

# APPENDIX C

## DATA MANAGEMENT WITH EXCEL

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### C-1 INTRODUCTION

Excel is not database management software; however, it provides basic data management features and commands that can organize a spreadsheet's data in many forms for use in diverse decision-making activities. These basic features and commands include sort operations, search operations using the Filter command, statistical database functions, the Frequency function, and the pivot table.

### C-2 SORT OPERATIONS

Sort operations are used to organize a table based on one or several of its columns (fields). Basically, a table can be organized around any or all of its columns. The first column chosen serves as the primary key, and the other columns serve as secondary keys.

To sort the table shown in Exhibit C.1 based on any of its columns, follow these steps:

1. Select the table (excluding the column headings).
2. Click **Data**.
3. Click **Sort**.
4. In the Sort dialog box (Exhibit C.2), choose the column around which you want to sort the table.
5. Choose the order (Smallest to Largest, Largest to Smallest, Custom List...).
6. Click **OK**.

## Exhibit C.1 A sample table

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Randy	Smith	36	M	Professor	\$90,000
Fay	Brown	30	F	Engineer	\$75,000
Adam	Mills	31	M	Engineer	\$55,000
Andrea	Harris	36	F	Teacher	\$31,000
Moe	Santos	40	M	Officer	\$49,000
Bob	Sakas	32	M	Engineer	\$72,000
Vicki	Hashim	25	F	Teacher	\$34,000
Paula	Schlosser	55	F	Nurse	\$56,000
Jack	Negrete	69	M	Artist	\$32,000
Mary	Fisher	30	F	Teacher	\$33,000
Sue	Hayward	22	F	Engineer	\$61,000
Jacky	Chpres	72	F	Engineer	\$52,000
Lora	Heredia	30	F	Nurse	\$48,000

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## Exhibit C.2 The Sort dialog box

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Randy	Smith	36	M	Professor	\$90,000
Fay	Brown	30	F	Engineer	\$75,000
Adam	Mills	31	M	Engineer	\$55,000
Andrea	Harris	36	F	Teacher	\$31,000
Moe	Santos	40	M	Officer	\$49,000
Bob	Sakas	32	M	Engineer	\$72,000
Vicki	Hashim	25	F	Teacher	\$34,000
Paula	Schlosser	55	F	Nurse	\$56,000
Jack	Negrete	69	M	Artist	\$32,000
Mary	Fisher	30	F	Teacher	\$33,000
Sue	Hayward	22	F	Engineer	\$61,000
Jacky	Chpres	72	F	Engineer	\$52,000
Lora	Heredia	30	F	Nurse	\$48,000

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In this example, we chose **Income** for the column and **Largest to Smallest** for the order. The result is shown in Exhibit C.3.

### Exhibit C.3

The table in Exhibit C.1 is sorted based on **Income** in **Largest to Smallest** order

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Randy	Smith	36	M	Professor	\$90,000
Fay	Brown	30	F	Engineer	\$75,000
Bob	Sakas	32	M	Engineer	\$72,000
Sue	Hayward	22	F	Engineer	\$61,000
Paula	Schlosser	55	F	Nurse	\$56,000
Adam	Mills	31	M	Engineer	\$55,000
Jacky	Chipres	72	F	Engineer	\$52,000
Moe	Santos	40	M	Officer	\$49,000
Lora	Heredia	30	F	Nurse	\$48,000
Vicki	Hashim	25	F	Teacher	\$34,000
Mary	Fisher	30	F	Teacher	\$33,000
Jack	Negrete	69	M	Artist	\$32,000
Andrea	Harris	36	F	Teacher	\$31,000

Using the sample table from Exhibit C.1, we now want to sort first by **Gender** (A to Z) and then by **Income** (Z to A). To do this, follow these steps:

1. Select the table (excluding the column headings).
2. Click **Data**.
3. Click **Sort**.

4. Choose **Gender** (A to Z).

5. Click **Add Level** (in the upper-left corner of the Sort dialog box).

6. Choose **Income** (Z to A).

7. Click **OK**.

The result is shown in Exhibit C.4.

## Exhibit C.4

The table from Exhibit C.1 is sorted based on Gender (A to Z), then Income (Z to A)

The screenshot shows the Microsoft Excel interface with the 'DATA' tab selected. The ribbon includes options for 'Sort & Filter', 'Advanced', 'Data Tools', and 'Outline'. The active cell is A20. The table data is as follows:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
	FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME															
4	Fay	Brown	30	F	Engineer	\$75,000															
5	Sue	Hayward	22	F	Engineer	\$61,000															
6	Paula	Schlosser	55	F	Nurse	\$56,000															
7	Jacky	Chipres	72	F	Engineer	\$52,000															
8	Lora	Heredia	30	F	Nurse	\$48,000															
9	Vicki	Hashim	25	F	Teacher	\$34,000															
10	Mary	Fisher	30	F	Teacher	\$33,000															
11	Andrea	Harris	36	F	Teacher	\$31,000															
12	Randy	Smith	36	M	Professor	\$90,000															
13	Bob	Sakas	32	M	Engineer	\$72,000															
14	Adam	Mills	31	M	Engineer	\$55,000															
15	Moe	Santos	40	M	Officer	\$49,000															
16	Jack	Negrete	69	M	Artist	\$32,000															

