# Student's Guide

## A One-Minute Course on How to Succeed in This Class

Got one minute to read this section? It could mean the difference between getting an A instead of a B, or a B instead of a C. Or even passing instead of failing.

## Here Are the Rules

There are only four rules, and they aren't difficult.

**Rule 1.** You have to attend every class. (But that alone won't get you an A, as some students think.)

**Rule 2.** You can't put off studying, then cram the night before a test. This may work in high school, but college isn't high school.

**Rule 3.** You have to read or repeat material more than once. The important thing isn't reading. It's *re*reading.

**Rule 4.** You have to learn the secrets to using your textbook. It would be nice if all textbooks were organized the same way, but they aren't. Different texts have different features.

## Getting the Most Information in the Least Time from This Book

Let's consider how you can best read *Using Information Technology*.

- Check the Key Questions in each section before you read it
- Read the section, trying to answer the Key Question(s)
- Do the Concept Checks
- Go the Extra Mile, if you have time
- Read the Summary at the end of the section
- Answer the questions in the Chapter Review

A look through the next seven pages will show you what the features we discussed look like.

## Get an Overview of the Chapter First

Before you set out on a trip to a place you've never been to before, you would probably look at a map so you would get a "big picture" view of the route. Reading is the same way.

Scan the first page of the chapter and look at the **Chapter Outline** and the **Key Questions.**


Chapter 2

# The Internet & the World Wide Web

## Exploring Cyberspace

Key Questions

**You should be able to answer the following questions.**

**2.1** **Choosing Your Internet Access Device & Physical Connection: The Quest for Broadband** What are the means of connecting to the Internet, and how fast are they?

**2.2** **Choosing Your Internet Service Provider (ISP)** What is an Internet service provider, and what kinds of services do ISPs provide?

**2.3** **Sending & Receiving E-Mail** What are the options for obtaining e-mail software, what are the components of an e-mail address, and what are netiquette and spam?

**2.4** **The World Wide Web** What are websites, web pages, browsers, URLs, and search engines?

**2.5** **The Online Gold Mine: More Internet Resources, Your Personal Cyberspace, E-Commerce, & the E-conomy** What are FTP, Telnet, newsgroups, real-time chat, and e-commerce?

**Chapter Outline**

Each chapter begins with an outline of the section headings in the chapter.

**Key Questions**

Use these Key Questions to help you read with purpose. Key Questions are repeated throughout the text.

## Check the Key Question in Each Section before You Read It. Then Read the Section, Trying to Answer the Key Question(s)

Look at the **Key Question** near the section heading. Read this aloud (or beneath your breath) or write it down. Next read the section, trying to answer the Key Question or Key Questions as you go. Make marks in the book if this helps you answer the question. In particular, look at the **key terms and definitions,** which appear in boldface. Look at the **graphics** (artwork and photos), which help to clarify the discussion.

### Key Questions

Use these Key Questions presented at the start of each section to help you read with purpose.

### Key Terms and Definitions

Throughout the text, key terms and definitions are easily identified by distinctive type.

### Graphics

Many concepts and procedures are best explained through the use of artwork and photographs.

