

SKILL 1: COMPUTER CONCEPTS

“One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man.”¹

– Elbert Hubbard

The basic concepts and vocabulary underlying desktop technology are essential, providing the foundation on which all of our skills are based. In this section, we outline the important concepts, and then reintroduce Microsoft Windows[®].

TWO DISTINCT ELEMENTS

A computer system comprises two distinct elements, hardware and software.

HARDWARE

Hardware refers to the tangible nuts and bolts of your system—things you can touch, or, “the parts of a computer that can be kicked,” as Jeff Pesis once said. Every system has the following components:

- microprocessor: the brains of your system;
- memory: temporary storage that serves as the workspace for your PC’s microprocessor;
- storage: devices such as disks and tapes that can store information indefinitely; and,
- Input/Output (I/O) devices: tools that transmit information to or from your computer.

SOFTWARE

A computer exists to carry out instructions. Software refers to the stored instructions, or programs, that your computer uses to do its work. Software is stored on something you can touch, such as a floppy disk or CD-ROM, but those are mere containers. The software itself is intangible. Software falls into two broad categories:

- operating systems, and,
- applications.

OPERATING SYSTEMS

Your computer’s operating system is similar to your central nervous system. It doesn’t really do anything by itself, but it enables everything else to work. Just as your central nervous system tells your brain how to use your

heart and lungs, so the operating system tells the computer how to use its components.

There are many operating systems. The ones you are most likely to encounter are:

- MS-DOS[®]/Windows[®]
- Macintosh[®]
- UNIX[®]
- Linux[®]

There are many different kinds of computers, as well, but it is their operating systems that differentiate them. A computer may be capable of running several operating systems, but it runs only one at a time. For example, a Dell computer can run Windows[®] 2000, or Linux, or UNIX—but it cannot run Windows[®] and Linux simultaneously.

Each operating system works differently, and programs that were designed for one operating system will not run on another, under normal conditions.²

Each operating systems has its proponents, and each is very good at certain things. The dominant desktop operating system today is Microsoft[®] Windows[®].

APPLICATIONS

An application, also called a computer program, is software with a specific function, such as a word processor, spreadsheet, or database.

Once you understand the fundamentals of your operating system, you will go on to learn individual applications. Although some programs, called Accessories, come with Windows[®], most applications must be purchased and installed separately. Examples of applications include:

- Wordprocessors, such as WordPerfect and Microsoft[®] Word. Wordprocessors are used to create and format text, integrating graphics, footnotes, head-

ers and footers, and tables of contents. This book was written with a wordprocessor.

- **Spreadsheets**, such as Microsoft® Excel, Corel® QuattroPro, and Lotus® 1-2-3, enable your PC to perform complicated numerical analysis.
- **Databases**, such as Paradox, FileMakerPro, Microsoft® Access and FoxPro store and organize large amounts of information.
- **Web browsers**, such as Netscape™ Navigator or Microsoft® Internet Explorer, enable a PC that is connected to the Internet to access information on the World Wide Web.
- **Graphics programs**, such as Adobe® Photoshop or Corel® Draw, allow sophisticated manipulation of images.
- **Office suites**, such as Microsoft® Office and Corel® Office, bundle popular programs together in one integrated package. For example, Microsoft® Office Professional includes Word, Excel, PowerPoint, Access, and other applications.

There are literally hundreds of software categories, and thousands of applications available.

BYTES

A computer encapsulates each individual character—such as A, B, C, 1, 2, or 3—into a little package called a “byte.” The word “hello” is five bytes long. The phrase :

7 bytes

is seven bytes long—the space takes up a byte, too.

You remember that “kilo-” is the Greek prefix for 1,000. Thus we say:

1 kilogram = 1,000 grams

1 kilometer = 1,000 meters

1 kilobyte = ???

So what is a kilobyte? It’s 1,000 bytes, right? Wrong!

The problem is fingers—or the lack of them. We carbon units have ten fingers. Our idea of a round number is 10 raised to a power: 10^2 (100), 10^3 (1,000), 10^6 (1 million), and so on.