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## C-3 SEARCH OPERATIONS

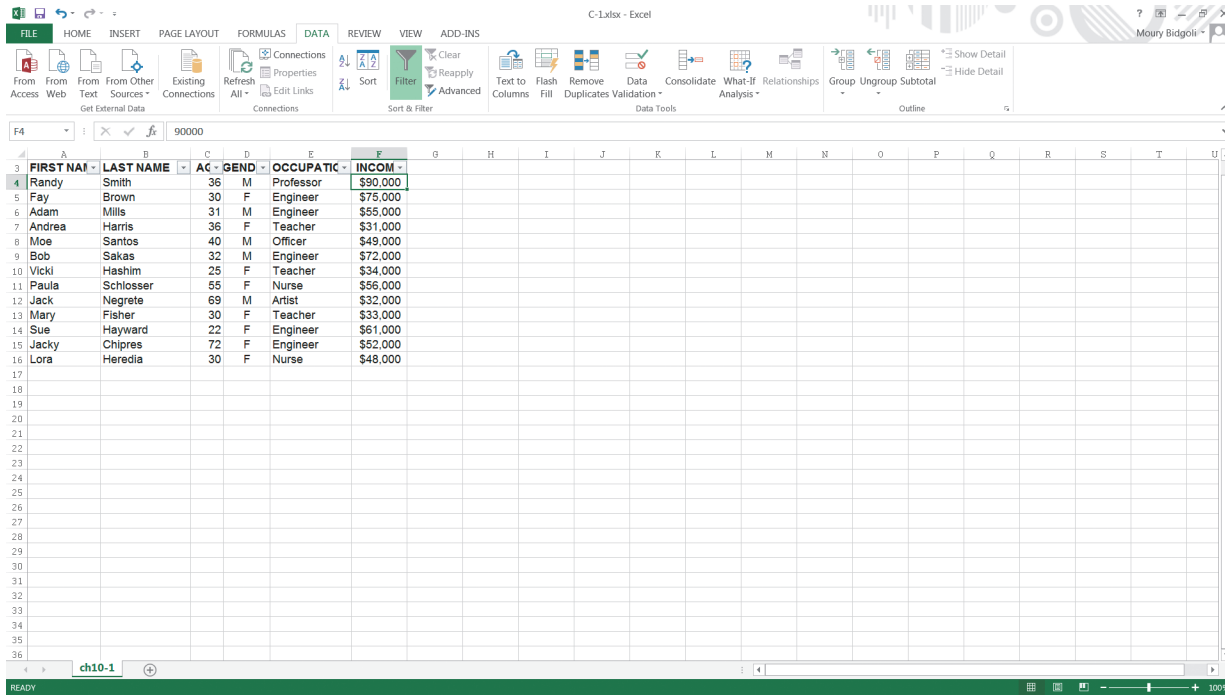
When you perform a search operation, you are interested in specific records that meet certain criteria. For example, in a student grade table, you might want to search for all those students who have a GPA greater than 3.6; or in an employee table, you might want to search for all the employees who hold master's degrees. To conduct a search operation, you click **Data** and then click **Filter**.

Using the sample table from Exhibit C.1, we now want to search for engineers. To do this, follow these steps:

1. Put the cursor in any of the table's cells.
2. Click **Data**, then click **Filter**. The Filter command is displayed, as shown in Exhibit C.5. As you can see, a down-arrow icon is displayed above each field (column).
3. Click the **down-arrow icon** next to the word "Occupation." You will see what is displayed in Exhibit C.6.
4. Uncheck all the occupations except Engineer, and then click **OK**. The result is shown in Exhibit C.7. As you see in Exhibit C.6, you can sort the filtered table in ascending or descending order.

