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WAIS

See

MacWAIS

WAN

See

Wide Area Network

War Games

See

Strategy Games

Warcraft: Orcs and Humans

Warcraft builds on the premise of great **strategy games** such as **Empire Deluxe** and Civilization, placing you in charge of a feudal village at war with mythical Orcs. Although it is mainly a war strategy game, Warcraft also incorporates the cause and effect play of games such as **SimCity**. You start from scratch, building army barracks to train soldiers, lumber mills and

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blacksmiths to build houses and roads, and so on.

Your laborers are peons who, in addition to accomplishing menial tasks such as construction and mining, are also too stupid to fend for themselves against enemy soldiers and orcs and must be protected. As the game goes, you can see the complication in deciding which of your men will protect workers, how many you need to train, which can attack and so on. Like **Spaceward Ho!** and **Chaos Overlords**, Warcraft supports network play so you can play against human opponents, as well as against the computer.

See Also

Allied General; Chaos Overlords; Empire Deluxe; Sid Meier's Worlds; Pax Imperia; Spaceward Ho!; Strategy Games; V for Victory

Warping

See

Morphing

Waterless Printing

In waterless printing, a silicone coating rather than water is used on the offset printing plate to repel ink. Waterless printing has several benefits over regular offset printing. It helps reduce **dot gain**, enabling finer **halftone** screens to be used; and seems to provide better ink coverage with

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faster **makeready** and less environmental impact.

See Also

Printing Methods, Traditional

Wave (.WAV)

The .WAV (pronounced WAVE) sound file format is native to the PC and cannot be played on a Macintosh without special software (QuickTime 2.2 may add support for WAV files). Some sound conversion software, such as Synclavier's **S/Link**, can convert a .WAV file. Use the **AIFF** file format instead.

See Also

AIFF; File Formats; SND

Wayne, Ron

Ron Wayne is one of the three founders of Apple Computer. When **Steve Wozniak** and **Steve Jobs** formed their partnership on April Fools' Day 1976, Wayne was right there with them. Wayne worked with Jobs at Atari (as chief field service engineer), and Jobs convinced him to become a partner by offering him 10 percent of Apple's stock.

Wayne worked on the documentation for the original Apple I, and he

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designed the original **Apple logo** , a picture of Isaac Newton sitting under an apple tree. Apple did not use this logo for very long; Jobs had Rob Janov design the logo we know today.

After the first 50 Apple I computers were sold to **The Byte Shop** for a small profit, Jobs wanted to build more, which meant going into debt. Wayne worried about this and wanted out; he did not want responsibility for 10 percent of Apple's debt. He resigned and received \$500 for his share of Apple. Later, he would receive just over \$5000 when Apple incorporated and purchased the partnership to ensure that he would have no possible legal claim against Apple in the future.

See Also

Apple Computer, History; Apple logo; Byte Shop, The; Jobs, Steve; Wozniak, Steve

WDEF

See

Code Resource

WDEF Virus

This virus infects only the invisible Desktop file used by the Finder. WDEF can spread just by mounting a disk on an infected Macintosh. The virus

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cannot affect System 7 disks. On other versions of System, WDEF causes system crashes and font problems.

See Also

ANTI Virus; CDEF Virus; CODE 1 Virus; CODE 352 Virus; Frankie Virus; INIT 17 Virus; INIT 1984 Virus; INIT 29 Virus; INIT 9403 Virus; INIT-M Virus; MacMag Virus; MBDF Virus; MDEF Virus; nVIR Virus; Scores Virus; T4 Virus; WDEF Virus; ZUC Virus

Web Browser

Software that enables a user to *browse* (locate and examine) information on the Internet's **World Wide Web**.

A Web browser provides a *graphical user interface* to the **Internet** in general, and the World Wide Web in particular. A browser serves as a lens through which a user can see the information in cyberspace, whether that information consists of **inline graphics**, text formatted with **HTML**, sounds, video, or **Java** "live objects."

Mosaic, **MacWeb**, **TCP/Connect**, and **Netscape** are examples of popular browsers that access and process information on the Internet. All of these browsers can be downloaded as freeware from the Internet using an **FTP** client such as **Fetch** or **Anarchie**.

All browsers connect to remote host computers, request **HTML** or other files,

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display text and graphics, and permit the downloading of files. Browsers differ in speed with which they process data. Some programs not only download a Web page to a user's computer screen, but also store a copy of that page in disk **cache** for faster access should you decide to revisit that page

Browsers also differ in the suite of tools they give the user. These tools include the buttons, menus, and text finders that track where you have been online, that find out where you want to go, and that provide you information such as the size of a file or progress reports on how quickly that file is being accessed.

A *browser*, like a newspaper, is an interface to information—but with one big difference. A newspaper takes a large amount of preselected content and arranges that content with page numbers and an index to help you select what you want to read. A browser is also a tool and a conduit for information.

The difference between a browser and a newspaper is that, although the Web and the Internet have a few good indexes (such as **Yahoo** and **Lycos**) and searching tools (such as **InfoSeek**), the selection is totally up to you. That's why having a good graphical interface to online information is so important.

See Also

Anarchie; Cache; Client; Fetch; FTP; HTML; Inline Graphics; Internet; InfoSeek; Java; MacWeb; Mosaic; Netscape Navigator; StuffIt Expander; Web Browser; World Wide Web; Yahoo

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Web Page

The basic document available for viewing information on the **Internet's World Wide Web** .

A Web page (also sometimes called a **home page**) consists of the following elements: text, graphics, **hypertext** links to other Web pages or files, and links to sounds or movies. Web pages are written using the **HTML** (HyperText Markup Language) **programming** language, which is essentially a set of instructions so the **browser** knows how to display the page (and its graphics and links) on-screen. An **HTML** file (which is text-only **ASCII**) consists of these instructions as well as the text that appears on-screen when that page is viewed.

Web pages are stored on Web **servers** that are constantly connected to the **Internet** . Each Web page has its own unique **URL** (Uniform Resource Locator) address, which looks something like this:

<http://www.mcp.com/hayden/index.html>

When a **client** machine requests a Web page from a **server** via that **URL** or via a **link** on another Web page, the **server** sends out the **HTML** document as well as all the graphics that appear on that page. The user's **browser** then interprets the **HTML** and lays out the text and graphics on-screen.

Web Page, Graphics and Multimedia Graphics on Web pages appear in two primary formats: **GIF** and **JPEG** . All images appear on-screen at the

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resolution of the monitor on which they're displayed, so high-resolution images are unnecessary. Graphics can be displayed inline, meaning that they appear right within a line of text, or they can be displayed on their own as graphics files connected to a Web page by a **link**.

Sound is possible via a Web page via **linking**, because no **browser** is currently capable of playing sounds directly. Linking on a sound file generally downloads the file to your hard drive, whereupon the **browser** usually calls up another application (such as **SoundMachine**) to play the sound. Audio files on the Internet come in two types: self-contained files or streamed files. Self-contained files must be downloaded completely before being played; these sounds generally appear in one of the following formats: **AIFF** (.au), **WAV** (.wav), and **MPEG II** (.mpg2). **RealAudio** is an example of a streamed file, which is played *while* downloading, not after.

Animation and video must be downloaded the same way sound is. Video file formats include **MPEG I** (.mpg or .mpeg) or **II** (.mpg2), **QuickTime** (.mov), and **AVI** (.avi). There are also new streaming video formats now emerging.

Web Page, Interactivity As the Web evolves, Web pages are getting increasingly interactive. Forms enable users to fill out and send in forms electronically. CGI scripts (written in C, Perl, or AppleScript) running on Web servers enable the server to respond to those forms immediately. They also enable rudimentary animation directly on a Web page, customized Web page creation based on specific situations, and services such as online purchasing and voting.

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Web Page, Text and Links Text on a Web page is quite limited in its formatting options. HTML provides little control over fonts and their presentation. For example, you can specify general headings, but not specific font size. Each browser interprets HTML a little differently, so Web pages will vary as seen on various computers.

Links are created using HTML, and certain words or graphics can be made to link to other Web pages, another location in the same Web page, Gopher or FTP sites, or individual files such as applications, documents, images, sounds, and movies. The following figure shows a Web page and the HTML that created it.

Web Page, How to Design The accessibility of HTML and the World Wide Web makes it possible for anyone to engage in page layout, no matter what their level of design experience. Although the idea of what constitutes “good design” varies widely, some general principles can be applied.

Two levels of page design are relevant to the Web:

- *Basic design*, which uses rudimentary HTML markup commands such as **heading s**, **paragraph s**, **lists** , and **inline images**.
- *Advanced design*, which uses **frames** , **tables** , **Java applets** , **imagemap s**, and other advanced features.

