Move** the cursor to the next line (15) under the word Customers (position 20)

**type** Orders with +@curln

**move** the cursor to line 16 position 7

**type** +@ORWST

**move** the cursor to line 16 position 20

**type** Total weight
After all of this, your display should look like:

*LIBL/*CREATE         Format @TOTAL                   Forms width: 132
........10........20........30........40........50........60........70
1 01/11/11 22:22:22 Order summary by customer
2 111111 aaaaaaaaaaaaaaaaaaaaaaaaa 222/222-2222
3 aaaaaaaaaaaaaaaaaaaaaaaaaaaaa
4 aaaaaaaaaaaaaaaaaaaaaaaaaaaaa
5 aaaaaaaaaaaaaaaaaaaaa bb cccccc
6 Order Or
7 Date Number Customer P.O. Terms Ship Via Ty
8 01/11/11 222220 aaaaaaaaaaaaaaa bb ccccccccccccc dddd
9
10
11
12 11,101-Orders for aaaaaaaaaaaaaaaaaaaaaaaaaaaaa Value remaining
13 Report summary:
14 - 101-Customers on this report
15 - Orders with +@@curln
16 +@@orwgt Total weight +

Window: 1 Roll factor: 4
F1/2=Next/Previous format   F3=Exit   F4=Fold display   F5=Display SQL
F7/8=Window left/right F9=Calculations F10=Print F11/23=Toggle blanks/names +

If it does,

press the RollUp (PageDn) key

We want to work with lines 17 and 18 on the report.
move the cursor to line 17 position 7

**type** +@@ORVAL

move the cursor to line 17 position 20

**type** **Total** value

move the cursor to line 18 position 7

**type** +@@ORTOT

move the cursor to line 18 position 20

**type** **Value remaining**

After you have done all of this, your display should look like this:

```plaintext
*LIBL/*CREATE     Format @TOTAL                      Forms width: 132
........10........20........30........40........50........60........70
5             aaaaaaaaaaaaaaaa  bb  ccccccccccc
6     Order                                           Or
7     Date     Number  Customer  P.O.    Terms           Ship Via  Ty
8 01/11/11     222220  aaaaaaaaaaaaaaa  bb  ccccccccccccc  dddddd ddd  ee
9
10
11
12 11,101-Orders for aaaaaaaaaaaaaaaaaaaaaaaaaa                        Value remaining
13 _ Report summary:
14 _ 101-Customers on this report  
15 _ Orders with +@@curln
16 _ +@@orwgt Total weight
17 _ +@@orval Total value
18 _ +@@ortot Value remaining

Window:   1  Roll factor:    4

F1/2=Next/Previous format  F3=Exit  F4=Fold display  F5=Display SQL
F7/8=Window left/right  F9=Calculations  F10=Print  F11/23=Toggle blanks/names +
```

**press** Enter

**pat** yourself on the back

You deserve it!
move the cursor to line 15, position 13

type +ordcnt

move the cursor next to the line count field (line 15, position 36)

type lines

press Enter

Your report should look like the one below:

```
*LIBL/*CREATE  Format @TOTAL  Forms width:  132
........10........20........30........40........50........60........70
  5  aaaaaaaaaaaaaaaaa bb cccccc cccc
  6  Order Or
  7  Date    Number Customer P.O. Terms Ship Via Ty
  8  01/11/11 222220 aaaaaaaaaaaaaaaaa bb cccccc cccc cccc dddddddd ee
  9
 10
 11
 12  11,101-Orders for aaaaaaaaaaaaaaaaaaaaaaaaaa Value remaining
 13  Report summary:
 14  101-Customers on this report
 15  11,101-Orders with 220 lines
 16  1111110.11-Total weight
 17  1111110.11-Total value
 18  1111110.11-Value remaining

Window:   1  Roll factor:    4
F1/2=Next/Previous format  F3=Exit  F4=Fold display  F5=Display SQL
F7/8=Window left/right  F9=Calculations  F10=Print  F11/23=Toggle blanks/names +
```
Finishing Up

You have finished! You might not have believed you could do it, but if you got this far, you deserve a great deal of credit for your hard work. Congratulations!

Save the report so you can run it. Advance to the exit display.

press F3

Give this report the name XXXEXER6R (remember XXX are your initials) and library SEQUELEX.