### 6.1 Input & Output

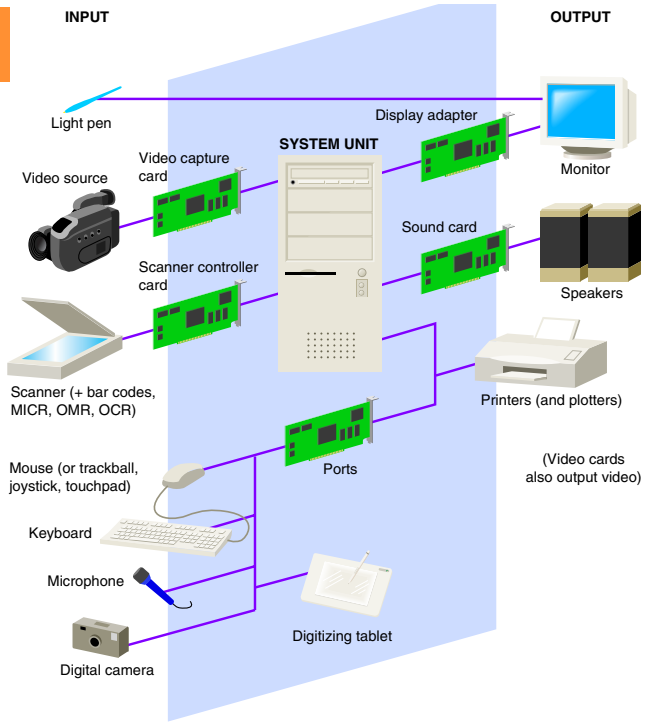
**KEY QUESTION**

*How is input and output hardware used by a computer system?*

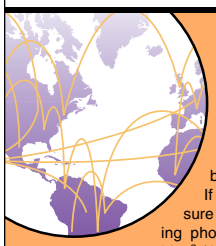
Recall from Chapter 1 that *input* refers to data entered into a computer for processing—for example, from a keyboard or from a file stored on disk. Input includes program instructions that the CPU receives after commands are issued by the user. Commands can be issued by typing keywords, defined by the application program, or pressing certain keyboard keys. Commands can also be issued by choosing menu options or clicking on icons. Finally, input includes user responses—for example, when you reply to a question posed by the application or the operating system, such as *Are you sure you want to put this file in the Recycle Bin? Output* refers to the results of processing—that is, information sent to the screen or the printer or to be stored on disk, or sent to another computer in a network. Some devices combine both input and output functions, examples being not only ATMs but also combination scanner-printer devices.

In this chapter we focus on the common input and output devices used with a computer. *(See ● Panel 6.1.)* ***Input hardware*** **consists of devices that translate data into a form the computer can process.** The people-readable form of the data may be words like those on this page, but the computer-readable form consists of binary 0s and 1s, or off and on electrical signals. ***Output hardware*** **consists of devices that translate information processed by the computer into a form that humans can understand.** The computer-processed information consists of 0s and 1s, which need to be translated into words, numbers, sounds, and pictures.

**● PANEL 6.1**
**Common input and output devices**



BOOKMARK IT!



# PRACTICAL ACTION BOX

## Choosing an Internet Service Provider

If you belong to a college or company, you may get an ISP free. Some public libraries also offer freenet connections. If these options are not available to you, be sure to ask these questions when you're making phone calls to locate an Internet service provider.[a] (Also see *www.thelist.com*, which provides a comprehensive list of 9700 ISPs.)

**Costs**

- Is there a contract, and for what length of time? That is, are you obligated to stick with the ISP for a while even if you're unhappy with it?
- Is there a setup fee? (Most ISPs no longer charge this, though some "free" ISPs will.)
- How much is unlimited access per month? (Most charge about $20 for unlimited usage. But inquire if there are free or low-cost trial memberships or discounts for long-term commitments.)
- If access is supposedly free, what are the trade-offs besides putting up with heavy advertising? (For instance, if the ISP closely monitors your activity in order to accurately target ads, what guarantees do you have that information about you will be kept private? What charges will you face if you try to scrap the advertising window or drop the service?)

**Access**

- Is the access number a local phone call? (If not, your monthly long-distance phone tolls could exceed the ISP fee.)
- Is there an alternative dial-up numb ber is out of service?
- Is access available when you're tra provider should offer either a wide access numbers in the cities you te free 800 numbers.

**Support**

- What kind of help does the ISP give in setting up your connection?
- Is there free, 24-hour technical support? Is it reachable through a toll-free number?
- How difficult is it to reach tech support? (Try calling the number before you sign up for the ISP and see how long it takes to get a response. Many ISPs keep customers on hold for a long time.)

**Reliability**

- What is the average connection success rate for users trying to connect on the first try? (You can try dialing the number during peak hours, to see if you get a modem screech, which is good, rather than a busy signal, which is bad.)
- Will the ISP keep up with technology? (Are they planning to offer broadband technology such as DSL for speedier access?)
- Will the ISP sell your name to marketers or bombard you with junk messages (spam)?

**Practical Action Box**

These boxes present material on practical matters that students find useful.

software for setting up your computer and modem to dial into their network of servers. For this you use your *user name* ("user ID") and your *password*, a secret word or string of characters that enables you to ***log on*, or make a connection to the remote computer.** You will also need to get yourself an e-mail address, as we discuss next.

**CONCEPT CHECK**

What is an Internet service provider?

Describe the different services Internet services provide. What is a point of presence?

**Concept Check**

These questions, which appear throughout the text, encourage you to take a moment to see how well you understand the concepts you have read in the preceding material.