A computer has switches instead of fingers. Each switch can be either on or off. As a result, we say that a computer performs its calculations in binary, or base-2. Its

idea of a round number is 2 raised to a power: 2^{10} , 2^{20} , 2^{30} , and so on. We call 2^{10} bytes a “kilobyte,” but if we do the math:

$$2^{10} \text{ bytes} = 1,024 \text{ bytes}$$

Because that’s approximately 1,000, we utilize some semantic rounding and call it a kilobyte, abbreviated KB.

Similarly, we refer to a megabyte (MB) as a million bytes, when it is actually 2^{20} :

$$2^{20} \text{ bytes} = 1,048,576 \text{ bytes} = 1 \text{ MB}$$

Finally, a gigabyte (GB) is *approximately* a billion bytes:

$$2^{30} \text{ bytes} = 1,073,741,824 \text{ bytes} = 1 \text{ GB}$$

Thus, we casually refer to a kilobyte as being 1,000 bytes, a megabyte as 1,000 KB, and a gigabyte as 1,000 MB, when, in reality, a kilobyte is 1,024 bytes, a megabyte is 1,024 KB, and a gigabyte is 1,024 MB.

The capacity of a computer’s memory is measured in megabytes, as is storage capacity.

MICROPROCESSOR

Sometimes called the central processing unit, or CPU, the microprocessor is the most important part of the computer. Without a CPU, you don’t have a computer; you have parts. The CPU is the brains of your system, the part that does the calculations and data manipulation. The more powerful your CPU, the “smarter” your computer.

CLOCK SPEED

Clock speed refers to the speed at which the CPU executes instructions. Clock speed is measured in millions of cycles per second, or megahertz (MHz). Thus, all things being equal, a chip running at 800 MHz executes instructions twice as fast as one running at 400 MHz.

The original IBM PC came with an 8088 chip with a clock speed of 4.77 MHz in 1981. Today, chips running at 1,000 MHz—one gigahertz (GHz)—are common, and PCs running twice that speed are in development.

MOTHERBOARD

The large integrated circuit board to which the microprocessor is attached is called the motherboard. The motherboard is the very heart of your computer. In addition to the microprocessor, it houses the memory, memory caches, and connectors to other devices.

MEMORY

The second most important element of your computer's hardware is its Random Access Memory (RAM). RAM consists of electronic chips that temporarily store information. RAM is the workspace of your microprocessor. RAM is volatile; that is, RAM "remembers" only as long as the computer is turned on.

RAM is measured in megabytes. Memory chips come mounted on a Single In-line Memory Modules (SIMMs), pictured in Figure 4, or, in newer machines, Dual In-line Memory Modules (DIMMs). Memory modules plug into sockets on the motherboard.

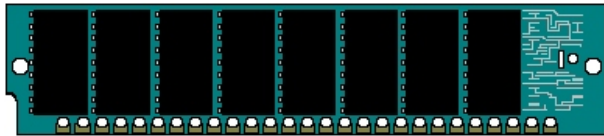


Figure 4

The CPU and memory work together to manipulate data. In the same way that one person can be very bright but have a bad memory, and another can be rather dull but have a terrific memory, a computer's CPU and memory are separate components.

OTHER KINDS OF MEMORY

In addition to RAM, your computer has several other kinds of memory that are used for specialized tasks. Three of the more important are ROM, caches, and VRAM.

Read-Only Memory (ROM) is used for the most basic functions of your PC, such as the Basic Input/Output System (BIOS). The BIOS comes programmed from the factory to tell your computer where its essential parts are. ROM is very small, it's slow, and it's non-volatile. Because ROM is non-volatile, the BIOS can remember this information even after the computer is unplugged for prolonged periods.

A cache is a special kind of volatile memory used by the computer for its internal use—an electronic scratchpad for the CPU.

Video random access memory (VRAM) refers to a set of dedicated memory chips that assist your video adapter process signals sent from your computer to the monitor.