Web page designers trying to achieve either level of design can benefit from applying the following principles:

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- Less is more. Don't make a Web page too crowded. Don't try to fill every bit of available space. Use only one or two images and a simple **background** .
- Keep files small. Remember that much of your audience is connecting to the Web with a 14.4Kbps or 28.8Kbps **modem** . No matter how well a page is put together, if it takes too long to appear on-screen, the reader will move on to another site.
- Tell your audience how big an image is before downloading it.
- Provide a text-only alternative to your page and alt tags for graphics.
- Conform to a page grid.
- Put your personality into your page. The contents should convey something about the author's personality without making the layout hokey or overcrowded.
- Avoid long rows of buttons. Instead, provide simple hypertext links that load on-screen more quickly.
- Scan photos at 72 dots per inch and keep the file size as small as possible. Use the **RGB** color model when scanning.

Whatever approach is used, the design and content of a Web page should complement each other, and the design will lead the reader's eye to focus on the most important elements.

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See Also

AIFF; AppleScript; Applet; .AU; AVI; Browser; C; CGI; Client; Forms; FTP; GIF; Gopher; Home Page; Host; HTML; HTTP; Hypertext; Internet; JPEG; Link; .MOV; MPEG; Multimedia on the Internet; QuickTime; RealAudio; Server; SoundMachine; URL; .WAV; World Wide Web

Web Servers

See

Workgroup Servers, Macintosh Family

Web Site, How to Organize

A Web site can either serve as an interface to a **server** that serves up documents on the **Internet** 's **World Wide Web** or can be a set of documents produced by a single publisher. Also referred to as an information “web” or a *Web presentation*.

Organizing a Web site is important because the clearer your information is organized, the more “hits” your Web site will receive, and the longer your visitors will stay.

The first step is to do some clear thinking and planning along the following topics:

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1. Decide what you want to say. Analyze your content and distill your message or your goal into one or two sentences or main points.
2. Identify your goals. Decide whether you want more customers, more attention, or just want to speak out.
3. Assemble your contents. Make a list so you know how many documents you have and begin to organize them or get an idea what you want to do with them.
4. Decide on what type of site you want. Your site might fall into one of the following categories:

Types of Web sites

Type Description

Personal	Who you are, what you do, why people might want to know about you.
Recreational	News about a club or group you belong to.
Institutional	An online “front door” or welcome page for a business or large corporation.
Educational	Teaching tools or information published by a school, university, or organization.
Informational	Writing, documentation, news, museum holdings.

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Commercial	A shopping mall, a store, a service, merchandise, anything you have to sell.
Marketing	Surveys, polls, opinion seeking.
Creative	Short stories, poetry, art.
Societal	Political concerns, social causes, special interests.

5. Decide who will maintain your site. You can do the work yourself, or hire someone to handle the upkeep.
6. Set your budget.
7. Know where the page fits in your company or organization's communications program.
8. Divide your contents into five to seven main categories that you can present in your Web site's home page. Each category in the list can be a hypertext link leading to other documents on your site.

It's a good idea to provide consistent information on each page in a Web site that helps the reader navigate through topics and to the home page. Many readers will come to a document in your Web by chance and will want navigational links to get to your home page or to previous or next documents in a series.

Each page can also contain standard information indicating when a document was last updated, the email address of the **Webmaster** (the person

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who maintains the site), or the name of your company or organization.

Web site design should be simple. Too many **links** means readers have to click only once to get anywhere; but if, as a result, they end up with many possible places to go and no guidance, they will be confused.

On the other hand, having only a few general categories in the beginning means that someone will have to make link after link before getting to a specific bit of information.

Readers should be able to get to the “bottom level” of a Web site in three to five clicks. Of course, that will vary depending on the amount of information your site contains.

Whenever possible, keep documents short (one or two computer screens' worth of information is sometimes suggested). It is preferable to link a series of short documents together rather than have long ones that are slow to load on a Web browser's screen.

See Also

Home Page; HTML; Hypertext; Internet; Link; Web Browser; Web Page; World Wide Web

WebCrawler

This **Internet search engine** was developed by Brian Pinkerton and originated as an experiment at the University of Washington in 1994. Today it

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is operated by **America Online** . It indexes the title of a document, as well as the full text . The results are arranged by their relevance to your original query. Because it returns only the title, it is important to make the search as specific as possible by including the most important keywords. WebCrawler also has a function that lets you randomly search the Internet and retrieve documents, as well as its own estimate of the number of Web servers in Cyberspace.

The WebCrawler home page is at <http://www.webcrawler.com/>.

See Also

America Online; Excite; InfoSeek; Internet; Lycos; Search Engine

WebSTAR/MacHTTP

Two software packages, written by Chuck Shotton, that enable a Macintosh to function as a **World Wide Web server**.

MacHTTP was Shotton's original package for enabling a Macintosh to serve documents, graphics, and other data on the Web using **HTTP** (HyperText Transfer Protocol). StarNine Technologies bought the rights to MacHTTP and now offers it and a similar, more powerful commercial version called WebSTAR.

MacHTTP is regarded as an entry-level, easy-to-use way of turning a Macintosh into a Web server. WebSTAR is a more powerful application for

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experienced **Webmaster** s. WebSTAR comes with a number of **CGI** plug-in modules to process **form** and **imagemap** data and perform other functions.

WebSTAR is PowerPC native, and requires a full **TCP/IP** connection to the **Internet** . The software also requires 8MB of RAM (optimal), and System 7.0.1 or greater.

See Also

Apple Internet Server Solution; Apple Network Server; CGI; Forms; Imagemap; HTTP; Internet; MacTCP; TCP/IP; Web Browser; Webmaster; Web Server; Web Site; World Wide Web

Welcome to the Future

See

Adventure Games

What-If Calculations

A **spreadsheet** enables you to distill a screen full of numbers into a single profit figure, so it's fairly obvious that you can try changing some of the numbers to see what effect they have on the bottom line. This kind of business projection is hundreds of years old, but used to be too calculation-intensive to be used as a regular planning tool. Computers make the process so easy that solving *What-if* problems are one of the primary uses for a

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spreadsheet.

The simplest calculation can involve just two spreadsheet **cells**. If you enter a **formula** such as “=A1*.07” into cell B2 to figure a seven percent commission, you can then put various sales figures into A1 to see how persuasiveness can affect your lifestyle. Each time you enter a new number, B2 will change to show the commission. If you want to also try different commission rates, you can replace the “.07” with a reference to another cell.

The figure below shows a simple What-if mortgage calculator supplied as a **template** in **ClarisWorks**. Cells D2:D5 each contain **variables** that are referenced by a financial **function** in D9. This enables you to compare different rates and terms to see how they’ll affect total cost. You can also try different loan amounts in D2, watching the monthly payment in D9 change, to find out how much house you can afford.

Data Tables It’s time-consuming to keep entering numbers while you watch a cell change, and it’s difficult to show the range of results in printed form. So most spreadsheet programs let you automatically create a *data table* (sometimes called a *What-if table*) with variables spread across the top and side and solutions in the middle. The figure below shows such a table in **Excel**. Some programs can handle three variables at once, by displaying multiple tables next to each other.

To create a data table in most programs, use the following steps:

1. Develop a formula in a single cell, making sure that there’s enough

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room for the table below and to the right of it. It must refer to cells *outside* the table area. In our example, the formula in B5 refers to B1 through B3.

2. Enter a range of possible numbers for one variable along the top of the table area. In our example, C5 through F5 show some costs for a trip around the world.
3. Enter a similar range for the other variable, directly beneath the formula from step 1. In our example, B6 through B24 show possible lottery winnings.
4. **Select** the range of cells where you want the table, including the variables you entered in steps 2 and 3. In our example, it would be B5 through F24.
5. Choose the program's table command, usually from the Data menu.
6. A **Dialog box** will appear, asking for *input cells*. These are the original references from step 1, that you entered multiple examples of in steps 2 and 3. In our example, B1 and B2 are the input cells. You can enter them in the dialog box by typing their addresses, or you can click where the box asks for them and then click on the cells themselves.
7. When you're done, click OK. The table will fill in automatically.

See Also

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Absolute/Relative Addressing; Operators

What's the Secret?

This science series from 3M Learning is based on the PBS television series, *Newton's Apple*. It uses animation, **QuickTime** movies, sounds, and science experiments to explain how a roller coaster works, why glue sticks, what keeps a plane in the air, why bears hibernate, and much more. Take a field trip to the Arctic with explorer Will Steger and a team of sled dogs. Learn how mushers pack their sleds, how the dogs keep warm in snowstorms, and what it takes to survive at 50 degrees below zero. Spectacular photography sets this series apart.

Find out how your brain works, why you remember—or forget—things, how your heart pumps, and what's in blood. See what elephants pack in their trunks. Learn how bees make honey. Throughout the CD-ROMs in the series, there are puzzles to solve, experiments to do, video clips to watch, and suggestions for further reading. As you explore the contents of the CD, you'll pick up patches in your knapsack, which you can use as tokens to get additional puzzles and games. There's a great deal to do on these CDs and although they're rated for ages 7-13, kids of all ages will find something to intrigue them.

See Also

ADAM; Bumtuz Science Carnival; MacFrog; Software, Educational; K-6; 7-12;

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Widget Workshop

Whirlwind

A freeware VRML viewer that can be used as a Netscape Navigator helper application , Whirlwind requires a Power Macintosh (because it uses QuickDraw 3D) and System 7.5. Use this application to view virtual worlds created in VRML 1.0. An editor is required to create VRML files. Available from many online services.