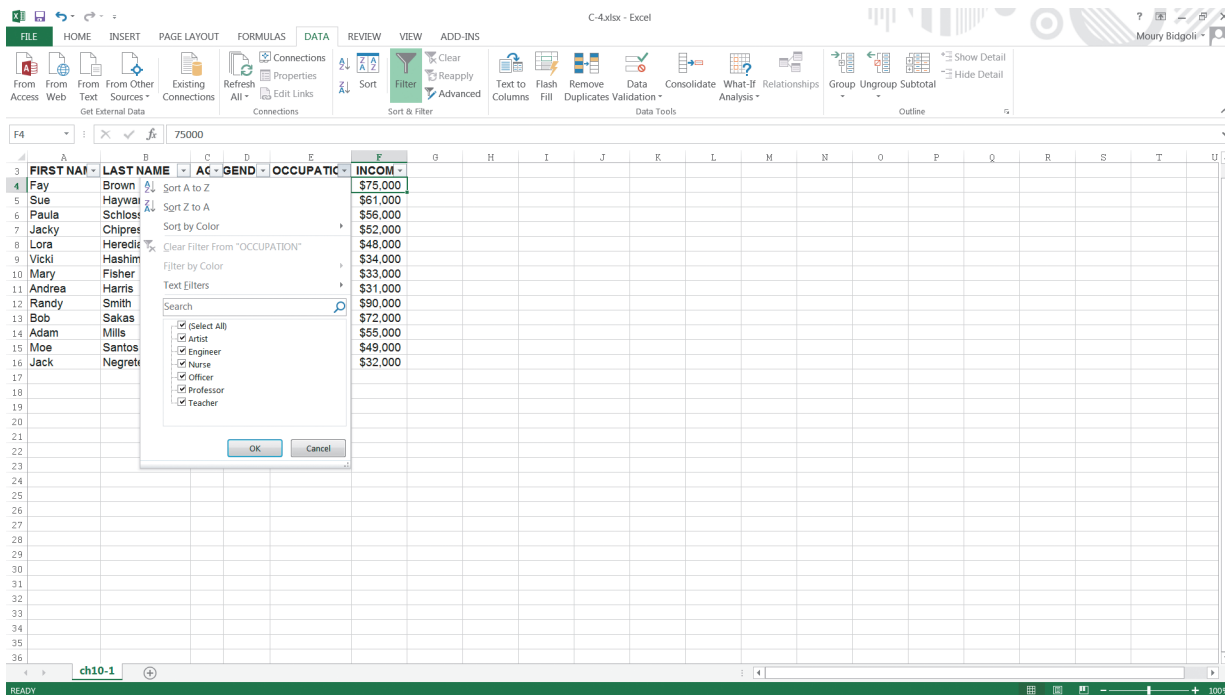


## Exhibit C.5 The Filter command



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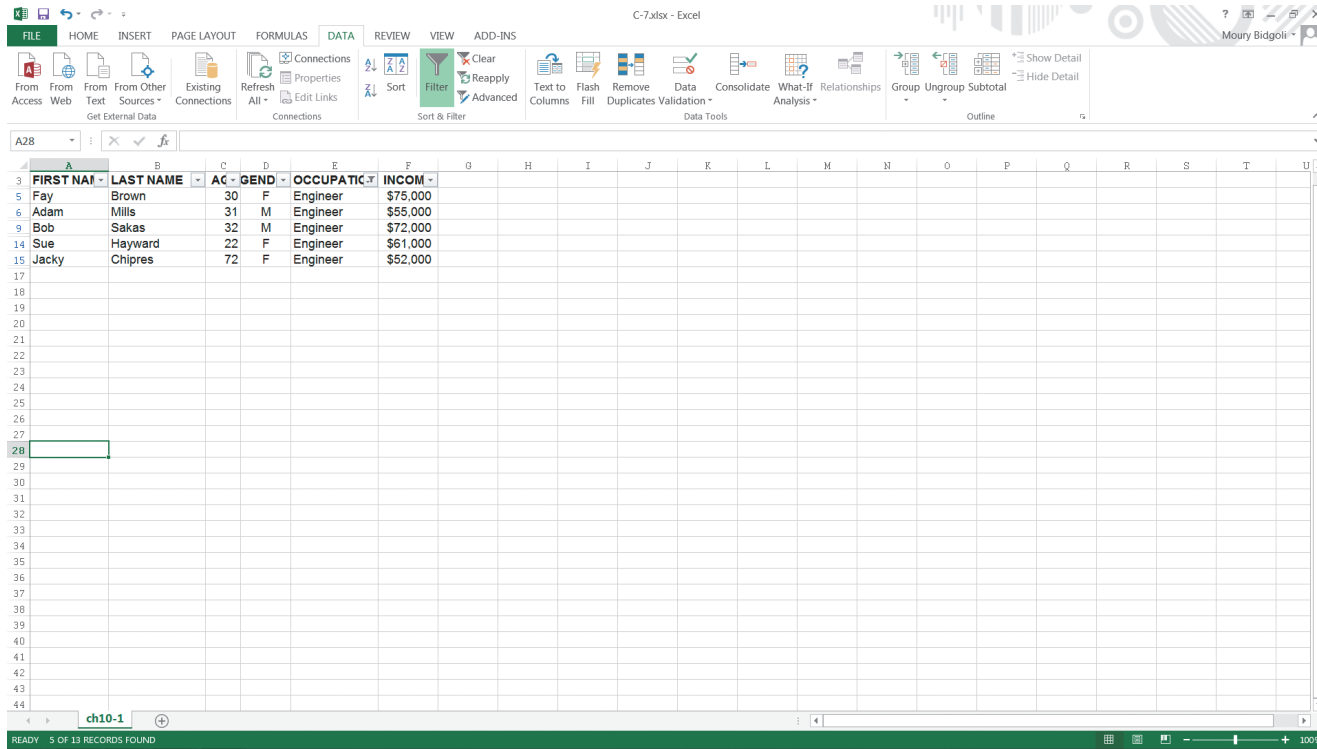
## Exhibit C.6 Options under the Occupation field using the Filter command



Created using Microsoft Excel®, used with permission from Microsoft.

## Exhibit C.7

The table from Exhibit C.1 is filtered for Engineers



FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Fay	Brown	30	F	Engineer	\$75,000
Adam	Mills	31	M	Engineer	\$55,000
Bob	Sakas	32	M	Engineer	\$72,000
Sue	Hayward	22	F	Engineer	\$61,000
Jacky	Chipres	72	F	Engineer	\$52,000

This table can be further filtered. For example, you may want to filter for only male engineers, female engineers, or engineers who meet certain age criteria.

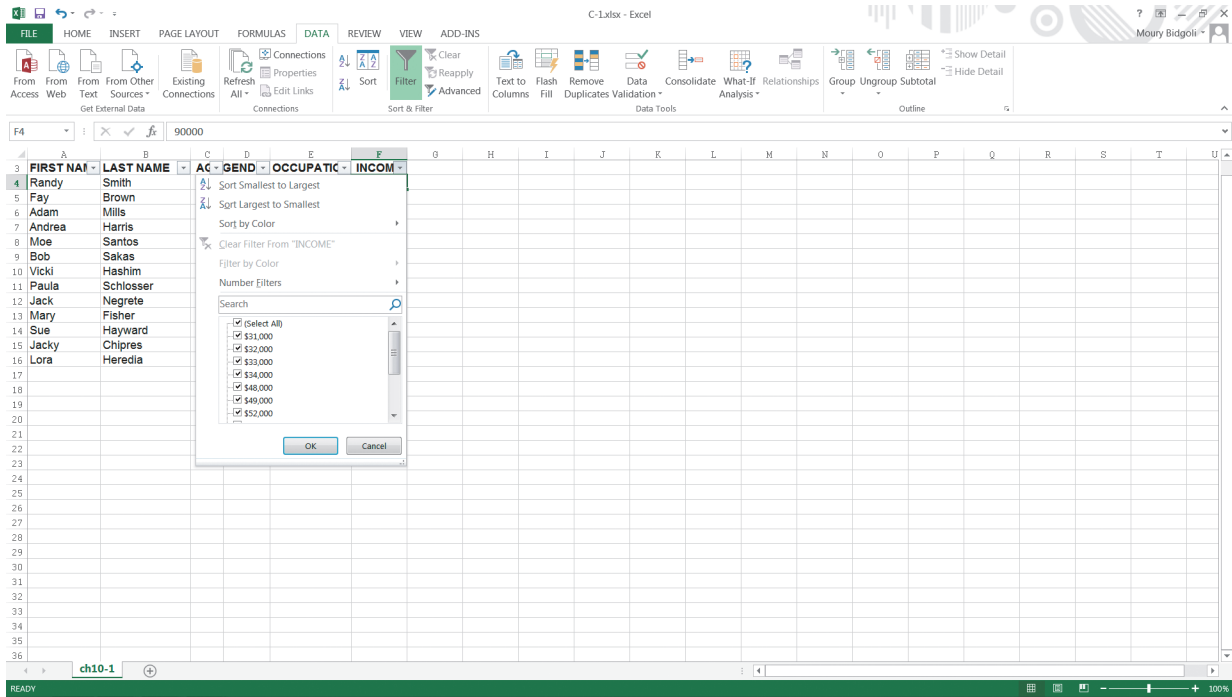
### C-4 CUSTOM FILTER

The basic Filter command allows you to filter a table when there are exact matches—for example, the job title “Engineer,” the gender “male,” or the income “\$90,000.” To search for inexact matches—“less than,” “greater than,” “in between,” and so forth—you have to use the custom filter feature. Using the sample table from Exhibit C.1, we now want to search for employees with an income over \$55,000. To do this, follow these steps:

