
ITAT
教育部实用型信息技术人才培养系列教材
刘兆毓 主编
新编
计算机英语教程
清华大学出版社

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北　京

内 容 简 介

本书在《边用边学计算机英语》第 2 版的基础上，增加了很多新内容。除保留了计算机和网络的基本知识以外，在选材上注意了计算机知识的系统性和内容的完整性。这次新编，还对目前应用很广的技术，如日益流行的苹果电脑及相应产品、嵌入式操作系统、桌面出版技术、视频和音频处理技术及网页制作等应用都安排了较多的内容；在因特网应用方面，除了通常的 Web 浏览器、搜索引擎、电子邮件、因特网电话、电子商务以外，还加入了社交网、即时消息以及云计算等内容，以适应计算机与网络技术的最新发展和读者的需求。

全书共分 9 章 59 节，在每一节中都对科技英语常见的语法和较难翻译的句子做了注释，还对文章中出现的重要技术术语做了解释；在书中的每一节都列出了关键词汇并给出了练习题，以加深读者对内容的理解。本书最后给出了参考译文和习题的参考答案。

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前　言

本书是为广大IT工作者，特别是计算机与网络应用人员较全面地学习和掌握计算机英语知识，提高计算机专业英语水平编写的。

本书的特点是除了介绍计算机和网络的基本知识以外，还引入了很多计算机和网络应用方面的新内容，以适应计算机和网络技术的飞速发展。

本书由刘兆毓主编和统稿，并编写了第4～6章。其他编写人员为严金平（第1、第2和第8章）、刘华群（第3章）、武华（第7和第9章）。

由于作者水平有限，书中不当之处，敬请广大读者批评指正。

编　者

目　录

CHAPTER 1 INTRODUCTION TO THE INFORMATION SYSTEM (IT)

1.1 ABOUT 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).

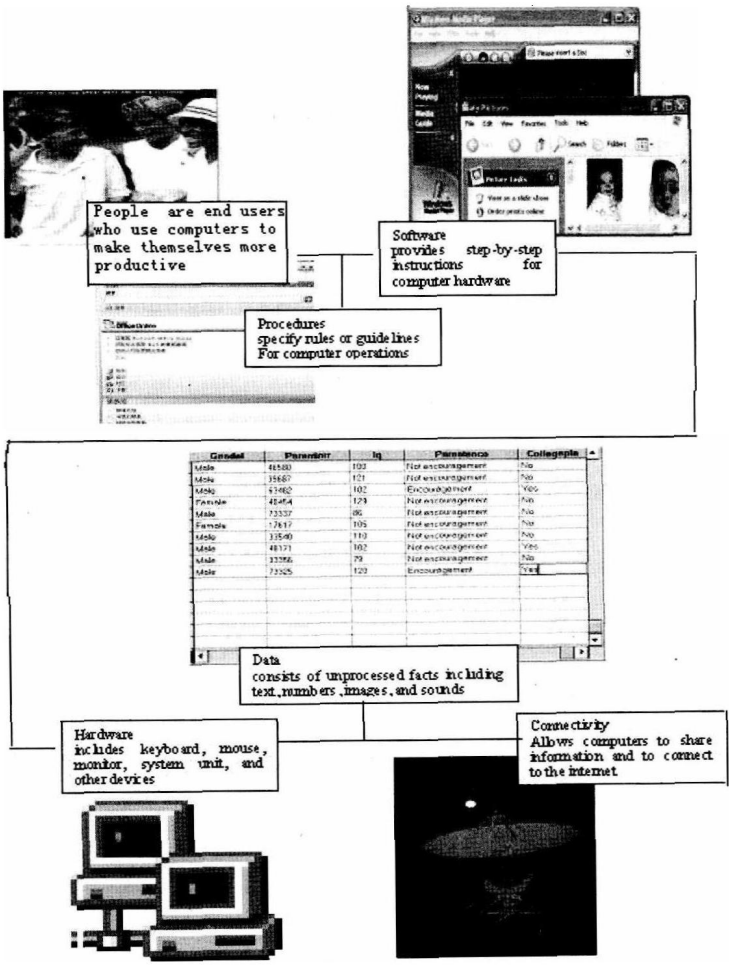


Figure 1-1 The five parts of an information System

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[1].

