高 等 学 校 教 材

Practical English for Computer & Network
计算机与网络实用英语

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本书是为广大计算机及网络用户编写的计算机与网络实用英语教材；取材新颖、丰富，针对性、实用性强，旨在帮助读者在学习、使用计算机和网络时更好地了解和掌握英文原文所表述的意义，更准确地领会计算机和网络方面的基础知识和专业知识。全书共分为计算机基础、多媒体计算机及应用、计算机应用及网络基础知识四大部分，每部分由若干节课文组成，每篇课文都安排有正文（*Text*）、词汇（*Vocabulary*）、内容概述（*Summary*）、注释（*Notes*）及练习（*Exercises*）5个模块。

本书可作为大专院校具有英语1~4级水平的各年级学生的计算机与网络工具用书和非英语专业的英语阅读教材，也可作为社会上广大计算机与网络工作者的参考用书。

前　言

随着计算机及网络技术的飞速发展和日益普及，各行各业、越来越多的人每天都在与计算机及网络打交道。然而大多数计算机和网络用户并不具备很高的英语水平。在高等学校，一、二年级的学生已经比较多地接触和使用计算机及网络，他们的英语水平也远远没有达到准确、完整地掌握计算机和网络技术所需要的程度。因此英语往往成为广大计算机及网络用户的第一个拦路虎。根据我们所作的社会调查得知：很多计算机及网络用户迫切需要一类与计算机、网络硬件和软件密切相关且实用性强的英语书籍，以有利于计算机和网络技术的进一步推广和普及。

作为计算机及网络方面的实用英语书籍，它和一般概念下的专业英语教材的功能不同。后者在高校，是供高年级学生使用的专业外语书，它主要是为了帮助高年级学生阅读较高水平的英语专业技术资料而设置的。而事实上，大学生往往是在进入高校的那天（甚至更早）起就经常"上机、上网"了，而真正的专业知识是在三、四年级才开始学习。因此本书的编写主要是面向高校各个学科、各个专业使用计算机和网络的低年级学生，以及社会上的成千上万个计算机及网络用户的需求，帮助这些读者克服使用计算机和网络时所遇到的语言障碍，以便能够轻松自如地驾驭计算机，在信息的高速公路上驰骋。

基于上述两方面的考虑，我们在编写本书时既考虑到了内容的实用性和可读性，同时也尽可能地跟踪计算机与网络领域的最新技术和最新的进展，力求兼顾不同层次读者的要求。书中各单元的素材精选自美、英等国最近出版的报刊、科技杂志以及最新出版或在网上发布的计算机及网络教程，内容由易到难，由浅入深，着重实用。全书共分为**计算机基础、多媒体计算机及其应用、计算机应用**

及**网络基础知识**四大部分，每部分由若干节课文组成，每篇课文都安排有正文（*Text*）、词汇（*Vocabulary*）、内容概述（*Summary*）、注释（*Notes*）及练习（*Exercises*）等 5 个模块。其中词汇模块对课文中出现的生词和专业词语加注了国际音标、词性和中文解释；对课文中出现的疑难和关键句子以及较生僻的专业术语则通过注释模块帮助读者阅读和理解，对少数复杂的语法现象也作了语法和语义分析；练习题则是为了检验读者是否真正读懂了课文。另外，本书书末附录 I 提供了计算机与网络常用术语及缩略语，附录 II 给出了各课练习题的参考答案。

参加本书编写工作的有同济大学博士研究生导师齐从谦教授（负责编写 4.3、4.4、4.6、4.7、4.8、4.9、4.11、4.12、4.13、4.15、4.17，4.20 等节及附录 I、II），同济大学教育技术与计算中心吴明道高级工程师（负责编写 2.3、2.4、2.5、2.6、2.11、3.1、3.2、3.3、3.4、3.5、3.6、3.7、3.8、3.9 等节），顾彩莉老师（负责编写 1.1、1.2、1.3、1.5、1.9、2.1、2.2、2.7、2.8、2.9、2.10、4.21 等节），韩静华老师（负责编写 1.4、1.6、1.7、1.8、1.10、1.11、1.12、3.10、3.11、3.12 等节）以及燕山大学计算机系唐勇副教授（负责编写 4.1、4.1、4.5、4.10、4.14、4.16、4.19 等节）。全书由齐从谦教授主编、统稿。同济大学计算机科学与技术系博士研究生导师曹立明教授花费了宝贵的时间和精力对本书全稿进行了认真的审阅，改正了书稿中的一些不妥之处，并提出了很多有益的意见；同济大学教育技术与计算中心的张如铁、吕子可老师为本书的文字录入和排版做了很多工作，在此一并表示衷心的感谢！