## Do the Concept Checks

The **Concept Checks** are questions that appear throughout the text that encourage you to see how well you understand the concepts you have read. Take a break from your reading and try to answer as many of these as possible. If you have trouble with the questions, you probably should go back and review the section before proceeding.

## Go the Extra Mile: Check out the Boxes, Survival Tips, & Click-Alongs

Successful students don't just do the minimum. They do the kind of further exploration that helps really fix the material in their minds. Read the **Practical Action Boxes** and **Survival Tips.** Use a computer to check out the **Click-Alongs**—that is, click on your mouse and go to the Click-Along website.

Users of the *Complete* version of this book should go to *www.mhhe.com/cit/uit5e/complete/clickalong*

Users of the *Introductory* version of this book should go to *www.mhhe.com/cit/uit5e/intro/clickalong*

**Survival Tip**

These tips provide helpful advice for avoiding problems and handling difficulties.

**Click-Along**

To satisfy your curiosity about further information on the text material, go to the appropriate website (see text above).

### Wireless Systems: Satellite & Other Through-the-Air Connections

Suppose you live out in the country and you're tired of the molasses-like speed of your cranky local phone system. You might consider taking to the air.

- **Satellite:** With a pizza-size satellite dish on your roof, you can receive data at the rate of 400 Kbps from a ***communications satellite*, a space station that transmits radio waves called microwaves from earth-based stations.** Unfortunately, your outgoing transmission will still be only 56 Kbps, because you'll have to use your phone line for that purpose, although genuine two-way satellite service is under development (for example, by I.S.I.S. AXXESS). Equipment available from InfoDish or PC Connection costs about $190; installation runs $100–$250; and monthly charges (including ISP charges) are $30–$130, depending on how much time you spend online.
- **Other wireless connections:** In urban areas, some businesses are using radio waves transmitted between towers that handle cellular phone calls, which can send data at up to 155 Mbps (but commonly 10 Mbps) and are not only fast and dependable but also always on. The equipment costs from $200 to $2500, and the operating cost is $159–$1400 a month, depending on speed.

### Universal Broadband Is Coming

Most PC users employ the physical connections we have described, but there are other possibilities. With WebTV, for instance, you use your television to access the Internet. The Palm VII and the PalmVx, personal digital assistants from Palm Computing, enable you to get on the Net, but the small screen and slow connection accommodate only e-mail and limited Web access (no graphics).

We are living in a time of rapid changes. Already, nearly a third of the online households in the U.S. have DSL, cable, or wireless services. Most of them, admittedly, are in and around major cities, and the companies providing connections have been slow to expand them to the rest of North America. But broadband is coming. When the telcos (telephone companies) finish scrambling to upgrade their phone lines to DSL, the cable companies make their "pipes" better handle two-way data, and the wireless companies refine their through-the-air links, ordinary Internet users will probably have connections *100 times faster* than they are today.[6]

Survival Tip

**Broadband: Riskier for Security**

Unlike dial-up services, broadband services, because they are always switched on, make your computer vulnerable to over-the-Internet security breaches. Solution: Install firewall software (p. 301).

CLICK-ALONG 2–1
The quest for broadband

**CONCEPT CHECK**

What are the measures of data transmission speed?

What does "broadband" mean?

What are some of the differences between a dial-up modem, DSL, and a cable modem?

## Read the Summary

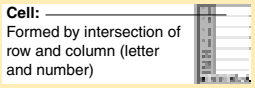
After you read the whole chapter, go through the **Summary,** which gives the important concepts and terms of the chapter in alphabetical order and tells you why they are important.

**Summary**

Each chapter ends with an innovative Summary of important terms and concepts, with an explanation of what they are and why they are important. Graphics provide visual reinforcement.