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 system. 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.

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[2]. 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)[3].

Hardware: The equipment that processes the data to create information is called hardware. It includes the system unit, keyboard, mouse, monitor, 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[4]. Connectivity allows users to greatly expand the capability and usefulness of their information systems.

NOTES

[1] this is 后面是表语从句，making people more productive 为分词短语作状语，end users like you 为同位语。

[2] that 引导的是定语从句，修饰 instructions，此从句中又包含由 how 引导的宾语从句。

[3] the computer to take...and multiply...为复合宾语；you worked...为定语从句，修饰 hours; to determine...为目的状语。

[4] through the air 指无线连接。

KEYWORDS

information system	信息系统
microcomputer	微型计算机，微机
monitor	监视器
keyboard	键盘

procedure	工（程）序，作业，过程，方法，规程
software	软件
hardware	硬件
data	数据
word processing program	字处理程序
Internet	因特网
instruction	指令
system unit	系统部件
mouse	鼠标
text	文本
image	图像
connectivity	连通（性）
share	共享
connection	连接
cable	电缆

EXERCISES

Multiple choices.

1. The following elements are belong to an information system _____.

   a. procedures　b. desk　c. people　d. hardware

2. Today anyone does not live without information system as the following examples illustrate: _____.

   a. We send a letter using E-mail system　b. We go shopping at the supermarket

   c. We talk face to face　d. We watch movies on the Internet

3. Procedures are _____ for people to follow when using software, hardware and data.

   a. programs　b. guidelines　c. regulations　d. rules

4. Software is _____.

   a. also called as program

   b. a program consisted of step-by-step instructions

   c. one kind of language

   d. generally purchased in some sort of a physical package

5. Hardware includes _____.

   a. system unit　b. system software　c. printer　d. monitor

6. Data include _____.

   a. processed facts

   b. unprocessed facts

   c. sounds

   d. number

7. Information is _____.

   a. processed facts　b. unprocessed facts

   c. message　d. physical object

8. Connectivity _____.

a. is the seventh part of a information system

b. allows computers to share information

c. includes Internet connections

d. allows users to greatly expand their capability

1.2 COMPUTER ORGANIZATION

1. Computer Organization

A computer is a programming, electronic device that accepts input, performs operations or processing on the data, and outputs and stores the results. Because it is programmable, the instructions—called the program—tell the computer what to do. The relationships between these four main computer operations (input, processing, output, and storage) are shown in Figure 1-2.

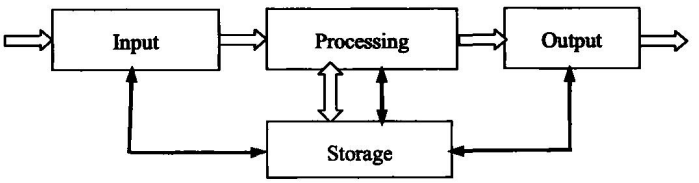


Figure1-2 Basic operations within a computer

The corresponding devices to perform these tasks are input devices, processing devices, output devices, and storage devices.

1) Input Devices

An input device is any piece of equipment that supplies materials (input) to the computer. The most common input devices are the keyboard and mouse (see Figure 1-3). Other possibilities include image and bar-code scanners, joysticks, touch screens, digital cameras, electronic pens, fingerprint readers, and microphones. Input devices for a stereo system might be a CD player and antenna.

Figure 1-3 Hardware of a computer system

2) Processing Derices

The heart of any computer system is the central processing unit (CPU), located inside the computer's main box or system unit.

A processor is composed of two functional units—a control unit and an arithmetic/logic unit—and a set of special workspaces called registers.

Figure 1-4 depicts its structure, in which the Internal CPU Interconnection provides communication among the Control Unit, ALU, and register.