STORAGE

Because your computer's RAM is volatile—that is, it "forgets" when the power is turned off—we need a way of permanently storing data. Here are some common non-volatile storage media:

- floppy diskettes;
- hard disks;
- CD-ROM;
- DVD;
- Zip® disks; and,
- tape cartridges.

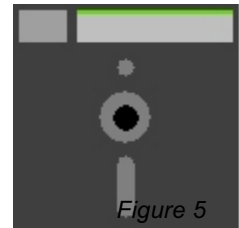


Figure 5

FLOPPY DISKS

Floppy diskettes ("floppies" or "floppy disks," for short) are a common storage medium. Early floppies for the PC measured 5 1/4" (see Figure 5), and held 360 kilobytes.

A new format, the 3 1/2" disk, was introduced in the late 1980s by Sony. The new disk, which is standard today, fit in a shirt pocket. It featured a hard plastic shell, with a spring-loaded door that protected the delicate magnetic medium from dust and oily fingerprints.

WRITE-PROTECT DEVICE

On the bottom side of your disk, you can see a hole with a black plastic sliding door. This is called the write-protect device. When this door is open (top view of Figure 6) so that you can see through the hole, the disk is write-protected.

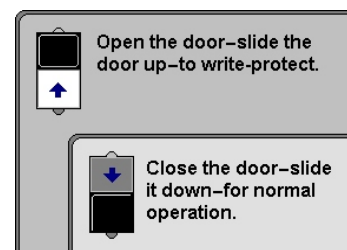


Figure 6

This means that we can read from the disk, but we can't write to it.

Software often comes on disks with this door broken out. That way, you can read from the disks to install the program, but you can't accidentally write to the disk or delete its contents. The normal state is with the door closed, as in the bottom view of Figure 6.

CARE FOR YOUR DISKS

Modern 3 1/2" floppy disks are physically rugged, but extremely sensitive to little things:

- **Physical abuse.** Dust particles can damage the disk, so don't expose it to smoke or open the door that protects the medium. Don't touch the magnetic medium inside.
- **Heat.** Floppies can be damaged by prolonged temperatures above 140° (60°C). Car interiors can easily exceed this in the summer sun.
- **Magnetic fields.** Like all magnetic media, floppy disks are extremely susceptible to magnetic fields. Avoid electric motors, such as vacuum cleaners, fluorescent light ballasts, magnets, and speakers. Don't leave disks laying on top of monitors, which emit magnetic fields.
- **Temperature changes.** Temperature changes can cause water vapor to condense on the magnetic surface. This may damage the disk or even the disk drive itself. Also, the mechanism is not designed to function at temperatures below freezing. If you bring a disk in from the cold, let it thaw for a few minutes before inserting it in the machine.

RECOVERING DAMAGED DISKS

Sometimes disks are damaged despite our best efforts. Commercial utility programs, such as Norton Utilities, can often recover all or part of the data from a damaged disk.

HARD DISKS

Every PC contains a hard disk, pictured in Figure 7. A hard disk is built inside your PC and is not removable.

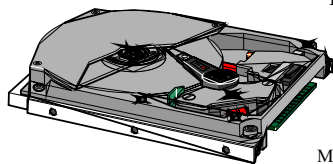


Figure 7

Hard disks contain much more data than their floppy cousins, and they come in a variety of sizes, anywhere from 30 MB to 32 GB. Most systems today come with hard disks in the 8-32 GB range. Hard disks are much faster than floppy disks.

You may hear the term “drive” used interchangeably with “disk.” With floppies, there is a distinction: the floppy *disk* is the storage medium, and the floppy *drive* is the mechanism in the computer that reads and writes to that medium. With hard disks and hard drives, the distinction is blurred because the medium cannot be removed from the mechanism that reads and writes to it. Thus, the terms refer essentially to the same unit.

Actually, the term “hard disk” is slightly misleading because, unlike a floppy, a hard disk does not comprise a single disk, but a stack of platters, each separated from the next by a narrow gap. A gang of read/write heads on long arms traverse this gap, riding a few millimeters above the surfaces of the disks. As the arms move in and out, they can quickly access data stored on the disk.