# Summary

**analytical graphics** (p. 109, KQ 3.4) Also called *business graphics;* graphical forms that make numeric data easier to analyze than when it is organized as rows and columns of numbers. The principal examples of analytical graphics are bar charts, line graphs, and pie charts. Why it's important: *Whether viewed on a monitor or printed out, analytical graphics help make sales figures, economic trends, and the like easier to comprehend and analyze.*

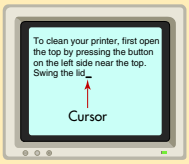



**cell** (p. 107, KQ 3.4) Place where a row and a column intersect in a spreadsheet worksheet; its position is called a *cell address.* Why it's important: *The cell is the smallest working unit in a spreadsheet. Data and formulas are entered into cells. Cell addresses provide location references for spreadsheet users.*

**computer-aided design (CAD) programs** (p. 121, KQ 3.6) Programs intended for the design of products, structures, civil engineering drawings, and maps. Why it's important: *CAD programs, which are available for microcomputers, help architects design buildings and workspaces and help engineers design cars, planes, electronic devices, roadways, bridges, and subdivisions. While similar to drawing programs, CAD programs provide precise dimensioning and positioning of the elements being drawn, so that they can be transferred later to computer-aided manufacturing programs; in addition, they lack special effects for illustrations. One advantage of CAD software is that three-dimensional drawings can be rotated on screen, so the designer can see all sides of the product.*

**computer-aided design/computer-aided manufacturing (CAD/CAM) software** (p. 122, KQ 3.6) Programs allowing products designed with CAD to be input into an automated manufacturing system that makes the products. Why it's important: *CAM systems have greatly enhanced efficiency in many industries.*

**copyright** (p. 89, KQ 3.1) Exclusive legal right that prohibits copying of intellectual property without the permission of the copyright holder. Why it's important: *Copyright law aims to prevent people from taking credit for and profiting from other people's work.*




**cursor** (p. 101, KQ 3.3) Movable symbol on the display screen that shows where you may next enter data or commands. The symbol is often a blinking rectangle or an I-beam. You can move the cursor on the screen using the keyboard's directional arrow keys or a mouse. The point where the cursor is located is called the *insertion point.* Why it's important: *All application software packages use cursors to show the current work location on the screen.*

**database** (p. 110, KQ 3.5) Collection of interrelated files in a computer system. These computer-based files are organized according to their common elements, so that they can be retrieved easily. Why it's important: *Businesses and organizations build databases to help them keep track of and manage their affairs. In addition, online database services put enormous resources at the user's disposal.*

**database file** (p. 91, KQ 3.1) File created by database management programs; it consists of organized data that can be analyzed and displayed in various useful ways. Why it's important: *Database files make up a database.*

## Answer the Questions in the Chapter Review

The **Chapter Review** at the end of the chapter offers a three-stage process that helps you truly understand and "take ownership" of the material. Here's how it works:

- **First-Stage Review—Memorization:** Stage 1 questions test how well you recall basic terms and concepts. They include **Self-Test, Multiple-Choice,** and **True/False** questions.

**Chapter Review**

The Chapter Review follows a three-stage process that helps students truly understand and "take ownership" of the chapter material they have just completed reading.

**First-Stage Review: Memorization**

Stage 1 questions test how well you recall basic terms and concepts. They include **Self-Test, Multiple-Choice,** and **True/False** questions.

# Chapter Review

stage 1 **LEARNING** MEMORIZATION

*"I can recognize and recall information."*

### Self-Test Questions

1. _____ enables the computer to perform essential operating tasks.
2. A(n) _____ is a firm that leases software over the Internet.
3. _____ is the activity in which a computer works on more than one process at a time.
4. Windows and Mac OS are generally used on _____ computers.
5. A(n) _____ is an inexpensive, stripped-down computer that connects people to networks and runs applications tied to servers.
6. A(n) _____ will find all the scattered files on your hard disk and reorganize them as contiguous files.
7. The _____ is the component of system software that comprises the master system of programs that manage the basic operations of the computer.
8. The _____ is the user-controllable display screen that allows you to communicate, or interact, with your computer.
9. Disk scanner and disk cleanup utilities detect and correct certain types of common problems on hard disks, such as removing unnecessary files called _____ files that are created by Windows only for short tasks and auto-recovery.
10. OSs allow users to control access to their computers via use of a _____ and a _____.

### Multiple-Choice Questions

1. Which of the following are functions of the operating system?
   a. file management
   b. CPU management
   c. task management
   d. booting
   e. all of the above
2. Which of the following was the first major microcomputer OS?
   a. Mac OS
   b. Windows
   c. DOS
   d. Unix
   e. Linux
3. Which of the following is a prominent network operating system?
   a. Linux
   b. Unix
   c. Windows NT
   d. DOS
   e. Mac OS
4. Which of the following is the newest Microsoft Windows operating system?
   a. Windows Me
   b. Windows XP
   c. Windows 2000
   d. Windows NT
   e. Windows CE

### True/False Questions

T F 1. The supervisor manages the CPU.
T F 2. The first graphical user interface was provided by Microsoft Windows.
T F 3. Multiprocessing is processing done by two or more computers or processors linked together to perform work simultaneously.
T F 4. Formatting a floppy disk will not affect any data already written on it.
T F 5. All operating systems are mutually compatible.