When your display looks like the one below,

press Enter to save it

Run the report by using WRKREPORT option 16, or accessing the command entry display and typing

REPORT SEQUELEX/XXXEXER6R

The output will appear at your printer. The first and last pages should look like the results on the following page.
6/03/98 16:58:45  Order summary by customer

100112  MNB Corp.  823/640-1258
150 N. Clark
Las Vegas  NV  54511-4411

<table>
<thead>
<tr>
<th>Order Date</th>
<th>Order Number</th>
<th>Customer</th>
<th>P.O. Terms</th>
<th>Ship Via</th>
<th>Order Type</th>
<th>Count</th>
<th>Weight</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/16/98</td>
<td>110017</td>
<td>N-T5-507</td>
<td>N4 NET 60</td>
<td>CUSTOMER</td>
<td>Regular</td>
<td>4</td>
<td>680.00</td>
<td>1911.98</td>
</tr>
<tr>
<td>9/18/98</td>
<td>110019</td>
<td>S-T5-409</td>
<td>N1 2% 10 NET 30</td>
<td>BEST WAY</td>
<td>Regular</td>
<td>1</td>
<td>210.00</td>
<td>301.50</td>
</tr>
<tr>
<td>10/20/98</td>
<td>165018</td>
<td>S-T5-510</td>
<td>N4 NET 60</td>
<td>BEST WAY</td>
<td>Regular</td>
<td>5</td>
<td>267.50</td>
<td>6807.97</td>
</tr>
<tr>
<td>4/09/99</td>
<td>110010</td>
<td>S-T5-506</td>
<td>N1 2% 10 NET 30</td>
<td>OVERTON</td>
<td>Regular</td>
<td>5</td>
<td>3267.50</td>
<td>16807.97</td>
</tr>
<tr>
<td>8/17/99</td>
<td>110018</td>
<td>S-T5-308</td>
<td>N2 NET 30</td>
<td>UPS TRUCK</td>
<td>Blanket</td>
<td>1</td>
<td>140.00</td>
<td>201.00</td>
</tr>
<tr>
<td>10/21/99</td>
<td>165019</td>
<td>S-T5-611</td>
<td>N2 NET 30</td>
<td>OVERTON</td>
<td>Blanket</td>
<td>5</td>
<td>3267.50</td>
<td>16807.97</td>
</tr>
</tbody>
</table>

6 Orders for MNB Corp.  Value remaining:  $52838.39

144110.00 Total weight
741282.86 Total value
522626.67 Value remaining
Reflect for a few moments on what you have accomplished. In about half an hour, you have used SEQUEL to create a sophisticated and quite complex report.

This exercise purposely went beyond the range of the “normal” request in order to present some of the more advanced features of the report writer.

An experienced programmer could easily have taken a full day of solid effort to produce this report. SEQUEL can reduce program development time dramatically!

Someone without programming skills would be unable to create this report - unless they used SEQUEL. By bringing the power of advanced, SQL-based report writing to the user, SEQUEL offers greater control over the information they need and use.

You have seen a demonstration of many of the functions of the SEQUEL report writer during this exercise. Review the manual to understand more about them, how to make full use of them, and to learn about more features that we did not cover.
In this section, you will learn how to use some of the SEQUEL tabling functions.

Although it is possible to create many kinds of tables using SEQUEL’s report writer, there are three primary reasons to use the tabling functions instead of the report writing capabilities:

- specifying a table definition is easier and faster than building a report
- output can be routed to a display, a database file, or a folder document
- creation of the result is faster

This set of exercises will help you learn how easy it is to tabulate the records retrieved by SEQUEL views. Specifically, you will:

1. Learn to start and end the table definition process.
2. Summarize information in different ways
3. Create totals, subtotals, and percent of total values.
4. Tabulate view records into a spreadsheet by categorizing records according to their values.
5. Find out how to run a table that you have created.

The examples in this lesson use the ORDERSUM view in the SEQUELEX library. It joins the customer and order files to return information about each customer’s orders. To get an understanding of the information you’ll be working with, you may want to run the view and display its results before you start the tutorial. If you’re not certain how to do this, review the information in Part 2 of this book.
Starting table design

Starting the table design process is similar to starting view or report definition. There are several ways to begin. You can choose which is easiest for you.

Menu Access

If you normally use a menu, you may be able to select SEQUEL table design directly from your menu. If there is no “design table” option on your menu, you may be able to access the simple SEQUEL menu by selecting one of your menu options, or by typing GO SEQUEL/SEQUEL from command entry. If you can access the SEQUEL menu, you can begin the table design process by starting “work with” option 2 or 5.

