

APPLICATION EXERCISES

PART 1



CHAPTER 1: QUALITY OF INFORMATION WITH EXCEL

- 1-1.** The spreadsheet in Microsoft Excel file **Ch01Ex01_E7e** contains records of employee activity on special projects. Open this workbook and examine the data that you find in the three spreadsheets it contains. Assess the accuracy, relevancy, and sufficiency of this data to the following people and problems.
- You manage the Denver plant, and you want to know how much time your employees are spending on special projects.
 - You manage the Reno plant, and you want to know how much time your employees are spending on special projects.
 - You manage the Quota Computation project in Chicago, and you want to know how much time your employees have spent on that project.
 - You manage the Quota Computation project for all three plants, and you want to know the total time employees have spent on your project.
 - You manage the Quota Computation project for all three plants, and you want to know the total labor cost for all employees on your project.
 - You manage the Quota Computation project for all three plants, and you want to know how the labor-hour total for your project compares to the labor-hour totals for the other special projects.
 - What conclusions can you make from this exercise?



CHAPTER 1: COMPARING INFORMATION FROM EXCEL AND ACCESS

- 1-2.** The database in the Microsoft Access file **Ch01Ex02_E7e** contains the same records of employee activity on special projects as in Application Exercise 1-1. Before going any further, open that database and view the records in the Employee Hours table.
- Eight queries have been created that process this data in different ways. Using the criteria of accuracy,

relevancy, and sufficiency, select the one query that is most appropriate for the information requirements in Application Exercise 1-1, parts a–f. If no query meets the need, explain why.

- What conclusions can you make from this exercise?
- Comparing your experiences on these two projects, what are the advantages and disadvantages of spreadsheets and databases?



CHAPTER 2: USE POWERPOINT TO DIAGRAM BUSINESS PROCESS

- 2-1.** PowerPoint file **Ch02Ex01_E7e** contains a copy of Figure 2-4 as well as a collection of spare shapes. Using these shapes, create a business process for the Ship Order to Customers activity. Use your own knowledge and expertise to do this. Assume that the inputs to the activity are the Customer Order and items as well as a list of items from the Receive Goods Place in Inventory activity.



CHAPTER 3: USE EXCEL TO COMPUTE INVENTORY VALUE

- 3-1.** Figure AE-1 shows an Excel spreadsheet that the resort bicycle rental business uses to value and analyze its bicycle inventory. Examine Figure AE-1 to understand the meaning of the data. Now use Excel to create a similar spreadsheet. Note the following:

- The top heading is in 20-point Calibri font. It is centered in the spreadsheet. Cells A1 through H1 have been merged.
 - The second heading, Bicycle Inventory Valuation, is in 18-point Calibri, italics. It is centered in cells A2 through H2, which have been merged.
 - The column headings are set in 11-point Calibri, bold. They are centered in their cells, and the text wraps in the cells.
- Make the first two rows of your spreadsheet similar to that in Figure AE-1. Choose your own colors for background and type, however.
 - Place the current date so that it is centered in cells C3, D3, and E3, which must be merged.

Figure AE-1
Worksheet

	A	B	C	D	E	F	G	H
1	Resort Bicycle Rental							
2	Bicycle Inventory Valuation							
3	Saturday, May 27, 2017							
4	Make of Bike	Bike Cost	Number on Hand	Cost of Current Inventory	Number of Rentals	Total Rental Revenue	Revenue per Bike	Revenue as Percent of Cost of Inventory
5	Wonder Bike	\$325	12	\$3,900	85	\$6,375	\$531	163.5%
6	Wonder Bike II	\$385	4	\$1,540	34	\$4,570	\$1,143	296.8%
7	Wonder Bike Supreme	\$475	8	\$3,800	44	\$5,200	\$650	136.8%
8	LiteLift Pro	\$655	8	\$5,240	25	\$2,480	\$310	47.3%
9	LiteLift Ladies	\$655	4	\$2,620	40	\$6,710	\$1,678	256.1%
10	LiteLift Racer	\$795	3	\$2,385	37	\$5,900	\$1,967	247.4%

c. Outline the cells as shown in Figure AE-1.

d. Figure AE-1 uses the following formulas:

$$\text{Cost of Current Inventory} = \text{Bike Cost} \times \text{Number on Hand}$$

$$\text{Revenue per Bike} = \text{Total Rental Revenue} / \text{Number on Hand}$$

$$\text{Revenue as a Percent of Cost of Inventory} = \text{Total Rental Revenue} / \text{Cost of Current Inventory}$$

Please use these formulas in your spreadsheet, as shown in Figure AE-1.

e. Format the cells in the columns, as shown.

f. Give three examples of decisions that management of the bike rental agency might make from this data.

g. What other calculation could you make from this data that would be useful to the bike rental management? Create a second version of this spreadsheet in your worksheet document that has this calculation.

average increase needed to meet the industry average for each department and the average increase, company-wide, to meet industry averages.

a. Use the data in the Word file **CE01Ex01_E7e** and create the spreadsheet.

b. How can you use this analysis to contribute to the employee salary decision? Based on this data, what conclusions can you make?

c. Suppose other team members want to use your spreadsheet. Name three ways you can share it with them and describe the advantages and disadvantages of each.



CHAPTER EXTENSION 1: MANAGERIAL DECISION MAKING WITH EXCEL

CE1-1. Suppose that you have been asked to assist in the managerial decision about how much to increase pay in the next year. Assume you are given a list of the departments in your company, along with the average salary for employees in those departments for major companies in your industry. Additionally, you are given the names and salaries of 10 people in each of three departments in your company.

- Assume you have been asked to create a spreadsheet that shows the names of the 10 employees in each department, their current salary, the difference between their current salary and the industry average salary for their department, and the percent their salary would need to be increased to meet the industry average. Your spreadsheet should also compute the



CHAPTER EXTENSION 1: MANAGERIAL DECISION MAKING WITH ACCESS

CE1-2. Suppose that you have been asked to assist in the managerial decision about how much to increase pay in the next year. Specifically, you are tasked to determine if there are significant salary differences among departments in your company.

