



# Computing Essentials

## 2008 Edition

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# CHAPTER

# 1



## COMPETENCIES

After you have read this chapter, you should be able to:

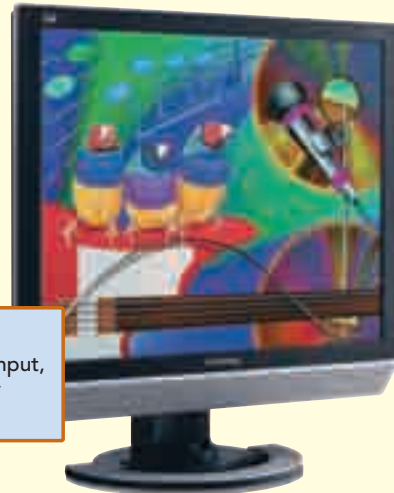
- 1 Explain the five parts of an information system: people, procedures, software, hardware, and data.
- 2 Distinguish between system software and application software.
- 3 Discuss the three kinds of system software programs.
- 4 Distinguish between basic and specialized application software.
- 5 Identify the four types of computers and the four types of microcomputers.
- 6 Describe the different types of computer hardware including the system unit, input, output, storage, and communication devices.
- 7 Define data and describe document, worksheet, database, and presentation files.
- 8 Explain computer connectivity, the wireless revolution, and the Internet.

**Information Systems**  
consist of people, procedures,  
software, hardware, and data



**Software**  
or programs control  
computer operations

**Hardware**  
includes system unit, input,  
output, and secondary  
storage devices



# INFORMATION TECHNOLOGY, THE INTERNET, AND YOU

## Introduction

The purpose of this book is to help you become competent with computer technology. **Computer competency** refers to acquiring computer-related skills—indispensable tools for today. They include how to effectively use popular application packages and the Internet.

In this chapter, we present an overview of an information system: people, procedures, software, hardware, and data. It is essential to understand these basic parts and how connectivity through the Internet and the Web expands the role of information technology in our lives. Later, we will describe these parts of an information system in detail. Fifteen years ago, most people had little to do with computers, at least directly. Of course, they filled out computerized forms, took computerized tests, and paid computerized bills. But the real work was handled by specialists. Then microcomputers came along and

changed everything. Today it is easy for nearly everybody to use a computer.

- Microcomputers are common tools in all areas of life. Writers write, artists draw, engineers and scientists calculate—all on microcomputers. Students and businesspeople do all this, and more.
- New forms of learning have developed. People who are homebound, who work odd hours, or who travel frequently may take Web courses. A college course need not fit within a quarter or a semester.
- New ways to communicate, to find people with similar interests, and to buy goods are available. People use electronic mail, electronic commerce, and the Internet to meet and to share ideas and products.

To be competent with computer technology, you need to know the five parts of an information system: people, procedures, software, hardware, and data. You also need to understand connectivity, the wireless revolution, the Internet, and the Web and to recognize the role of information technology in your personal and professional life.