Work with Views (WRKVIEW)

If you have been using the WRKVIEW menu or can get to it from your menu, use option 30=Design Table, type the view name (ORDERSUM) and library (SEQUELEX) and then press Enter.

Work with SEQUEL Objects (WRKSEQUEL)

If you have been working from the WRKSEQUEL list display or can get to it from your menu, place option 30 next to the view name (ORDERSUM) and then press Enter.

Command Entry

You can also start the table editor from the command entry display or a command line. If you have a command entry line on your display, you can proceed by using the Design View (DSNVIEW) command directly. Start the report design tool directly by typing the command below and pressing Enter.

    SEQUEL/DSN TABLE *CREATE VIEW(SEQUELEX/ORDERSUM)
A few moments after you start the table design process you will see the following display:

```
11/07/98 12:48:06               Define Table                   System: ASC400
Table  . . : (Untitled)                      View   . . : SEQUELEX/ORDERSUM
Define dimensions to create rows, categories to create column field groupings.
2=Edit  3=Copy  4=Delete

Column  Column  Column  Column
_________________  __________________  __________________  __________________
Dimension
--  --  --  --

Choose item type, press Enter.
C=Category  D=Dimension  F=Column field
Field  Attribute  Description
  CUSNO  Pkd  6,0  Customer number
  CNAME  Char 25  Customer name
  CADD1  Char 25  Customer address line 1
  CADD2  Char 25  Customer address line 2
  CADD3  Char 16  Customer address line 3
```

This is the primary table definition display. It will be your “home base” as you work with table definitions. If your terminal can show 132 columns of information, your screen will be similar to the one above but with more column fields (at the top) and view fields (at the bottom).
Summary tables

For our first table, let’s simply

- summarize each customer’s open orders
- create a grand total at the end of the list

Follow the steps below:

**Type** D next to the CNAME field at the bottom of the display

**Press** PageDn (roll up) until you find the ORVAL field (about three pages)

**Type** F next to the ORVAL field

**Press** Enter

The ‘D’ indicates that you want the customer names to become the leftmost *dimension* of the table. All records for a given customer will be grouped together into a single row in the table. The ‘F’ creates a *column field* that accumulates the order value for each customer.

Your display should look like the one below. If it doesn’t, you can type the two field names as shown and press Enter.

```
11/08/98 10:01:43               Define Table                   System: ASC400
Table    : (Untitled)                      View    : SEQUELEX/ORDERSUM
Define dimensions to create rows, categories to create column field groupings.
  2=Edit  3=Copy  4=Delete

Column  Column  Column  Column  Column  Column
ORVAL    -----------  -----------  -----------  -----------

Dimension
  -- CNAME
  --- CNAME = cname

Choose item type, press Enter.
  C=Category  D=Dimension  F=Column field
Field    Attribute Description
  CUSNO    Pkd  6,0  Customer number
  CNAME    Char 25  Customer name
  CADD1    Char 25  Customer address line 1
  CADD2    Char 25  Customer address line 2
  CADD3    Char 16  Customer address line 3

F2=New F3=Exit F7/F19=Display F8/F20=Print F9=Outfile F16=Edit SQL F24=Keys
```

It’s just that easy!
Run the view, tabulate the results and display them now.

**press F19**

Your display should look similar to the one below.

```

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. Redford's Inc.</td>
<td>17109.47</td>
</tr>
<tr>
<td>Kelly's Corp.</td>
<td>16807.97</td>
</tr>
<tr>
<td>L.M. Corp.</td>
<td>201.00</td>
</tr>
<tr>
<td>Lawrence Design</td>
<td>44430.40</td>
</tr>
<tr>
<td>Lickton's City Corp.</td>
<td>16807.97</td>
</tr>
<tr>
<td>Lim-Equipment Co.</td>
<td>17083.92</td>
</tr>
<tr>
<td>LBC Supplies</td>
<td>67231.88</td>
</tr>
<tr>
<td>Maple Leaf Cemetery</td>
<td>16807.97</td>
</tr>
<tr>
<td>Mister C's</td>
<td>16807.97</td>
</tr>
<tr>
<td>MNB Corp.</td>
<td>52838.39</td>
</tr>
<tr>
<td>NBCO Corporation Inc.</td>
<td>71008.83</td>
</tr>
<tr>
<td>NBO</td>
<td>6930.40</td>
</tr>
<tr>
<td>NBO Inc.</td>
<td>18759.95</td>
</tr>
<tr>
<td>Obell Group Sales</td>
<td>27632.39</td>
</tr>
<tr>
<td>Optimum Corp</td>
<td>100.50</td>
</tr>
<tr>
<td>Penn Sports</td>
<td>58571.08</td>
</tr>
<tr>
<td>PCE Corp.</td>
<td>1911.98</td>
</tr>
</tbody>
</table>

Starting at record: _____ 1

F3=Exit
```

