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柏氏计算机与互联网英语便携词典

Dictionary of Computer and Internet Terms

第六版

Douglas A.Downing, Ph.D.
Michael A.Covington,Ph.D.
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Sixth Edition

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致 读 者

这是一本关于背景知识的书。任何一本杂志都能告诉你最新的知识，而本书能供你查阅你应具备的背景信息。

这也是一本关于现实而非预言的书。你完全可以相信本书描述的技术确实存在并像描述的那样工作。参见词条 VAPORWARE。

本书的目的在于说明而非定义。也就是说，我们要回答你计算机方面的问题而不是仅告诉你每个单词都是什么意思。我们认为你应该知道你的计算机是怎样工作的，而不应满足于会使用它。因此本书不仅涉及商业软件、个人电脑和互联网，而且包括像计算机构造和二进制这样的基础知识。我们还列出了不少有用的参考数据表。

作为词条收入本书的单词用于解释其他词条时一律用小体大写字母标出。这种相互参考模式能使你很快找到与你感兴趣的主题有关的所有词条。例如，想知道计算机工作原理，可查看 COMPUTER ARCHITECTURE 和该词条下的参考词条。

书后附有符号直观图典。在那里你可以查到 Σ、≈ 或 • 的读法。

本版新增 600 多词条和不少插图。我们三人谨向为我们提供设备和住所的乔治亚大学和西雅图太平洋大学致谢。同时感谢为我们提供 60 年代数据处理技术的罗伯特·唐宁先生。还要感谢凯西和戴伦·卡温顿，因为他们在父母编写本书的过程中表现出了耐心，同时他们还是本书的咨询员和插图作者。

下面的网页能连接到本书提到的许多网站：

http://paul.spu.edu/~ddowning/dcitlinks.html

本书中的不少词是注册商标。它们的法律地位不是本书要讨论的内容。关于某一商品的详情，请查阅生产商的产品说明书。

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TO THE READER

This is a book of background knowledge. Any magazine can tell you what's new this week or this month; look here for the background information that they thought you knew already.

This is also a book about reality, not predictions. You can be confident that the technologies described in this book actually exist and work as described. *See also* VAPORWARE.

Our goal in writing this book is to *explain*, not just *define*. That is, we want to answer your questions about computers, not just tell you what words mean. We feel you have a right to know how your computer works, not just how to use it. Thus we cover not only business software, personal computers, and the Internet, but also fundamentals such as computer architecture and binary arithmetic. We have included many tables of useful reference data.

Throughout, we use SMALL CAPITALS to mark important words that are defined elsewhere in this book. By following cross-references, you can quickly find all the entries that pertain to whatever interests you. For example, to learn how a computer works, look up COMPUTER ARCHITECTURE and follow the references.

Be sure to notice the visual dictionary of symbols at the end of the book. If you don't know what Σ or $\approx$ or $\bullet$ is called, don't worry; you can look it up there.

This edition adds over six hundred new entries and many new illustrations. All three of us want to thank the University of Georgia and Seattle Pacific University for access to facilities and for accommodating us as we worked on this project. Also, we'd like to thank Robert Downing for his help with 1960's data processing concepts. Many thanks also to Cathy and Sharon Covington, both for their patience while their parents were working on this book and for their help as consultants and illustrators.

We will maintain a web page with links to many of the sites mentioned in this book at:

`http://paul.spu.edu/~ddowning/dcitlinks.html`

CONTENTS

NUMBERS

3D *see* THREE-DIMENSIONAL GRAPHICS.

16-bit program a program that runs on Intel microprocessors using only the features of the 8088 or 80286, with 16-bit internal registers. Most DOS applications and many Windows 3.1 applications are 16-bit programs. *Contrast* 32-BIT PROGRAM.

24-bit graphics graphical images that use 24 bits to represent each color, so that each color is made by mixing red, green, and blue, each of which is measured on a scale of 0 to 255, and a total of 16,777,216 colors is available. Often called "millions of colors."

32-bit program a program that uses the 32-bit internal registers and large memory capacity of the Intel 386, 486, Pentium, or other compatible microprocessor; generally faster than a 16-bit program doing the same computation on the same CPU. *Contrast* 16-BIT PROGRAM. *See also* WIN32S.