- **Second-Stage Review—Comprehension:** Stage 2 questions test how well you understand concepts and integrate ideas. They include **Short-Answer Questions** and **Concept Mapping** assignments.
- **Third-Stage Review—Application, Analysis, Synthesis, Evaluation:** Stage 3 questions and assignments appear under **Knowledge in Action.** They show your mastery of the material, including your ability to use it to solve problems and make decisions.

**Second-Stage Review: Comprehension**

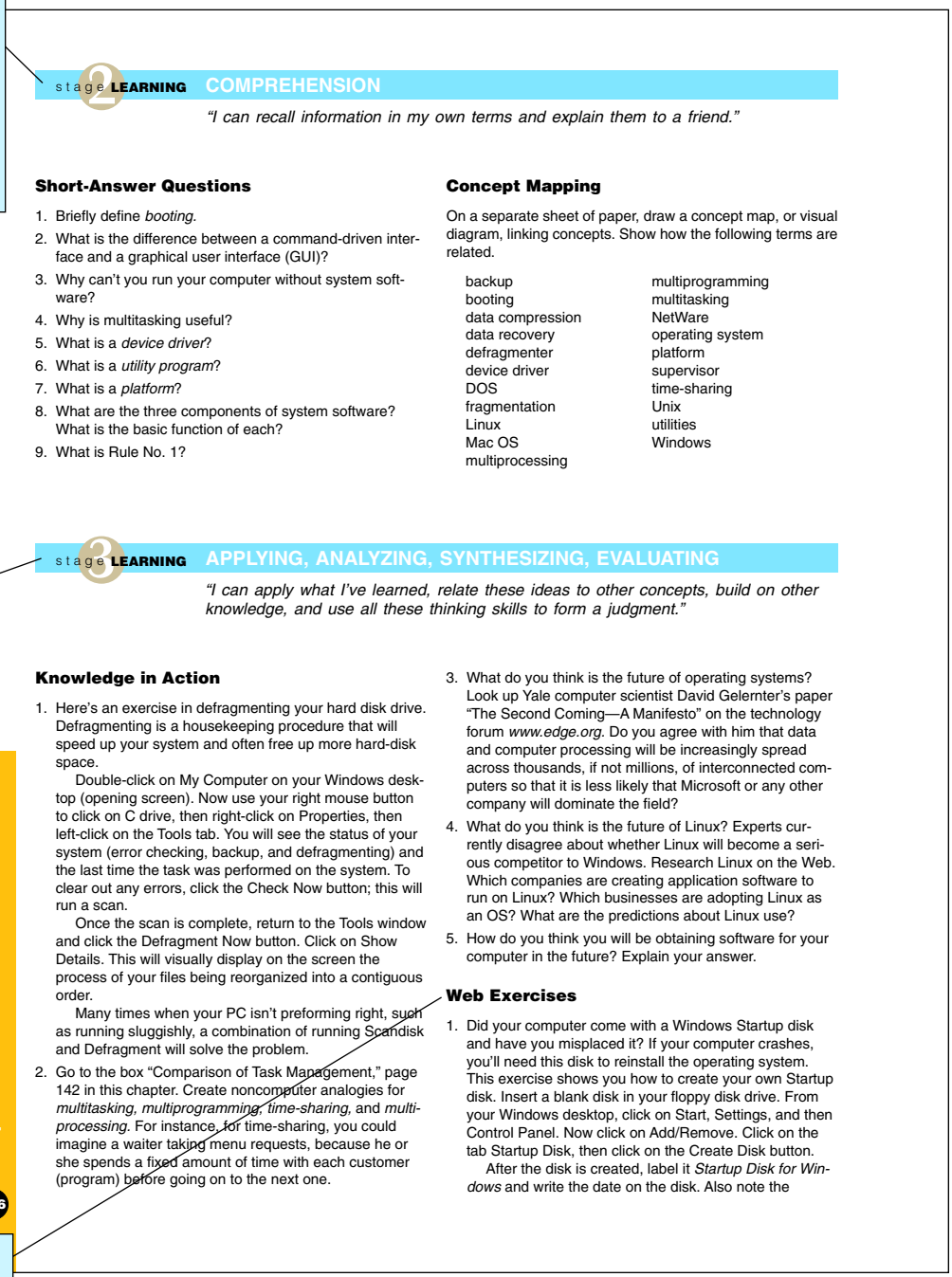
Stage 2 questions test how well you understand concepts and integrate ideas. They include **Short-Answer Questions** and **Concept Mapping** assignments.