- You are given an Access database with a table of employee data with the following structure:
 - EMPLOYEE** (Name, Department, Specialty, Salary)
 - Where *Name* is the name of an employee who works in a department, *Department* is the department name, *Specialty* is the name of the employee's primary skill, and *Salary* is the employee's current salary. Assume that no two employees have the same name. You have been asked to answer the following queries:
- List the names, department, and salary of all employees earning more than \$100,000.
 - List the names and specialties of all employees in the Marketing department.
 - Compute the average, maximum, and minimum salary of employees in your company.
 - Compute the average, minimum, and maximum salary of employees in the Marketing department.

- (5) Compute the average, minimum, and maximum salary of employees in the Information Systems department.
- (6) *Extra credit:* Compute the average salary for employees in every department. Use *Group By*.
- a. Design and run Access queries to obtain the answers to these questions, using the data in the Access file **CE01Ex02_E7e**.
- b. Explain how the data in your answer contributes to the salary increase decision.
- c. Suppose other team members want to use your Access application. Name three ways you can share it with them, and describe the advantages and disadvantages of each.



CHAPTER EXTENSION 2: FREE AND EASY COLLABORATION TOOLS

CE2-1. This exercise requires you to experiment with Google Drive. You will need two Google accounts to complete this exercise.

- a. In a memo, explain the role of communication in collaboration. Go to <http://drive.google.com/> and sign in with one of your Google accounts. Upload your memo using Google Drive. Save your uploaded document and share it with the email in your second Google account. Sign out of your first Google account.

(If you have access to two computers situated close to each other, use both of them for this exercise. You will see more of the Google Drive functionality by using two computers. If you have two computers, do not sign out of your Google account. Perform step b and all actions for the second account on that second computer. If you are using two computers, ignore the instructions in the following steps to sign out of the Google accounts.)

- b. Open a new window in your browser. Access <http://drive.google.com/> from that second window, and sign in using your second Google account. Open the document that you shared in step a.
- c. Change the memo by adding a brief description of the need to manage the content in many collaboration projects. Save the document from your second account. If you are using just one computer, sign out from your second account.
- d. Sign in on your first account. Open the most recent version of the memo and add a description of the role of version histories. Save the document. (If you are using two computers, notice how Google warns you that another user is editing the document at the

same time. Click *Refresh* to see what happens.) If you are using just one computer, sign out from your first account.

- e. Sign in on your second account. Reopen the shared document. From the File menu, save the document as a Word document. Describe how Google processed the changes to your document.

CE2-2. This exercise requires you to experiment with Microsoft OneDrive. You will need two Office Live IDs to complete this exercise. The easiest way to do this is to work with a classmate. If that is not possible, set up two Office Live accounts, using two different Hotmail addresses.

- a. Go to www.onedrive.com, and sign in with one of your accounts. Create a memo about collaboration tools using the Word Web App. Save your memo. Share your document with the email in your second Office Live account. Sign out of your first account.

(If you have access to two computers situated close to each other, use both of them for this exercise. If you have two computers, do not sign out of your Office Live account. Perform step b and all actions for the second account on that second computer. If you are using two computers, ignore the instructions in the following steps to sign out of the Office Live accounts.)

- b. Open a new window in your browser. Access www.onedrive.com from that second window, and sign in using your second Office Live account. Open the document that you shared in step a.
- c. Change the memo by adding a brief description of content management. Do not save the document yet. If you are using just one computer, sign out from your second account.
- d. Sign in on your first account. Attempt to open the memo and note what occurs. Sign out of your first account, and sign back in with your second account. Save the document. Now, sign out of your second account, and sign back in with the first account. Now attempt to open the memo. (If you are using two computers, perform these same actions on the two different computers.)
- e. Sign in on your second account. Reopen the shared document. From the File menu, save the document as a Word document. Describe how OneDrive processed the changes to your document.

PART 2

Note: The exercises for the chapter extensions are basically tutorials. Therefore, they are presented first, followed by exercises for Chapters 4–6.



CHAPTER EXTENSION 4: LEARNING EXCEL

CE4-1. Complete Chapter Extension 4, CE4-1, page 466.

CE4-2. Complete Chapter Extension 4, CE4-2, page 466.

CE4-3. Complete Chapter Extension 4, CE4-3, page 466.



CHAPTER EXTENSION 5: DATA MODELING WITH POWERPOINT

CE5-1. Complete Chapter Extension 5, CE5-2, page 480. Use PowerPoint to document your entity-relationship design.

CE5-2. Complete Chapter Extension 5, CE5-3, page 480. Use PowerPoint to document your entity-relationship design.



CHAPTER EXTENSION 6: APPLY ACCESS SKILLS

CE6-1. Complete Chapter Extension 6, CE6-1, page 500. Requires you to complete CE5-1 first.

CE6-2. Complete Chapter Extension 6, CE6-2, page 500. Requires you to complete CE5-2 first.



CHAPTER EXTENSION 7: GETTING THE BEST FEATURES FROM EXCEL AND ACCESS

CE7-1. Complete Chapter Extension 7, CE7-1, page 528.

CE7-2. Complete Chapter Extension 7, CE7-2 and CE7-3, page 528.

CE7-3. Complete Chapter Extension 7, CE7-4, page 528.

CE7-4. Complete Chapter Extension 7, CE7-5, page 528.



CHAPTER 4: USING PARAMETERIZED QUERIES

4-1. In this exercise, you will learn how to create a query based on data that a user enters and how to use that query to create a data entry form.

- a. Download the Microsoft Access file **Ch04Ex01_E7e**. Open the file and familiarize yourself with the data in the Customer table.
- b. Click *Create* in the Access ribbon. Click the icon labeled *Query Design*. Select the Customer table as the basis for the query by clicking on *Customer*. Close the Show Table dialog. Drag CustomerName, CustomerEmail, DateOfLastRental, BikeLastRented,

TotalNumberOfRentals, and TotalRentalRevenue into the columns of the query results pane (the table at the bottom of the query design window).

- c. In the CustomerName column, in the row labeled Criteria, place the following text:

[Enter Name of Customer:]

Type this exactly as shown, including the square brackets. This notation tells Access to ask you for a customer name to query.