CD-ROM

Like a music compact disk (CD), CD-ROMs store data in digital form that is readable by lasers from tracks on the bottom side of the disk. Here are some tips for caring for your CD-ROMs:



- Don't add an adhesive label to a CD-ROM; it may unbalance the disk, causing it to vibrate, potentially damaging the mechanism.
- Keep the disk away from heat and sunlight.
- If you must mark a disk, write on the top side with a felt-tip marker. Never write on the bottom side, which is the side read by the laser.

TYPE	SIZE	SPEED
Floppy disk	720 KB or 1.44 MB	Slow
Hard disk	30 MB - 100 GB	Very fast
CD-ROM	650 MB	Very fast
DVD	4.7 GB	Very fast
Zip® disk	100 MB or 250 MB	Slow
Superdisk®	120 MB	Slow
Tape cartridge	varies	Very slow

Figure 9

I/O DEVICES

An input device is hardware that enters data or instructions to a computer. When people think of input devices, they usually think of keyboards.

The universe of keyboards is bigger than most people think. For example, the cash register at McDonalds is a keyboard input device—although looks nothing like a typewriter.

The keyboard, mouse, and monitor are standard input/output (I/O) devices. These devices are unnecessary; it's not uncommon to find a computer that has no mouse, or even no monitor, in specialized situations. Still, all computers have some kind of I/O device. Devices other

than the keyboard, mouse, and monitor are sometimes called peripherals. Peripherals include:

- specialized point-and-click devices, such as the track ball;
- joystick and gaming devices;
- touch screens, used in kiosks and automatic tellers;
- digitizer tablet and pen or light pen;
- optical scanners, including optical character readers (OCR), bar code readers, data wands, and highway scanners/automatic tollbooths;
- data readers, such as magnetic ink readers, badge readers, and magnetic swipe systems;
- personal identification systems: voice recognition, fingerprint readers, and retina scanners;
- dot-matrix, ink jet, and laser printers, film recorders, and plotters;
- multimedia devices, such as microphones, digital cameras, and video cameras;
- modems, and DSL and cable adapters;
- digital controllers;

. . . and the beat goes on and on and on.

WINDOWS® EVOLUTION

The operating system, as you'll recall, works like your PC's central nervous system, coordinating its activities and components. The dominant desktop operating system today is Microsoft® Windows®.

In 1980, Seattle Computer Products developed its Quick and Dirty Operating System (QDOS), which it soon renamed 86-DOS. Microsoft licensed 86-DOS and later purchased it outright, renaming it Microsoft® Disk Operating System (MS-DOS®). Commonly called "DOS," it became the de facto standard for the desktop environment. DOS was a command-line operating system. To interact with the computer, you had to type specific commands at a command prompt. DOS may have been primitive, but it worked.

WIMP INTERFACE

On November 20, 1985, Microsoft introduced a new program to make the PC more user-friendly. It was called "Windows®," and it featured the so-called "WIMP" interface—windows-icons-menus-pointers—developed at Xerox's Palo Alto Research Center (PARC) and popular-

ized by the Macintosh®. Its Graphical User Interface (GUI) was designed to make DOS more user-friendly.

It was an immediate flop.

It was not until 1990 that Microsoft achieved success, with Windows® 3.0, which sold over 3 million copies its first year. In 1992, an improved version, 3.1, rocked the PC world. By March 1993, programs written for Windows® outsold those written for DOS.

With the August 1995 release of its successor, Windows® 95, Microsoft created a dramatic new 32-bit version, which sold over 7,000,000 copies within the first two months. Windows® 98 had even greater success. Windows® Millennium Edition ("Win ME"), the successor to 98, was released in the summer of 2000. All of these were based on MS-DOS®. In fact, some would argue that they were not operating systems at all, but merely that mediated between the user and DOS.

NT®

MS-DOS® was designed for the personal computer, and its name betrays it: the *personal* computer was not designed to be networked with other PCs. Windows® 3.11, also known as "Windows® for Workgroups," was a rudimentary network version of Windows®, but it, too was based on MS-DOS®.