See Also

Helper Application; Navigator; QuickDraw 3D; Virtus VR; VRML

Wide Area Network (WAN)

A Wide Area Network(WAN) is composed of multiple Local Area Networks (LANs) that are spread over large geographic areas. The major difference between the two is that distances on a LAN are measured in feet, and those on a WAN frequently in miles. Through the use of dedicated hardware, a WAN enables users of different networks to function as if they were in the same physical location. Each member of the WAN can then make use of each network's shared resources, such as Email, File Servers, and databases.

Routers are most commonly used as the last link between each local area network and the WAN itself. After each computer has broken its

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communications down into **packets**, the routers serve as gateways, determining which packets are destined for the local network and which are should be routed toward computers outside the local network. When they have determined that a packet is destined for a computer outside of the local office, they forward the information across a **WAN link** and on to the final destination. Currently ISDN, Frame Relay, and POTS (Plain old Telephone Service) are the most commonly used links between elements of a WAN.

See Also

Local Area Network

Widget Workshop

This is a “hands-on” science kit for elementary school kids, which includes straws and thermometers and spinning tops and other odds and ends for non-computer experiments as well as software to invent and build widgets of all descriptions. It’s a fascinating way for kids to experiment, solve puzzles, and try “what if” explorations. To build something, the user simply clicks the parts provided in the tool palette and drags them onto the workspace. Widget Workshop has sounds, switches, and gadgets.

There are timers, switches, counters, and all kinds of strange gadgets to build. Connect the pieces by dragging a wire between them. Most kids will jump right in and start creating, but there’s a tutorial in the manual for parents or teachers who don’t quite know how to get started. The workshop activities

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booklet has 30 different experiments kids can do with the materials provided. And there are 25 Widget puzzles to solve, with the combination of parts provided for each. Some are quite difficult, and will lead kids into working with logic gates, switch combinations, and some fairly sophisticated math and physics. Widget Workshop requires more thought than most software, but lets the user keep trying combinations of parts until something works. It's just right for kids who like to experiment and to build things.

See Also

Science, Educational Software for Teaching

WideTake

See

Kaidan

Widows and Orphans

In paragraphs, you occasionally will have a word (or two or three) left by itself on a line or moved into the next column or page where it sits alone and out of place. This sad bit of text is called a *widow*.

Similarly, a paragraph that starts at the bottom of a page or column sometimes has room only for its first line. That lonely line at the bottom of the page is called an *orphan*. Generally speaking, you should adjust your

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paragraph spacing to keep widows and orphans from appearing. Sometimes, however, this is impossible if you need to print a specific number of lines per page or to fit as much text as possible on a page. Most word processors have widow/orphan controls that automatically paginate to avoid single lines at the beginning or end of a page or column. Page layout programs avoid widows and orphans by adjusting the spacing between paragraphs. Some word processors can do this, too.

Win32

Microsoft's 32-bit Windows **Application Programming Interface** (API) defines the set of system calls available to applications running under Windows 95 and Windows NT. Programmers can develop Macintosh applications using Win32 with Microsoft's **Visual C++ Cross-Compiler** and the Windows Portability Library, a set of routines that translate Win32 calls into Macintosh **Toolbox** calls.

See Also

Application Programming Interface; Toolbox; Visual C++

Winchester Disk Drive

Winchester was the code-name used within IBM for the project that developed into what has become the modern hard disk drive.

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The project team developed a fixed, magnetically sensitive disk made of aluminum coated with carbon/iron oxide on which data was recorded. A stack of these disks was mounted on a spindle and sealed within a chassis that also held the **read/write heads** , the access arms that moved the heads over the disk surface, and the **stepper motor** that controlled the access arms.

These read/write heads were significantly smaller and lighter than previous designs and moved over the face of the disks on a cushion of air only 18 millionths of an inch thick.

The code-name comes from the twin 30M disks used in the first drive built at IBM. It was dubbed the 30/30, which lead to its being named after the Winchester 30/30 rifle.

Although there have been significant improvements in materials used, increasing disk speeds, and decreasing **latency** periods, currently available fixed and removable hard drives still use Winchester technology.

See Also

Disks and Drives; Storage

Window

Anytime you have an **icon** of a document, **hard disk** , **disk** , **control panel** , and so on, and you open the item to view the contents, the contents are displayed in a window. If, for example, you see an icon of a disk on your

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desktop and want to see what's inside this disk, you open the disk by either clicking it and selecting the **Open command** from the **File menu** , or by **double-clicking** it, which is a shortcut for the Open command.

A window appears displaying the contents of the disk. If there are folders on the disk, you can view the contents of those folders in the same fashion. Every time you open a **folder** , a window appears displaying its contents. These windows are the cornerstone of working within the Macintosh environment.

At the top of every window is the **title bar** , which contains the name of the item you've opened. If you open your hard disk, the name of your hard disk is displayed in the title bar. The title bar is gray, and when active has small lines or stripes on either side of the item's name.

You can move a window around your desktop by clicking and holding the title bar, **dragging** the window to a new location, and releasing the **mouse button** . You can resize windows by clicking a tiny icon in the lower-right corner that looks like a small box on top of a larger box. This is the **size box** .

You can click and drag this size box to resize the window to any size you want. An outline of the window moves with you as you resize, enabling you to see the new size of the window as you're moving. When you've reached the desired size, release the mouse button, and the window resizes to your new choice. If you were to shrink the window and later decide you want the window open to its largest size (based on the size of your computer's monitor), click the **zoom box** in the upper-right corner of the title bar, and

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your window expands to its largest possible size.

If the number of items in a window becomes larger than the window can display at once, the window adds **scroll bars** on the right side and bottom of the window to enable you to scroll through the entire contents of the window, even if the contents are not visible on-screen.

To close a window, click the window's **Close Box** in the upper-left corner of the title bar, or choose Close from the File menu (⌘-W).

See Also

Close Box; Control Panel; Disk; Double-Clicking; File Menu; Hard Disk; Icon; Open Command; Scroll Bars; Size Box; Title Bar; Zoom Box

Window Shade Control Panel

This controls the window shade feature that rolls windows up to their **title bar** to reduce **desktop** clutter. Your options are how many clicks to hide or show the window or to turn Window Shade off altogether. You can also choose to add **modifier keys** if you like. The last option lets you have the window shade sound effect enabled or disabled.

To use the Window Shade Control Panel, follow these steps:

1. Select Window Shade from the Control Panels submenu on the Apple menu (or System Folder).

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2. Choose how many times you want the **title bar** clicked to hide or show a window. If you want to add modifier keys, you can select them as well.
3. Enable or disable the window shade sound effect.

See Also

Apple Menu; Control Panel; Desktop; Modifier Keys; Title Bar

WindowShade

Included in **System 7.5** and higher, WindowShade enables you to roll your **active window** up like a window shade to just its **title bar** by double-clicking the title bar. The idea behind WindowShade (which started its life as a **shareware** extension) is to help reduce the clutter of multiple open **windows** and to enable you to access windows blocked by open applications or active windows. Applications often have a Window menu enabling you to switch between open windows, but this menu doesn't exist at the **desktop level**, and you often have to move one or more windows out of the way to reach the window you're looking for.

If, for example, you have a number of windows open on your desktop, the active window may block access to other open windows. To access a blocked window, you usually have to move the active window out of the way and then click the window that was behind it to make it active. With WindowShade, you can double-click the title bar to roll up your window, enabling you to see any

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open windows behind it. Even though this window is rolled up, it remains the active window until you click another one. To roll down the active window, double-click the title bar again. You can roll up as many windows as you want.

WindowShade also works within applications. If you're working in an application, chances are that your open document is covering up open documents in other applications as well as the desktop level behind it. Double-click your document's title bar and it rolls up, enabling you to see the next document's open application or the desktop.

You can set your preferences for how Window shade operates in the **WindowShade Control Panel** . Your options are how many clicks to hide or show the window or to turn WindowShade off. You can also choose to add **modifier keys** if you want. You can also choose to have the window shade sound effect enabled or disabled.

To use WindowShade to roll up a window, follow these steps:

1. Double-click the title bar of the active window.
2. The window rolls up, leaving just the title bar exposed.
3. To reveal the entire window again, double-click the title bar and the window unrolls.

To set your preferences for how WindowShade operates, follow these steps:

1. Select Window Shade from your Control Panels folder on the **Apple**

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Menu .

2. Choose the number of clicks you want to hide or show a window by double- or triple-clicking a window's **title bar** .
3. If you want to add modifier keys, you can select them as well.
4. You also have a check mark to enable or disable the window shade sound effect, which simulates a window shade being rolled up and down.