Each line in the table summarizes the customer’s orders to show their total value. The last line of the table shows the total for all customers. When you are done viewing the results, end the data display and return to the define table screen.

**press F3**
Let’s change the table to:

- provide percent of total values against the grand total value
- change the editing for the results so that they include commas

Your display should look like the one on page 9-4. Now, let’s work with the ORVAL column definition.

**Type** 2 next to the ORVAL column field at the top of the display

**Press Enter**

The column definition display will appear so that you can tailor the column definition to your needs.

**Press F4** to show the expanded column definitions at the top of the display.

Your screen should look like this:

```
Sel Exp Column Length Assignment Column heading
  ORVAL     9 2    SUM(ORVAL)  Retail_________________________
Edit code: L
Edit word: Value

Select and sequence columns that will be grouped into this category.

Seq Column Total % Rank Seq Column Total % Rank Seq Column Total % Rank
10 ORVAL _______ Y N N D

Select field to add new column.
F=Column Field
Field Attribute Description
  CUSNO  Pkd  6,0   Customer number
  CNAME  Char 25   Customer name
  CADD1  Char 25   Customer address line 1
  CADD2  Char 25   Customer address line 2
  CADD3  Char 16   Customer address line 3

F3=Exit  F12=Previous  F14/F15=Category/column list  F22=Resequence
```

Now, change the edit code and request percent of total values.

**Type** J for an edit code, replacing the L that is already in place

**Move** the cursor beneath the first ‘%’ in the middle of the display

**Type** Y in place of the N that is currently shown

**Press Enter** to record your changes, then **press F12** and return to the previous display.
Run the table and display the results

**press F19**

Your display should look similar to the one below. Each line now indicates the retail value as a percent of the entire amount (shown at the end of the table).

```
<table>
<thead>
<tr>
<th>Name</th>
<th>Retail Value</th>
<th>Pct</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. Redford's Inc.</td>
<td>17,109.47</td>
<td>2.31%</td>
</tr>
<tr>
<td>Kelly's Corp.</td>
<td>16,807.97</td>
<td>2.27%</td>
</tr>
<tr>
<td>L. M. Corp.</td>
<td>201.00</td>
<td>.03%</td>
</tr>
<tr>
<td>Lawrence Design</td>
<td>44,430.40</td>
<td>5.99%</td>
</tr>
<tr>
<td>Lickton's City Corp.</td>
<td>16,807.97</td>
<td>2.27%</td>
</tr>
<tr>
<td>Lim-Equipment Co.</td>
<td>17,083.92</td>
<td>2.30%</td>
</tr>
<tr>
<td>LBC Supplies</td>
<td>67,231.88</td>
<td>9.07%</td>
</tr>
<tr>
<td>Maple Leaf Cemetery</td>
<td>16,807.97</td>
<td>2.27%</td>
</tr>
<tr>
<td>Mister C's</td>
<td>16,807.97</td>
<td>2.27%</td>
</tr>
<tr>
<td>MNBC Corp.</td>
<td>52,838.39</td>
<td>7.13%</td>
</tr>
<tr>
<td>NBCO Corporation Inc.</td>
<td>71,008.83</td>
<td>9.58%</td>
</tr>
<tr>
<td>NBO</td>
<td>6,930.40</td>
<td>.93%</td>
</tr>
<tr>
<td>NBO Inc.</td>
<td>18,759.95</td>
<td>2.53%</td>
</tr>
<tr>
<td>Obell Group Sales</td>
<td>27,632.39</td>
<td>3.73%</td>
</tr>
<tr>
<td>Optimum Corp</td>
<td>100.50</td>
<td>.01%</td>
</tr>
<tr>
<td>Penn Sports</td>
<td>58,571.08</td>
<td>7.90%</td>
</tr>
<tr>
<td>PCE Corp.</td>
<td>1,911.98</td>
<td>.26%</td>
</tr>
</tbody>
</table>
```