1. Put the cursor in any of the cells in the Income column.

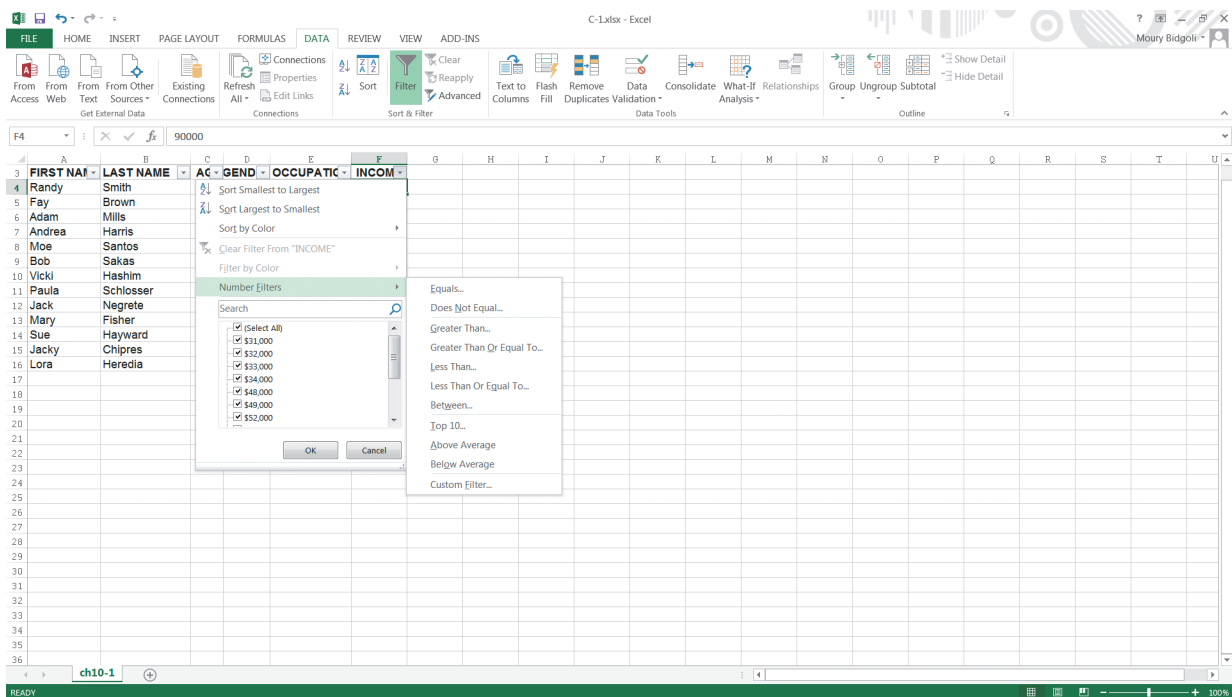
2. Click **Data**, then click **Filter**.
3. Click the **down-arrow icon** in the Income column. You will see what is shown in Exhibit C.8. Toward the middle of the pull-down menu, click **Number Filters**. You will see what is shown in Exhibit C.9.
4. Click **Greater Than**. You will see what is shown in Exhibit C.10.
5. In the Custom AutoFilter dialog box, to the right of “is greater than,” click the **down-arrow icon** and choose **\$55,000**.
6. Click **OK**. The result (all employees with an income over \$55,000) is shown in Exhibit C.11.

## Exhibit C.8 Options under the Income field using the Filter command



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## Exhibit C.9 Options under Number Filters



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## Exhibit C.10 Custom AutoFilter dialog box

The screenshot shows the Microsoft Excel interface with a Custom AutoFilter dialog box open. The dialog box is titled "Custom AutoFilter" and is positioned over a data table. The table has the following data:

FIRST NAME	LAST NAME	AC	GEND	OCCUPATIC	INCOM
Randy	Smith	36	M	Professor	\$90,000
Fay	Brown	30	F	Engineer	\$75,000
Adam	Mills	31	M	Engineer	\$55,000
Andrea	Harris				
Moe	Santos				
Bob	Sakas				
Vicki	Hashim				
Paula	Schlosser				
Jack	Negrete				
Mary	Fisher				
Sue	Hayward				
Jacky	Chipres				
Lora	Heredia				

The Custom AutoFilter dialog box is configured as follows:

- Show rows where: INCOME
- is greater than [ ]
- And Or
- Use ? to represent any single character
- Use \* to represent any series of characters

The status bar at the bottom of the Excel window shows "READY" and "ch10-1".

Created using Microsoft Excel®, used with permission from Microsoft.

## Exhibit C.11 Employees with income over \$55,000

The screenshot shows the Microsoft Excel interface with the Custom AutoFilter dialog box closed. The data table is filtered to show only employees with an income over \$55,000. The table has the following data:

FIRST NAME	LAST NAME	AC	GEND	OCCUPATIC	INCOM
Randy	Smith	36	M	Professor	\$90,000
Fay	Brown	30	F	Engineer	\$75,000
Bob	Sakas	32	M	Engineer	\$72,000
Paula	Schlosser	55	F	Nurse	\$56,000
Sue	Hayward	22	F	Engineer	\$61,000

The status bar at the bottom of the Excel window shows "READY" and "5 OF 13 RECORDS FOUND".

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## C-5 ADVANCED FILTER

The Advanced Filter feature allows you to combine several criteria. For example, in the sample table in Exhibit C.1, we are searching for all the employees who are female, are under the age of 40, and have an income over \$50,000. Follow the steps below:

1. Copy the table headings to row #20 in order to establish the Criteria range. The Criteria range can be anywhere outside the table. We chose row #20.
2. Under Gender, type F; under Age, type <40; and under Income, type >50,000. Please notice that case and alignment could matter. To be safe, for nonnumeric data, use the copy command in

order to create the exact data under the Criteria range. At this point, your screen should be similar to the one shown in Exhibit C.12.

3. Put the cursor on any of the table cells, click **Data**, then click **Filter**, and then click **Advanced**. The Advanced Filter Dialog box opens.
4. In the List range, enter **A3:F16** (if it's not already entered).
5. In the Criteria range, enter **A20:F21**. At this point your screen should be similar to the one shown in Exhibit C.13.
6. Click **OK**. You will see what is displayed in Exhibit C.14. Notice there are only two employees who meet all three conditions.