386 the first Intel microprocessor with 32-bit internal registers and good support for multitasking and extended memory; able to run Windows 95, but too slow for most present-day software. *See* MICROPROCESSOR; SX; DX.

486 an Intel microprocessor similar to the 386 but faster; predecessor of the Pentium. *See* MICROPROCESSOR; SX; DX.

640K limit *see* DOS 640K LIMIT.

2000 *see* YEAR 2000 PROBLEM.

8088 the Intel microprocessor used in the original IBM PC (1981). It has 16-bit registers and an 8-bit external bus. *See* MICROPROCESSOR.

68000 the series of Motorola microprocessors used in the Apple Macintosh. *See* MICROPROCESSOR.

80286 the Intel microprocessor used in the IBM PC AT (1984). It is faster than the 8088 and supports extended memory but does not have 32-bit registers or the built-in ability to emulate multiple 8088s; for that reason, multitasking operating systems did not become common until the 386 was introduced. *See* MICROPROCESSOR.

80386, 80486 unofficial names for the Intel 386 and 486 microprocessors. *See* 386, 486 and references there.

A

A abbreviation used in HTML to indicate an anchor, a link to another location. For an example, *see* HTML.

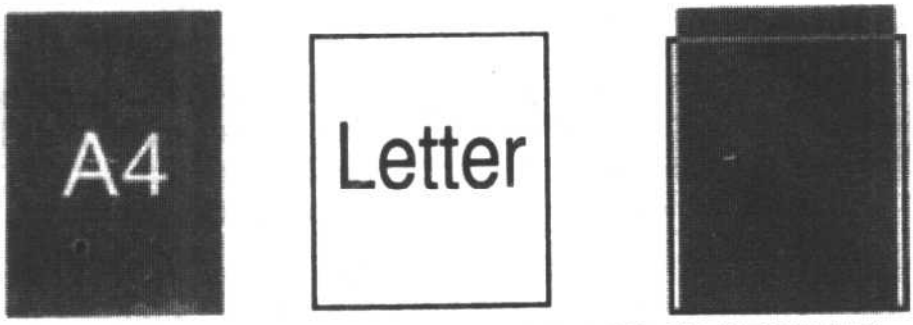

FIGURE 1. A4 PAPER IS LONGER AND NARROWER THAN LETTER SIZE

A4 the standard size of typing paper in Europe, 210 × 297 mm, about $8\frac{1}{4} \times 11\frac{3}{4}$ inches. American typing paper is $8\frac{1}{2} \times 11$ inches.

A4 is part of an ISO standard for paper sizes, chosen so that A0 paper (840 ×1189 mm) has an area of 1 square meter and each size can be cut in half to make the next smaller one. Thus, the area of a sheet of A4 paper is $\frac{1}{16}$ m^2. For table, see PAPER SIZES (ISO).

A/B switch a two-way switch for parallel or serial port cables. It can be used to connect two printers or modems to one computer, or two computers to one printer or modem. Using an A/B switch requires some care because the computer does not know when the switch has been flipped; it is usually necessary to set the software to use the devices that are actually connected at any particular time.

ABEND (**ab**normal **end**) abnormal termination of a program due to an error condition, such as running out of memory or dividing by zero. The term is used only on IBM mainframes.

abort to cancel an action or command.

Abort, Retry, Fail? an error message displayed by DOS and similar operating systems when a disk is unreadable or some other input or output operation is physically impossible. An earlier version said, "Abort, Retry, Ignore?"

The user should press **a** to abort (cancel) the operation, **r** to retry the operation (usually the best choice if it's a disk problem), or **f** to make the operation fail, i.e., let the program continue running but notify it that the operation was not performed. Pressing **f** is usually

a risky move because not all programs behave correctly after a failed operation. *See also* GENERAL FAILURE, INVALID MEDIA.

ABS the function that calculates absolute value in BASIC and other programming languages. It converts negative numbers to positive while leaving positive numbers and zero unchanged. For example, `ABS(37)` = 37; `ABS(-37)` = 37; `ABS(-2.5)` = 2.5; `ABS(1985)` = 1985; `ABS(0)` = 0.

absolute address

1. a fixed location in the computer's memory. *See* COMPUTER ARCHITECTURE; SEGMENT; OFFSET.