**Starting at record: 1**

**press F3** when you are finished looking at the display.
Once you have finished working with the ORVAL column definition, the main table definition display will return. Your display should look like it did before. (p. 9–4)

Let’s change the table so that it provides:

- subtotals by state
- percent of total respective to both state and grand total amounts

First, we’ll add a state dimension and place it “above” the customer name dimension. Follow these steps:

move the cursor to the first blank dimension line (beneath CNAME)

type CSTTE

press Enter to create the new dimension

Resequence the two dimensions so that the state comes first.

press F22 to open the resequence window

type 20 next to CNAME in the window and press Enter

The definition display will reappear with CSTTE as the first dimension and CNAME as the second. Now, your display should look like this:

```
11/07/98 13:49:27 Define Table System: ASC400
Table . . : (Untitled) View . . : SEQUELEX/ORDERSUM
Define dimensions to create rows, categories to create column field groupings.
2=Edit 3=Copy 4=Delete
Column Column Column Column Column
ORVAL CSTTE CNAME
--- --- --- --- ---
Choose item type, press Enter.
C=Category D=Dimension F=Column field
Field Attribute Description
_ CUSNO Pkd 6,0 Customer number
_ CNAME Char 25 Customer name
_ CADD1 Char 25 Customer address line 1
_ CADD2 Char 25 Customer address line 2
_ CADD3 Char 16 Customer address line 3

F6=Level F10=Actions F14=Reposition F22=Resequence F23=Display SQL F24=Keys
```
Next, we want to change the \texttt{CSTTE} dimension so that subtotals are created for each state.

\textbf{move} the cursor adjacent to \texttt{CSTTE} on the first dimension line

\textbf{type} 2 to indicate you want to edit the dimension definition

\textbf{press} Enter to carry out your request

The dimension definition display will appear so you can change it.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Length} & \textbf{Edit code} & \textbf{Edit word} \\
\hline
2 & \_ & \\
\hline
\textbf{State} & \textbf{Break} & \textbf{Break value} \\
\hline
\_ & \_ & \_ \\
\hline
\end{tabular}
\caption{Dimension definition display}
\end{table}

Indicate that you want this to be a “break” dimension

\textbf{move} the cursor to the ‘Break’ entry field near the top of the display

\textbf{type} Y and replace the current \texttt{N} value

\textbf{type} “**” in the ‘Break value’ entry field (include the quotation marks)

\textbf{press} Enter to update the dimension’s definition

\textbf{press} F12 to return to the definition display
Run the table and display the results by pressing F19 again. You should see a display similar to the one below. As before you can scroll the display to see the complete set of results.