### Exhibit C.12

Criteria range for female employees under 40 with incomes over \$50,000

	A	B	C	D	E	F
3	<b>FIRST NAME</b>	<b>LAST NAME</b>	<b>AGE</b>	<b>GENDER</b>	<b>OCCUPATION</b>	<b>INCOME</b>
4	Randy	Smith	36	M	Professor	\$90,000
5	Fay	Brown	30	F	Engineer	\$75,000
6	Adam	Mills	31	M	Engineer	\$55,000
7	Andrea	Harris	36	F	Teacher	\$31,000
8	Moe	Santos	40	M	Officer	\$49,000
9	Bob	Sakas	32	M	Engineer	\$72,000
10	Vicki	Hashim	25	F	Teacher	\$34,000
11	Paula	Schlosser	55	F	Nurse	\$56,000
12	Jack	Negrete	69	M	Artist	\$32,000
13	Mary	Fisher	30	F	Teacher	\$33,000
14	Sue	Hayward	22	F	Engineer	\$61,000
15	Jacky	Chipres	72	F	Engineer	\$52,000
16	Lora	Heredia	30	F	Nurse	\$48,000
17						
18						
19						
20	<b>FIRST NAME</b>	<b>LAST NAME</b>	<b>AGE</b>	<b>GENDER</b>	<b>OCCUPATION</b>	<b>INCOME</b>
21			<40	F		>50,000
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						

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## Exhibit C.13 Completed Advanced Filter for Exhibit C.12

The screenshot shows the Microsoft Excel interface with the 'Advanced Filter' dialog box open. The dialog box is configured as follows:

- Action:**  Filter the list in-place
- List range:** \$A\$3:\$F\$16
- Criteria range:** \$A\$20:\$F\$21
- Copy to:** (empty)
- Unique records only

The background data table is as follows:

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Randy	Smith	36	M	Professor	\$90,000
Fay	Brown	30	F	Engineer	\$75,000
Adam	Mills	31	M	Engineer	\$55,000
Andrea	Harris	36	F	Engineer	\$75,000
Moe	Santos	40	M	Engineer	\$75,000
Bob	Sakas	32	M	Engineer	\$75,000
Vicki	Hashim	26	F	Engineer	\$75,000
Paula	Schlosser	56	F	Engineer	\$75,000
Jack	Negrete	69	M	Engineer	\$75,000
Mary	Fisher	30	F	Engineer	\$75,000
Sue	Hayward	22	F	Engineer	\$61,000
Jacky	Chipres	72	M	Engineer	\$75,000
Lora	Heredia	30	F	Engineer	\$75,000

The criteria range (rows 20-21) is:

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
<40		F			>50,000

Created using Microsoft Excel®, used with permission from Microsoft.

## Exhibit C.14 Employees who meet all three conditions

The screenshot shows the result of the advanced filter. The data table is now filtered to show only three records:

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Fay	Brown	30	F	Engineer	\$75,000
Sue	Hayward	22	F	Engineer	\$61,000

The criteria range (rows 20-21) remains the same as in Exhibit C.13:

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
<40		F			>50,000

The status bar at the bottom indicates 'READY 2 OF 13 RECORDS FOUND'.

Created using Microsoft Excel®, used with permission from Microsoft.



## C-6 CONDITIONAL FORMATTING

When you use the Filter option, you basically hide the information that does not meet the specified criteria. However, if you are interested to see the entire table and at the same time be able to highlight the information that meets specified criteria, then **Conditional Formatting** is the right alternative. Let's say that in the sample table (Exhibit C.1) you want to highlight all the employees with an income over \$50,000. This is how you do it:

1. Select the entire Income column by clicking over F (column letter).
2. Click the **Home** tab, and then click **Conditional Formatting**. Your screen should be similar to the one shown in Exhibit C.15.

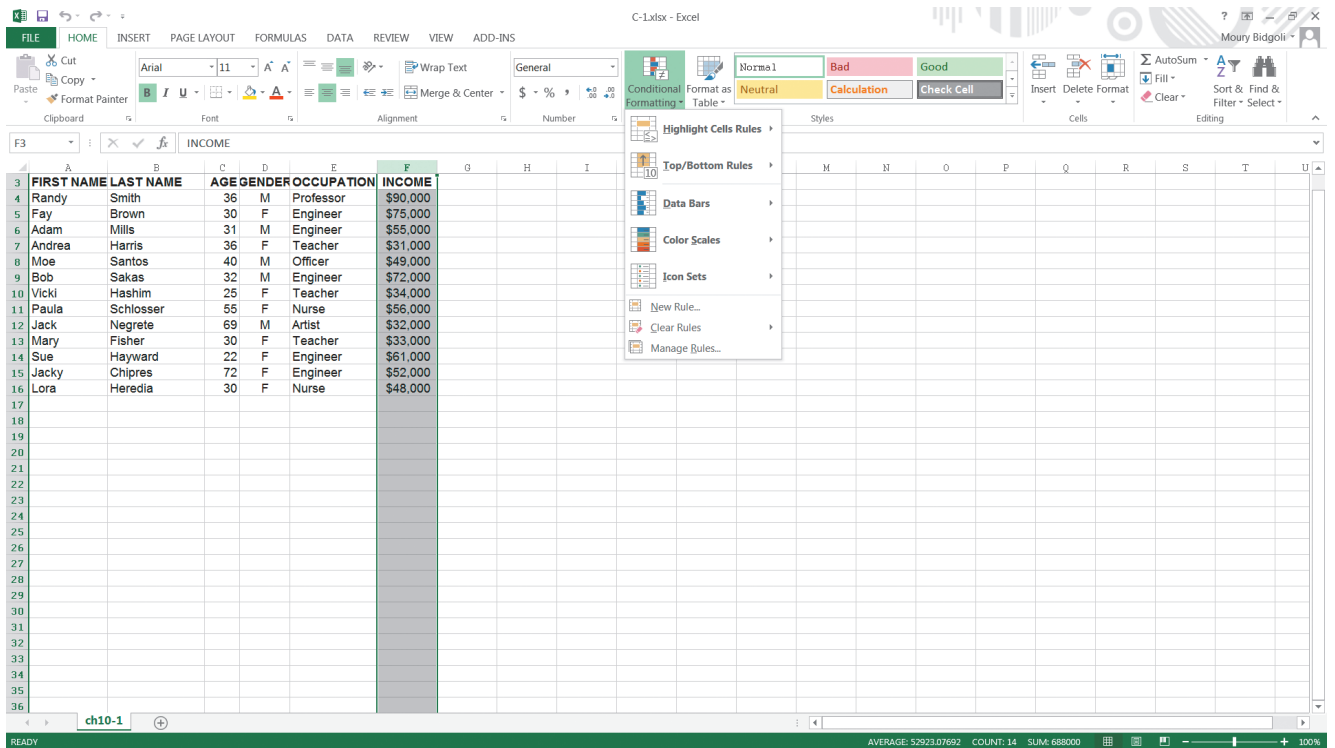
3. From the pull-down menu, click **Highlight Cells Rules**, and then click **Greater Than**.