由于编者水平所限，书中难免仍有错误和不妥之处，敬请各位读者批评指正。

<div align="right">编　者</div>

Part I

The Base of Computer
（计算机基础）

- ### The Computer's Technologies
  ### （计算机基础知识）
- ### The Hardware
  ### （硬件）
- ### The Software
  ### （软件）

1.1 An Idealized Computer

（一台理想化的电脑）

Text :

All personal computers commonly have the following components.

(1) Printed circuit board[1] – a thin plate on which chips (integrated circuits) and other electronic components are placed.

(2) CD-ROM drive – compact disk read only memory drive, a device that can read information from a CD-ROM.

(3) CPU – central processing unit, the brain of the computer where most calculations take place.

(4) Floppy disk drive[2] – a disk drive that can read and write to floppy disks.

(5) Hard disk drive[3] – the device that reads and writes data on a hard disk.

(6) Motherboard - the main circuit board of a microcomputer on that it is the bus – a collection of wires through which data is transmitted from one part of a computer to another.

(7) RAM[4] – random access memory, also known as Read-Write memory, can have new data written into it as well as stored data read from it. A drawback of RAM is that it requires electrical power to maintain data storage. If the computer is turned off or looses power, all data stored in RAM is lost, unless the data was saved to disk.

(8) ROM[5] – read-only memory, computer memory on which data has been prerecorded; once data has been written onto a ROM chip, it cannot

be removed and can only be read.

(9) Power supply – the component that supplies power to a computer.

(10) Other devices –– the keyboard, monitor, or any external devices connected to the computer.

The backplane have the following components:

(1) Backplane[6] – the large circuit board that contains sockets for expansion cards.

(2) Network card – an expansion board inserted into a computer so that the computer can be connected to a network.

(3) Video card – a board that plugs into a PC to give it display capabilities

(4) Sound card – an expansion board that enables a computer to manipulate and output sounds.

(5) Parallel port[7]– an interface that is capable of transferring more than one bit simultaneously and is used to connect external devices such as printers.

(6) Serial port[8] – an interface that can be used for serial communication, in which only 1 bit is transmitted at a time.

(7) Mouse port – a port designed for connecting a mouse to a PC.

(8) Power cord – cord used to connect an electrical device to an electrical outlet in order to provide power to the device.

The Fig.1-1 shows the basic components of an idealized computer.
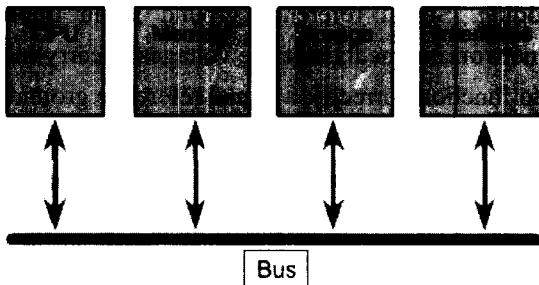

Fig. 1-1   An idealized computer

Information and electric power are constantly flowing in a PC. It helps to understand networking by thinking of the computer as a miniature network, with all the various devices within the system unit attached to, and communicating with each other. As shown in the figure, the following are some of the important information flows (almost all of which occur through the bus, see Fig. 1-2.):

★ Boot instructions – stored in ROM, until they are sent out.

★ Software applications – stored in RAM after they have been loaded.

★ RAM and ROM – constantly talk to the CPU through the bus.

★ Application information – stored in RAM while applications are being used.

★ Saved information – flows from RAM to some form of storage device.

★ Exported information – flows from RAM and the CPU, through the bus and expansion slots, to the printer, video card, sound card, or network card..