Recognizing the limitations of DOS, Microsoft worked with IBM in the late 1980s to develop a new operating system from the ground up. This operating system, OS/2®, was based on a networking operating system developed by Bell Labs, called UNIX®. After a bloody divorce from IBM in 1991, Microsoft transformed its share of the OS/2® v3.0 technology into Windows® New Technology (NT®) 3.0. Sporting the same interface as its consumer line, this new line of operating systems was aimed at networked, corporate offices.

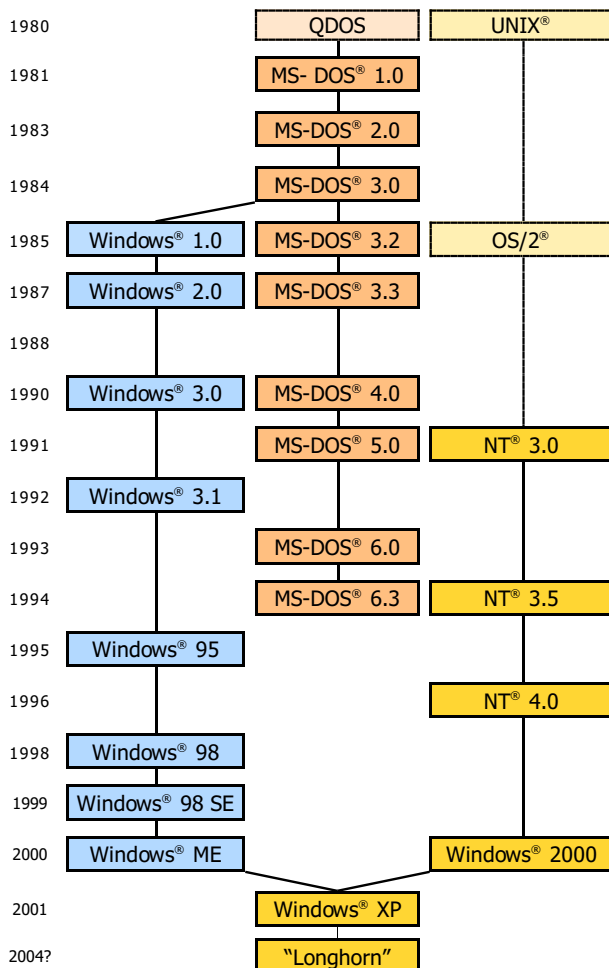
Microsoft introduced NT® 3.5 in 1994. In 1996, Windows® NT 4.0 adopted the interface introduced by Windows® 95. In 2000, Microsoft overhauled its NT® line with the release of Windows® 2000.

CONVERGENCE

Both the UNIX-based corporate line and the DOS-based consumer line developed independently, gaining unique features along the way. One wasn't necessarily better than the other; they were different. In 2001, Microsoft intro-

duced Windows® XP, a convergence of its consumer and corporate lines.

There were two versions of Windows® XP: Home and Professional. The less expensive Home version was intended for general use. Pro has all of Home's features, plus support for multiple processors, remote desktop access, and a slew of network security features.



The consumer line, from Windows® 1.0 through Windows® ME was based on MS-DOS®. The NT line, through Windows® XP, shared a similar interface with the consumer line, but was based on a UNIX design.

DOES ANY OF THIS MATTER?

No. Not, at least, to most users. Both the consumer and the corporate lines share the same interface; they look and

work exactly the same. With rare exceptions, they run the same programs. The bottom line: Learning the principles is essentially the same for all versions, despite their underlying architectural and small cosmetic differences.

WHY LEARN WINDOWS®?

There are seven major features of Microsoft® Windows:

1. **GUI** (Graphical User Interface) pronounced “GOO-ee.”
2. **Common User Interface**
3. **WYSIWYG** (What You See Is What You Get) environment; pronounced “WIS-ee-wig.”
4. **Advanced Memory Management**
5. **Multitasking**
6. **OLE** (Object Linking and Embedding). Pronounced “o-LAY.”
7. **The Lemming Syndrome**

GUI

The Graphical User Interface makes computers easier to use, through the use of a pointing device, called a mouse, and little pictures, called “icons.” Instead of typing arcane computer commands, the user can execute many commands with a click of a mouse on an icon.