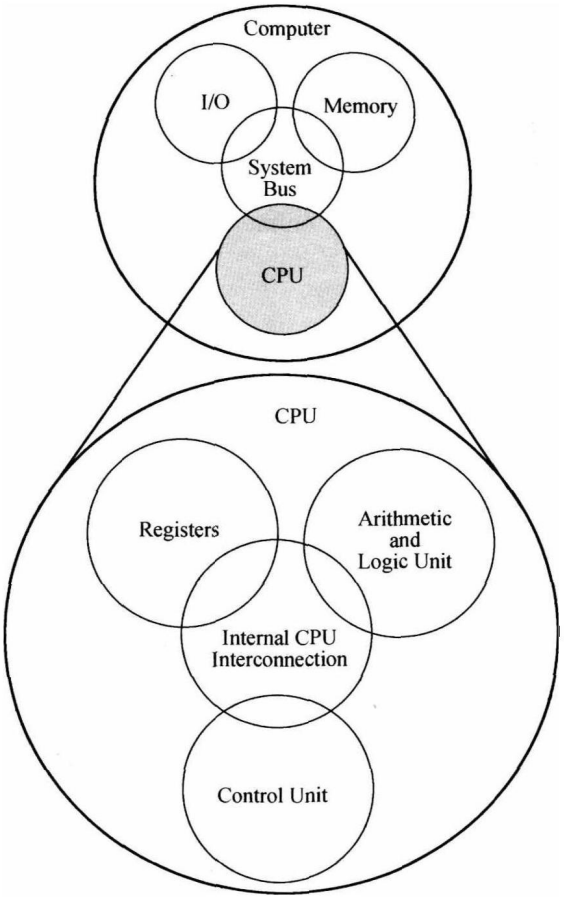


Figure1-4 Central Processing Unit (CPU)

The control unit is the functional unit that is responsible for supervising the operation of the entire computer system.

The control unit fetches instructions from memory and determines their types or decodes them. It then breaks each instruction into a series of simple small steps or actions. By doing this, it controls the step-by-step operation of the entire computer system.

The arithmetic and logic unit (ALU) is the functional unit that provides the computer with logical and computational capabilities. Data are brought into the ALU by the control unit, and the ALU performs whatever arithmetic or logic operations are required to help carry out the instruction [1].

A register is a storage location inside the processor. Registers in the control unit are used to keep track of the overall status of the program that is running. Control unit registers store information such as the current instruction, the location of the next instruction to be executed, and the operands of the instruction [2]. In the ALU, registers store data items that are added, subtracted, multiplied, divided, and compared. Other registers store the results of arithmetic and logic operations.

3) Output Devices

Like input units, output devices are instruments of interpretation and communication between humans and computer systems of all sizes. These devices take output results from the CPU in machine-coded form and convert them into a form that can be used (a) by people (e.g. a printed and/or displayed report) or (b) as machine input in another processing cycle [3].

In personal computer systems, display screen and desktop printers are popular output devices. Larger and faster printers, many online workstations, and magnetic tape drives are commonly found in larger systems.

4) Storage Devices

Storage is a computer section used primarily for storing information such as instructions, programs and data.

There are two types in storage devices, one is the memory (sometimes called as primary storage), another is the secondary storage. Primary storage is located within the system unit that houses the CPU and other components [4]. Secondary storages include the storage media and drives, We will describe them in section 3.3 of this textbook.

2. Types of Computer

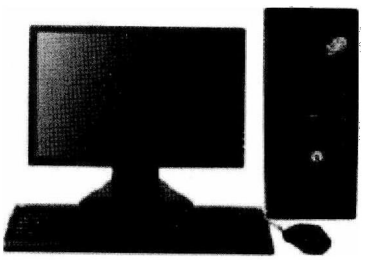
There are four types of computers: supercomputers, mainframe computers, minicomputers, and microcomputers.

(1) 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.

(2) 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 [5]. For example, insurance companies use mainframes to process information about millions of policyholders.