Data networks have become increasingly dependent on digital (binary, two-state) systems. The basic building block of information is 1 binary digit, known as the bit or pulse. One bit, on an electrical medium, is the electrical signal corresponding to binary 0 or binary 1. This may be as simple as 0 volts for binary 0, and +5 volts for binary 1, or a more complex encoding. Signal reference ground is an important concept relating to all networking media that use voltages to carry messages.

In order to function correctly, a signal reference ground must be close to a computer's digital circuits. Engineers have accomplished this by designing ground planes into circuit boards. The computer cabinets are used as the common point of connection for the circuit board ground planes to establish the signal reference ground. Signal reference ground establishes the 0 volts line in the signal graphics.
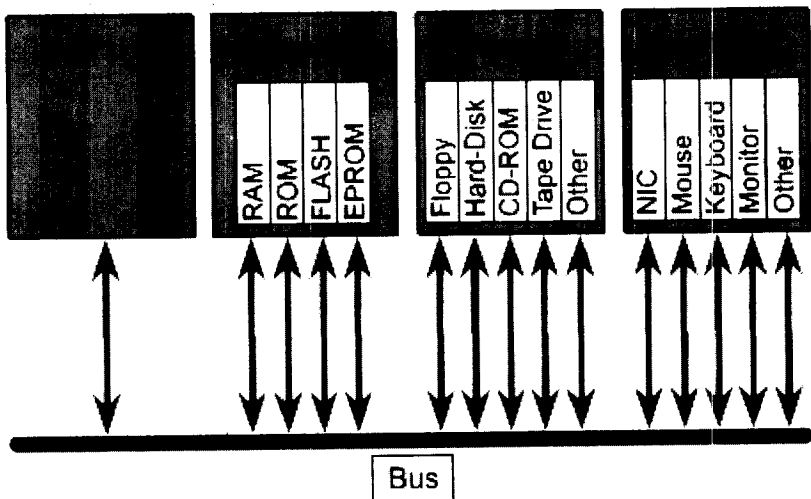
Fig. 1-2   Information flow on the idealized computer

Vocabulary：

1. component [kəm'pəunənt] *n.* 成分
2. circuit ['sə:kit] *n.* 电路，一圈，周游，巡回
3. expansion [ik'spænʃ ən] *n.* 扩充，开展
4. simultaneously [siməl'teiniəsli] *adv.* 同时地
5. outlet ['autlet] *n.* 出口，出路
6. miniature ['minitʃ ər] *n.* 缩小的模型，缩图，缩影 *adj.* 微型的，缩小的
7. binary ['bainəri] *adj.* 二进位的，二元的
8. volt [vəult] *n.* 伏特
9. voltage ['vəultidʒ] *n.* 电压，伏特数
10. cabinet ['kæbinit] *n.* 橱柜

Summary：

　　所有的个人计算机通常都包括以下组成部分：印制电路板、光盘驱动器、中央处理器、软盘驱动器、硬盘驱动器、主板、随机存

取存储器、只读存取器、电源装置以及其它设备包括键盘、监视器和任何连到计算机的外部设备。底板组成部分有：底板、网卡、视频卡、声卡、并行口、串行口、鼠标口和电源插口等。

Notes :

1. Printed Circuit Board = PCB　印制电路板：一张绝缘基板，表面覆盖一层铜箔，使用蚀掩模和酸蚀技术形成电子器件间的连接。

2. floppy disk drive　软盘驱动器：一种使一台计算机能从软盘上读/写信息的机械装置。

3. hard disk drive　硬盘驱动器。

4. RAM = Random Access Memory　随机存取存储器，计算机的主要工作存储器。CPU 能通过高速外部数据总线直接访问存储于其内的程序指令和数据，关闭电源时，这些程序和数据将丢失。

5. ROM = Read-Only Memory　只读存储器，计算机主存的一部分，关闭电源时，其中的数据不会丢失。

6. backplane　底板，也称作 motherboard，即主板。

7. parallel port　并行端口：支持同步的高速数据流沿并行线到达外设（例如一台并行打印机）的端口。能同时传送多于 1 位的数据。

8. serial port　串行端口：支持计算机与串行打印机、调制解调器以及其他计算机之间的异步通信，并保持同步的端口。串行端口 1 位接 1 位地（同一时段只能传送 1 位）收发同步数据。为确保收发时无数据丢失，可通过软硬件握手信号，达到与接收设备的协调。