See Also

Active Window; Apple Menu; Desktop Level; Modifier Keys; Shareware; System 7.5; Title Bar; Windows; WindowShade Control Panel

Windows and DOS Translation Utilities

The Macintosh now has a built-in DOS/Windows translation **utility** that enables you to **mount** DOS/Windows disks, read files and write to DOS/Windows disks, and even to **format** disks in a PC format. This is accomplished through a **control panel** called **PC Exchange**. Although PC Exchange comes built-in with System 7.5 and higher, there are also commercial PC translation utilities available including the very popular MacLink Plus from DataViz.

Beside the built-in capabilities of PC Exchange, this control panel also enables you to open PC files in Macintosh programs. It does this by using the

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three-letter DOS suffix used in PC file-naming conventions to enable you to designate an appropriate Macintosh **application** to open the PC document.

You can select which files that contain a particular three-letter DOS suffix will open which Macintosh application through the PC Exchange control panel. You type the three-letter suffix, and then choose which Mac application you want to open that file. When you double-click it, it will launch the designated application and open the file.

Conversation with James Plamondon

Once a Mac developer, cheerleader, and columnist, James Plamondon now works for Microsoft helping cross-platform developers create products for both the Mac and Windows. He stands in a unique position to analyze Apple, the Mac, and—do we dare to say it?— Microsoft and Windows.

Maclopedia : What was your first personal experience with the Mac, and how did you react?

James : My parents had owned a TRS-80 and then an Apple II+, so getting a Mac was a natural evolution. They bought Mac #400 or thereabouts when they still had the Mac team's signatures inside the enclosure early in '84. I had already written some computer games for the Apple II, and was very interested in the Mac as a gaming platform, but Apple was actively discouraging the development of Mac games then (to avoid reinforcing the accusation that the Mac was a toy). There was a pretty active Mac developer group in Albuquerque, where I was

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getting my computer science degree at the time.

You were supposed to do all of your development on a Lisa, then dump it over to a Mac. I almost bought a Lisa for this purpose when they were dramatically discounted and called the "Mac XL," but fortunately, I couldn't afford one, and loaned my girlfriend (now my wife) \$3,000 to get a Fat Mac (512K RAM—Wow! What would I **do** with all of that memory?).

Maclopedia: What kind of development tools did you have in the early days?

James : There were no decent tools at first. Mac ASM was it for a long time, then MacNosy. All we had was the phone book edition of Inside Mac. Soon, though, there came a flood of better tools—Consulair C, Manx Aztec C, Megamax C, Lightspeed Pascal—because everyone wanted to become one with this cool machine and needed tools to do it.

The Mac was a magical machine in those days. Too little RAM, tiny hard drives, carpal-tunnel-inducing disk-swapping, but that was not the point. The focus was not on the execution of the machine itself, but on the promise that it held: the Macintosh Dream. Compared to any other personal computer of its day, the Mac was a revelation. I and the other early Mac developers that I knew (and have come to know since) were captivated by the challenge of living up to the dream that the Macintosh held out to us—a dream of elegance, power, and harmony. We passed up jobs that would have paid far more so that we could concentrate on fulfilling the promise of the Macintosh Dream. We

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were going to change the world!

But Apple started letting us all down. First, they kept the price of the Mac high for far too long. The high price was justified at first—you always want to skim the cream—but keeping it high prevented the Mac from becoming the computer "for the rest of us;" it prevented the Macintosh Dream from becoming reality. They refused to license the MacOS to cloners because doing so would have exposed Apple's high prices to direct competition. And they rested on their laurels, failing to improve the basic OS memory management, file I/O, and so on while focusing solely on whiz-bang stuff such as QuickTime and QuickDraw 3D; Cool stuff, but kinda like adding another story on a house with a rotting foundation. All of these moves together gave Microsoft the opportunity to start catching up.

Maclopedia: When did you realize there was a problem?

I wasn't really aware of this at the time; as they say, hindsight is 20/20. Like most everyone else I knew, I was cocooned in "Biosphere Mac"—I hung out with Mac guys, read Mac magazines, went to Mac shows, and generally avoided contact with the distastefully ignorant DOS and UNIX folks (folks who just "didn't get it" about the Mac). I formed a local Bay Area chapter of the MacApp Developer's Association (MADA), I wrote technical articles for *Frameworks*, *MacTutor/MacTech*, and *develop*, and I gave presentations at developer conferences—all activities which thickened and hardened the walls of Biosphere Mac, keeping

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the rest of the world locked outside...or us, locked in.

But then, Windows 3.0 shipped. The company I was working for at the time, PowerUp Software of San Mateo, California, most noted for their product Calendar Creator, reacted like a bomb had hit. They canceled all Mac development, and threw the DOS and Mac teams together to get a Windows version of Calendar Creator out the door *right now*, or else. I was amazed! Couldn't they see that Windows was a joke? That it was simply validating the Mac? That anyone who saw Windows would just turn to a Mac to get the "real thing?"

I was wrong, of course. Windows 3.0 sold like hotcakes. Software shops all over the Valley were responding to Windows just exactly as PowerUp had done. At a time when Apple was nickel-and-diming its developers to death, Windows development was wide-open. Windows' tools were laughable compared to ObjectMaster and Lightspeed Pascal, but they got better fast—much faster than the Mac tools were improving because there was so much more money in the Windows tools market to reinvest in R&D. I observed these developments and reported on them in a column in MADA's *Frameworks Magazine*: "A MacApp Programmer's Journey into WindowsLand." I sounded the alarm as best I could, but no one seemed to want to listen: the walls of Biosphere Mac, which I had helped thicken, had become impenetrable. Apple's response to Windows? Discarding all of the value that had built up in MacApp and promising the world with Bedrock, which I knew in my soul was doomed to failure (as proved, sadly, to be true).

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My column eventually brought me to the attention of Microsoft, which hired me to work in the Bay Area helping Mac developers support Windows, too. It was a great job—I got to hang out with all of my Mac buddies, helping them wrestle with the cross-platform issues that they already knew that they had to face. Some said that I was giving them better support than they were getting from Apple. I tell you, I was the most conflicted guy at Microsoft. In many, many ways, I wished that I was working for Apple, helping them bring the poor, failing Windows developers to the booming world of Macintosh. But that world did not exist, and I could not feed my family with fantasies—not anymore, anyway. I had four kids by then.

Maclopedia : How do you see the historical relationship between Microsoft and Apple?

James : Microsoft was the earliest and strongest supporter of the Macintosh, and its support continued even when other vendors were dropping support for the Macintosh. Microsoft still ships more Mac titles than any other vendor and values its Mac business highly. Microsoft loves the Mac.

Microsoft's relationship with Apple has always been complicated, since both cooperate in some areas (such as Mac apps) and compete in others (such as operating systems). It is the most complex when Microsoft's Mac applications use technologies such as OLE that originated on the Windows side. But because Microsoft and Apple have

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so many users and developers in common, it behooves them to work together as much as possible. I am proud to have worked, over the last year or so, to help explore new areas of possible cooperation. It is too soon to know which, if any will bear fruit, but I did my best to bring the two companies together and take considerable satisfaction in that.

Maclopedia : What's the situation like now? How are Apple's current troubles different from the crises of the past?

James : In the past, Apple had no credible competition—no other OS offered anything like the elegance, power, and simplicity of the Mac. That is no longer the case. Windows 95, and especially Windows NT 4.0, are very credible alternatives to the MacOS —very credible indeed. So Apple doesn't have the room to maneuver that it used to have neither in time-to-market, nor in margin, nor in technological advantage. Windows 95 especially has closed the gap between the Mac and Windows to the point that customers are no longer willing to pay a premium for the MacOS , especially at the cost of incompatibility with Windows—hence Apple's moves towards increased Windows compatibility.

The logical extension of these trends is for Apple to break into two units: 1) MacInc., which maintains, extends, and licenses the MacOS to all comers; and 2) Apple Computer, Inc., which produces whatever hardware they can make money on; Macs, Wintel, you name it.

Apple was a great hardware company before the Mac; for ten years,

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they sold both the Mac and the Apple II line, making lots of money on both. There is no reason that Apple Computer, Inc., can't return to its roots and become once again the great hardware company that it once was: selling both Macs and the best, easiest-to-use Wintel boxes on the planet.

Maclopedia : One question for our readers in small business: What are the key issues when thinking about a fileserver for a mixed Mac and Windows environment?

James : This is a no-brainer: If you've got a mixed environment of Macs and Windows machines, then Windows NT Server is the perfect server OS for you because it was designed with your needs in mind. No other server OS has so much support for both Mac and Windows so tightly integrated. And the soon-to-be-released (Summer '96) 4.0 version of Windows NT will add support for the Windows 95 user interface, making the power of NT easily accessible to people with a Mac-centered background.

And with the forthcoming PowerPC Platform-compliant computers from Apple, PowerComputing, and others, it is entirely possible that you can get one machine that can run both the MacOS and Windows NT Server to maximize the flexibility of your hardware usage.

Maclopedia: What happened to the Macintosh Dream?