<table>
<thead>
<tr>
<th>State</th>
<th>Name</th>
<th>ID</th>
<th>PctSt1</th>
<th>Value</th>
<th>Retail</th>
<th>Pct</th>
<th>Value</th>
<th>Retail</th>
<th>Value</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL</td>
<td>Lickton's City Corp.</td>
<td>17,083.92</td>
<td>100.00%</td>
<td>2.30%</td>
<td>16,807.97</td>
<td>10.70%</td>
<td>2.27%</td>
<td>71,008.83</td>
<td>45.22%</td>
<td>9.58%</td>
</tr>
<tr>
<td>IL</td>
<td>NBCO Corporation Inc.</td>
<td>14,918.69</td>
<td>9.50%</td>
<td>2.01%</td>
<td>52,375.89</td>
<td>33.36%</td>
<td>7.07%</td>
<td>14,918.69</td>
<td>9.50%</td>
<td>2.01%</td>
</tr>
<tr>
<td>IL</td>
<td>Sauganash Inc.</td>
<td>52,375.89</td>
<td>33.36%</td>
<td>7.07%</td>
<td>71,008.83</td>
<td>45.22%</td>
<td>9.58%</td>
<td>14,918.69</td>
<td>9.50%</td>
<td>2.01%</td>
</tr>
<tr>
<td>IL</td>
<td>Taehnrich Corp</td>
<td>1,911.98</td>
<td>1.22%</td>
<td>.26%</td>
<td>157,023.36</td>
<td>100.00%</td>
<td>21.18%</td>
<td>157,023.36</td>
<td>100.00%</td>
<td>21.18%</td>
</tr>
<tr>
<td>KY</td>
<td>LBC Supplies</td>
<td>67,231.88</td>
<td>100.00%</td>
<td>9.07%</td>
<td>67,231.88</td>
<td>100.00%</td>
<td>9.07%</td>
<td>16,807.97</td>
<td>10.70%</td>
<td>2.27%</td>
</tr>
<tr>
<td>LA</td>
<td>Que Company Inc.</td>
<td>16,807.97</td>
<td>100.00%</td>
<td>2.27%</td>
<td>16,807.97</td>
<td>100.00%</td>
<td>2.27%</td>
<td>16,807.97</td>
<td>100.00%</td>
<td>2.27%</td>
</tr>
<tr>
<td>MA</td>
<td>Rider Corp.</td>
<td>33,917.44</td>
<td>100.00%</td>
<td>4.58%</td>
<td>33,917.44</td>
<td>100.00%</td>
<td>4.58%</td>
<td>33,917.44</td>
<td>100.00%</td>
<td>4.58%</td>
</tr>
<tr>
<td>MN</td>
<td>NBO</td>
<td>6,930.40</td>
<td>8.22%</td>
<td>.93%</td>
<td>18,759.95</td>
<td>22.26%</td>
<td>2.53%</td>
<td>18,759.95</td>
<td>22.26%</td>
<td>2.53%</td>
</tr>
<tr>
<td>MN</td>
<td>NBO Inc.</td>
<td>58,571.08</td>
<td>69.51%</td>
<td>7.90%</td>
<td>58,571.08</td>
<td>69.51%</td>
<td>7.90%</td>
<td>58,571.08</td>
<td>69.51%</td>
<td>7.90%</td>
</tr>
<tr>
<td>MN</td>
<td>Penn Sports</td>
<td>84,261.43</td>
<td>100.00%</td>
<td>11.37%</td>
<td>84,261.43</td>
<td>100.00%</td>
<td>11.37%</td>
<td>84,261.43</td>
<td>100.00%</td>
<td>11.37%</td>
</tr>
</tbody>
</table>

Starting at record: 18

The order values are now listed by state. Subtotals are given for each state. The grand total value remains at the end of the complete list. Percent of total is calculated for the subtotal level as well as the grand total amount.

**press F3** to end the data display and return to the table definition
As you’ve already seen, changing your table to show different kinds of results is very easy. Now, change the table to show only the state totals. All you need to do is remove the CNAME dimension.

**move** the cursor adjacent to CNAME in the middle of the display

**type 4 and press Enter** to delete the dimension definition

**press F19** to tabulate the data

Your results should look like this:

```
17:21:08                Data Matching SQL View Request                11/07/98

Pct
State   Value  Value

6,930.40  .93%
AZ      35,829.42  4.83%
CA      50,992.15  6.88%
CO      3,823.96   .52%
FL      100.50     .01%
GA      16,807.97  2.27%
IA      1,911.98   .26%
ID      17,083.92  2.30%
IL      157,023.36 21.18%
KY      67,231.88  9.07%
LA      16,807.97  2.27%
MA      33,917.44  4.58%
MN      84,261.43  11.37%
MT      201.00     .03%
NM      19,021.45  2.57%
NV      69,646.36  9.40%
NY      44,440.36  6.00%

Starting at record: ______1

F3=Exit  F21/F22=Open/Close
```

All orders are totaled by state, and the amount as a percent of the entire total is also shown.

**press F3** to return to the table definition display
Category tables

So far, we’ve been creating simple summary tables that collect several view records into individual table rows. They have shown you how easy it is to create totals and percent of total results.

SEQUEL’s tabling capabilities provide another very powerful feature — sorting view records into categories and creating a “spreadsheet” with separate columns for each category. Our next examples demonstrate how to do this.

The order file includes an order status code (OSTAT) that indicates how far along the order is in its fulfillment. Let’s produce a table that shows the total amount on order, by status, for each state.

Following our previous example, your display should be showing a screen like the one below. It shows a single dimension (CSTTE) and one column field (ORVAL) that will be used in creating total values.
Creating a category definition is easy. Simply choose the field you want to use from the list at the bottom of the display.