4. In the Greater Than dialog box, type 50,000, and then click **OK**. Your screen should be similar to the one shown in Exhibit C.16. As you see in this exhibit, all the employees with income over \$50,000 are highlighted.

To turn off this feature, follow the steps below:

1. Click anywhere in the table.
2. Click **Conditional Formatting**.
3. Click **Clear Rules**.
4. Click **Clear Rules from Entire Sheet**.

Exhibit C.15  
Conditional Formatting menu



Created using Microsoft Excel®, used with permission from Microsoft.



Exhibit C.16  
Employees with income over \$50,000 are highlighted

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
3		FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME														
4		Randy	Smith	36	M	Professor	\$90,000														
5		Fay	Brown	30	F	Engineer	\$75,000														
6		Adam	Mills	31	M	Engineer	\$55,000														
7		Andrea	Harris	36	F	Teacher	\$31,000														
8		Moe	Santos	40	M	Officer	\$49,000														
9		Bob	Sakas	32	M	Engineer	\$72,000														
10		Vicki	Hashim	25	F	Teacher	\$34,000														
11		Paula	Schlusser	55	F	Nurse	\$55,000														
12		Jack	Negrete	69	M	Artist	\$32,000														
13		Mary	Fisher	30	F	Teacher	\$33,000														
14		Sue	Hayward	22	F	Engineer	\$61,000														
15		Jacky	Chipres	72	F	Engineer	\$52,000														
16		Lora	Heredia	30	F	Nurse	\$48,000														

Created using Microsoft Excel®, used with permission from Microsoft.

C-7 DATABASE STATISTICAL FUNCTIONS

In Appendix A, you studied statistical functions. The same functions can be used with database data to add more flexibility to your analysis. For example, in the sample table (Exhibit C.1), you can count the number of male engineers with income over \$50,000 and perform other statistical analyses. In other words, database statistical functions allow you to be selective with the data in the worksheet and let you choose a subset of the data for various types of analyses. The general format of Excel statistical function is as follows:

**DFunction(database,field,criteria)**

The elements of this formula are as follows:

**D** stands for database and must precede all database statistical functions—for example, DVERAGE, DCOUNT, and DMAX.

**Database** is the range of cells that makes up the list or database. In the table in Exhibit C.1, the entire database is the range: **A3:F16**. You may choose to use a portion of this database for analysis. However, in any selection, the column headings must be included in your range.

**Field** indicates which column is selected in the function that you are using. Enter the column label enclosed between double quotation marks, such as “GENDER” or “OCCUPATION,” or a number (without quotation marks) that represents the position of the column within the list: 1 for the first column, 2 for the second column, and so on. The sample table in Exhibit C.1 has six columns, so they are numbered from 1 to 6.

**Criteria** is the range of cells that contains the conditions you specify. You can use any range for the criteria argument, as long as it includes at least one column label and at least one cell below the column label in which you specify a condition for the column.

Exhibit C.17 shows the results of performing database statistical analysis on female employees who are under 40 years of age and have incomes over \$50,000.

You could enter the Dcount function in either of the following two ways:

**=DCOUNT(A3:F16,3,A20:F21)**

**=DCOUNT(A3:F16,”AGE”,A20:F21)**



## Exhibit C.18 The Frequency function

A SAMPLE TABLE FOR THE FREQUENCY FUNCTION			
OCCUPATION	INCOME	Bins Array	The Results
Professor	\$90,000	20,000	1
Engineer	\$75,000	40,000	3
Engineer	\$55,000	60,000	5
Teacher	\$31,000	80,000	3
Officer	\$49,000	100,000	1
Engineer	\$72,000		
Teacher	\$34,000		
Nurse	\$56,000		
Artist	\$32,000		
Teacher	\$19,900		
Engineer	\$61,000		
Engineer	\$52,000		
Nurse	\$48,000		

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## C-9 PIVOT TABLE

A pivot table in Excel is a powerful tool that allows you to summarize data for decision-making purposes. Take a look at the table presented in Exhibit C.19.