- d. In the ribbon, click the red exclamation mark labeled *Run*. Access will display a dialog box with the text "Enter Name of Customer:" (the text you entered in the query Criteria row). Enter the value *Maple, Rex* and click OK.
- e. Save your query with the name *Parameter Query*.
- f. Click the Home tab on the ribbon and click the Design View (upper left-hand button on the Home ribbon). Replace the text in the Criteria row of the CustomerName column with the following text. Type it exactly as shown:

Like "*" & [Enter part of Customer Name to search by:] & "*"

- g. Run the query by clicking *Run* in the ribbon. Enter *Maple* when prompted *Enter part of Customer Name to search by*. Notice that the two customers who have the name Maple are displayed. If you have any problems, ensure that you have typed the phrase previously shown *exactly* as shown into the Criteria row of the CustomerName column of your query.
- h. Save your query again under the name *Parameter Query*. Close the query window.
- i. Click *Create* in the Access ribbon. Under the Forms group, choose *Form Wizard*. In the dialog that opens, in the Tables/Queries box, click the down arrow. Select *Query: Parameter Query*. Click the double chevron (>>) symbol, and all of the columns in the query will move to the Selected Fields area.
- j. Click *Next* two times. In the box under *What title do you want for your form?* enter *Customer Query Form* and click *Finish*.
- k. Enter *Maple* in the dialog box that appears. Access will open a form with the values for Maple, Rex. At the bottom of the form, click the right-facing arrow and the data for the second customer named Maple will appear. What is that customer's first name?
- l. Close the form. Select *Object Type* and *Forms* in the Access Navigation Pane. Double-click *Customer Query Form*, and enter the value *Amanda*. Access will display data for all three customers having the value *Amanda* in their name.



CHAPTER 4: USING EXCEL AND ACCESS TO INFORM COMPUTER UPGRADE DECISIONS

4-2. You have been asked to help your department decide how to upgrade computers. Let's say, for example, that you want to upgrade all of the computers' operating systems to Windows 10. Furthermore, you want to first upgrade the computers that most need upgrading, but you have a limited budget. To address this situation, you would like to query the data in Figure AE-2, find all computers that do not have Windows 10, and then select those with slower CPUs or smaller memory as candidates for upgrading. To do this, you need to move the data from Excel and into Access.

- Once you have analyzed the data and determined the computers to upgrade, you want to produce a report. In that case, you may want to move the data from Access and back to Excel or perhaps into Word. In this exercise, you will learn how to perform these tasks.
 - a. To begin, download the Excel file **Ch04Ex02_E7e** from www.pearsonglobaleditions.com/kroenke into one of your directories. We will import the data in this file into Access, but before we do so, familiarize yourself with the data by opening it in Excel. Notice that there are three worksheets in this workbook. Close the Excel file.
 - b. Create a blank Access database. Name the database *Ex21_Answer*. Place it in some directory; it may be the same directory into which you have placed the Excel file, but it need not be. Close the default table that Access creates and delete it.

- c. Now we will import the data from the three worksheets in the Excel file **Ch04Ex02_E7e** into a single table in your Access database. On the ribbon, select *EXTERNAL DATA* and *Excel*. Start the import. For the first worksheet (Denver), you should select *Import the source data into a new table in the current database*. Ignore the warning about the first row by clicking OK. Be sure to click *First Row Contains Column Headings* when Access presents your data. You can use the default Field types and let Access add the primary key. Name your table *Employees* and click *Finish*. There is no need to save your import script.

For the second and third worksheets, again click *EXTERNAL DATA/Excel*, but this time select *Append a copy of the records to the table Employees*. Select the Miami worksheet and click *Finish*. Repeat to import the Boston office employees.

- d. Open the *Employee* table, and examine the data. Notice that Access has erroneously imported a blank line and the *Primary Contact* data into rows at the end of each data set. This data is not part of the employee records, and you should delete it (in three places—once for each worksheet). The *Employee* table should have a total of 40 records.
- e. Create a parameterized query on this data. Place all of the columns except *ID* into the query. In the *OS* column, set the criteria to select rows for which the value is not *Windows 10*. In the *CPU* (GHz) column, enter the criterion: \leq [Enter cutoff value for CPU] and in the *Memory* (GB) column, enter the criterion: \leq [Enter cutoff value for Memory]. Test your query. For example, run

Figure AE-2
Employee Computer Data

	A	B	C	D	E	F	G	H
1	EmpLastName	EmpFirstName	Plant	Computer Brand	CPU (GHz)	Memory (GB)	Disk (TB)	OS
2	Ashley	Linda	Denver	Dell	3	8	2	Windows 8
3	Davidson	Victor	Denver	Dell	3	6	2	Windows 8
4	Ching	Diem Thi	Denver	HP	3	6	2.5	Windows 8
5	Collins	James	Denver	Dell	2.5	4	1	Windows 7
6	Corning	Haley	Denver	HP	3	6	2	Windows 8
7	Scott	Richard	Denver	HP	2.5	6	2.5	Windows 8
8	Corovic	Anna	Denver	Dell	4	2	3	Windows 10
9	Lane	Kathy	Denver	Lenovo	2.5	4	1	Windows 7
10	Wei	James	Denver	IBM	3	8	2	Windows 8
11	Dixon	Mary	Denver	IBM	2	4	1	Windows 7
12	Lee	Matthew	Denver	Dell	2.5	4	1	Windows 7
13	Duong	Steven	Denver	Dell	2	2	0.75	Vista
14	Bosa	William	Denver	HP	3	6	2.5	Windows 8
15	Drew	Tony	Denver	HP	3	8	2	Windows 8
16	Adams	Mark	Denver	HP	2.5	4	1	Windows 7
17	Lunden	Nicole	Denver	Lenovo	4	2	3	Windows 10
18	Utran	Bryan	Denver	Dell	3	6	2	Windows 8
19								
20		Primary Contact:	Kaye Davidson					

your query and enter a value of 4 for both CPU and memory. Verify that the correct rows are produced.