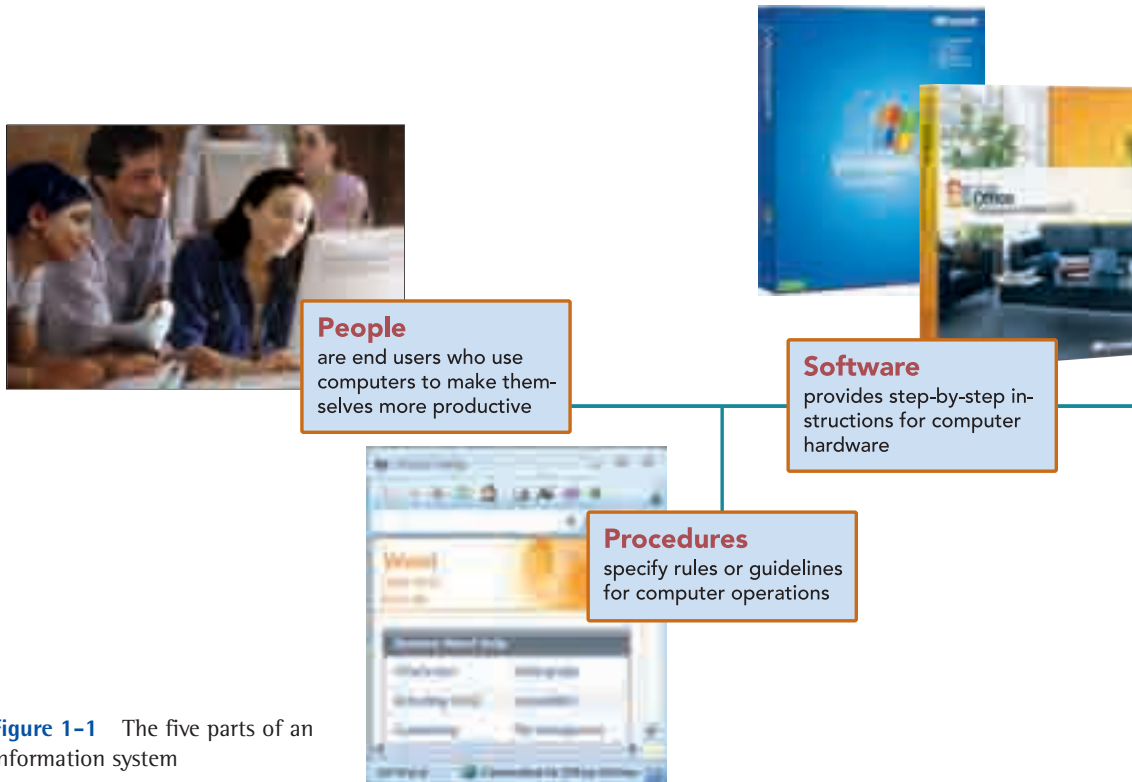


**Wireless Revolution**  
is dramatically affecting  
communications and computing

## INFORMATION SYSTEMS

When you think of a microcomputer, perhaps you think of just the equipment itself. That is, you think of the monitor or the keyboard. Yet, there is more to it than that. The way to think about a microcomputer is as part of an information system. An **information system** has five parts: *people, procedures, software, hardware, and data*. (See Figure 1-1.)

- **People:** It is easy to overlook people as one of the five parts of an information system. Yet this is what microcomputers are all about—making **people, end users** like you, more productive.
- **Procedures:** The rules or guidelines for people to follow when using software, hardware, and data are **procedures**. These procedures are typically documented in manuals written by computer specialists. Software and hardware manufacturers provide manuals with their products. These manuals are provided either in printed or electronic form.
- **Software:** A **program** consists of the step-by-step instructions that tell the computer how to do its work. **Software** is another name for a program or programs. The purpose of software is to convert **data** (unprocessed facts) into **information** (processed facts). For example, a payroll program would instruct the computer to take the number of hours you worked in a week (data) and multiply it by your pay rate (data) to determine how much you are paid for the week (information).



**Figure 1-1** The five parts of an information system

- **Hardware:** The equipment that processes the data to create information is called **hardware**. It includes the keyboard, mouse, monitor, system unit, and other devices. Hardware is controlled by software.
- **Data:** The raw, unprocessed facts, including text, numbers, images, and sounds, are called data. Processed data yields information. Using the previous example of a payroll program, the data (number of hours worked and pay rate) is processed (multiplied) to yield information (weekly pay).

Almost all of today's computer systems add an additional part to the information system. This part, called **connectivity**, allows computers to connect and to share information. These connections, including Internet connections, can be by telephone lines, by cable, or through the air. Connectivity allows users to greatly expand the capability and usefulness of their information systems.

In large computer systems, there are specialists who write procedures, develop software, and capture data. In microcomputer systems, however, end users often perform these operations. To be a competent end user, you must understand the essentials of **information technology (IT)**, including software, hardware, and data.

**CONCEPT CHECK**

- ▶ What are the five parts of an information system?
- ▶ What is the difference between data and information?
- ▶ What is connectivity?