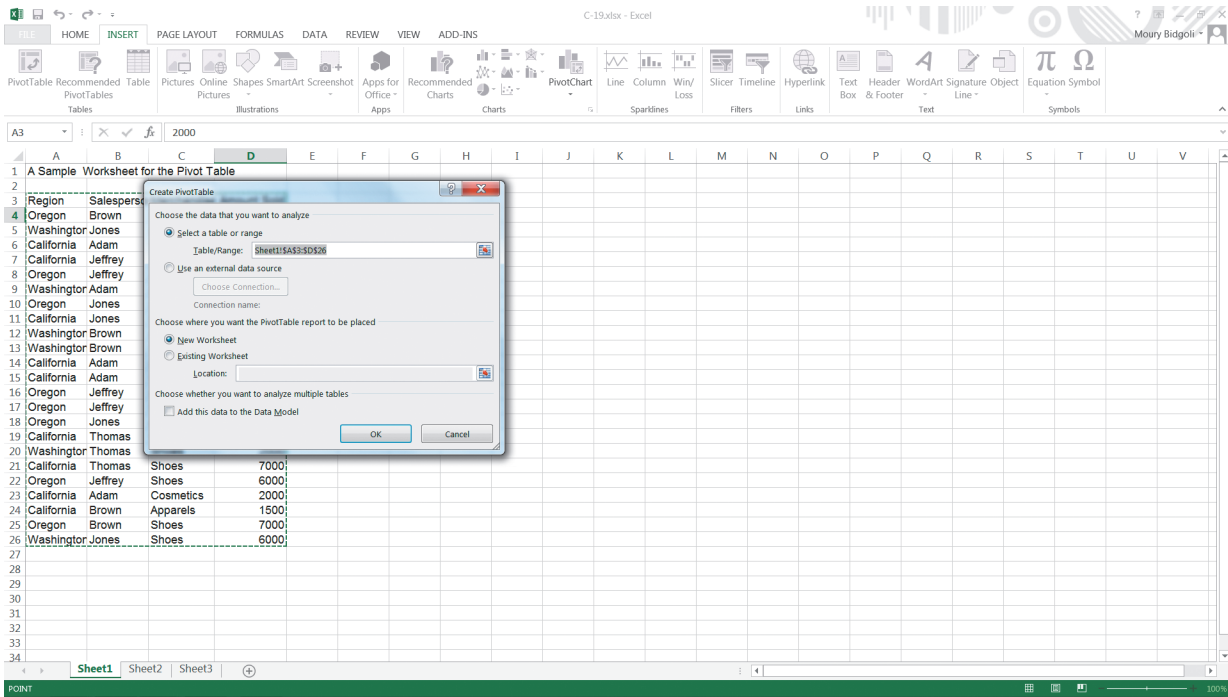
The ABC Company sells different merchandise through different salespersons in different states. The sales manager might be interested in knowing who sold what, where, and how much. The pivot table does all of this and more in a very easy fashion.

## Exhibit C.19 A sample table

Region	Salesperson	Merchandise	Amount Sold
Oregon	Brown	Shoes	2000
Washington	Jones	Apparels	3000
California	Adam	Cosmetics	5000
California	Jeffrey	Jewelry	2000
Oregon	Jeffrey	Jewelry	900
Washington	Adam	Jewelry	2000
Oregon	Jones	Apparels	2000
California	Jones	Cosmetics	3500
Washington	Brown	Apparels	4500
Washington	Brown	Cosmetics	9000
California	Adam	Apparels	2000
California	Adam	Cosmetics	1500
Oregon	Jeffrey	Apparels	1700
Oregon	Jeffrey	Cosmetics	1200
Oregon	Jones	Apparels	1300
California	Thomas	Cosmetics	4000
Washington	Thomas	Shoes	2000
California	Thomas	Shoes	7000
Oregon	Jeffrey	Shoes	6000
California	Adam	Cosmetics	2000
California	Brown	Apparels	1500
Oregon	Brown	Shoes	7000
Washington	Jones	Shoes	6000

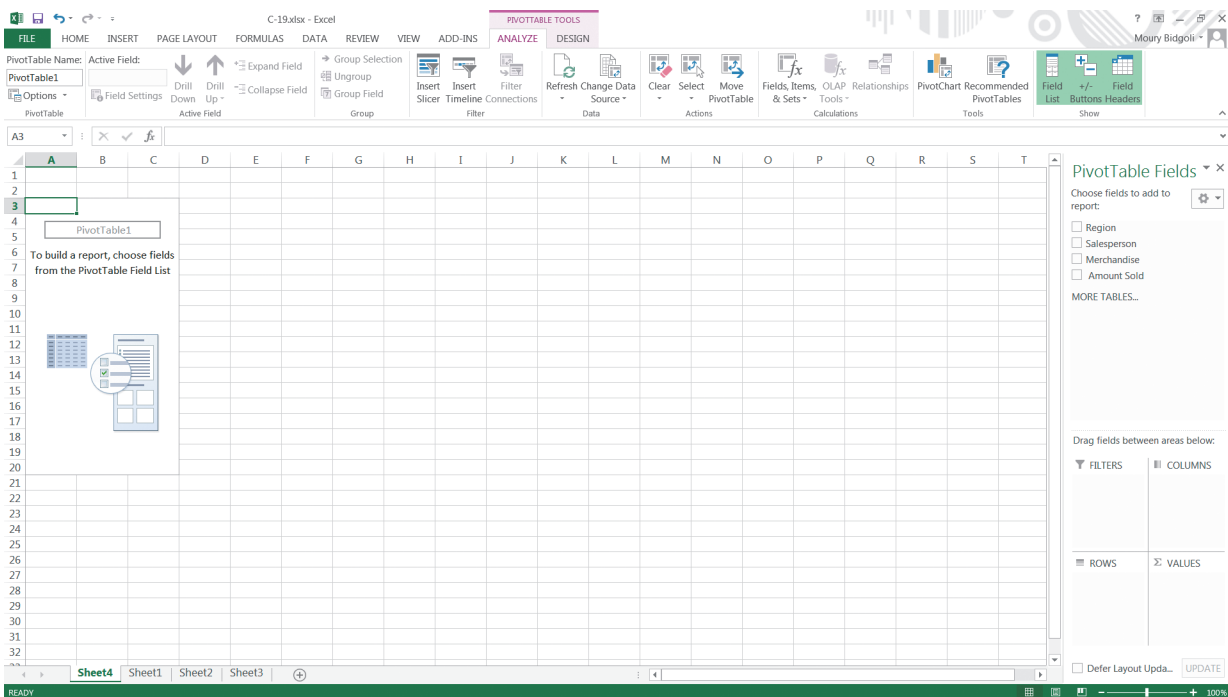
- Put the cursor in any of the cells in the table.
- Click **Insert**, and then click **PivotTable**.
- The Create Pivot Table dialog box opens (see Exhibit C.20). As you see in this dialog box, the table range is already selected.
- Click **OK** to accept the default. This will generate the results in a different worksheet (see Exhibit C.21). This is the skeletal structure of the pivot table. As you see in this exhibit, the pivot table is displayed on the left side. In the upper-right corner, you see all fields in the table. In the lower-right corner, you see **FILTERS**, **COLUMNS**, **ROWS**, and  $\Sigma$  **VALUES** (sum of values). These are the summaries that the Pivot Table feature can generate for you.
- Click **Amount Sold**. You will see what is displayed in Exhibit C.22, showing 77100. This is the amount sold by all the salespersons in all regions.
- Click **Region**. You will see what is displayed in Exhibit C.23. Notice that the total sales are now broken down into three regions.
- Click **Salesperson**. You will see what is displayed in Exhibit C.24. Notice that this exhibit shows the performance of each salesperson in each region.
- Click **Merchandise**. You will see what is displayed in Exhibit C.25. Notice that sales are now broken down by region, then by salesperson, and then by product.
- Click **Salesperson** and drop it under **FILTERS**. Click **Region** and drop it under **COLUMNS**. You will see what is displayed in Exhibit C.26, which shows a two-dimensional table with sales broken down by region and types of merchandise. You can do many other types of analyses with just a few clicks of the mouse!