- f. Use your query to find values of CPU and memory that give you as close to a maximum of 15 computers to upgrade as possible.
- g. When you have found values of CPU and memory that give you 15, or nearly 15, computers to upgrade, leave your query open. Now click *External data*, *Word*, and create a Word document that contains the results of your query. Adjust the column widths of the created table so that it fits on the page. Write a memo around this table explaining that these are the computers that you believe should be upgraded.



CHAPTER 4: USING OPEN SOURCE SOFTWARE

4-3. As you read in Chapter 4, open source software is popular because it's stable, customizable, and free. But you may not have used open source software before. In this project, you will download an alternate to the Microsoft Office suite called LibreOffice. It has applications for making documents (Writer), spreadsheets (Calc), presentations (Impress), databases (Base), and graphics (Draw) similar to those in Microsoft Office.

If you're used to using Microsoft Office, it will take some time to become familiar with the LibreOffice interface. LibreOffice can do just about everything Microsoft Office can do, but it may do it in a slightly different way. The main benefit of using LibreOffice is that it's totally free. You can install it as many times as you'd like on as many computers as you'd like.

- a. Browse to www.libreoffice.org.
- b. Click on the Download menu and select LibreOffice Fresh.
- c. Download and install the latest version of LibreOffice. (There are LibreOffice versions for Windows, Mac OS X, and Linux.)
- d. Open LibreOffice Calc. (There will be a shortcut on your desktop.)
- e. Enter your name, date, and time into the new spreadsheet in cells A1, A2, and A3 respectively.
- f. Click Tools and Options.
- g. Expand the Load/Save menu and click on General.
- h. Change the "Always save as" dropdown from ODF Spreadsheet to Microsoft Excel 2007/2010/2013 XML and click OK. (You can do the same thing for documents and presentations.)

- i. Click File, Save, and Save.
- j. Take a screenshot with your name showing and paste it into your document. (You can take a screenshot by pressing Alt + Print Screen.)
- k. Explain why more people don't use LibreOffice if it's free.
- l. Explain why a systems administrator, who manages hundreds of servers (with Linux and Windows operating systems), might like using LibreOffice.
- m. Explain why LibreOffice might be an important application for users or organizations in developing countries.



CHAPTER 5: GRAPHING WITH EXCEL

5-1. As stated in Chapter Extension 7, a common scenario is to use Microsoft Access with Excel: Users process relational data with Access, import some of the data into Excel, and use Excel's tools for creating professional-looking charts and graphs. You will do exactly that in this exercise.

- Download the Access file **Ch05Ex01_E7e** from www.pearsonhighered.com/kroenke. Open the database; select *DATABASE TOOLS/Relationships*. As you can see, there are three tables: *Product*, *VendorProductInventory*, and *Vendor*. Open each table individually to familiarize yourself with the data.
- For this problem, we will define *InventoryCost* as the product of *IndustryStandardCost* and *QuantityOnHand*. The query *InventoryCost* computes these values for every item in inventory for every vendor. Open that query and view the data to be certain you understand this computation. Open the other queries as well so that you understand the data they produce.

- a. Sum this data by vendor and display it in a pie chart. Proceed as follows:
 - (1) Open Excel and create a new spreadsheet.
 - (2) Click *DATA* on the ribbon, and select *From Access* in the *Get External Data* ribbon category.
 - (3) Navigate to the location in which you have stored the Access file **Ch05Ex01_7e**.
 - (4) Select the query that contains the data you need for this pie chart.
 - (5) Import the data into a worksheet.
 - (6) Format the appropriate data as currency.
 - (7) Select the range that contains the data, press the function key, and proceed from there to create the pie chart. Name the data and pie chart worksheets appropriately.

- b. Follow a similar procedure to create a bar chart. Place the data and the chart in separate worksheets, and name them appropriately.



CHAPTER 5: FIND THE PIANOS!

- 5-2.** Read Case Study 5 on pages 179–183. A copy of Dean's database is stored in the Access file **Ch05Ex02_E7e**. Download a copy of this file and create queries to provide the following data:
- Sort the pianos from high quality to low.
 - Sort the pianos from high quality to low and, within each quality, sort by Building and then by Location within that building.
 - List the pianos in the shed and sort the results by manufacturer.
 - List all of the pianos with a Type of 'Spinet.'
 - Count the pianos for each value of quality (ranging from 1 to 5).
 - Write a query to produce the report in Figure 5-24 on page 182.



CHAPTER 5: USE ACCESS TO ALLOCATE COMPUTERS TO EMPLOYEES

- 5-3.** In this exercise, you will create a two-table database, define relationships, create a form and a report, and use them to enter data and view results.
- Download the Excel file **Ch05Ex03_E7e** from www.pearsonhighered.com/kroenke. Open the spreadsheet and review the data in the *Employee* and *Computer* worksheets.
 - Create a new Access database with the name *Ex5-3_Solution*. Close the table that Access automatically creates and Access will delete it.
 - Import the data from the Excel spreadsheet into your database. Import the *Employee* worksheet into a table named *Employee*. Be sure to check *First Row Contains Column Headings*. Select *Choose my own primary key* and use the ID field as that key.
 - Import the *Computer* worksheet into a table named *Computer*. Check *First Row Contains Column Headings*, but let Access create the primary key.
 - Open the relationships window and add both *Employee* and *Computer* to the design space. Drag ID from *Employee* and drop it on *EmployeeID* in *Computer*. Check *Enforce Referential Integrity* and the two checkmarks below. Be sure you know what these actions mean.
 - Open the Form Wizard dialog box (under *CREATE*, *Form Wizard*), and add all of the columns for each of your tables to your form. Select *View your data by Employee*. Title your form *Employee* and your subform *Computer*.
 - Open the *Computer* subform in design mode and delete *EmployeeID* and *ComputerID*. These values are maintained by Access, and it is just a distraction to keep them. Save your changes and open the *Employee* form in layout mode. Adjust the size of the subform until your form looks like that in Figure AE-3.
 - Use your form to add two new computers to *Michael Murphy*. Both computers are Dells, and both use Windows 10; one costs \$1,750, and the other costs \$1,400.