## PEOPLE

Although easy to overlook, people are surely the most important part of any information system. Our lives are touched every day by computers and information systems. Many times the contact is direct and obvious, such as when we create documents using a word processing program or when we connect to the Internet. Other times, the contact is not as obvious. Consider just the four examples in Figure 1-2.

Throughout this book you will find a variety of features designed to help you become computer competent and knowledgeable. These features include Making IT Work for You, Tips, Careers in IT, and the Computing Essentials Web site.

- **Making IT Work for You.** In the chapters that follow, you will find Making IT Work for You features that present interesting and practical IT applications. Using a step-by-step procedure, you are provided with specific instructions on how to use each application. Figure 1-3 presents a list of these applications.
- **Tips.** We all can benefit from a few tips or suggestions. Throughout this book you will find numerous Tips ranging from the basics of keeping your computer system running smoothly to how to protect your privacy while surfing the Web. For a partial list of the Tips presented in the following chapters, see Figure 1-4.
- **Careers in IT.** One of the most important decisions of your life is to decide upon your life's work or career. Perhaps you are planning to be a writer, an artist, or an engineer. Or you might become a professional in information technology. Each of the following chapters highlights a specific career in information technology. This feature provides job descriptions, projected employment demands, educational requirements, current salary ranges, and advancement opportunities.
- **Computing Essentials Web site.** Throughout the text you will find numerous text references to the Computing Essentials Web site at [www.computing2008.com](http://www.computing2008.com). These references are easily recognized



Figure 1-2 Computers in entertainment, business, education, and medicine

Topic	Description
<b>Blocking Spam</b>	Are you tired of unwanted e-mail in your Inbox? Do you frequently spend valuable time sorting through junk e-mail? Installing spam blocking software can help. Some e-mail programs include spam blocking software. See page 28.
<b>Speech Recognition</b>	Tired of using your keyboard to type term papers? Have you ever thought about using your voice to control application software? Perhaps speech recognition is just what you are looking for. See page 48.
<b>Digital Video Editing</b>	Do you want to make your own movie? Would you like to edit some home movies and distribute them to family and friends on DVDs? It's easy with the right equipment and software. See page 74.
<b>Virus Protection and Internet Security</b>	Worried about computer viruses? Did you know that others could be intercepting your private e-mail? It is even possible for them to gain access and control of your computer system. Fortunately, Internet security suites are available to help ensure your safety while you are on the Internet. See page 102.
<b>TV Tuner Cards and Video Clips</b>	Want to watch your favorite television program while you work? Perhaps you would like to include a video clip from a television program or from a DVD in a class presentation. It's easy using a TV tuner card. See page 124.
<b>Webcams and Instant Messaging</b>	Do you enjoy chatting with your friends? Are you working on a project and need to collaborate with others in your group? What if you could see and hear your group online? Perhaps instant messaging is just what you're looking for. See page 144.
<b>Music from the Internet</b>	Did you know that you can use the Internet to locate music, download it to your computer, create your own custom CD, and upload to a portable music player? All it takes is the right software, hardware, and a connection to the Internet. See page 170.

by this graphic. They carefully integrate the textbook with information presented on the Web. At the site, you'll find videos, animations, career information, tips, crosswords, test review materials, and much more.

**Figure 1-3** Making IT work for your applications



## SOFTWARE

**S**oftware, as we mentioned, is another name for programs. Programs are the instructions that tell the computer how to process data into the form you want. In most cases, the words *software* and *programs* are interchangeable. There are two major kinds of software: *system software* and *application software*. You can think of application software as the kind you use. Think of system software as the kind the computer uses.

**TIPS**

- 1 Controlling spam.** Do you get a lot of unwanted e-mail advertisements? Americans receive over 200 billion spam e-mails every year. There are some basic steps that you can take to keep your inbox spam-free. See page 35.
- 2 Online shopping.** Have you ever bought anything online? If not, it's likely that in the future you will join the millions who have. Consider a few guidelines to make your shopping easier and safer. See page 27.
- 3 Creating and updating Web sites.** Are you thinking about creating your own Web site? Perhaps you already have one and would like to spruce it up a bit. Here are a few suggestions that might help. See page 81.
- 4 Improving slow computer operations.** Does your computer seem to be getting slower and slower? Consider a few suggestions that might add a little zip to your current system. See page 121.
- 5 Improving hard disk performance.** Does your internal hard-disk drive run a lot and seem slow? Are you having problems with lost or corrupted files? To clean up the disk and speed up access, consider defragging. See page 163.

To see additional tips, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **tips**.

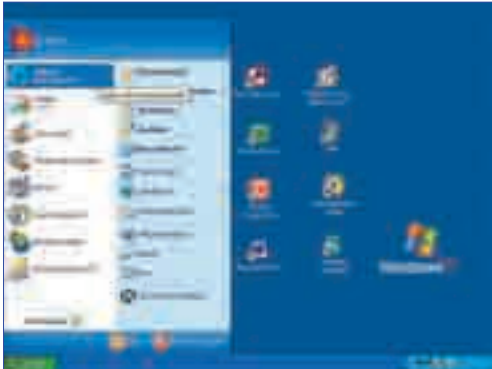
**SYSTEM SOFTWARE**

The user interacts primarily with application software. **System software** enables the application software to interact with the computer hardware. System software is "background" software that helps the computer manage its own internal resources.

System software is not a single program. Rather it is a collection of programs, including the following:

- **Operating systems** are programs that coordinate computer resources, provide an interface between users and the computer, and run applications. Windows XP, Windows Vista, and the Mac OS X

**Figure 1-4** Selected tips



are three of the best-known operating systems for today's microcomputer users. (See Figure 1-5.)

- **Utilities** perform specific tasks related to managing computer resources. For example, the Windows utility called Disk Defragmenter locates and eliminates unnecessary file fragments and rearranges files and unused disk space to optimize computer operations.
- **Device drivers** are specialized programs designed to allow particular input or output devices to communicate with the rest of the computer system.

**Figure 1-5** Windows XP, Windows Vista, and Mac operating systems



## APPLICATION SOFTWARE

**Application software** might be described as end user software. These programs can be categorized as either *basic* or *specialized applications*.

**Basic applications**, are widely used in nearly all career areas. They are the kinds of programs you have to know to be considered computer competent. One of these basic applications is a browser to navigate, explore, and find information on the Internet. (See Figure 1-6.) The two most widely used browsers are Microsoft's Internet Explorer and Netscape's Navigator. For a summary of the basic applications, see Figure 1-7.

Have you used the Internet? If so, then you probably already know how to use a browser. For those of you who do not, here are a few tips to get you started.

### TIPS

- 1 Start browser.** Typically, all you need to do is double-click the browser's icon on the desktop.
- 2 Enter URL.** In the browser's location box, type the URL (uniform resource locator, or address) of the Internet or Web location (site) that you want to visit.
- 3 Press ENTER.** On your keyboard, press the ENTER key to connect to the site.
- 4 Read and explore.** Once connected to the site, read the information displayed on your monitor. Using the mouse, move the pointer on the monitor. When the pointer changes from an arrow to a hand, click the mouse button to explore other locations.
- 5 Close browser.** Once you are done exploring, click on your browser's CLOSE button.

To see additional tips, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **tips**.



Figure 1-6 Internet Explorer browser

Type	Description
Browser	Connect to Web sites and display Web pages
Word processor	Prepare written documents
Spreadsheet	Analyze and summarize numerical data
Database management system	Organize and manage data and information
Presentation graphics	Communicate a message or persuade other people

Figure 1-7 Basic applications

**Specialized applications** include thousands of other programs that are more narrowly focused on specific disciplines and occupations. Some of the best known are graphics, audio, video, multimedia, Web authoring, and artificial intelligence programs.

## ▼ CONCEPT CHECK

- ▶ Describe the two major kinds of software.
- ▶ Describe three types of system software programs.
- ▶ Define and compare basic and specialized applications.