YOUR MOUSE

Examine your mouse. There are two buttons at the top. Hold it comfortably, as if it were an extension of your hand. As you move the mouse, a pointer moves on the screen. Move the mouse forward and the pointer goes up, pull it back, and the pointer goes down.

MOUSE TECHNIQUES

There are four important mouse techniques. The first three use the left button. The last uses the right button:

1. **Point-and-click**: With the tip of the arrow pointing at an item, gently tap the left mouse button.
2. **Double-click**: With the tip of the arrow pointing at an item, gently tap the left mouse button twice in rapid succession.
3. **Click-and-drag**: With the tip of the arrow on the target, press the left mouse button and keep it depressed, as you move the pointer to a new location

on the screen. When you reach the desired position, lift your finger.

4. **Right-click:** Click the *right* mouse button once to call up a context-sensitive, pop-up menu. The menu you get depends on what the pointer is on at the time that you right-clicked.

POINT & CLICK

When we say “point-and-click,” we mean move the tip of the pointer arrow to an object on the screen and gently tap the left mouse button.

To illustrate the point-and-click method, let’s open an application. WordPad is a small word processor that comes with Windows®. To start WordPad:

Step 1: Click , located on the Taskbar.

Step 2: Move the mouse *straight up*, to Programs.

- As you pass the pointer over a menu item that has a little arrow, ▶, to its right, a submenu automatically expands for that item.
- As you move the pointer up to Programs—you needn’t click the mouse—its menu expands to the right, as seen in Figure 10. (This menu will be similar—but not identical—to yours.)

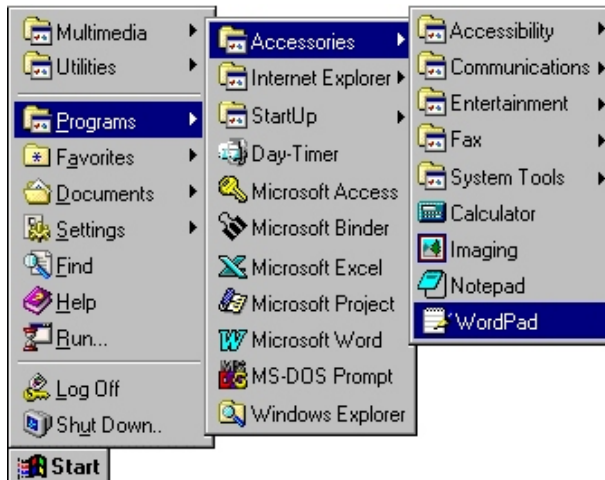


Figure 10

- If your operating system is Windows® XP, the menu may resemble this, instead:

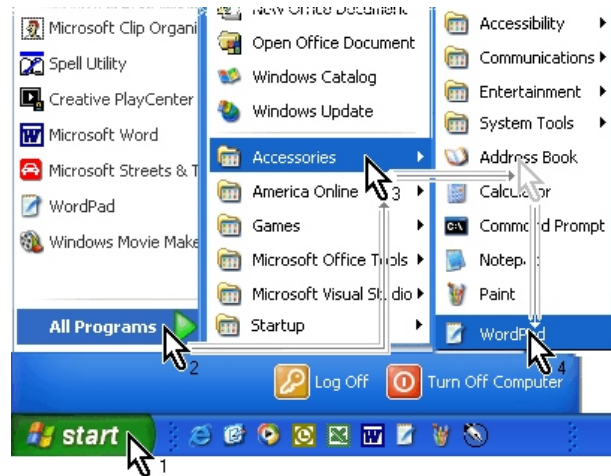


Figure 11

Step 3: Move the mouse *straight right* from Programs (or All Programs in XP) and then *straight up* to Accessories.

- Accessories has an arrow, ▶, to its right, telling you that, when your mouse passes over, its submenu will expand.