Figure AE-3
Employee Computer
Assignment Form

SerialNumber	Brand	PurchaseCost	OperatingSystem	EmployeeID
100	Dell	\$1,750.00	Windows 10	2
800	HP	\$750.00	Windows 10	2
*				2

- i. Delete the Lenovo computer for Hal Larsen.
- j. Use the Report Wizard (under *Create*) to create a report having all data from both the *Employee* and *Computer* tables. Adjust the report design until you find a design you like. Correct the label alignment if you need to.

CHAPTER 6: INTERNET SPEED: GETTING WHAT YOU PAY FOR?

- 6-1.** Numerous Web sites are available that will test your Internet data communications speed. You can find a good one at www.speedtest.net. (If that site is no longer active, Google or Bing “What is my Internet speed?” to find another speed-testing site. Use it.)
- a. While connected to your university’s network, go to Speedtest.net and test your speed against servers in Seattle, New York City, and Atlanta. Compute your average upload and download speeds.
 - b. Run the Speedtest.net test again from your home or a public wireless site. Compute your average upload and download speeds. If you are performing this test at home, are you getting the performance you are paying for?

- c. Contact a friend or relative in another state. Ask him or her to run the Speedtest.net test against those same three cities.
- d. Compare the results in parts a, b, and c. What conclusion, if any, can you make from these tests?



CHAPTER 6: ESTIMATING CLOUD COSTS WITH EXCEL

- 6-2.** Assume you have been asked to create an Office application to estimate cloud computing costs. You decide to create a spreadsheet into which your customers can provide their cloud computing needs and which you can then import into an Access database, using queries to compute cloud computing costs.

Figure AE-4 shows the structure of the spreadsheet into which your customers will input their requirements. You can download this spreadsheet in the Excel file **Ch06Ex02_E7e**. Figure AE-5 shows an Access table that has costs corresponding to the requirements in Figure AE-4. You can download this database in the Access file **Ch06Ex02_E7e**.

- a. Import the spreadsheet data into the Access database.

Figure AE-4
Spreadsheet with Cloud
Computing Requirements

	A	B	C	D	E	F	G
1		Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
2	Compute requirements (hours):						
3							
4	Extra Small Instance	1200	1200	1200	1200	1200	1200
5	Small Instance	2000	2000	2400	2400	0	3000
6	Medium Instance	900	1800	2700	3600	3600	3600
7	Large Instance	0	500	1000	1500	2000	2000
8	Extra Large Instance	0	0	0	1000	1500	2000
9							
10	Storage requirements:						
11	Storage Required (GB)	30	35	40	45	50	55
12	Storage Transactions (1000s)	30	30	35	35	40	50
13							
14	Database requirements (number of instances)						
15	10GB Database	2	2	2	2	1	1
16	20GB Database	0	3	3	3	3	3
17	30GB Database		4	5	6	6	7
18	40GB Database	0	0	0	3	3	4
19	50GB Database	0	0	2	2	3	0

Figure AE-5
Access Table Corresponding
to Requirements in
Figure AE-4

CloudCosts			
ID	Resource Name	Units	Cost
1	Extra Small Instance	Hours	\$0.03
2	Small Instance	Hours	\$0.09
3	Medium Instance	Hours	\$0.12
4	Large Instance	Hours	\$0.37
5	Extra Large Instance	Hours	\$0.55
6	StorageRequired	GB / month	\$0.15
7	StorageTransactions	10,000	\$0.01
8	10GB Database	Each	\$9.99
9	20GB Database	Each	\$149.98
10	30GB Database	Each	\$199.97
11	40GB Database	Each	\$299.96
12	50GB Database	Each	\$399.95

- b. Write queries to compute the cost of each resource.
- c. Create a report that shows the cost for each type of resource for each month. Show the total costs for the 6-month period for each resource as well. Include a grand total of all the costs.
- d. Create a pie chart that breaks out the total costs by resource. *Hint:* You have to import the query data back into Excel.
- e. Create a pie chart that breaks out the total costs by month. *Hint:* You have to import the query data back into Excel.
- f. Assume that processing costs increase by 10 percent across the board. Repeat parts c, d, and e for the changed costs.

versions for Windows, Mac OS X, Linux, BSD, and Unix.)

- c. Go to your Downloads folder. (You can go to any folder that contains large files.)
- d. Right-click on a large file.
- e. Click 7-Zip and Add to archive.
- f. Rename the file YourName.7z. (Replace “YourName” with your first and last names. If your name was John Doe, the file would be named JohnDoe.7z.)
- g. In the Encryption section, enter a password—twice. (Choose a simple password you can remember.)
- h. Take a screenshot and paste it into your document. (You can take a screenshot by pressing Alt + Print Screen.)
- i. Click OK. (Notice that your original file remains unchanged.)
- j. After your new YourName.7z file is compressed, right-click it and select 7-Zip and Extract to “YourName\”.
- k. Enter the password you set, and click OK. (Your file should start extracting.)
- l. Explain why third-party encryption is important for highly confidential files.
- m. Explain why compressing large files is important when using cloud-based storage.



CHAPTER 6: FILE COMPRESSION AND ENCRYPTION

- 6-3.** There are a few problems with cloud-based storage. First, it seems like there’s never enough of it. This is especially true if it’s free. Second, you always wonder if it’s really secure. Yes, your storage provider says your data is secure. But is it really? Is there some way to be sure?

In this project, you will learn how to use 7-Zip to solve both of these problems. You’ll learn how to compress and encrypt important files and directories. If you are storing confidential data in the cloud, it’s important to make sure it’s encrypted—by you. Using a third-party encryption tool like 7-Zip means only *you* can access your data. Trusting your cloud providers isn’t necessary. 7-Zip is also a very efficient file archiver that will save you a lot of space.

- a. Browse to www.7-zip.org.
- b. Click on Download and install the latest version of 7-Zip for your operating system. (There are 7-Zip

PART 3



CHAPTER 7: PRODUCTION PLANNING WITH EXCEL

- 7-1.** Suppose your manager asks you to create a spreadsheet to compute a production schedule. Your schedule should stipulate a production quantity for seven

products that is based on sales projections made by three regional managers at your company's three sales regions.