**move** the cursor into the list at the bottom of the display

**press** `PageDn` (roll up) until you find the `OSTAT` field (third page from top)

**type** `C` next to the `OSTAT` field

**press** `Enter`

Your display should now look like this:

```
11/08/98 13:54:13               Define Table                   System: ASC400
Table . . : (Untitled)                      View . . : SEQUELEX/ORDERSUM
Define dimensions to create rows, categories to create column field groupings.
2=Edit  3=Copy  4=Delete
Category Category Category Category Category
   OSTAT           ORVAL
Dimension
   -- CSTTE------------------ CSTTE=cstte
   -- ---------------------
   -- ---------------------
   -- +
Choose item type, press Enter.
 C=Category  D=Dimension  F=Column field
Field Attribute Description
  _ CUSNO      Pkd  6,0  Customer number
  _ CNAME      Char 25    Customer name
  _ CADD1      Char 25    Customer address line 1
  _ CADD2      Char 25    Customer address line 2
  _ CADD3      Char 16    Customer address line 3
F2=New  F3=Exit  F7/F19=Display  F8/F20=Print  F9=Outfile  F16=Edit SQL  F24=Keys
```

You have indicated that you want the values in the `OSTAT` field to create **categories** in the result. Each category will contain the `ORVAL` column and create total and percent of total values.

Run the table and view the results.

**press** `F19`
The display may seem a little cluttered at first, but is understandable with a second look. It should look like this:

<table>
<thead>
<tr>
<th>State</th>
<th>Retail Value</th>
<th>Pct Retail Value</th>
<th>Value</th>
<th>Retail Value</th>
<th>Pct Retail Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>.00</td>
<td>.00%</td>
<td>6,930.40</td>
<td>4.73%</td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>301.50</td>
<td>.29%</td>
<td>275.95</td>
<td>.19%</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>.00</td>
<td>.00%</td>
<td>1,911.98</td>
<td>1.31%</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td>100.50</td>
<td>.10%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>GA</td>
<td>16,807.97</td>
<td>16.18%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>IA</td>
<td>1,911.98</td>
<td>1.84%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>.00</td>
<td>.00%</td>
<td>17,083.92</td>
<td>11.66%</td>
<td></td>
</tr>
<tr>
<td>IL</td>
<td>48,557.33</td>
<td>46.76%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>KY</td>
<td>.00</td>
<td>.00%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>.00</td>
<td>.00%</td>
<td>16,807.97</td>
<td>11.47%</td>
<td></td>
</tr>
<tr>
<td>MA</td>
<td>.00</td>
<td>.00%</td>
<td>16,807.97</td>
<td>11.47%</td>
<td></td>
</tr>
<tr>
<td>MN</td>
<td>18,860.45</td>
<td>18.16%</td>
<td>8,842.38</td>
<td>6.04%</td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>201.00</td>
<td>.19%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>NM</td>
<td>.00</td>
<td>.00%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>NV</td>
<td>16,807.97</td>
<td>16.18%</td>
<td>.00</td>
<td>.00%</td>
<td></td>
</tr>
<tr>
<td>NY</td>
<td>100.50</td>
<td>.10%</td>
<td>12,613.20</td>
<td>8.61%</td>
<td></td>
</tr>
</tbody>
</table>

A separate set of columns in the table is automatically generated for each new value found in the OSTAT field. Each set of columns contains both the order total and a percent of total for the category. A grand total line at the bottom of the table shows values by category.

You can window the display to the right by pressing **F8**.

When you are finished viewing the results, press **F3**.
Now, let's revise the category to remove a little "clutter". Begin by selecting it for editing.

**move** the cursor next to OSTAT in the category list at the top of the display

**type** 2 to select the category for editing

**press** Enter

You will see the category definition prompt for the OSTAT category. Let's make several changes. We'll reduce the width of the result column, change its editing so that zero values don't show, remove the percent of total function, and change our totaling request so that we get both vertical and horizontal totals in the table.

**press** F4 to expand the column definition part at the top of the display

**tab** to the ‘Length’ field adjacent to ORVAL

**type** 6,0 and replace the current length of 9,2

**move** the cursor down one line to the edit code entry field

**type** K and replace the J (to blank out the zero values on the display)

**move** the cursor under the ‘Total’ column in the middle of the display

**type** B and replace the Y (requests both vertical and horizontal totaling)

**type** % under the ‘%’ column

**press** Enter to apply your changes

Your display should now look like the one below.
**press F12** to return to the table definition display when you have made the changes.

Now, run the table one more time and see the effect of your definition.

**press F19**

You should see the complete table like the one below.