James: Some would say that I sold out the Macintosh Dream. But I would

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argue that Apple sold its developers down the river long before Windows came along by keeping its margins high and our markets small. As soon as Windows offered serious competition to the MacOS , Apple's prices fell and margins collapsed, proving that they had been gouging all along. In pursuit of massive short-term profits, Apple sold its own long-term future short, and the futures of its independent developers as well.

But one can still hold one's faith, even after one's local priest is found wanting. The Dream that I bought into, back in the mid-Eighties, was of elegance, power, and harmony. That Dream lives on. Andy Hertzfeld said, at a MacHack keynote address some years back, that most people now experienced the Macintosh Dream via Windows. I'm not sure that Windows is there yet, but it's getting better at a remarkable rate, and it is certainly bringing the Dream to a lot more of "the rest of us" than the Mac ever did.

It is with the deepest melancholy that I look back on the squandered promise of the Macintosh. But life, and technology, move on. I take the Dream with me. I do the best I can to carry the light of the Dream with me into new realms, and I hope that you will, too.

For example, if you encounter a PC document with a .txt file extension (which is a standard text file format on a PC), you can instruct PC Exchange to open that document in **Microsoft Word** . By making this designation, any time you launch a file with at .txt DOS suffix, Microsoft Word will try to open that

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document.

To open a PC file using a designated Macintosh application, follow these steps:

1. Choose PC Exchange from the Control Panels folder in the Apple menu.
2. Click the Add button and a dialog box will appear in which you can type the DOS suffix of the file you want to open. You can then select which application to open it with, and choose which type of document will be opened from a pop-up menu of PC file types.
3. When you've completed your selection, click OK, then close the PC Exchange control panel. When you double-click the PC file, it will now launch the application you designated to open the file.

See Also

Application; DOS; DOSMount; Control Panel; Microsoft Word; Mount; PC Exchange; Utility; Windows

Windows NT Server

See

Servers/File Server

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WindowScript

WindowScript is an **XCMD** that can display true Macintosh windows. Use it from in applications, such as HyperCard, that support XCMDs. This tool is particularly useful with **Double-XX** , a small application that can run XCMDs.

Why use WindowScript with or in place of HyperCard? Primarily, because HyperCard provides only limited elements of the Macintosh interface. While you can create cards containing text fields and buttons, HyperCard does not support many standard Macintosh interface elements, such as modal dialog boxes and scrolling windows for example. You can use WindowScript to add these interface elements to HyperCard stacks.

WindowScript supports many interface elements, including all window styles (modeless, modal, palettes, moveable, modal and so on), scrolling windows, scrolling lists, color pictures, tear-off picture menus, standard menus, pop-up menus, and standard radio, checkbox and round rect buttons.

Commercial products require a single \$100 license fee. Public domain and shareware products do not require a fee, provided a standard splash screen is displayed.

Heizer Software
300 Cedar Lane
Largo, FL 34640
Price: \$149
Fax: (813) 559-0614

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Phone: (800) 888-7667 or (813) 559-6422

Web: <http://www.heizer.com>

See Also

Double-XX; HyperCard; SuperCard; XCMD

Winer, Dave

See

Frontier

Wing Commander III

Wing Commander III from Origin Systems takes you further into the conflict between the feline Kilrathi and the confederation of planets. As Chris Blair, you are a Confederation VIP who must ward off Kilrathi invasion.

Like **Rebel Assault II**, **Wing Commander III** merges live action with animated, outer-space backgrounds to give you the science-fiction feel you don't get from a regular flight sim. Because space sims are not based on actual planes, they tend to be less technical than straight flight sims and therefore less manual intensive. This makes them a little more palatable to inexperienced gamers who don't want to spend the time necessary to learn the controls of a technically accurate flight sim. The fast-paced action and complex controls of **Wing Commander III** are a challenge without alienating

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newcomers.

See Also

Absolute Zero; Rebel Assault II; Sim Games

Wireframe

Wireframe is method of representing a **3D** object with lines that define the surfaces of the object. Wireframes are used frequently in **3D modelers** for previewing scenes and models because of the speed with which they can be drawn.

See Also

3D; Animation; Modeling; Rendering

Wireless Networks

As computers get smaller and smaller, the cabling systems that used to connect them also tie them down to the desktop. The solution is to eliminate the cabling. Wireless networks are a recent development that does just that. There are several wireless technologies available for the Macintosh.

One option for a wireless network is to use Apple's Remote Access with a cellular phone/modem combination. This makes sense for wide-area network connections for a limited number of devices. It also lets you pursue the

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business executive's dream — running your office from the 12th hole at the country club, or checking your email while you're out sailing. More practically, paramedics are using this technology to check patient records while on the way into the ER. Repair people use it to log into the office computer and look up schematics or order needed parts, and to report their hours and costs when the job is done.

For LAN connectivity, wireless technology may be useful in locations where conventional wiring is difficult or impossible to run. Motorola, the leading manufacturer of cellular telephones, has a Macintosh product called EMBARC which provides a one-way wireless messaging service for remote Mac users. There are also options for LAN mediums such as LocalTalk and EtherNet. Photonics makes LocalTalk devices that use reflected infrared to link a number of nodes. The infrared devices focus their energy at a single point on the ceiling.

Motorola has developed a wireless version of EtherNet, the Altair II wireless network. These devices use low-power radio waves as a transmission medium. Altair's transmission rate of 5.7Mbps is somewhat less than EtherNet bandwidth, but adequate. Setup is easy. Each EtherNet device connects to a small desktop send/receive module. These desktop modules transmit radio waves to control modules that connect to walls or cubicle partitions. The send/receive modules support all kinds of EtherNet adapters and cost around \$1,200. The control module can be used alone or connected to a conventional EtherNet cable. These devices can handle up to 50 wireless devices.

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Compared to conventional wired networks, these new technologies are still somewhat expensive and are only cost-effective in those cases where wiring is difficult or where rewiring costs would exceed the cost of the wireless components. Expect wireless communications to continue to increase in popularity as Apple's Newton technology and other handheld computers become more popular.

See Also

Network Administration; Network Communication; Network Maintenance; Network Topology; Networking, Why and How; Network Wiring Strategies

Wireless Speakers

See

Speakers, Wireless

Wirth, Niklaus

See

Pascal

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Wolfenstein 3-D

See

First-Person Perspective Shooters, Violence in Games

WordPerfect

Perfection is rarely achieved. Earlier Mac versions of this program came to be known by disgruntled users as WordImperfect. Written originally for DOS and adapted for the Mac, it originally retained too many DOS characteristics to satisfy users familiar with the easy and intuitive MacWrite. But it had potential. The current version, WordPerfect 3.5, fulfills that promise with a well-organized and intuitive interface, powerful AppleScript macros, and an excellent table generator.

There's no question about WordPerfect's cross-platform compatibility. It is available for DOS, Windows, UNIX, VAX, and NeXT systems, as well as for the Mac. Novell purchased WordPerfect's parent company about a year ago and recently re-sold it to Corel, a Canadian company known most for its Clip Art collections and for its drawing package, Corel Draw. Corel has said it will continue developing the Mac version of WordPerfect.

WordPerfect does everything well, but not spectacularly. Its strength is versatility. It has the most complete set of graphics tools of any of the word processors. In addition to the standard pen and fill tools, and the Bézier-curve

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drawing tools, WordPerfect's Graphics toolbar gives you the ability to freely rotate graphics. You can also place watermarks (ghosted images or designs imprinted behind text on a page) and overlays (graphics superimposed on the text) with a single button click. WordPerfect can save pages of mixed text and graphics in **HTML** for **World Wide Web** publishing. It can save documents in formats that are compatible with almost any other text handler on any platform. It can even password protect individual documents.

WordPerfect has a set of seven different toolbars which enables you, via pop-up menus, to accomplish virtually anything in the way of text and graphic manipulation, from formatting text to generating a Table of Contents. With all of WordPerfect's toolbars enabled at once, the effect is somewhat overwhelming. Ordinarily, you'd only turn on the ones you needed to use. Otherwise, there's not much room left in the window for text.

WordPerfect has some excellent shortcut features, such as Make It Fit. This tool (see figure) enables you to adjust the font, margins, and paragraph spacing of a formatted document that's a bit too long or too short for your needs, so that it fits the page layout or page count you had in mind.

WordPerfect carries a low price tag compared to **Nisus** and **Microsoft Word**. The street price is under \$200. If price is a consideration, check out the **Student Essentials** package from Corel. It includes WordPerfect 3.5, a dictionary, a thesaurus, an encyclopedia, and a term paper assistant called Bookends that organizes your bibliography and provides space to take notes on your reading. Printed manuals are not included, but all documentation is

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available on the product's two CD-ROMs. The cost, as of this writing, was \$159.00.

See Also

MacWrite; Nisus Writer; Word; WordPerfect; Word Processors; WriteNow 4

Word Processing

Word processing includes any operations that are performed on text. **Editing**, **copying**, **formatting**, **checking spelling** and grammar, and **printing** all happen within the word processing program. Because the Macintosh has a **consistent user interface**, these operations are done in the same way no matter what word processor you happen to be using.