- a. Create a separate worksheet for each sales region. Use the data in the Word file **Ch07Ex01_E7e**, which you can download from the text's Web site. This file contains each manager's monthly sales projections for the past year, actual sales results for those same months, and projections for sales for each month in the coming quarter.
- b. Create a separate worksheet for each region's data. Import the data from Word into Excel.
- c. On each of the worksheets, use the data from the prior four quarters to compute the discrepancy between the actual sales and the sales projections. This discrepancy can be computed in several ways: You could calculate an overall average, or you could calculate an average per quarter or per month. You could also weight recent discrepancies more heavily than earlier ones. Choose a method that you think is most appropriate. Explain why you chose the method you did.
- d. Modify your worksheets to use the discrepancy factors to compute an adjusted forecast for the coming quarter. Thus, each of your spreadsheets will show the raw forecast and the adjusted forecast for each month in the coming quarter.
- e. Create a fourth worksheet that totals sales projections for all of the regions. Show both the unadjusted forecast and the adjusted forecast for each region and for the company overall. Show month and quarter totals.
- f. Create a bar graph showing total monthly production. Display the unadjusted and adjusted forecasts using different colored bars.



CHAPTER 8: TRACKING SOCIAL MEDIA

8-1. Suppose you are the manager of social media policy for an organization with 1,000 employees in seven different offices throughout North America. Further suppose that the CEO has requested a report showing a list of all of the employees' blogs, the employees' job titles and departments, and the purpose and URL of each blog. She doesn't want to control employees; she just wants to know where they are.

- a. Explain the conditions under which using a spreadsheet to track this data would be appropriate.
- b. Suppose employees can have more than one blog but that a blog is only supported by a single employee. Further suppose you decide that you need

to track the dates on which a blog was first created and the date of the last posting if the blog is no longer active. Design a database for these requirements.

- c. Fill your database with the sample data in the Word document **Ch08Ex01_E7e.docx**. EmployeeID is a unique identifier; a null value for EndDate means the blog is still active. Do not retype this data; import it instead. You can either import it several times, each time to a different table, or you can import it once and use queries to fill the tables.
- d. Create a report that is suitable for the CEO's needs. Justify the content and structure of your report.



CHAPTER 9: THIRD-PARTY COOKIES

9-1. Open your favorite browser. Go to the options that govern cookies. (On Microsoft Edge, go to Tools [the little wheel icon in the upper right-hand corner] / Internet Options / Privacy / Advanced.) If you use another browser and don't know where to go for the privacy settings, search the Internet for your browser name plus the words *disable third-party cookies*. Follow the instructions to find the options page.

- a. Disable third-party cookies. Close your browser. Reopen your browser and visit at least five Web sites.
- b. Enable third-party cookies. Close your browser. Reopen your browser and visit the same five Web sites.
- c. Do you notice any difference in the way the sites you access or your browser behave between a and b? Describe any differences.
- d. Go to the same privacy settings location in which you disabled third-party cookies, and select *prompt* rather than *block* third-party cookies. Go to any site you normally visit, or www.msn.com if you can't think of any others. Describe what happens.
- e. Change your browser's privacy settings back to whatever level of third-party cookie blocking you had when you started this exercise.
- f. Summarize your experiences in this exercise.



CHAPTER EXTENSION 10: EVALUATE VENDORS WITH ACCESS

CE10-1. Assume that you have been given the task of compiling evaluations of vendors made by your company's purchasing agents. Each month, every purchasing agent evaluates all of the vendors that he or she has worked with in the past month on three factors: price, quality, and responsiveness. Assume the ratings are from 1 to 5, with 5 being the best. Because your

company has hundreds of vendors and dozens of purchasing agents, you decide to use Access to compile the results.

- Create a database with three tables: **VENDOR** (*VendorNumber*, *Name*, *Contact*), **PURCHASER** (*EmpNumber*, *Name*, *Email*), and **RATING** (*EmpNumber*, *VendorNumber*, *Month*, *Year*, *Price Rating*, *QualityRating*, *ResponsivenessRating*). Assume that *VendorNumber* and *EmpNumber* are the keys of **VENDOR** and **PURCHASER**, respectively. Decide what you think is the appropriate key for **RATING**.
- Create appropriate relationships.
- Go to this text's companion Web site and import the data in the Excel file **CE10Ex01_E7e**. Note that data for **VENDOR**, **PURCHASER**, and **RATING** are stored in three separate worksheets.
- Create a query that shows the names of all vendors and their average scores.
- Create a query that shows the names of all employees and their average scores. *Hint:* In this and in part f, you will need to use the *Group By* function in your query.
- Create a parameterized query that you can use to obtain the minimum, maximum, and average ratings on each criterion for a particular vendor. Assume you will enter *VendorName* as the parameter.
- Using the information created by your queries, what conclusions can you make about vendors or purchasers?



CHAPTER EXTENSION 12: MAKE YOUR OWN MARKET- BASKET ANALYSIS WITH ACCESS

CE12-1. It is surprisingly easy to create a market-basket report using table data in Access. To do so, however, you will need to enter SQL expressions into the Access query builder. Here, you can just copy SQL statements or type them in. If you take a database class, you will learn how to code SQL statements like those you will use here.

- Create an Access database with a table named *Order_Data* having columns *OrderNumber*, *ItemName*, and *Quantity*, with data types Number (*LongInteger*), Short Text (50), and Number (*LongInteger*), respectively. Define the key as the composite (*OrderNumber*, *ItemName*). (You can do this in the table designer by highlighting both columns and clicking the Primary Key icon.)
- Import the data from the Excel file **CE12Ex01_E7e** into the *Order_Data* table.
- Now, to perform the market-basket analysis, you will need to enter several SQL statements into

Access. To do so, click *CREATE/Query Design*. Click *Close* when the Show Table dialog box appears. Right-click in the gray section above the grid in the *Select Query* window. Select *SQL View*. Enter the following expression exactly as it appears here:

```
SELECT  T1.ItemName as FirstItem,
        T2.ItemName as SecondItem
FROM    Order_Data T1, Order_Data T2
WHERE   T1.OrderNumber =
        T2.OrderNumber
AND     T1.ItemName <> T2.ItemName;
```

Click the red exclamation point in the toolbar to run the query. Correct any typing mistakes and, once it works, save the query using the name *TwoItemBasket*.