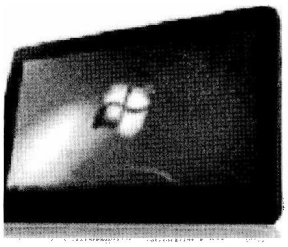
(3) Minicomputers, also known as midrange computers, are refrigerator-sized machines. Medium-sized companies or departments of large companies typically use them for specific purposes. For example, production departments use minicomputers to monitor certain manufacturing processes and assembly-line operations.

(4) 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 1-5).



Desktop

Handheld



Tablet PC

Notebook

Figure 1-5 Microcomputers

NOTES

[1] 这是一个 and 连接的并列句。后一个分句中的 whatever 是关系代词，引导后面的宾语从句。

[2] 长句中 such 引导的同位语中有三个并列的宾语。

[3] 由 and 连接的并列句，后一句中 that 引导的定语从句修饰 form。

[4] that 引导的定语从句，修饰 system unit；house 为动词，原意为“留宿”、“收容”，此处为“含有”、“包含”之意。

[5] Although 引导的是让步状语从句。

KEYWORDS

programmable	可编程的
input	输入
output	输出
store，storage	存储，存储器
bar-code	条形码
scanner	扫描仪
joystick	操纵杆
touch screen	触摸屏

digital camera	数字（码）相机
electronic pen	电子笔
fingerprint reader	指纹阅读器
stereo system	立体系统
CD（Compact Disk）	高密度磁盘，光盘，激光唱盘
player	播放器
CPU（Central Processing Unit）	中央处理器
main box	主机箱
control unit	控制器，控制部件
arithmetic and logic unit (ALU)	算术 / 逻辑部件
register	寄存器
memory	存储器
decode	译码
operand	操作数
communication	通信
machine-coded	机器编码
display screen	显示屏
desktop printer	台式打印机
online	在线，联机
workstation	工作站
magnetic tape drive	磁带驱动器
primarily storage	主存储器
secondary storage	二级存储器
supercomputer	超级计算机
mainframe computer	大型计算机
minicomputer	小型计算机
desktop computer	台式计算机
notebook computer	笔记本电脑
tablet PC	平板式个人电脑
handheld computer	手持计算机

EXERCISES

Match the following terms to the appropriate definitions.

1. _____ Computer.
2. _____ Instructions.
3. _____ basic operations within a computer.
4. _____ Input device.
5. _____ CPU.
6. _____ Registers.
7. _____Control unit.
8. _____ ALU.
9. _____Output device.

10. _____ Storage.
11. _____ Supercomputers.
12. _____ Mainframe computers.
13. _____ Minicomputers.
14. _____ Microcomputers.

a. a computer section stored instructions, programs and data
b. the most widely used and fastest-growing computers
c. input, processing, storage, and output
d. supervises the operation of the entire computer system
e. fhave great processing speeds and data storage
f. a programming electronic device
g. instrument of interpretation and communication between human and computer systems
h. tell the computer what to do
i. the heart of any computer system
j. has logical and computational capabilities
k midrange computers
l. the most powerful type of computer
m. storage location inside the processor
n. supplies materials to the computer

1.3 COMPUTER SOFTWARE

As already mentioned, the term computer software refers to the programs or instructions used to tell the computer hardware what to do. Software is generally purchased in some sort of a physical package. Such a software package may consist of the program, as well as instructional and help materials, on CD or DVD discs, printed operating instructions and user manuals, and a printed license to use the software—all or some of which are inside a shrink-wrapped box or plastic case. [1] You can buy software in a store, through mail order, or over the Internet. If you download the software from the Internet, you won't receive a physical package. Instead, the components (program, license, user's manual, and so forth) are downloaded directly to your computer in an electronic format.

Computers use two basic types of software: Application software and system software. Application software helps you perform a specific task. System software refers to the operating systems and all utility programs that manage computer resources at a low level.[2] Figuratively speaking, application software sits on top of system software. Without the operating system and system utilities, the computer cannot run any application program.

1. Application Software

Application Software is widely referred to as productivity software. Application software is comprised of programs designed for an end user. Some of the more commonly application programs are word processors, database systems, presentation systems, spreadsheet programs, and desktop publishing programs. Some other application categories are as follows: