

计算机专业英语

— *Computing Essentials*

(新版)

● Timonthy J. O'Leary

● Linda I. O'Leary



高等教育出版社



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出版说明

本书是美国麦格劳·希尔(McGraw-Hill)出版公司出版的 Computing Essentials (1998—1999)一书的影印版。原书自 1989 年以来几乎每年都出一次新版,主要用作英语国家的计算机导论性教材。

我社曾经影印过本书的 1995—1996 版,有不少学校采用,反映较好。本版在内容上做了较大的更新,突出应用和 Internet 的知识以及与计算机有关的社会、道德和法律问题等。本书由 11 个部分和一些附录组成,主要内容包括:常用软件和系统软件;基础应用和高级应用,如字表处理、多媒体、桌面出版、项目管理、人工智能和虚拟现实等;计算机的组成和工作原理,输入输出与各种外部设备,Internet 基础与应用,与计算机有关的社会、法律、安全和道德问题,信息社会的人、技术、组织和职业,以及购机指南等。书中含有大量丰富的图示,用于说明计算机及各种设备的组成和结构,使各种技术、概念和术语一目了然。每章之后附有重要词汇和术语的列表和页码索引,以及习题、讨论题、网上实习、综合性的图示小结等。

本书的目的是通过在英语环境中进一步学习计算机的有关知识,了解计算机通信的一些新的发展,使学生建立起计算机术语的英汉对应关系,提高专业英语的阅读能力。阅读本书的速度至少应达到,本科学生 100 词/分~120 词/分,专科学生 80 词/分~100 词/分,中专学生 60 词/分~80 词/分。

本书内容丰富新颖,语言规范流畅,涉及计算机的名词和术语都是最基本和最常用的,也是较新的,对于辅助学生掌握与计算机有关的英语词汇是十分有益的。随书附原版多媒体光盘一张,图文并茂,语音清楚纯正,主要有内容小结和网上实习、PowerPoint 演示、应用和操作指导等,可辅助教师教学和学生练习。

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1999 年 5 月

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Dedication

To Dan. Thanks for your youthful perspective, dedication, and hard work. Your help this summer made this edition truly a family project—Mom and Dad



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Your Future and Computer Competency

Computer competency: This notion may not be familiar to you, but it's easy to understand. The purpose of this book is to help you become *competent* in computer-related skills. Specifically, we want to help you walk into a job and immediately be valuable to an employer. In this chapter, we first describe why learning about the computer is important to your future. We then present an *overview* of what makes up an information system: people, procedures, software, hardware, and data. In subsequent chapters, we will describe these parts 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 with computers was handled by specialists—programmers, data-entry clerks, and computer operators.

Then microcomputers came along and changed everything. Today it is easy for nearly everybody to use a computer. People who use microcomputers today are called “end users.” (See Figure 1-1.) Today:

- Microcomputers are common tools in all areas of life. Writers write, artists draw, engineers and scientists calculate—all on microcomputers. Businesspeople do all three.
- New forms of learning have developed. People who are homebound, who work odd hours, or who travel frequently may take courses by telephone-linked home computers. A college course need not fit within the usual time of a quarter or a semester.
- New ways to communicate and to find people with similar interests are available. All kinds of people are using electronic mail and the Internet to meet and to share ideas.

COMPETENCIES

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

1. Explain computer competency.
2. Distinguish four kinds of computers: microcomputer, minicomputer, mainframe, and supercomputer.
3. Explain the five parts of an information system: people, procedures, software, hardware, and data.
4. Distinguish application software from system software.
5. Describe hardware devices for input, processing, storage, output, and communications.
6. Describe document, worksheet, and database files.
7. Explain computer connectivity, the Internet, and the World Wide Web.

What about you? How can microcomputers enhance *your* life?

End Users and Computer Competency

By gaining computer competency, end users can use microcomputers to improve their productivity and their value in the workplace.

End users are people who use microcomputers or have access to larger computers. If you are not an end user already, you will probably become one in the near future. That is, you will learn to use packaged computer programs to meet your unique needs for information. Let us point out two things here.

- By “packaged programs,” we mean programs that you can buy rather than those you have to write yourself. Examples of packaged programs include video games and work-related programs, such as word processing for typing documents and electronic spreadsheets for analysis.
- By “needs,” we mean various organizing, managing, or business needs. That is, they are *information-related* or *decision-making* needs. Becoming **computer competent**—learning how to use the computer to meet your information needs—will improve your productivity. It will also make you a more valuable employee.

How much do you have to know to be computer competent? Clearly, in today's fast-changing technological world, you cannot learn everything—but very few people need to. You don't have to be a computer scientist to make good use of a microcomputer. Indeed, that is precisely the point of this book. Our goal is not to teach you everything there is to know, but only what you *need* to know to get started. Thus, we present only what we think you will find most useful—both now and in the future.