## HARDWARE

**C**omputers are electronic devices that can follow instructions to accept input, process that input, and produce information. This book focuses principally on microcomputers. However, it is almost certain that you will come in contact, at least indirectly, with other types of computers.

### TYPES OF COMPUTERS

There are four types of computers: supercomputers, mainframe computers, minicomputers, and microcomputers.

- **Supercomputers** are the most powerful type of computer. These machines are special high-capacity computers used by very large organizations. IBM's Blue Gene is considered by many to be the fastest computer in the world. (See Figure 1-8.)
- **Mainframe computers** occupy specially wired, air-conditioned rooms. Although not nearly as powerful as supercomputers, mainframe computers are capable of great processing speeds and data storage. For example, insurance companies use mainframes to process information about millions of policyholders.



Figure 1-8 IBM's Blue Gene supercomputer

Although not nearly as powerful as supercomputers, mainframe computers are capable of great processing speeds and data storage. For example, insurance companies use mainframes to process information about millions of policyholders.

- **Minicomputers**, also known as **midrange computers**, are refrigerator-sized machines. Medium-sized companies or departments of large companies typically use them for specific purposes. For example, production departments use minicomputers to monitor certain manufacturing processes and assembly-line operations.
- **Microcomputers** are the least powerful, yet the most widely used and fastest-growing, type of computer. There are four types of microcomputers: *desktop*, *notebook*, *tablet PC*,

and *handheld computers*. (See Figure 1-9.) **Desktop computers** are small enough to fit on top of or alongside a desk yet are too big to carry around. **Notebook computers**, also known as *laptop computers*, are portable, lightweight, and fit into most briefcases. A **tablet PC** is a type of notebook computer that accepts your handwriting. This input is digitized and converted to standard text that can be further processed by programs such as a word processor. **Handheld computers** are the smallest and are designed to fit into the palm of one hand. Also known as **palm computers**, these systems typically combine pen input, writing recognition, personal organizational tools, and communications capabilities in a very small package. **Personal digital assistants (PDAs)** are the most widely used handheld computer.



Figure 1-9 Microcomputers

## MICROCOMPUTER HARDWARE

Hardware for a microcomputer system consists of a variety of different devices. See Figure 1-10 for a typical desktop system. This physical equipment falls into four basic categories: system unit, input/output, secondary storage, and communication. Because we discuss hardware in detail later in this book, here we will present just a quick overview of the four basic categories.

- **System unit:** The **system unit** is a container that houses most of the electronic components that make up a computer system. Two important components of the system unit are the *microprocessor* and *memory*. (See Figure 1-11.) The **microprocessor** controls and manipulates data to produce information. Many times the microprocessor is contained within a protective cartridge. **Memory**, also known as **primary storage** or **random access memory (RAM)**, holds data and program instructions for processing the data. It also holds the processed information before it is output. Memory is sometimes referred to as *temporary storage* because its contents will typically be lost if the electrical power to the computer is disrupted.
- **Input/output:** **Input devices** translate data and programs that humans can understand into a form that the computer can process. The most common input devices are the **keyboard** and the **mouse**. **Output devices** translate the processed information from the computer into a form that humans can understand. The most common output devices are **monitors** (see Figure 1-12) and **printers**.

### On the Web Explorations

To learn more about a leading manufacturer of microprocessors, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **microprocessor**.

- **Secondary storage:** Unlike memory, **secondary storage** holds data and programs even after electrical power to the computer system has been turned off. The most important kinds of secondary media are *floppy*, *hard*, and *optical disks*. **Floppy disks** are often used to store and transport data from one computer to another. They are called floppy because data is stored on a very thin flexible, or floppy, plastic disk. **Hard disks** are typically used to store programs and very large data files. Using a rigid metallic platter, hard disks have a much greater capacity and are able to access information much faster than floppy disks. **Optical discs** use laser technology and have the greatest capacity. (See Figure 1-13.) Three types of optical discs are **compact discs (CDs)**, **digital versatile (or video) discs (DVDs)**, and **high-definition (hi def) discs**.
- **Communication:** At one time, it was uncommon for a microcomputer system to communicate with other computer systems. Now, using **communication devices**, a microcomputer can communicate with other computer systems located as near as the next office or as far away as halfway around the world using the Internet. The most widely used communication device is a **modem**, which modifies telephone communications into a form that can be processed by a computer. Modems also modify computer output into a form that can be transmitted across standard telephone lines.

