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# Dictionary of Computer and Internet Terms

Tenth Edition



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- More than 3,200 key terms defined and explained, many with helpful illustrations and tables
  - Practical guidance for the business software users, including computer security, law, and ethics
  - Computer science principles and programming examples in the most widely used computer languages
  - Includes new media, digital photography and audio, Internet culture and humor
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Douglas Downing, Ph.D., Michael Covington, Ph.D., and  
Melody Mauldin Covington

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## Tenth Edition

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## TO THE READER

Computers are no longer just for specialists. Today, computing is not just a profession and a hobby; it is also a tool used in virtually all human activities.

That's why we've compiled this book of background knowledge. Its purpose is to tell you the things other people think you already know.

We design this book to have a convenient size so it can be easily carried around. In compiling a book this size, we have had to be selective. The quickest way to identify a word that you can't find in a book is probably to do a web search (*see* SEARCH ENGINE). Also, some terms are almost always abbreviated, and in that case you should look for the abbreviation rather than the full term.

Much has changed since the first edition of this book was published more than twenty years ago. New terms are being invented every day. We regularly update the book, and this edition contains new entries on a variety of topics including Windows Vista and Mac OS X. We've also cut out material that was showing its age.

Terms are marked *slang* or *humorous* if they are seldom used in serious writing. They are marked as *jargon* if, in our estimation, they are somewhat pretentious new names for old concepts and are not likely to endure. We provide occasional *Usage notes* to explain grammar, spelling, and proper use of words, such as the exact difference between *disc* and *disk*.

Throughout, we use SMALL CAPITALS to mark important words that are defined elsewhere in this book. By following cross-references, you can quickly find many entries that pertain to whatever interests you. Here are some entries you may wish to start with to learn about particular topics:

- Internet culture: CHAT ROOM
- right and wrong: COMPUTER ETHICS
- safe computing: COMPUTER SECURITY
- solving exceptionally difficult problems: ARTIFICIAL INTELLIGENCE
- productively using computers in business and daily life: APPLICATION PROGRAM
- listening to music: DIGITAL MUSIC
- taking pictures: DIGITAL CAMERA
- creating web pages: HTML
- writing computer programs: PROGRAMMING LANGUAGE
- software that controls a computer: OPERATING SYSTEM
- how a computer works: COMPUTER ARCHITECTURE
- networking and the Internet: INTERNET
- connecting computers wirelessly: WIRELESS COMMUNICATION
- electronic components: TRANSISTOR

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

All four 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 the project. We also want to thank Robert Downing for help with 1960s data processing terminology; Sharon Covington for help with current Internet culture; and Brantley Coile of Coraid, Inc., for permission to adapt material from Coraid's glossary of networking and data storage.

Many of the words used in this book are registered trademarks. We have made no attempt to determine or report their legal status. For further information about any product name, consult the manufacturer's literature.

Here  $X \leftarrow \square$  means “read something from the keyboard into  $X$ ,” and  $X$  becomes an array if the user types a series of numbers rather than just one. Then  $\rho X$  is the number of elements in  $X$ , and  $(+X)$  is the operation of addition distributed over  $X$ , i.e., the sum of all the elements. The last line of the program is an expression that defines the result.

**app** (*slang*) APPLICATION PROGRAM.

**append** to put something at the end of something else, for example, to append information at the end of a file or append additional files at the end of a tape.

**Apple** an influential manufacturer of personal computers and entertainment equipment. The company, located in Cupertino, California, was founded by Steve Jobs and Steve Wozniak, who began work in a garage. (Web address: [www.apple.com](http://www.apple.com).)

The Apple II, introduced in 1977, was one of the earliest popular microcomputers. It was based on the 8-bit MOS technology 6502 microprocessor. The Apple II was widely used in educational institutions, and the first microcomputer spreadsheet program (VisiCalc) ran on the Apple II.

In 1984 Apple introduced the Macintosh, which was the first widely used computer with a graphical user interface (GUI). The Macintosh became widely used for desktop publishing and artistic applications, and it became one of the two main standards for microcomputers. Apple produces both the hardware and the operating system software for the Macintosh (which is very different from the situation with Windows-based computers, the other main standard). *See* MACINTOSH. Apple also produces the QUICKTIME software for playing audio and video on microcomputers, now used on Windows computers as well as the Macintosh.

Recent big sellers include iPod digital music player and the iPhone (which includes a portable phone, web browser, and music and video player). In 2003 Apple introduced the iTunes music store, allowing users to legally download songs for 99 cents each. *See* DIGITAL MUSIC; IWORK.

**Apple menu** (Macintosh) the menu at the far left of the top menu bar that holds log out options, System Preferences, Recent Items list, and other controls.

**applet**

1. (*obsolete usage*) a small application program that is inexpensive and designed to do a small, specific job. Most operating systems come with several applets, such as a calculator, a calendar, and a note editor.
2. an application program that is downloaded automatically through a World Wide Web browser and executed on the recipient's machine. Applets are normally written in Java. *See* WORLD WIDE WEB; BROWSER; JAVA.

**application** *see* APPLICATION PROGRAM.

programs for word processing, spreadsheets, presentations, graphics, and databases. It is maintained by a worldwide organization of programmers and contributors who provide the software free-of-charge. Some users report that the OpenOffice.org user interface isn't as polished as its commercial rival, however user training and support is available at [www.openoffice.org](http://www.openoffice.org).

**OpenType** a format for type fonts on personal computers developed by Microsoft in the late 1990s as a combination of TrueType and Adobe Type 1. (See TRUETYPE; TYPE 1 FONT.) OpenType support is built into Windows 2000 and its successors.

**Opera** a popular independent web browser created by Opera Software ([www.opera.com](http://www.opera.com)), using W3C standards. See BROWSER; FIREFOX; INTERNET EXPLORER.

**operands** the items on which a mathematical operation is performed. For example, in the expression  $2 + 3$ , the operands are 2 and 3, and the operation is addition.

**operating system** a program that controls a computer and makes it possible for users to enter and run their own programs.

A completely unprogrammed computer is incapable of recognizing keystrokes on its keyboard or displaying messages on its screen. Most computers are therefore set up so that, when first turned on, they automatically begin running a small program supplied in read-only memory (ROM), or occasionally in another form (see BOOT). This program in turn enables the computer to load its operating system from disk, though some small microcomputers have complete operating systems in ROM.

Under the control of the operating system, the computer recognizes and obeys commands typed by the user. In addition, the operating system provides built-in routines that allow the user's program to perform input-output operations without specifying the exact hardware configuration of the computer. A computer running under one operating system cannot run programs designed to be run under another operating system, even on the same computer. For articles on specific operating systems, see CMS; CPM; LINUX; MAC OS; MS-DOS; MVS; OS/2; OS/360; UNIX; WINDOWS (MICROSOFT); Z/OS.

**operations research** the mathematical modeling of repetitive human activities, such as those involved in traffic flow, assembly lines, and military campaigns. Operations research makes extensive use of computer simulation.

**opt out** to choose not to receive mass e-mailings. When giving your e-mail address to an online merchant, look carefully for an opt-out CHECKBOX somewhere on the screen, and be sure to opt out of mailings you do not want to receive.

Many spammers falsely describe their mailing lists as opt-out lists; they ignore requests to opt out, because any reply tells them they have