FIGURE 1-1

End users: People are using microcomputers to meet their informational needs.



Four Kinds of Computers

Computers are of four types: microcomputers, minicomputers, mainframes, and supercomputers.

This book focuses principally on microcomputers. However, it is almost certain that you will come in contact, at least indirectly, with other kinds of computers. Thus, we describe many features that are common to these larger machines.

Computers are electronic devices that can follow instructions to accept input, process that input, and produce information. There are four types of computers: *microcomputers*, *minicomputers*, *mainframe computers*, and *supercomputers*.

Microcomputers

The most widely used and the fastest-growing type of computer is the **microcomputer**. (See Figure 1-2.) There are two categories of microcomputers—*desktop* and *portable*.

■ **Desktop computers** are small enough to fit on top or along the side of a desk and yet are too big to carry around. (See Figure 1-3.) **Personal computers** are one type of desktop. These machines run comparatively easy-to-use application software. They are used by a wide range of individuals, from clerical people to managers. **Workstations** are another type of desktop computer. Generally, these machines are more powerful. They are designed to run more advanced application software. Workstations are used by engineers, scientists, and others who process lots of data. The distinction between personal computers and workstations is now blurring. The principal reason is that personal computers are now nearly as powerful as workstations and are able to run many of the same programs.

FIGURE 1-2
Microcomputers in use—
past, present, and future.

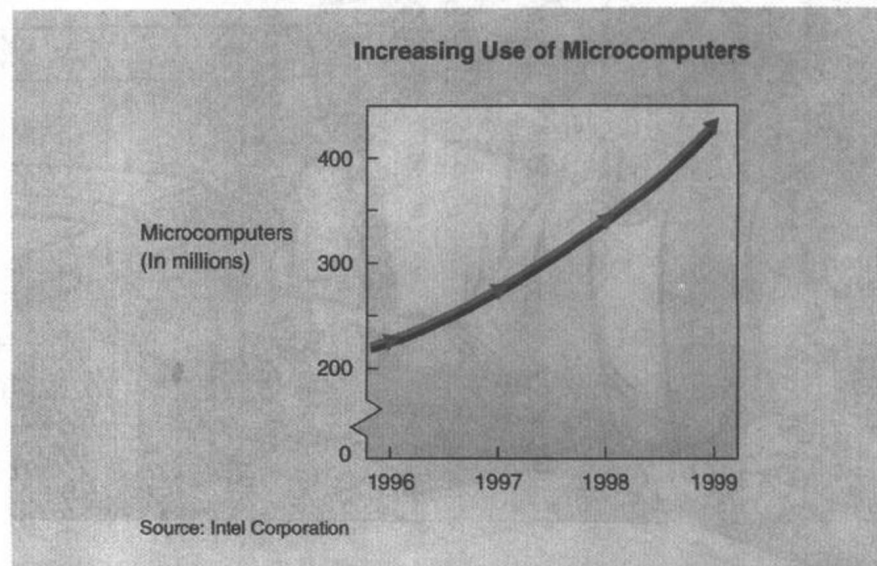




FIGURE 1-3
Desktop computer (Gateway
2000).

■ **Portable computers** are microcomputers that are small enough and light enough to move easily from one place to another. There are four categories of portable computers—*laptops*, *notebooks*, *subnotebooks*, and *personal digital assistants*.

Laptops, which weigh between 10 and 16 pounds, may be either AC-powered, battery-powered, or both. The AC-powered laptop weighs 12 to 16 pounds. The battery-powered laptop weighs 10 to 15 pounds, batteries included, and can be carried on a shoulder strap. The user of a laptop might be an accountant or financial person who needs to work on a computer away from the desk.

Notebooks are a smaller version of the laptop. (See Figure 1-4.) They weigh between 5 and 10 pounds and can fit into most briefcases. The user of a