2. in a spreadsheet program, a cell address that refers to a fixed location that will not change when a formula is copied to another location. In Lotus 1-2-3 and Excel, absolute addresses are indicated by placing a dollar sign before the column and row indicator. For example, if the formula `2*$D$7` is entered into a cell, then `$D$7` is an absolute address. If this formula is copied to another cell, the address `$D$7` will not change. *Contrast* RELATIVE ADDRESS.

absolute URL a URL that contains the full address, identifying the machine, directory, and file. For example, if a web page contains the link:

```
<a href="http://www.tcoll.edu/~kstanwell/doc1.html">
```

it will find `doc1` in the public directory of user `kstanwell` at the computer labeled `www.tcoll.edu`. *Contrast* RELATIVE URL.

abstract

1. a summary of a document or file. For example, in Java programming, a JAR file contains class files together with an encrypted abstract (summary) calculated with a kind of hash function. If one of the class files is tampered with, the hash function calculated from the downloaded files will not match the hash function in the abstract, so the verifier will not allow the class to load. *See also* MANIFEST.

2. not tied to a specific pre-existing example. For example, an abstract data type is one that does not correspond exactly to anything in the architecture of the computer; instead, it is declared by the programmer to suit the purposes of the program.

In Java, a class is declared abstract if there will not be any data or methods specific to that class; instead, it is to be used as a superclass for other classes that will have specific data. An abstract class cannot be instantiated, but other classes can extend it.

accelerator a device that makes an operation run faster. For example, a graphics accelerator is a card that contains built-in circuits for performing graphics operations, allowing the system to render graphics more quickly than would be the case if the microprocessor bore the entire load. *See* PC CARD.

accents marks added to letters (as in *é è ê ë*) to indicate differences of pronunciation; said to have been introduced by Aristophanes of Byzantium c. 200 B.C. to preserve the pitch accent of ancient Greek, which was dying out. The only major languages that do not require accents are English and Latin.

Most computer software treats a letter with an accent as a single character. More sophisticated systems represent the accent and the letter separately, so that any accent can be put on any letter.

acceptable-use policy a policy established by the owner of a computer system, or by an Internet service provider, concerning acceptable use of the computer and network facilities. Acceptable-use policies should generally include the following points:

1. Users are accountable for what they do. Deliberate snooping, harassment, or interference with other users will not be tolerated, nor will any deliberate unauthorized activity.

2. The computer shall be used only for its intended purposes. For example, you generally can't use your employer's computer to run another business on the side; nor can you run private money-making schemes on a computer owned by a state university. Employees are accountable for how they use their time at work.

3. Passwords must be kept secret. (*See* PASSWORD.)

4. The service provider has the right to suspend accounts that are being misused. People accused of misconduct have the right to a fair hearing.

5. Users must abide by the acceptable-use policies of newsgroups and other electronic discussion forums, which are mostly paid for by other people. On the Internet you are always someone's guest.

6. Chain letters and mass e-mailing are expensive, unwelcome, and generally not permitted. The correct way to reach a wide audience is to use an appropriate newsgroup.

7. Cyberspace is not above the law. Practices that are illegal in the real world, such as forgery, gambling, obscenity, and threatening or inciting violence, are still illegal when you do them on the computer.

8. Losing an account is not necessarily the only penalty for misconduct. The service provider cannot shield users from criminal or civil liability when they break laws or deliberately harm others. Really destructive computer abusers generally have several accounts and must be stopped by other means.

access provider (**Internet service provider**) a company that provides its customers with access to the INTERNET, typically through DIAL-UP NETWORKING. Major access providers in the United States include Microsoft, Netcom, Mindspring, and America Online. CompuServe and Prodigy provide Internet access among their other services.