### On the Web Explorations

To learn more about one of the leaders in the development of DVD technology, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **dvd**.



Figure 1-12 Monitor



Figure 1-13 Optical disc

## ▼ CONCEPT CHECK

- ▶ What are the four types of computers?
- ▶ Describe the four types of microcomputers.
- ▶ Describe the four basic categories of microcomputer hardware.

## DATA

Data is raw, unprocessed facts, including text, numbers, images, and sounds. As we have mentioned earlier, processed data becomes information. When stored electronically in files, data can be used directly as input for the system unit.

Four common types of files (see Figure 1-14) are

- **Document files**, created by word processors to save documents such as memos, term papers, and letters.
- **Worksheet files**, created by electronic spreadsheets to analyze things like budgets and to predict sales.
- **Database files**, typically created by database management programs to contain highly structured and organized data. For example, an employee database file might contain all the workers' names, social security numbers, job titles, and other related pieces of information.

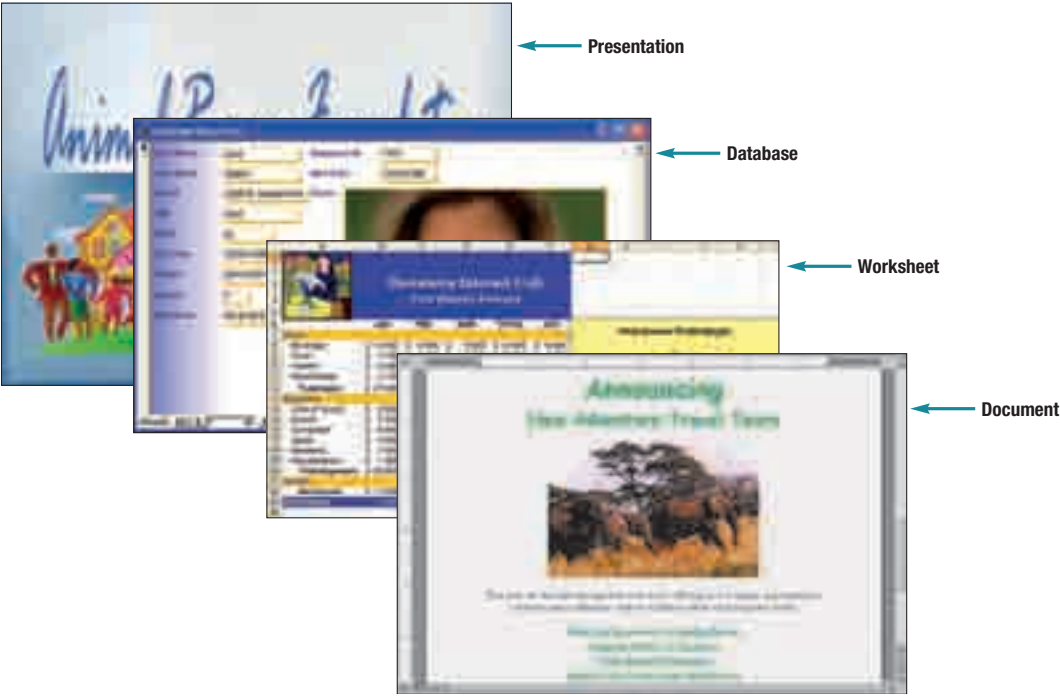


Figure 1-14 Four types of files: presentation, database, worksheet, and document

- **Presentation files**, created by presentation graphics programs to save presentation materials. For example, a file might contain audience handouts, speaker notes, and electronic slides.