## Exhibit C.20 Create Pivot Table dialog box



Created using Microsoft Excel®, used with permission from Microsoft.

## Exhibit C.21 The skeletal structure of the pivot table



Created using Microsoft Excel®, used with permission from Microsoft.



## Exhibit C.22 Sum of Amount Sold

The screenshot shows the Microsoft Excel interface with a PivotTable. The PivotTable is located in cell A3 and has a single value field, 'Sum of Amount Sold', with a total value of 77100. The PivotTable Fields task pane on the right shows 'Amount Sold' selected under the VALUES area.

Region	Sum of Amount Sold
California	28500
Oregon	22100
Washington	26500
<b>Grand Total</b>	<b>77100</b>

Created using Microsoft Excel®, used with permission from Microsoft.

## Exhibit C.23 Total sales broken down into three regions

The screenshot shows the Microsoft Excel interface with a PivotTable. The PivotTable is located in cell A3 and has 'Region' as the filter and 'Sum of Amount Sold' as the value field. The PivotTable Fields task pane on the right shows 'Region' selected under the FILTERS area and 'Amount Sold' selected under the VALUES area.

Region	Sum of Amount Sold
California	28500
Oregon	22100
Washington	26500
<b>Grand Total</b>	<b>77100</b>

Created using Microsoft Excel®, used with permission from Microsoft.

## Exhibit C.24 The performance of each salesperson in each region

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is set to show 'Sum of Amount Sold' for each region, broken down by salesperson. The data is as follows:

Region	Salesperson	Amount Sold
California	Adam	10500
	Brown	1500
	Jeffrey	2000
	Jones	3500
	Thomas	11000
Oregon	Brown	9000
	Jeffrey	9800
	Jones	3300
Washington	Adam	2000
	Brown	13500
	Jones	9000
	Thomas	2000
<b>Grand Total</b>		<b>77100</b>

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## Exhibit C.25 Sales broken down by region, then by salesperson, and then by product

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is set to show 'Sum of Amount Sold' for each region, broken down by salesperson and then by product. The data is as follows:

Region	Salesperson	Product	Amount Sold
California	Adam	Apparels	2000
		Cosmetics	8500
	Brown	Apparels	1500
		Jewelry	2000
	Jones	Cosmetics	3500
Oregon	Brown	Shoes	9000
		Shoes	9000
	Jeffrey	Apparels	1700
Washington	Adam	Cosmetics	1200
		Jewelry	900
	Brown	Shoes	6000
		Apparels	3300
Washington	Adam	Jewelry	2000
		Apparels	4500
	Brown	Cosmetics	9000

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## Exhibit C.26

A two-dimensional table that shows sales performance by region and types of merchandise

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable is located in the range A3:G9. The data is summarized as follows:

Row Labels	California	Oregon	Washington	Grand Total
Apparels	3500	5000	7500	16000
Cosmetics	16000	1200	9000	26200
Jewelry	2000	900	2000	4900
Shoes	7000	15000	8000	30000
<b>Grand Total</b>	<b>28500</b>	<b>22100</b>	<b>26500</b>	<b>77100</b>

The PivotTable Fields task pane on the right shows the following configuration:

- Filters:** Region
- Columns:** Salesperson
- Rows:** Merchandise
- Values:** Sum of Amount Sold

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## Problems, Activities, and Discussions

1. What are two business applications of the sort operations?
2. How many keys (columns or fields) can be used when sorting a table?
3. What are two business applications of database statistical functions?
4. What are some business applications of the Pivot table?
5. Construct the table below and sort it by gender (Z to A), income (A to Z), and age (Z to A).

FIRST NAME	LAST NAME	AGE	GENDER	OCCUPATION	INCOME
Randy	Smith	55	M	Professor	\$90,000
Fay	Brown	22	F	Engineer	\$75,000
Adam	Mills	37	M	Engineer	\$55,000
Andrea	Harris	29	F	Teacher	\$31,000
Moe	Santos	44	M	Officer	\$49,000
Bob	Sakas	39	M	Engineer	\$72,000
Vicki	Hashim	22	F	Teacher	\$34,000
Paula	Schlosser	66	F	Nurse	\$56,000
Jack	Negrete	51	M	Artist	\$32,000
Mary	Fisher	27	F	Teacher	\$33,000
Sue	Hayward	26	F	Engineer	\$61,000
Jacky	Chipres	77	F	Engineer	\$52,000
Lora	Heredia	26	F	Nurse	\$48,000

6. In the above table (#5), filter all female engineers.
7. In the above table (#5), filter all employees who are making less than \$40,000.
8. In the above table (#5) (using Advanced Filter), filter all employees who are male, under the age of 50, and have an income over \$45,000.
9. In the above table (#5) using Conditional Formatting, highlight all the employees with incomes less than \$50,000.
10. In the above table (#5) using database statistical functions, count all the female engineers, calculate their average salary, and list the oldest and the youngest in four separate rows of the worksheet.
11. Go through the Pivot Table presented in Exhibit C.19 step-by-step and confirm the screens and the numbers that have been generated. What are some other business applications of the Pivot Table?
12. To finalize the Frequency function you must press and hold down Ctrl, Shift, and Enter simultaneously. True or False?
13. In database statistical functions, Field indicates which row is selected in the function that you are using. True or False?
14. All of the following are examples of valid Excel database statistical functions except:
  - a. =DTOTAL
  - b. =DCOUNT
  - c. =DMAX
  - d. =DSUM
15. A table can be sorted by:
  - a. One column
  - b. Two columns
  - c. As many columns as available in the table
  - d. All of the above