Typically, the customer pays a monthly fee, and the access provider supplies software that enables the customer to connect to the Internet by modem. Some access providers also provide file space for pages on the WORLD WIDE WEB and FTP file storage.

access time the amount of time needed by a memory device to transfer data to the CPU. It is measured from the instant that the CPU requests data until the instant that the CPU receives the data. The fastest access times are those of RAM chips (typically 70 nanoseconds = 7×10^{-8} second); video RAM is somewhat slower, and disk drives are slower yet. For example, the access time of a hard disk is typically between 10 and 20 milliseconds, and that of a CD-ROM drive is more like 200 milliseconds. The access time of a CD-ROM drive sets a limit on the speed with which video or other complex data stored on the CD can be displayed.

accounts payable bills that need to be paid.

accounts receivable money that is owed to a business and can be counted as a financial asset.

accumulator the register where a computer stores the result of an arithmetic operation. For example, in 8086 assembly language, the instruction `ADD AX,10` means "Add 10 to the number in the accumulator, and leave the result there." Some computers can use more than one register as an accumulator. *See* COMPUTER ARCHITECTURE; ASSEMBLY LANGUAGE.

ack an abbreviation for ASCII code 6, which stands for "acknowledged" in older teletype systems and in XMODEM and some other protocols. ACK is sent when a data packet has been received correctly and the receiving computer is ready for the next one. *Contrast* NAK.

acquire to obtain a file (for editing) from an ANALOG source, such as a SCANNER or video input (*see* FRAME GRABBER). Similar to IMPORT, except that the image is not coming from a file.

Acrobat software from ADOBE SYSTEMS, INC. for creating and reading PDF files. Acrobat Reader enables users to view and print PDF files that they receive from others; it is distributed free from `http://www.adobe.com`. Acrobat Distiller, a commercial product, creates PDF files by "distilling" (converting) existing PostScript files and by functioning as a printer driver so that any application can "print" to a PDF file. *See* PDF.

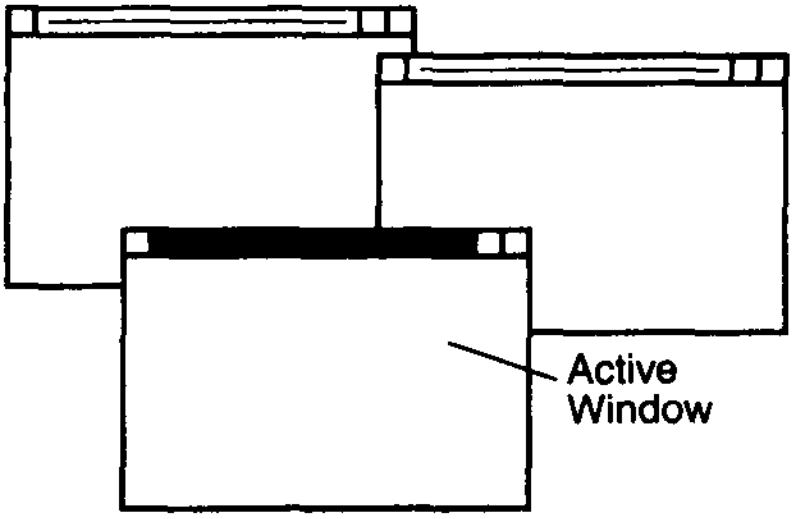

FIGURE 2. ACTIVE WINDOW

acronym a word formed from the initial parts of other words. For example, BASIC stands for **B**eginner's **A**ll-Purpose **S**ymbolic **I**nstruction **C**ode.

activate

1. to choose a window in which you want to type. This is done by moving the mouse pointer into the window and clicking one button. In some operating systems you must click on the window's title bar. *See* WINDOW.

2. to start a piece of software by double-clicking on its name or icon. *See* CLICK; ICON.

active color the color currently selected (in a painting or drawing program). Whatever tool is being used will paint or draw in the active color.

Active Desktop in Windows 98 and its derivatives, the ability to use a WEB PAGE as the desktop, i.e., the screen itself, not just as one of the programs running on it. This makes it easy to display a web page that is constantly updated, such as weather or stock price information, without having to start and run a BROWSER. *See also* DESKTOP; WORLD WIDE WEB.

active matrix a type of liquid crystal display (LCD) that produces higher contrast than earlier passive-matrix displays by incorporating transistors into the LCD matrix.

active window the window currently in use, the one in which the user is typing, drawing, or making menu choices. There can only be one active window at a time. *See* WINDOW; ACTIVATE.