There are, of course, minor differences in the way the various word processors function. Generally, though, the commands and operations you learn in anyone Macintosh program will work in any other program—even one of a different kind, such as a drawing program. **Cut**, for example is ⌘-X, whether you're cutting a word from a line of text in **WordPerfect**, a picture from **the scrapbook**, or a cloud from the sky in a **Photoshop** picture.

Undo always undoes the most recent thing you've done. However, if you "undo" repeatedly, you'll find that some programs will toggle between "undo" and redo" with the ⌘-Z combination, whereas others support multiple levels of "undo," enabling you to retrace your steps backward. **MS**

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Word 6.0 now also supports multiple levels of “redo,” so you can change your mind about how much you want to undo.

Conversation with Jerzy Lewak

Experienced Mac developer, entrepreneur, and creator of a neat word processing program, Nisus Writer, Jerzy Lewak has watched the Mac grow and mutate since its birth.

Maclopedia : What was your first personal experience with the Mac and how did you react?"

Jerzy : My son, Stas, who in 1984 was an engineering student at the University of California at San Diego and part-time employed as a programmer, told me about the proposed release of this great new computer, and *made me* buy the first Mac which appeared in the retail stores in San Diego...Here was a computer with the right kind of human interface. That is when I immediately became an Apple Developer.

Maclopedia : What's your perspective on the creation, development, and demise of MacWrite?

Jerzy : MacWrite, when it first came out with the first Mac, was an excellent though limited product. What is called "MacWrite" and "MacWrite Pro" is not even remotely related to the old MacWrite. So I am assuming you're referring to the old one. Can you believe that the first MacWrite had to work with the whole system in just 128K of memory?

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That was some feat! Of course that is why it would have been difficult to continue maintaining MacWrite: it was almost all assembly. I don't know the inside story on whether Apple had thoughts of maintaining and evolving it. All I know is that, except for some small enhancements, they did not. I would like to believe that there was a time when Apple wanted to give developers a chance, and so stayed out of competition with them. But I rather think their reason was more pragmatic: they were too busy developing the hardware and system.

Maclopedia : What's the Nisus way, and how do you position your products?

Jerzy : The philosophy behind the Nisus way is to empower the user and as much as possible remove limitations from features. The empowerment goal means that we make our products open to the creativity of the user: the more creative the user, the more he/she can get out of them. That is why Nisus Writer, from the first releases, included a macro language to enable you to create your own features. That is also why its search capability includes a very powerful text pattern description language (a superset of the UNIX GREP). The lack of limitations is reflected in such things as the fact that from the very beginning our Clipboard was fully editable, and, of course, for a long time we have had 10 clipboards; and the fact that you can draw and type without changing windows. That is a feature I have yet to see in any other word processor.

Further, our WorldScript support has been there even before Apple

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had a "WorldScript." In our recent release of MailKeeper, our empowerment goal is exhibited in the new patented information access technology we have developed (Guided Information Access). By guiding the user in the process of describing the object of his search, it intelligently and instantly eliminates inappropriate possibilities. Even in its first version, MailKeeper can be used for many more purposes than archiving mail. It is also ideal for such diverse applications as collecting information before writing a book or article, or as a customer support or technical support database. Nisus Writer is positioned as a very high-end word processor, particularly known for its support of the various language scripts of the world, such as Korean, Japanese, Chinese, Hebrew, and Arabic. The average user who uses his/her word processor for occasional memo and letter typing will not have time to even consider evaluating Nisus Writer; but the serious heavy user will, and should.

Maclopedia : What's caused Apple's current troubles? (And are they significantly different from crises in the past?)

Jerzy : I agree with many press opinions on this question: Apple should have enabled cloning many years ago and should have assured greater affordability of the Mac. In other words, they should have played their cards such that everyone would have found it cheaper to buy a Mac than a PC. Currently we have examples of companies like Netscape offering a free product just to capture the market, even forgoing revenue! That is something many companies are trying with the

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Internet. It is too early to tell if it will work, but in the days of Macintosh beginnings, it would surely have worked to make the Mac pervasive in the market.

I have two more mistakes to point out to Apple. Instead of making sure that it would be profitable and easy for developers to develop for the Mac, they did the opposite. The Mac platform is, and always has been, the most difficult to develop for. Apple's feeble attempts at producing a development system have not worked. In addition and to compound the problem, Apple first started Claris, promising to sell it to the public and make it independent, then took it back and has since made it compete with other software developers. How can we compete when Claris is in bed with Apple? Why not make Claris the prime developer of cross-platform development tools? That would be both profitable in the short term and in the long terms help keep Macintosh developers developing software.

Today, Macintosh development tools are way too far behind those for the PC. Apple's current problems are different than those in the past. They have to modernize their operating system, and come out with one quickly. If they do not then, they will wither and die. They also have to innovate. Open Doc could be it, if it's not too late. But a cross-platform development system, which would ease and speed the development of software, would be a winner. On the hardware side, I think Apple should look at a paradigm shift to make their computers plug and play instantly again. The hardware complexities (though considerably

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better than with Windows 95 machines) are daunting for the average user, and the startup process takes too long.

Maclopedia : So, what can Apple do better to help developers?

Jerzy : Get us a modern, cross-platform, Macintosh-based development system and phase out competing with us unfairly.

In the early days of Macintosh, the computer came with two programs installed. **MacWrite** was the first Mac word processor, and it set the standard for all the ones that followed. Functions such as spell checking and grammar checking weren't part of the original software, and the original MacWrite was quite limited in its ability to format pages and perform other functions we take for granted today. Nevertheless, it was a remarkable achievement. For the first time, you could actually see on-screen what your page would look like in print. The **WYSIWYG** interface enables you to set headlines in 24 point bold, body copy in 12 point italics, and see the difference—something DOS-based word processors couldn't possibly do.

As other companies developed competing word processors for the Mac, they kept the same consistent user interface, and it was very easy to switch from MacWrite to **Microsoft Word** , or **Nisus** , or **WriteNow** , or **WordPerfect** . Today's version of MacWrite, **Claris MacWrite Pro** , looks most like the original but, like the others, now has features that weren't even dreamed of ten years ago. Early versions of MacWrite could place a picture into the text, but today's word processors can also incorporate **QuickTime** movies, graphs and tables that will automatically update when they're changed in the

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application that created them, and even spoken messages within a document. Word processors also make it easy to create “form” letters, and to merge these with a mailing list and automatically type an envelope for each letter.

Most word processors support **outlining**, making it easy for you to organize your thoughts and then write your paper without switching programs. There are also separate “brainstorming” programs. Most also can generate an **index** and/or **table of contents** for your document. Word processors usually include a thesaurus, spelling and grammar checking software, or bundle it with the program (**WriteNow/Correct Grammar; WordPerfect/Grammatik**). The spelling and thesaurus components are helpful, the grammar less so.

When you choose a word processor, consider what kind of words you’ll be processing. Writing books or technical documents is a different sort of word processing from writing short business letters, and the latter task might be easier on less “feature-heavy” software. Consider whether you’ll need to work with graphics, tables, or equations within your documents. Consider whether you’ll be using your word processor on a **PowerBook**, where smaller is an advantage, and whether you have the hard disk space and **RAM** to handle a “memory-hog” program such as Word 6. If your word processing needs are only part of your daily operations, consider a **Works** program with an integrated word processor, spreadsheets, and database. These can handle most ordinary tasks, up through simple desktop publishing.

Word Processors, Using Word processors and laser printers have

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changed the way certain things are done. It used to be, when you typed a document on a typewriter, that you'd leave two spaces after a period. Typewriter type was **monospaced** , meaning that all the letters were the same width. The "l" took up the same amount of room on the line as the "w" did. The extra space was necessary to indicate the end of one sentence and the start of the next. However, computers use **fonts** that are proportionally spaced. Each letter takes up only as much space as it needs. Leaving two spaces after the period leaves an unnecessarily large gap in the line. So, typists switching from old fashioned typewriters to word processors had to learn not to use that second space. They also had to learn the difference between regular quotes and "**curly quotes** ." Typographers used pairs of left- and right-handed quotation marks to designate the beginning and end of a quotation, while typewriters compromised with only one of set **straight quotes** for both. The computer fonts usually include both straight and curly quotes, and word processors added a feature called "smart quotes" which enables you to type a straight quote and the program automatically converts it to the appropriate curly quote.

If you want to do this...

Try this program...

General writing

Claris MacWrite Pro, Microsoft Word, Nisus Writer, WordPerfect, WriteNow

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Outline

Microsoft Word

Write on a PowerBook

WriteNow

Desktop publishing

Microsoft Word, Nisus Writer, WordPerfect, or a DTP program

Use foreign languages

Nisus Writer, WordPerfect

Workgroup Servers, Macintosh Family

Apple Computer provides a suite of “jazzed-up” Power Macs designed to support small to medium-sized workgroups. These Macintoshes are marketed as **Apple Workgroup Servers** and provide full-featured networking support via a selection of hardware and software. Workgroup Servers come in three sizes: “pizza box,” “mini-tower,” and tower.