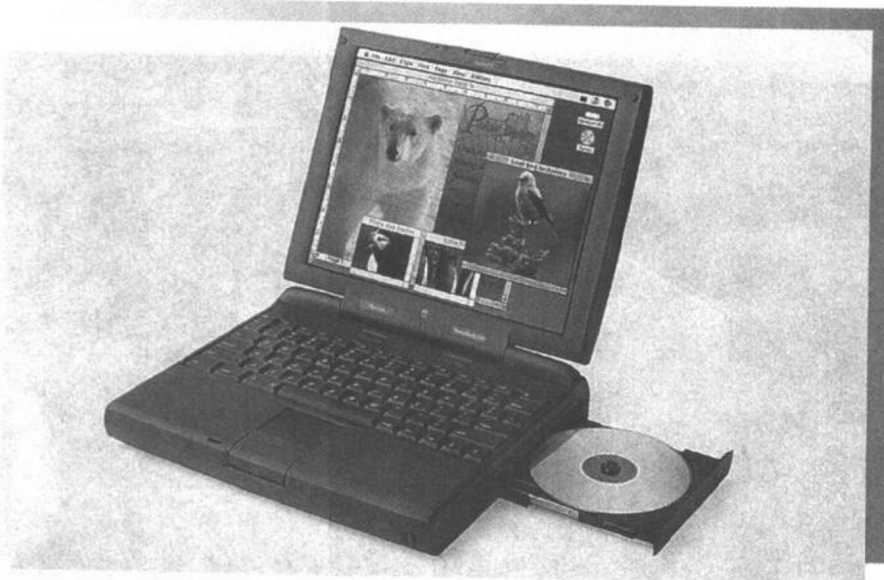


FIGURE 1-4
Notebook computer (IBM
ThinkPad 750).



FIGURE 1-5
Subnotebook (Toshiba
Portage 300CT).



FIGURE 1-6
Personal digital assistant
(Apple Newton Message Pad
2000.)

notebook PC might be a student, salesperson, or journalist who uses the computer for note-taking. It is especially valuable in locations where electrical connections are not available. Notebook computers are the most popular portable computer today.

Subnotebooks, also known as **ultra portables**, are for frequent flyers and life-on-the-road types. Subnotebook users give up a full-size display screen and keyboard in exchange for less weight. Weighing between 2 and 6 pounds, these computers fit easily into a briefcase. (See Figure 1-5.)

Personal Digital Assistants (PDA) are much smaller than even the subnotebooks. Also known as **palmtop computers** and **handheld PCs**, these devices combine pen input, writing recognition, personal organizational tools, and communications capabilities in a very small package. A PDA user might be a worker at a warehouse who records changes in inventory or a busy executive handling daily communications. (See Figure 1-6.)

Minicomputers

Also known as **midrange computers**, **minicomputers** are desk-sized machines. They fall between microcomputers and mainframes in their processing speeds and data-storing capacities. Medium-size companies or departments of large companies typically use them for specific purposes. For example, they might use them to do research or to monitor a particular manufacturing process. Smaller-size companies typically use minicomputers for their general data processing needs, such as accounting.

Mainframe Computers

Mainframes are large computers occupying specially wired, air-conditioned rooms. They are capable of great processing speeds and data storage. (See Figure 1-7.) They are used by large organizations—businesses, banks, universities, and government agencies—to handle millions of transactions. For example, insurance companies use mainframes to process information about millions of policyholders.

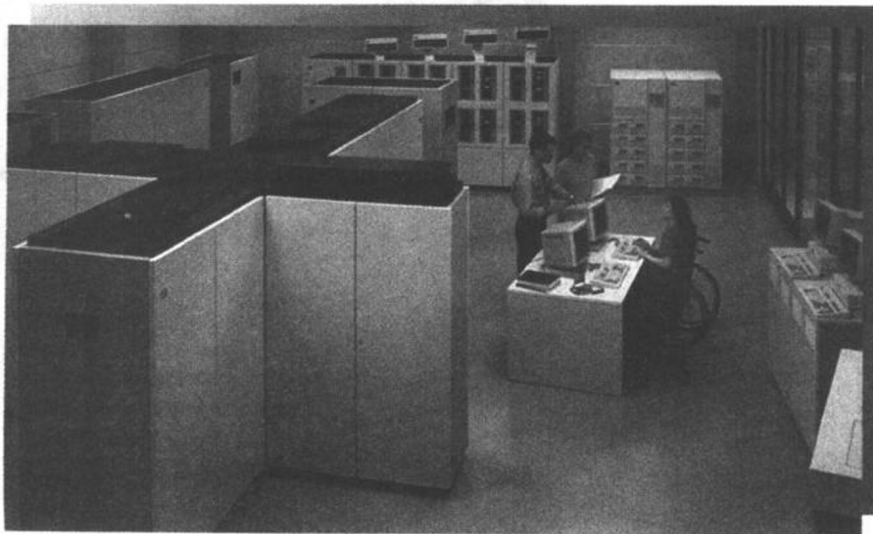


FIGURE 1-7
Mainframe computer (IBM
ES/9000).

Supercomputers

The most powerful type of computer is the **supercomputer**. These machines are special, high-capacity computers used by very large organizations. For example, NASA uses supercomputers to track and control space explorations. Supercomputers are also used for oil exploration, simulations, and worldwide weather forecasting. (See Figure 1-8.)

Let us now get started on the road to computer competency. We begin by describing the role of the microcomputer in an information system.