ActiveX a Microsoft system for component software for Windows that is an updated version of OLE (*see* OBJECT LINKING AND EMBEDDING). ActiveX allows executable code to be included in a document

such as a word processing document or a web page. An ActiveX control can be written in a programming language such as C++ or Visual Basic. An advantage of ActiveX is the ability to re-use software components. For an alternate way to include executable code in a web page, *see* JAVA; for an alternate software component system, *see* JAVABEAN.

actor (animation program) an object that moves in a specified manner along a PATH.

actual parameter the value actually passed to a function or procedure in a programming language. For example, if you compute **ABS(X)** and the value of **X** is −2.5, then −2.5 is the actual parameter of **ABS**. Contrast FORMAL PARAMETER. For an example *see* PARAMETER.

FIGURE 3. AUGUSTA ADA BYRON (1815–1852)

Ada a programming language developed in the late 1970s for the U.S. Department of Defense. It is named for Augusta Ada Byron, Countess of Lovelace, who worked with Babbage's mechanical calculator in the nineteenth century.

Ada is based on Pascal, with some influence from PL/I and ALGOL 68. Comments begin with two hyphens and continue to the end of the line. Every statement ends with a semicolon even if it is embedded within another statement (such as an if-then or loop-end loop structure); in this respect Ada is like PL/I and C and unlike Pascal.

Ada subprograms can be compiled separately and linked together before execution. In the sample program, the **with** and **use** statements specify that this program uses a library of precompiled subroutines called **I_O_PACKAGE**.

Much of the original motivation for designing Ada was the need for a better language for real-time programming, that is, programming computers to control automatic or semiautomatic equipment. Toward this end, Ada allows the programmer to create multiple tasks that run concurrently (*see* TIMESHARING), to pass signals from one task to another, and to introduce controlled time delays.

```
with I_O_PACKAGE;
procedure FACTORIAL is
  use I_O_PACKAGE;
  -- This program reads a number and
  -- computes its factorial.
  NUM, FACT, COUNT: INTEGER;
begin
  GET(NUM);
  FACT := 1;
  for COUNT in 2..NUM loop
    FACT := FACT * COUNT;
  end loop;
  PUT("The factorial of ");
  PUT(NUM);
  PUT(" is ");
 PUT(FACT);
end;
```

FIGURE 4. AN ADA PROGRAM

adaptive technology *technology that helps people work around physical limitations.* Computer-related examples include magnified screen displays, speech recognition devices, and keyboards with latching shift and control keys for people who can press only one key at a time.

ADC *see* ANALOG-TO-DIGITAL CONVERTER.

A/D converter *see* ANALOG-TO-DIGITAL CONVERTER.

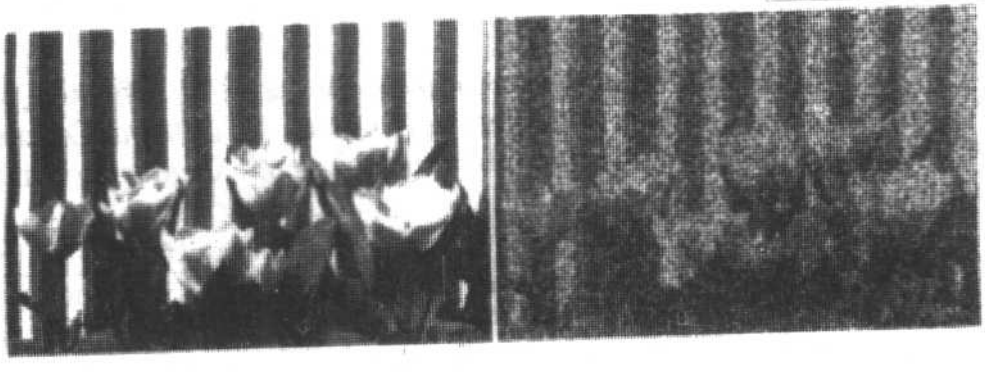

FIGURE 5. ADD NOISE FILTER ADDS TEXTURE TO IMAGE

add noise a photopaint filter that adds texture to a picture. Since the overall effect is rather unpredictable, it may be wise to save a copy of the image before applying this filter.

address

1. a number or bit pattern that uniquely identifies a location in a computer memory. Every location has a distinct address.

2. a letter and number identifying the column and row of a cell in a spreadsheet. *See* RELATIVE ADDRESS; ABSOLUTE ADDRESS.