<table>
<thead>
<tr>
<th>State</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>35,527</td>
<td>301</td>
<td>351</td>
<td>50,113</td>
<td>50,992</td>
<td></td>
</tr>
<tr>
<td>CA</td>
<td>275</td>
<td>301</td>
<td>50,113</td>
<td>50,992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>1,911</td>
<td>1,911</td>
<td></td>
<td></td>
<td></td>
<td>3,823</td>
</tr>
<tr>
<td>FL</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>GA</td>
<td>16,807</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,807</td>
</tr>
<tr>
<td>IA</td>
<td>1,911</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,911</td>
</tr>
<tr>
<td>ID</td>
<td>17,083</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17,083</td>
</tr>
<tr>
<td>IL</td>
<td>48,557</td>
<td>58,372</td>
<td>50,093</td>
<td>157,023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KY</td>
<td>33,615</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>67,231</td>
</tr>
<tr>
<td>LA</td>
<td>16,807</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16,807</td>
</tr>
<tr>
<td>MA</td>
<td>16,807</td>
<td>17,109</td>
<td></td>
<td></td>
<td></td>
<td>33,917</td>
</tr>
<tr>
<td>MN</td>
<td>18,860</td>
<td>8,842</td>
<td>14,918</td>
<td>41,639</td>
<td>84,261</td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>201</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>201</td>
</tr>
<tr>
<td>NM</td>
<td>17,109</td>
<td>1,911</td>
<td></td>
<td></td>
<td></td>
<td>19,021</td>
</tr>
<tr>
<td>NV</td>
<td>16,807</td>
<td>1,911</td>
<td>17,008</td>
<td>33,917</td>
<td>69,646</td>
<td></td>
</tr>
<tr>
<td>NY</td>
<td>100</td>
<td>12,613</td>
<td>14,918</td>
<td>16,807</td>
<td>44,440</td>
<td></td>
</tr>
</tbody>
</table>

When you finish viewing the results, return to the table definition display by **pressing F3**.
Now, save your table definition so that you can run it later.

**press** F3 **from** the table definition display to access the exit prompt

**type** XXXEXER7 **as** the table name (remember XXX are your initials) and SEQUELEX **as** the library name

**type** Order summary table by state and status **as** the title

**press** Enter **when** your display looks like the one below

---

**Table Definition Exit Display**

- **Table name**: GHBEXER7
- **View name**: ORDERSUM
- **Library**: SEQUELEX
- **Authority**: *SAME
- **Fields in access path**: *ALL
- **Title**: Order summary table by state and status

**ENTER=Save**  **F3=Exit**  **F12=Previous**

---

You will return to the display that you used to start the table design process and a message will appear at the bottom of the screen indicating that the table definition was saved.

You can run the table definition just as you can any other view by using the Display, Print, or Execute options from your menu or “Work with” display. Try it!
In Review

This brief introduction to tabling has given you a glimpse of the exciting work you can do with just a few keystrokes. SEQUEL’s tabling module lets you do much more than we can demonstrate now. For instance, you can also:

- conditionally group view records into new table rows

  Using the ORDERSUM example in this section, you could easily create table rows that group records into regions (East, Midwest, West, etc.) even though no view field contains a “region” value.

- rank table rows relative to the grand total and/or subtotal results in a column

- conditionally group records into column groups

  The table on page 9–16 can be changed to include a column representing “normal” orders (status code 1-3) and another column showing the value of “backorders” (status code 4-5).

Perhaps the biggest advantage of SEQUEL tabling is its ability to summarize and reformat your data quickly. In this lesson, we’ve constructed six different ways to look at the ORDERSUM records. It’s difficult to imagine a simpler, more powerful tool for rearranging the information in your database.

Besides the powerful functions you can perform when creating SEQUEL tables, you may be amazed by the ways you can use table results.

Integrating with personal computer applications — The huge volume of enterprise data is usually the biggest bottleneck to processing at the PC. SEQUEL tables solve the problem by allowing you to reduce AS/400 data before it must cross the AS/400 – PC boundary. Because tabling is command driven, tables can be scheduled for “off hours” creation in a batch subsystem. PC users can get the results simply by opening the correct shared folder document directly from their spreadsheet or word processing application.

Charting — SEQUEL table results are naturally well suited for charting. Try using SEQUEL to create pictures that quickly convey the meaning hidden in hundreds or thousands of database records.

Report writing — Reformatting table results to meet your exacting needs is easy with SEQUEL’s report writer.

You can learn more about SEQUEL’s tabling capabilities by reading the SEQUEL User’s Guide.