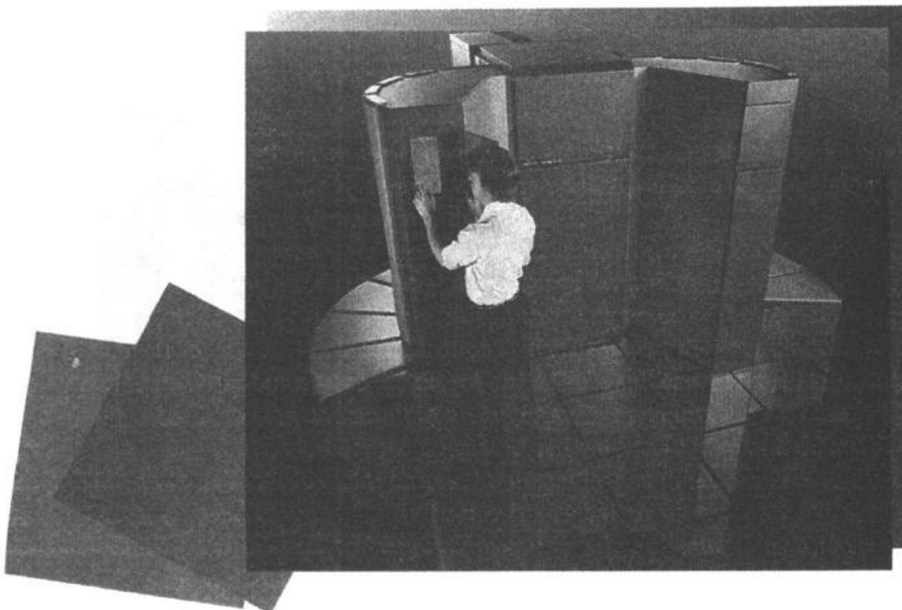
The Five Parts of an Information System

An information system has five parts: people, procedures, software, hardware, and data.

When you think of a microcomputer, perhaps you think of just the equipment itself. That is, you think of the monitor or the keyboard. 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 1-9.)

- **People:** It is easy to overlook people as one of the five parts of a microcomputer system. Yet that is what microcomputers are all about—making people, end users like yourself, more productive.
- **Procedures:** **Procedures** are rules or guidelines for people to follow when using software, hardware, and data. Typically, these procedures are documented in manuals written by computer specialists. Software and hardware manufacturers provide manuals with their products. An example is the *Excel Reference Manual*.
- **Software:** **Software** is another name for a program or programs. A **program** is the step-by-step instructions that tell the computer how to do its work. The purpose of software is to convert *data* (unprocessed facts) into *information* (processed facts).

FIGURE 1-8
Supercomputer (Cray Y-MP
Computer System).



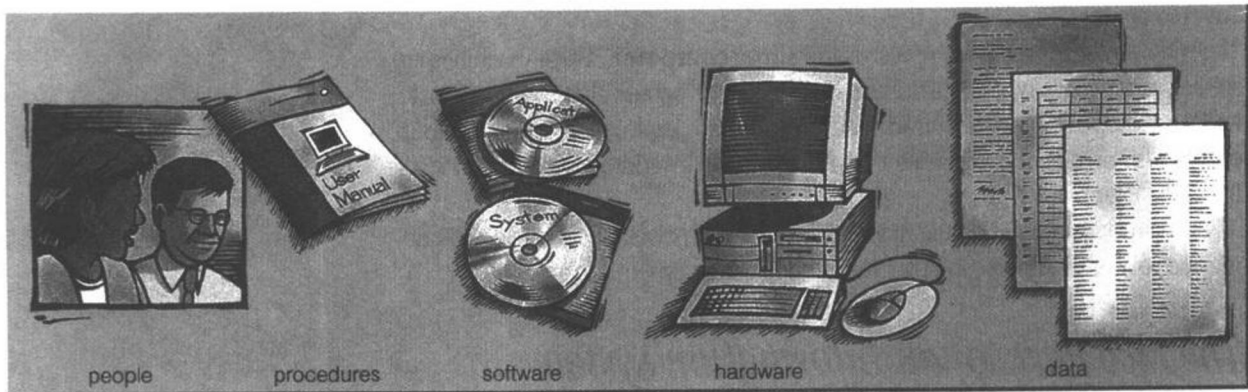


FIGURE 1-9

The five parts of an information system.



FIGURE 1-10

Two well-known microcomputer hardware systems: the Apple Performa 6400 and the Toshiba Infinia 7260.

- **Hardware:** The **hardware** consists of the equipment: keyboard, mouse, monitor, system unit, and other devices. Hardware is controlled by software. It actually processes the data to create information. (See Figure 1-10.)
- **Data:** **Data** consists of the raw, unprocessed facts. Examples of raw facts are hours you worked and your pay rate. After data is processed through the computer, it is usually called **information**. An example of such information is the total wages owed you for a week's work.

In large computer systems, there are specialists who deal with writing procedures, developing software, and capturing data. In microcomputer systems, however, end users often perform these operations. To be a competent end user, you must understand the essentials of software, hardware, and data.