- Now enter a second SQL statement. Again, click *CREATE/Query Design*. Click *Close* when the Show Table dialog box appears. Right-click in the gray section above the grid in the *Select Query* window.

Select *SQL View*. Enter the following expression exactly as it appears here:

```
SELECT  TwoItemBasket.FirstItem,
        TwoItemBasket.SecondItem,
        Count(*) AS SupportCount
FROM    TwoItemBasket
GROUP BY TwoItemBasket.FirstItem,
        TwoItemBasket.SecondItem;
```

Correct any typing mistakes and, once it works, save the query using the name *SupportCount*.

- Examine the results of the second query, and verify that the two query statements have correctly calculated the number of times that two items have appeared together. Explain further calculations you need to make to compute support.
- Explain the calculations you need to make to compute lift. Although you can make those calculations using SQL, you need more SQL knowledge to do it, and we will skip that here.
- Explain, in your own words, what the query in part c seems to be doing. What does the query in part d seem to be doing? Again, you will need to take a database class to learn how to code such expressions, but this exercise should give you a sense of the kinds of calculations that are possible with SQL.



CHAPTER EXTENSION 13: REPORTING WITH ACCESS

CE13-1. In this exercise, you'll have an opportunity to practice creating reports in Access using the data shown in Figure CE13-1.

- a. Open Access, create a new database, and import the data in the text file **CE13Ex01_E7e**. Notice that the data includes an identifier; the four fields in Figure CE13-1; and a sixth field, called Quarter, that represents the calendar quarter in which the sale was made.
- b. Use Access to create a report that sorts the data and presents it as shown in Figure CE13-2, except exclude sales less than \$75. To do so, first create a query that has this data and then create a report based on that query. Format your report professionally.
- c. Modify your report in part b to include subtotals for each customer.
- d. Create a query to present the data as shown in Figure CE13-3. Produce a professionally formatted report of this data.
- e. Create a query to compute the average of Amount for each Quarter.
- f. Create a second table named **QUARTER_DATA** with fields *QuarterNumber* and *Average_Amount*. Place four rows in this table, one for each quarter and average amount.
- g. Create a report that lists the sale data in ascending order of *CustomerName*. In your report, include the date and amount of each sale, as well as the amount of the sale divided by the average amount of a sale for that quarter.
- h. Explain how all of the work you have done has been the result of the simple operations of filtering, sorting, grouping, and calculating.



CHAPTER EXTENSION 13: OLAP AND PIVOT WITH EXCEL

CE13-2. OLAP cubes are very similar to Microsoft Excel pivot tables. For this exercise, assume that your organization's purchasing agents rate vendors in the same way as the situation described in Application Exercise CE10-1.

- a. Open the Excel file **CE13Ex02_E7e**, which you can find on the text's Web site. The spreadsheet has the following column names: *VendorName*, *EmployeeName*, *Date*, *Year*, and *Rating*.
- b. Under the **INSERT** ribbon in Excel, click *Pivot Table*.
- c. When asked to provide a data range, drag your mouse over the column names and data values so as to select all of the data. Excel will fill in the range values in the open dialog box. Place your pivot table in a new worksheet. Click OK.

- d. Excel will create a field list on the right-hand side of your spreadsheet. Underneath it, a grid labeled *Drag fields between areas below:* should appear. Drag and drop the field named *VendorName* into the area named **ROWS**. Observe what happens in the pivot table to the left (in column A). Now drag and drop *EmployeeName* onto **COLUMNS** and *Rating* on to **VALUES**. Again observe the effect of these actions on the pivot table to the left. Voilà! You have a pivot table.
- e. To see how the pivot table works, drag and drop more fields onto the grid in the bottom right-hand side of your screen. For example, drop *Year* just underneath *Employee*. Then move *Year* above *Employee*. Now move *Year* below *Vendor*. All of this action is just like an OLAP cube, and, in fact, OLAP cubes are readily displayed in Excel pivot tables. The major difference is that OLAP cubes are usually based on thousands or more rows of data.

PART 4



CHAPTER 10: ENABLING SECURE BROWSING

- 10-1.** Most of the Web sites you visit are not secure. Anyone between you and the Web site you are visiting can see the contents of the packets you are sending. Hypertext Transfer Protocol Secure (https) provides secure communication between hosts. It encrypts the traffic between the two hosts and provides Web server authentication.

In this exercise, you will install HTTPS Everywhere®, an add-on from www.EFF.org. This add-on checks to see if the Web site you are visiting offers an https connection. Larger Web sites do offer https connections if requested.

- a. Open your Firefox Web browser. (If you don't already have Firefox, it can be downloaded from www.mozilla.org.)
- b. Browse to www.wikipedia.org. (Note that it does not use an encrypted connection.)
- c. Browse to <https://www.eff.org/https-everywhere>.
- d. Download and install HTTPS Everywhere for Firefox, and then restart your Web browser. (You should see an HTTPS Everywhere icon in the top right corner of your browser after it restarts.)
- e. Browse to www.wikipedia.org. (Note that it is using an encrypted connection.)

- f. Enter your name into the search box at the encrypted site.
- g. Take a screenshot with your name showing and paste it into your document. (You can take a screenshot by pressing Alt + Print Screen.)
- h. Explain why all Web sites don't offer https connections.
- i. Explain why an employer might not like you using https connections.
- j. Specify what would you need in order to start offering https on a Web site.



CHAPTER 10: SAFE WEB BROWSING

10-2. Most users want an easy way to identify which Web sites are trustworthy and which Web sites they should avoid. Web of Trust® (WOT) provides a “scorecard” for each Web site you visit. This scorecard gives you a summary of four ratings: trustworthiness, vendor reliability, privacy, and child safety. The values shown on the scorecard are based on ratings from members of the WOT community who have contributed their evaluations of that Web site.

After installing WOT, you will notice a slight addition to the search results from major search engines (e.g., Google, Bing, and Yahoo!). You will see a WOT evaluation at the end of each search result. This evaluation provides a scorecard for each Web site displayed in the search results. The WOT evaluation can serve as a quick visual indicator of Web sites to avoid.