## CONNECTIVITY, THE WIRELESS REVOLUTION, AND THE INTERNET

**C**onnectivity is the capability of your microcomputer to share information with other computers. The single most dramatic change in connectivity in the past five years has been the widespread use of mobile or wireless communication devices. For just a few of these devices, see Figure 1-15. Many experts predict that these wireless applications are just the beginning of the **wireless revolution**, a revolution that is expected to dramatically affect the way we communicate and use computer technology.



Figure 1-15 Wireless communication devices

Central to the concept of connectivity is the **network**. A network is a communications system connecting two or more computers. The largest network in the world is the **Internet**. It is like a giant highway that connects you to millions of other people and organizations located throughout the world. The **Web** provides a multimedia interface to the numerous resources available on the Internet.

**CONCEPT CHECK**

- ▶ Define data. List four common types of files.
- ▶ Define connectivity and the wireless revolution.
- ▶ What is a network? Describe the Internet. What is the Web?

**CAREERS IN IT**

As mentioned previously, each of the following chapters highlights a specific career in information technology. (See Figure 1-16.) Each provides specific job descriptions, salary ranges, advancement opportunities, and more. For a partial list of these

careers, see Figure 1-17. For a complete list, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **careers**.



Figure 1-16 Software engineer

Career	Description
Webmaster	Develops and maintains Web sites and Web resources. See page 40.
Computer support specialist	Provides technical support to customers and other users. See page 105.
Technical writer	Prepares instruction manuals, technical reports, and other scientific or technical documents. See page 154.
Software engineer	Analyzes users' needs and creates application software. See page 174.
Network administrator	Creates and maintains computer networks. See page 202.

Figure 1-17 Careers in information technology

## A Look to the Future

### Using and Understanding Information Technology Means Being Computer Competent

The purpose of this book is to help you use and understand information technology. We want to help you become computer competent in today's world and to provide you with a foundation of knowledge so that you can understand how technology is being used today and anticipate how technology will be used in the future. This will enable you to benefit from six important information technology developments.

#### THE INTERNET AND THE WEB

The Internet and the Web are considered by most to be the two most important technologies for the 21st century. Understanding how to efficiently and effectively use the Internet to browse the Web, communicate with others, and locate information are indispensable computer competencies. These issues are presented in Chapter 2, The Internet, the Web, and Electronic Commerce.



#### POWERFUL SOFTWARE

The software now available can do an extraordinary number of tasks and help you in an endless number of ways. You can create professional-looking documents, analyze massive amounts of data, create dynamic multimedia Web pages, and much more. Today's employers are expecting the people they hire to be able to effectively and efficiently use a variety of different types of software. Basic and specialized applications are presented in Chapters 3 and 4. System software is presented in Chapter 5.

#### POWERFUL HARDWARE

Microcomputers are now much more powerful than they used to be. New communication technologies such as wireless networks are dramatically changing the ways to connect to other computers, networks, and the Internet. However, despite the rapid change of specific equipment, their essential features remain unchanged. Thus, the competent end user should focus on these features. Chapters 6 through 9 explain what

you need to know about hardware. A Buyer's Guide and an Upgrader's Guide are presented at the end of this book for those considering the purchase or upgrade of a microcomputer system.

#### SECURITY AND PRIVACY

What about people? Experts agree that we as a society must be careful about the potential of technology to negatively impact our personal privacy and security. Additionally, we need to be aware of potential physical and mental health risks associated with using technology. Finally, we need to be aware of negative effects on our environment caused by the manufacture of computer-related products. Thus, Chapter 10 explores each of these critical issues in detail.

#### ORGANIZATIONS

Almost all organizations rely on the quality and flexibility of their information systems to stay competitive. As a member or employee of an organization, you will undoubtedly be involved in these information systems.

Therefore, you need to be knowledgeable about the different types of organizational information systems and how they are used. Accordingly, we devote Chapters 11 through 14 to detail what you need to know about information systems and how to develop, modify, and maintain these systems.

#### CHANGING TIMES

Are the times changing any faster now than they ever have? Most people think so. Whatever the answer, it is clear we live in a fast-paced age. The Evolution of the Computer Age section presented at the end of this book tracks the major developments since computers were first introduced.

After reading this book, you will be in a very favorable position compared with many other people in industry today. You not only will learn the basics of hardware, software, connectivity, the Internet, and the Web, but you also will learn the most current technology. You will be able to use these tools to your advantage.

# COMPUTING ESSENTIALS 2008

## MULTIPLE CHOICE



### FEATURES

Animations

Careers in IT

DVD Direct

Expansions

Making IT Work for You

On the Web Explorations

TechTV

Tips

### CHAPTER REVIEW

Applying Technology

Crossword Puzzle

Expanding Your Knowledge

Key Terms

Matching

Multiple Choice

Open-Ended

Writing About Technology

Circle the letter or fill in the correct answer.

- A common term that describes the combination of traditional computer and communication technologies is
  - management of information systems
  - information technology
  - information superhighway
  - computer competency
- Procedures are typically documented in manuals written by
  - end users
  - computer specialists
  - Microsoft
  - service providers
- Which of the following is an example of connectivity?
  - Internet
  - floppy disk
  - power cord
  - data
- Windows XP, Windows Vista, and Macintosh OS X are all examples of
  - application software
  - operating systems
  - browsers
  - shareware
- Because of their size and cost, these computers are relatively rare.
  - minicomputers
  - mainframe computers
  - microcomputers
  - supercomputers
- The system component that controls and manipulates data in order to produce information is called the
  - monitor
  - mouse
  - keyboard
  - microprocessor
- A system component that translates data and programs that humans can understand into a form that the computer can process is called a(n)
  - input device
  - pointer
  - output device
  - display
- A CD is an example of a(n)
  - output device
  - floppy disk
  - optical disc
  - hard disk
- If you want to communicate a message or persuade other people, you would typically use this type of software.
  - worksheet
  - document
  - database
  - presentation
- Many experts are predicting that this revolution is expected to dramatically affect the way we communicate and use computer technology.
  - FTP
  - World Wide Web
  - Telnet
  - wireless

For an interactive version of multiple-choice questions, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **multiple1**.

# COMPUTING ESSENTIALS 2008

## MATCHING

Match each numbered item with the most closely related lettered item. Write your answers in the spaces provided.

- |                      |   |
|----------------------|---|
| a. microcomputers    | 1. Guidelines people follow when using software. _____  |
| b. optical discs     | 2. Consists of the step-by-step instructions that tell the computer how to do its work. _____               |
| c. output device     | 3. Software that enables the application software to interact with the computer hardware. _____             |
| d. primary storage   | 4. The most powerful type of computer. _____  |
| e. procedures        | 5. The least powerful and most widely used type of computer. _____  |
| f. program           | 6. Translates data and programs that humans can understand into a form that the computer can process. _____ |
| g. secondary storage | 7. Holds data and programs even after electrical power to the system has been turned off. _____             |
| h. supercomputers    | 8. Uses laser technology. _____   |
| i. system software   | 9. Holds data and program instructions for processing data. _____   |
| j. the Internet      | 10. The largest network in the world. _____   |

For an interactive version of this matching exercise, visit our Web site at [www.computing2008.com](http://www.computing2008.com) and enter the keyword **matching1**.

## OPEN-ENDED

On a separate sheet of paper, respond to each question or statement.

1. Explain the five parts of an information system. What part do people play in this system?
2. What is system software? What kinds of programs are included in system software?
3. Define and compare basic and specialized application software. Describe some different types of basic applications. Describe some types of specialized applications.
4. Describe the different types of computers. What is the most common type? What are the types of microcomputers?
5. What is connectivity? How are the wireless revolution and connectivity related? What is a computer network? What is the Internet? What is the Web?



### FEATURES

- Animations
- Careers in IT
- DVD Direct
- Expansions
- Making IT Work for You
- On the Web Explorations
- TechTV
- Tips

### CHAPTER REVIEW

- Applying Technology
- Crossword Puzzle
- Expanding Your Knowledge
- Key Terms
- Matching**
- Multiple Choice
- Open-Ended**
- Writing About Technology