Exercises :

1. What does ROM stand for? _____

   A. random only memory

   B. read-only memory

   C. a power supply

   D. a motherboard

2. Which is not included in the backplane components? _____
   A. parallel port
   B. power port
   C. serial port
   D. mouse port

3. Which does not flow from RAM? _____
   A. exported information
   B. application information
   C. software information
   D. saved information

4. How many drives does an idealized computer usually need? _____
   A. 4
   B. 1
   C. 3
   D. 2

5. Which statement is not true? _____
   A. A monitor is one of the components that an idealized computer shall be equipped with.
   B. An idealized computer doesn't need a keyboard.
   C. Data networks have become increasingly dependent on digital systems.
   D. Exported information doesn't only flow from RAM.

1.2 New Kneetop PCs[1]

（新型的膝上型电脑）

Text :

When I got my svelte, four-pound IBM Thinkpad[2] last year, it made my old seven-pound Mac PowerBook[3] obese[4]. It was so small and powerful, I figured I'd take it everywhere. But I soon became jaded. It was still cumbersome for the start-up process was slow, and the two-hour battery didn't last long enough.

I was anxious to try the ultralight laptop computers that came out at the end of 1998. Most of them are less than an inch thick and weigh less than three pounds. (My editor at TIME calls them "kneetops".) They run on the Windows CE operating system with applications that are much less powerful than full Windows programs.

Recently, I've been trying two "kneetops" made by Sharp Electronics: the Mobile Pro ($899) and the Mobile Tripad ($999). Both computers have touch-sensitive color VGA screens that make them easier to use. The Pro is lighter and cheaper; but I'd buy the Tripad. It weighs 3.2 pounds, has a larger (9.4-inch) screen and a more convenient keyboard.

Each of the Sharp machines comes with a built-in data-fax modem and a serial port cable so you can attach it to your PC and swap files[5]. The batteries stay charged for a long time; the Pro goes for eight hours and the Tripad for twelve. Best of all, they start up instantly.

Be warned that these new kneetops can't do everything a PC can do. The Windows CE programs are "lite" versions. For example, Pocket Word

doesn't even have a word counter; which is why, when I wrote this column, I had to count words with my fingers and knees.

Vocabulary :

1. svelte [svelt] *adj.* 苗条的
2. obese [əu'bi:s] *adj.* 肥大的
3. jaded ['dʒeidid] *adj.* 疲倦不堪的，厌倦的
4. cumbersome ['kʌmbəsəm] *adj.* 讨厌的，麻烦的，笨重的
5. ultralight [ˌʌltrə'lait] *adj.* 超轻型的
6. swap [swɔp] *v.* 交换
7. column ['kɔləm] *n.* 专栏
8. laptop computer 膝上型电脑
9. lite [lit] *n.* 轻便，简单；*adj.* 轻淡的

Summary :

1998 年年底生产的超轻型膝上电脑大部分厚不足 1 英寸，重不到 3 磅。由于运行的是 Windows CE 操作系统，因而应用范围没有完整的 Windows 程序的范围大。夏普生产的两种机器都装有内置式数据传真调制解调器和一根串口电线，这样就可以使它与 PC 机连接起来进行文件传输。但值得注意的是这些新的膝上型电脑并不能做 PC 机能做的所有事情。'

Notes :

1. kneetop PCs   膝上型电脑。
2. Thinkpad   IBM 公司生产的笔记本电脑。
3. PowerBook   （苹果公司出产的）多存取强力笔记本电脑。
4. When I got my svelte, four-pound IBM Thinkpad last year, it made my old seven-pound Mac PowerBook obese. 去年拿到轻便的重仅 4 磅的 IBM Thinkpad 时，它使原来重达 7 磅的 Mac PowerBook 显得肥胖不堪。
5. Each of the Sharp machines comes with a built-in data-fax modem and

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a serial port cable so you can attach it to your PC and swap files. 夏普
生产的每种机器都装有内置式数据传真调制解调器和一根串口电
线，这样就可以使它与 PC（台式）机连接起来进行文件交换。

Exercises :

1. Which is the lightest kneetop PC? _____
   A. Thinkpad
   B. PowerBook
   C. Mobile Pro
   D. Mobile Tripad

2. The ultralight laptop computers coming out at the end of 1998 run on
   _____.
   A. the full Windows programs
   B. the Windows CE operating system
   C. Windows 98
   D. Windows 95

3. Which is produced by IBM? _____
   A. Thinkpad
   B. PowerBook
   C. Mobile Pro
   D. Mobile Tripad

4. Which statement is right according to the passage? _____
   A. The Pro is the lightest and cheapest kneetop PC.
   B. The batteries of the Tripad stay charged longer than those of the Pro.
   C. The IBM Thinkpad starts up instantly.
   D. The Mac PowerBook was produced by Intel.

5. Which statement is wrong according to the passage? _____

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A. The author has to count words with his/her fingers when he/she uses Pocket Word to write something.

B. The Pro and the Tripad have touch-sensitive color VGA screens as well as a built-in data fax modem and a serial port cable.

C. The IBM Thinkpad is not as good as its expected.

D. The kneetop PCs are so well designed that they can do all that a PC can do.

* *

The screen prompt when resetup after not properly shut down

Microsoft ScanDisk

Because Windows was not properly shut down, one or more of your disk drives may have errors on it.

To avoid seeing this message again, always shut down your computer by selecting Shut Down from the Start menu.

ScanDisk is now checking drive C for errors...

在非正常停机后重新开机时的屏幕提示

微软的磁盘扫描程序

由于 Windows 是在非正常情况下停机，在您的磁盘驱动器上可能会有一些错误。

为了避免再次看到这个消息，通常要在 Windows 的开始菜单上选择关机。

磁盘扫描程序现在检查 C 驱动器中的错误……

1.3　One Computer, One World

（一台计算机，一个世界）

Text :

An environmental activist in Zimbabwe enters her office on the outskirts of Harare[1] and switches on her computer. Moments later she is sharing information with Africa. Halfway across the globe, a researcher in New York City turns to his computer and begins reviewing the proceedings of an international meeting on climate change held that morning in Geneva.

Welcome to the world of computer telecommunications, environ-mental style. Environmental advocates of all shapes and sizes are turning to the computer to help them manage and share information. Faster and cheaper than telephone or mail, computer networks are giving concerned groups and individuals all over the world unprecedented access to two very important things: information and the experience of other environmentalists.

Computer data bases and electronic mail systems have been around since the late 1970s, but virtually all of them were created to address the information demands of the business or legal world. They were also prohibitively expensive.

The advent of a network called EcoNet[2] changed that. Operated by the nonprofit Institute for Global Communications (IGC) out of its headquarters in San Francisco, EcoNet was the first computer network designed for organizations and individuals working on environmental

preservation. It remains the largest. IGC also runs two other networks, PeaceNet and ConflictNet.

EcoNet began in California in 1984 with five computers donated by Apple Computer. It now has more than 2 300 users, most in the United States, and is adding about 170 new users every month. Given the size of the United States, this may appear to be a fairly small group, but it is the one with considerable leverage. More than 60 percent of EcoNet's members are organizations or individuals representing organizations. Indeed, EcoNet's online phone directory, which gives the names and addresses of all of its users, reads like a bibliography of the American environmental movement.

Like other computer telecommunication systems, EcoNet operates over the phone lines, linking two or more computers via a modem[3] and the appropriate software. The actual heart of EcoNet is located in San Francisco, but the system's switchboard is extensive enough for most users in the United States to gain access through a local telephone call.

EcoNet works much like the electronic equivalent of a village square. Part of the system takes the place of a post office. Here, messages and documents-called electronic mail or "E-mail" — can be sent to or received from any subscriber. Another part functions like a series of community bulletin boards. Most of these bulletin boards — or "teleconferences" — are organized according to subject headings, such as "climate change", "rain forests", and "environmental education". They provide an open forum for discussion of a topic, allowing users to reply to existing postings or post a notice of their own.

To get the most up-to-date information on environmental issues in Eastern Europe, for example, you simply request the "conference" option from the main menu after signing onto EcoNet, then enter the abbreviation for the teleconference that deals with Eastern Europe, "reg. europe". You can now go through a list of everything posted on the bulletin board by typing "index", read one of the individual notices by typing its number, or