There are two type of network configurations available to businesses: **distributed networks** , such as are supported by System 7.5’s **File Sharing** software, where each Macintosh acts as a mini-server storing portions of a workgroup’s data which is shared between members of a

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network; or **dedicated servers** that serves as a central repository of workgroup data and runs specialized server software that manages how members of the network running related client software share this information. Apple Workgroup Servers are dedicated servers.

Workgroup servers (also sometimes called **Network Servers**) are basically computers that act as traffic cops to store data and manage its transfer among computers on a network. Because input and output performance is very critical to the mission of a server versus a stand-alone computer, these Power Macintoshes have enhanced SCSI and networking hardware.

Networks are the physical wiring that connects computers together, the software that resides on each client computer that lets them share information, and the centralized computer with its server software that manages the flow of information. If you have small networks, such as those based on Apple's 32-node LocalTalk network, you can use any Mac workstation as your data repository or server. The more users accessing the computer, the more CPU it needs to dedicate to the task of serving, thus it is recommended that the Mac working as a server be solely dedicated to that task and not run any other software while it is serving.

Larger networks of computers require more performance from their servers, and thus use machines that have added input/output speed and more storage capacity than plain workstations. Other servers also act as gateways to large-scale networks, such as the Internet, that lie outside of the physical structure of the network. Networks of computers do not all have to be using

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the same operating systems, in fact most networks are composed of both Mac and PCs, as well as UNIX workstations. Apple provides server software called **AppleShare** (currently version 4.0). Each Mac also comes with AppleShare client software as part of the System 7.5 operating system.

Workgroup servers typically manage networks that contain more members than is supported by System 7.5 File Sharing (up to five), and who require faster access to data than can be supported by Apple's network protocol called **AppleTalk** and its attendant **LocalTalk** cabling system. Therefore, each Workgroup server supports the faster **EtherNet** cabling systems (whether coaxial or 10Base-T cabling) and the **EtherTalk protocol**, and uses AppleShare 4.1 that can support many more network members. There are currently three models of PowerPC-based Workgroup servers: Workgroup Server 6150/66, 8150/110, and 9150/120. Each server provides the following features:

- Compatibility with Windows-based PCs as well as Macintosh clients. The server comes pre-installed with AppleShare Client for Windows and also can have Apple Internet Server Solution for the World Wide Web software installed to create an Internet server.
- Large capacity hard disk drives and quadruple-speed, tray-loading CD-ROM drives for extensive storage capabilities.
- A **Digital Audio Tape (DAT)** drive and Retrospect Remote automatic server and client backup software provides data security via automatic backups of critical data.

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- **Redundant Array of Inexpensive Disks (RAID)** software supporting disk mirroring and striping for system reliability.
- Network administration software such as server-based contact management and scheduling software, workgroup electronic publishing software, and network management software to ease the application, distribution, and updating of software on the network. Bundled software often includes the following: Server Administrator and User Productivity Software such as Server Manager for AppleShare, FileWave, Viper Instant Access, Now Contact, Now Up-to-Date, Adobe Acrobat Reader, and AppleShare Client for Windows.
- The Workgroup Server can be used as an Internet Server by installing the Apple Internet Server Solution for the World Wide Web. This software bundle includes: WebSTAR 1.0 server software, AppleSearch with CGI, BBEdit, HTML editors, Netscape WWW browser, WWW gateways with sample data and runtime un-modifiable versions of Butler SQL and FileMaker Pro, WWW gateway with sample data and full version of HyperCard, WWW gateways for clickable maps and electronic mail, and sample customizable WWW server pages.

The following table provides an overview of the components of each Workgroup Server.

Model Number

*Processor Type Memory/Storage
Features*

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6150/66	PowerPC 601 at 66 MHz 16M DRAM, 256K level-2 cache/700M hard drive, 600i+ CD-ROM drive AppleShare 4.1, RAID Software, and/or Apple Internet Server Solution for WWW, and built-in EtherNet. EtherNet transceivers, monitors, and keyboards sold separately.
8150/110	PowerPC 601 110 MHz 16M DRAM, 256K level-2 cache/1G hard drive, 600i+ CD-ROM, Digital Audio Tape (DAT) drive AppleShare 4.1, RAID Software, and/or Apple Internet Server Solution for WWW, and built-in EtherNet. EtherNet transceivers, monitors, and keyboards sold separately.
9150/120	PowerPC 601 at 120 MHz 16M DRAM, 1M level-2 cache, one or two 1 or 2G hard drives with slots for three more, 600i+ CD-ROM drive, DAT Drive AppleShare 4.1, RAID Software, and/or Apple Internet Server Solution for WWW, and built-in EtherNet. EtherNet transceivers, monitors, and keyboards sold separately.

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See Also

Apple Internet Server Solution for the World Wide Web; AppleShare 4.1; CD-ROMs; Digital Audio Tape (DAT) Drives; Internet; Power Macintosh; PowerPC; RAID Software; World Wide Web

Works Programs

When we were kids, “Gimme the works” used to mean not just the hot fudge, but also the marshmallow, nuts, whipped cream, and the cherry on top of the sundae. Today, “the works” has a much less interesting connotation. A works program combines several different applications into one. The first of these was AppleWorks for the Apple II. It was an idea that caught on as the computer became more of a household appliance. You could write letters, balance your checkbook, and print a yard sale poster, all from the same program.

There used to be three or four different works programs for Macintosh users. Now, the field has been reduced to just two: **ClarisWorks** and **Microsoft Works**. This might suggest that the notion isn’t practical. Or, simply that these two programs are so superior to the others that there’s no reason for any other publishers to try the concept. The truth is, the integrated works program *is* a practical idea, but only for users who need to do a little of everything, without needing a heavy-duty powerhouse program in one particular area. Works programs cover the basics, by providing modules that include word processing, drawing, database management, spreadsheets, and

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telecommunications. They do all this in a relatively small amount of space. ClarisWorks, for example, wants only 1.4MB RAM to run and less than 2MB of hard disk space. Microsoft Works occupies a little over 5MB of hard disk and about 2MB of RAM, which still is pretty good, especially if you consider that MsWord eats up nearly five times as much hard drive real estate. A Works program is a good choice for a PowerBook or Duo, because it packs so many functions into a small space. They'll also save you money. The current street price for ClarisWorks is \$129. If you were to start adding up the cost of a stand-alone word processor, telecom program, spreadsheet, database, and drawing program, you'd come up with a figure that's close to five times as much. And you wouldn't have the seamless integration that a Works program gives you.

There's another kind of semi-integrated program called a **suite**. The one you're most likely to see on the shelf or in the catalog is **Microsoft Office**. Technically, it's not a works program, but rather a collection of stand-alone applications. In this case, you get Excel, Word, and PowerPoint, plus a launcher called Microsoft Office Manager, which gives you quick access to the three programs from the menu bar. The advantage is that you get three full-featured applications rather than scaled down "works" versions. The disadvantages are that the bundle is expensive, uses a lot of hard disk space, and, when you buy the Office package, you have to buy printed manuals separately. They're included as text files on the CD-ROM.

See Also

ClarisWorks; Microsoft Office; Microsoft Works

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World at War

See

V for Victory

World War II Games

See

Allied General, Strategy Games, V for Victory

Conversation with Sidnei Brandao

Sidnei Brandao is general manager for Apple Computer Brasil, a division of Apple selling to the Brazilian market.

Maclopedia : What was your first personal experience with the Macintosh like?

Sidnei : I have heard about the friendly features of the Mac for many years. It was a legend for me, even having had an Apple II as my first computer ever. My first impression was, "It's true; it's great!"

Maclopedia : In Brazil, what's the market like for personal computers at home, in school, and in business? And in that market, where does the Mac fit in?

Sidnei : Schools are just now turning to computers, so there is a good

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opportunity for the Mac; business is owned by the PC computer, but 50 percent still come from the black market.

Home is the market to own at this time in Brazil. It is Apple Brazil's main target at this time.

Maclopedia : Are there any aspects of the Mac that make it particularly appealing in Brazil?

Sidnei : Design, ease of use, and the Apple name carries a certain magic around it.

Maclopedia : When you localize, what are the most significant changes you need to make to ads, manuals, software, hardware, and marketing?

Sidnei : Localization is almost total for Brazil. We talk Portuguese, but it differs much too much from the language talked in Portugal.

Manuals need translation and adaptation for local laws. Software needs localization and adaptation in items referring to currency, plus the English language is more concise than Portuguese, so text in the manuals will be around 25 percent larger. Marketing has to be specific to Brazil. As a background it is important to have in mind that Brazil was the only Latin American country colonized by the Portuguese. As they came by sea, most large Brazilian towns were near the Atlantic. That puts the Amazon forest and thousands of kilometers of land between the Brazilian people and the other South American countries. This explains why we were culturally isolated and why advertising and

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marketing for the region will hardly ever work over here.

Worm

See
Virus

Woz

See
Wozniak, Steve

Wozniak, Steve

Steve “Woz” Wozniak was one of Apple Computer’s founders. He grew up in Sunnyvale, California, in the heart of Silicon Valley. His father was an engineer who designed satellites for Lockheed.