- a. Open Firefox, click the Firefox menu, and click Add-ons.
- b. Search for “WOT.”
- c. Click Install (WOT) and Restart now. (You should see a small flag in the navigation bar.)
- d. Browse to www.google.com and search for your full name.
- e. Take a screenshot of the results and paste it into your document. (You can take a screenshot by pressing Alt + Print Screen. Notice the WOT icons next to each of the search results.)
- f. Click on the WOT icon for one of the search results. (This will show you the WOT scorecard for that specific Web site.)
- g. Using Google, search for *warez keygen*. You should get a few Web sites with red circles, meaning they have a poor reputation.
- h. Click on the WOT icon for WOT scorecard of one of the Web sites with a red circle.
- i. Take a screenshot and paste it into your document.

- j. Describe how WOT gets the values for its Web site scorecards.
- k. Describe how you can evaluate Web sites using WOT.
- l. Explain how WOT can protect users when they are surfing the Internet.



CHAPTER 11: KEEPING TRACK OF REQUESTS

11-1. Tracking requests is a common need for both systems development projects and also for IS departments and, indeed, with any service department. With accurate request tracking, management can get involved when requests are repeatedly made for the same problem, when too many problems are being reported for the same facility or piece of equipment, or when too many problems are being reported by the same user.

- In this exercise, you will create such a system for an IS department that wants to track system problems and responses.
- Suppose an organization keeps the following data about requests:

Ticket#
Date_Submitted
Date_Opened
Date_Closed
Type (new or repeat)
Reporting_Employee_Name
Reporting_Employee_Division
Technician_Name Problem_System
Problem_DescriptionONE

- You can find sample ticket data in the Excel file **Ch11Ex01_E7e** on this text's Web site.
 - However, managers often need more information. Among their needs are information that will help them learn who are their best- and worst-performing technicians, how different systems compare in terms of number of problems reported and the time required to fix those problems, how different divisions compare in terms of problems reported and the time required to fix them, which technicians are the best and worst at solving problems with particular systems, and which technicians are best and worst at solving problems from particular divisions.
- a. Use either Access or Excel, or a combination of the two, to produce the information listed above from

the data in the Excel file **Ch11Ex01_E7e**. In your answer, you may use queries, formulas, reports, forms, graphs, pivot tables, pivot charts, or any other type of Access or Excel display. Choose the best display for the type of information you are producing.

- b. Explain how you would use these different types of information to manage your department.
- c. Specify any additional information that you would like to have produced from this data to help you manage your department.
- d. Use either Access or Excel or a combination to produce the information in part c.



CHAPTER 12: PLANNING PROJECT COSTS WITH EXCEL

- 12-1.** Suppose you are given the task of comparing labor costs of meetings for systems development projects to budgets. Download the Word file **Ch12Ex01_E7e.docx** and the Excel file with the same name. The Word file has records of meeting dates, times, and attendees. The document was created from informal notes taken at the meetings. The Excel file has the project budgets as well as labor costs for different categories of employees.

Assume your company uses the traditional SDLC and each step requires two types of meetings: working and review. *Working meetings* involve users, business analysts, systems analysts, programmers, and PQA test engineers. *Review meetings* involve all of those people, plus level-1 and level-2 managers of both user departments and the IS department.

- a. Using either Access or Excel, whichever you think is better suited to the task, import the Word data to a work file and compute the total labor for each type of employee for each meeting.
- b. Using the file you created in part a, compute the total labor for each type of employee for each phase of the project.
- c. Combine your answer in part b with the data in the Excel file **Ch12Ex01_E7e.xlsx** to compute the total cost of meetings of each phase of the project.
- d. Use a graphic chart of the type you think best to show the differences between meeting cost and budget.
- e. Comment on your choice of Excel or Access for your work file. If you were to do this exercise over, would you use that same tool again? Why or why not?



CHAPTER 12: TRACKING SYSTEMS FAILURES WITH ACCESS

- 12-2.** Use Access to develop a failure-tracking database application. Use the sample data in the Excel file **Ch12Ex02_E7e** for this exercise. The file includes columns for the following:

FailureNumber

DateReported

FailureDescription

ReportedBy (the name of the PQA engineer reporting the failure)

ReportedBy_email (the email address of the PQA engineer reporting the failure)

FixedBy (the name of the programmer who is assigned to fix the failure)

FixedBy_email (the email address of the programmer assigned to fix the failure)

DateFailureFixed

FixDescription

DateFixVerified

VerifiedBy (the name of the PQA engineer verifying the fix)

VerifiedBy_email (the email address of the PQA engineer verifying the fix)

- a. The data in the spreadsheet have not been normalized. When you enter (or, better, import) the data, normalize it by creating a Failure table, a PQA Engineer table, and a Developer table. Assume problems are reported and verified by PQA engineers and problems are fixed by developers. Add other appropriate columns to each table. Create appropriate relationships.
- b. Create one or more forms that can be used to report a failure, to report a failure fix, and to report a failure verification. Create the form(s) so that the user can use a combo box to pull down the name of a PQA engineer or developer from the appropriate table to fill in the *ReportedBy*, *FixedBy*, and *VerifiedBy* fields.
- c. Construct a report that shows all failures sorted by *ReportedBy* and then by *Date Reported*.
- d. Construct a report that shows only fixed and verified failures.
- e. Construct a report that shows only fixed but unverified failures.

CHAPTER EXTENSION 18: PROCESS MODELING WITH VISIO

CE18-1. In this exercise, you will use Visio to create process diagrams in BPMN notation.

- a. Download the Visio file **CE18Ex01_E7e** from this text's support site. Open the file and familiarize yourself with this diagram. Explain the major differences between the process documented in this file and that in Figure CE18-1.
- b. Notice that Visio includes the BPMN shapes. Go to the Shape organizer to see other types of flowchart shapes that Visio supports.
- c. Create a new Visio diagram. Add BPMN shapes that you may want to use.
- d. Model the customer process Respond to Quotation. Make sure your process accepts the inputs shown in **CE18Ex01_E7e** and produces the outputs shown in that figure. Create your process so that your company checks prices and delivery dates and requests changes, if appropriate. Include other logic, if necessary.
- e. Show your work by saving your document as a PDF file.