**Third-Stage Review: Application, Analysis, Synthesis, Evaluation**

Stage 3 questions and assignments appear under **Knowledge in Action.** They test higher-order critical-thinking skills, including the ability to solve problems and make decisions.

**Investigating the World Wide Web**

Activities for exploring the Web appear under **Web Exercises** in the Chapter Review.



stage 2 LEARNING COMPREHENSION

*"I can recall information in my own terms and explain them to a friend."*

**Short-Answer Questions**

1. Briefly define *booting.*
2. What is the difference between a command-driven interface and a graphical user interface (GUI)?
3. Why can't you run your computer without system software?
4. Why is multitasking useful?
5. What is a *device driver*?
6. What is a *utility program*?
7. What is a *platform*?
8. What are the three components of system software? What is the basic function of each?
9. What is Rule No. 1?

**Concept Mapping**

On a separate sheet of paper, draw a concept map, or visual diagram, linking concepts. Show how the following terms are related.

backup
booting
data compression
data recovery
defragmenter
device driver
DOS
fragmentation
Linux
Mac OS
multiprocessing
multiprogramming
multitasking
NetWare
operating system
platform
supervisor
time-sharing
Unix
utilities
Windows

stage 3 LEARNING APPLYING, ANALYZING, SYNTHESIZING, EVALUATING

*"I can apply what I've learned, relate these ideas to other concepts, build on other knowledge, and use all these thinking skills to form a judgment."*

**Knowledge in Action**

1. Here's an exercise in defragmenting your hard disk drive. Defragmenting is a housekeeping procedure that will speed up your system and often free up more hard-disk space.
   Double-click on My Computer on your Windows desktop (opening screen). Now use your right mouse button to click on C drive, then right-click on Properties, then left-click on the Tools tab. You will see the status of your system (error checking, backup, and defragmenting) and the last time the task was performed on the system. To clear out any errors, click the Check Now button; this will run a scan.
   Once the scan is complete, return to the Tools window and click the Defragment Now button. Click on Show Details. This will visually display on the screen the process of your files being reorganized into a contiguous order.
   Many times when your PC isn't preforming right, such as running sluggishly, a combination of running Scandisk and Defragment will solve the problem.
2. Go to the box "Comparison of Task Management," page 142 in this chapter. Create noncomputer analogies for *multitasking, multiprogramming, time-sharing,* and *multiprocessing.* For instance, for time-sharing, you could imagine a waiter taking menu requests, because he or she spends a fixed amount of time with each customer (program) before going on to the next one.
3. What do you think is the future of operating systems? Look up Yale computer scientist David Gelernter's paper "The Second Coming—A Manifesto" on the technology forum *www.edge.org.* Do you agree with him that data and computer processing will be increasingly spread across thousands, if not millions, of interconnected computers so that it is less likely that Microsoft or any other company will dominate the field?
4. What do you think is the future of Linux? Experts currently disagree about whether Linux will become a serious competitor to Windows. Research Linux on the Web. Which companies are creating application software to run on Linux? Which businesses are adopting Linux as an OS? What are the predictions about Linux use?
5. How do you think you will be obtaining software for your computer in the future? Explain your answer.

**Web Exercises**

1. Did your computer come with a Windows Startup disk and have you misplaced it? If your computer crashes, you'll need this disk to reinstall the operating system. This exercise shows you how to create your own Startup disk. Insert a blank disk in your floppy disk drive. From your Windows desktop, click on Start, Settings, and then Control Panel. Now click on Add/Remove. Click on the tab Startup Disk, then click on the Create Disk button.
   After the disk is created, label it *Startup Disk for Windows* and write the date on the disk. Also note the

Chapter 4

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Clearly, this method takes longer than simply reading the material once and rapidly underlining it. But because it requires your involvement and understanding, it is a better way to learn.