In 1970, Wozniak met **Steve Jobs** through his neighbor, Bill Fernandez, a classmate of Jobs. Although Jobs and Woz had both attended Homestead High School, they never met there because Woz is five years older than Jobs. At the time, Steve Jobs was 15 years old and Wozniak was 20.

Woz attended the Colorado University but flunked out and returned to

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Sunnyvale. It was then that he began building his first computer. He was an electronics nut, as were many of his friends (including Jobs). Woz and Fernandez managed to build a computer using surplus parts gathered from local semiconductor companies such as Intel and Fairchild. Although the computer worked for a while, it eventually died in a puff of smoke.

Woz returned to school at U.C. Berkeley to study engineering. While there, he learned of a device called a “blue box” that could mimic the tones used for switching by long distance phone equipment and give its user free long distance service. Before he had a chance to see the plans for the blue box, he had designed one himself that was better, smaller, and cheaper than the original.

Following his junior year at Berkeley, Wozniak took a summer job at the Hewlett Packard Calculator division. He stayed on in the fall and did not return to finish his degree. He did, however, manage to realize his dream of building his own computer (that really worked). His design would become the Apple I and set in motion the founding of Apple Computer.

Wozniak went on to design the hugely successful Apple II and played an important role in many Apple technologies up to and including the Macintosh. Early in the Macintosh project, Woz was injured when he crashed his plane. As a result, he had little involvement in the later stages of the Macintosh.

From Apple’s start, Wozniak was the technologist while Jobs was the marketer. He didn’t mind staying in the background and enabling Jobs (or

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others) to stand in the spotlight. After all, it gave him the opportunity to do what he really loved: work with electronics.

Although Job's penchant for ruthlessness is well-known, that influence was balanced by Woz's sense of fairness and kind-heartedness. Woz, for example, felt it was unfair that many of Apple's earliest employees had been denied stock options. Shortly before Apple's stock went public, Woz helped some of these employees by offering the "WozPlan," an opportunity to buy up to 2000 shares of his stock.

Although Woz never officially resigned from Apple, he ended his day-to-day involvement with the company in 1985, angry over the poor attention given to the Apple II division by Jobs and **John Sculley** . After leaving Apple, he decided to pursue his dream of becoming a teacher. To do so, he needed to finish his degree, so he returned to Berkeley under the pseudonym Rocky Raccoon Clark. He received his Bachelors degree in electrical engineering in June 1986. His involvement with Apple has varied since then, but he now spends most of his time teaching children how to use computers.

See Also

Apple Computer, History; Jobs, Steve; Sculley, John

Wristwatch

See

Beach Ball Cursor

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Write Out Loud

Write Out Loud is a talking word processor, from Don Johnston Inc. There are, according to educational psychologists, several different learning styles. Some people are visual learners. They see a word, and they learn it. Others have to hear it. For these auditory learners, and for anyone who's just learning to touch type or to write in English as a second language, it would be ideal to have a word processor that could read back what you'd typed.

Write Out Loud is the answer. It's a talking word processor that will read back each letter, or each word, or each sentence or paragraph as you enter it. This program provides multisensory learning and positive reinforcement for writers of all ages.

It's also a big help for people with dyslexia, and for people with low vision. It's easy to use, and although not as versatile as a program such as WordPerfect, it's adequate for school work, letter writing, and similar projects. The program uses a talking toolbar. The simple toolbar gives access to program commands such as putting the cursor at the beginning or end of a file with one click, printing in one step, maneuvering through the text, and more.

Clicking the toolbar makes the program tell you what that tool does. There's even a talking spell checker which reads the misspelled word in its sentence, isolates the word, and then spells it as it is written. A list of suggested words can be read and spelled aloud so that the user can benefit from auditory

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feedback. The user can even change the program's speaking voice by selecting a different one from the menu.

See Also

Co:Writer; Freedom; Ke:nx; Talk:About

Write-Protect Tab

See

Locking a Disk

Writeable CD

A writeable CD is a **CD-ROM** on which data can be recorded (or written) using a special CD mechanism (called a burner or **CD-R drive**). While these discs are playable on most CD mechanisms, they are very different from pressed CDs, which are injection molded. It takes expensive equipment and more time to press a disc, but after that, they can be manufactured much faster and cheaper than burning discs.

Writeable CDs make it possible to have **multisession** discs, discs that have been updated (recorded) at different times. Writeable CDs should not be confused with rewriteable or erasable technologies. Writeable CDs cannot be changed after they are written—only additional information can be added to the end of the disc.

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See Also

CD-R; CD-ROM; Multisession CD

WriteNow 4.0

WriteNow has two really good features—speed and size. It's the fastest to open, fastest to change fonts, fastest to count words. Some of its speed comes from not needing to spend much time chewing through its own code. It's also compact. The entire program, including the dictionary and thesaurus, fits on two disks, and demands only 2.2MB of hard disk space and a scant 600K of RAM.

Despite its small size, it has most of the features you'd expect to see in a program costing three times as much and weighing even more. WriteNow gives you an easy-to-use style sheet with both paragraph- and character-based styles, tables, footnotes, spelling, Thesaurus, Print Preview, and **Balloon Help** . The only features it lacks are Autosave, small caps, and auto-hyphenation.

Working with tables is especially convenient in WriteNow. Tables are created graphically. To add a table, you select the format and size from the dialog box shown in the previous figure, and select the number of rows and columns. This is done either by entering numbers in the boxes or by clicking and dragging the table layout until it looks right. When the table appears on the screen, it comes with a handy tool palette. To add or remove rows or columns,

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just click the appropriate button. You can even add colors and patterns to your tables. This suggests that the table might be adapted to some other purpose, and in fact, WriteNow's sample folder includes a colorful flyer that was produced as a table.

There's no built-in Help system in WriteNow, as there is in Word or MacWritePro. It does support Balloon Help, which isn't much help. The manual includes some very good tips on optimizing the program to run on a **PowerBook**. WriteNow has a very nice battery indicator, and a "fat" (wider) cursor to help overcome the problem of dim PowerBook screens. If you're considering a word processor for use on a PowerBook, or for ordinary business use (letters, memos, reports with tables and charts), WriteNow is ideal. The only question that remains is how long it will be around. WriteNow has gone through several publishers since its first release. As of this writing, it's handled by SoftKey, who took it over from WordStar, who took it over from somebody else. The problem is that it was written specifically for 680X0 machines. While it runs acceptably well on the Power Mac, it's not optimized to do so, and would have to be completely rewritten. This is unlikely to happen, so chances are good that it will eventually fade away. Meanwhile, it's a good solid choice.

See Also

MacWrite; Nisus Writer; Word; WordPerfect; Word Processors

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Writing Code

For most programmers, writing code is what programming is all about. They frequently jump right in and start coding on a new project before they nail down what the project is about. Before writing any code, a programming project should begin with thorough **problem analysis** and **program design** phases. These help clarify the purpose and design of a project before it's too late.

Once the problem is defined and the design of the program has been finalized, it's time to start writing code. Programmers use **editors** or **browsers** to create and edit code. An editor is a word processor specially optimized for writing code. The details of writing code vary depending on the **programming language** used, but some general guidelines apply no matter what language is used.

The most important guideline is to write clear, understandable code. There are two parts to this guideline: use plenty of comments, and write in a style that is clear and easy to read.

It is crucial that meaningful comments are included in the code. Although some source code is very easy to decipher without the advantage of comments, virtually any code can be made clear with good comments.

Comments should define each part of a program or section of a routine. It is generally not necessary to comment on every individual step in a program, but it is important to document the overall idea behind each piece of code,

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assumptions made in the code, and any interactions the code makes with other parts of the program. Even if you believe you are the only programmer who will see your code, comments can still be a lifesaver. Months (or years) after you've written a section of code, your original reasoning and logic is likely forgotten. If you can rely on your comments, you are able to understand your program for years to come.

Sometimes, even the best comments cannot make poorly written code easy to understand. You should strive to make the code itself easy to understand even without the comments. Avoid programming constructions that obscure the purpose of your code. Given the choice between code that is compact but difficult to understand and code that is more verbose but easy to understand, most programmers would choose the latter every time.

It is also important to follow established conventions for the style of your code. Many Macintosh C programmers, for example, begin their global variables with the letter "g" to make it clear which variables are global. Similarly, most **object-oriented programming frameworks** use a fixed style for naming classes and their member functions and data.

A complete discussion of methods used to ensure excellence in code is beyond the scope of this book. An excellent start is the book *CodeComplete* by Steve McConnell. See the bibliography in the **programming** entry for information about this book.

See Also

Framework; Object-Oriented; Problem Analysis; Program Design;

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Programming; Programming Language

WYSIWYG

What you see is what you get (pronounced “wizzywig”). This term describes computer systems that display a page on screen as it’s created, as opposed to code-driven systems that only show what a page looks like when it’s printed. The invention of WYSIWIG software was one of the driving forces behind the creation of desktop publishing.