Step 4: Move the mouse *straight right* from Accessories and then *straight up (or down)* to WordPad.



Step 5: Click WordPad.





We use the same technique to launch other programs.



THE POINTER

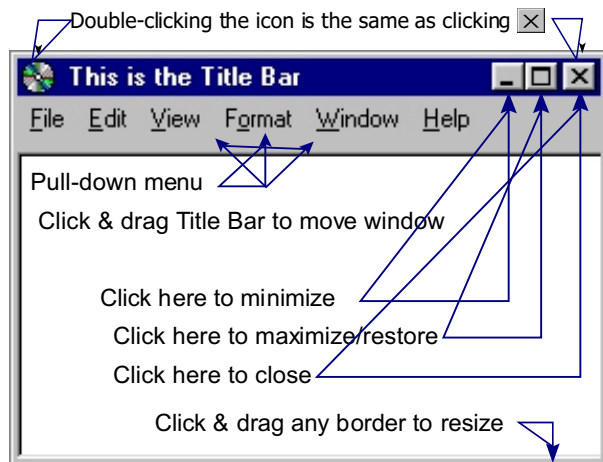
Many functions can be controlled by the mouse. Moving the mouse moves the pointer on the screen. The pointer’s appearance changes, depending on the object the pointer is over at the moment. For example, the pointer is an arrow over menu items, but it turns into a two-headed arrow, when you hover over a window’s border.




- **To minimize a window**, click the *first* of the three icons, , on the right of its Title Bar. This shrinks the window into an icon on the Taskbar. A minimized program is still running.
- **To restore a minimized window**, click its icon in the Taskbar at the bottom of the screen.
- **To close a window**, click the *third* icon: . This stops the program and closes its window.

The middle button has two functions and two corresponding icons,  and :

- To maximize a window, click the second icon, ; this expands the window to fill the entire screen and changes the icon to .
- To restore a window, click the second icon, ; this returns the window to its previous size and position, and changes the icon to .


Double-clicking the title bar performs the same function as clicking the middle button,  or : Double-click the Title Bar to expand a window to full screen; double-click it again to restore it to its previous size.



Double-clicking the program's icon, in the far left of the Title Bar, is equivalent to clicking . Double-clicking the Title Bar itself is equivalent to clicking  or .

CLICK-AND-DRAG

To *click-and-drag* means to press the left mouse button, and leave it depressed as you move the mouse:

- To resize a window, click and drag the window's border to a new size. When the pointer is over the border, it turns into a two-headed arrow, .
- To move a window, click and drag its Title Bar to a new location on the screen.

INSERTION POINT

What we commonly refer to as the “cursor” (a carryover from MS-DOS®, the command-line predecessor to Windows®) is called the “insertion point.” The cursor will appear as a blinking “|”. The cursor is independent of the mouse. When you type, the characters are entered at the insertion point—not at the pointer, which moves as you move the mouse.

DOUBLE-CLICK

For many people, especially new users, the double-click is a difficult trick to master. To double-click, tap the left mouse button twice, very quickly, without moving the mouse between clicks.

If you move the mouse in the middle of a double-click, Windows® will think you made two single clicks. This may be a problem if you are a new user, because, being a little nervous, you may tend to press the mouse button too hard and to tense your muscles as you use the mouse, which often makes the mouse move inadvertently.

Double-clicking is used mainly to open folders or launch programs. To illustrate this, open the My Computer icon on your Desktop, seen in Figure 26. If you double-click the icon, a window will open, displaying its contents. If double-clicking is difficult for you, try this instead:

Step 1: Click an icon once to select it.



Step 2: Press .



Figure 26

Voilà! Whenever you want to start a program or open a folder, you can double-click its icon, or click it once and press .

COMMON USER INTERFACE

The idea behind the Common User Interface is that all Windows® programs look and act the same.

CONVENTIONS USED IN THIS BOOK

To better understand the text, observe these conventions:

1. "Press **X** **Y**" means press the X-key and the Y-key simultaneously.
2. "Press **X**, **Y**" means press the X-key and the Y-key sequentially.

When describing a technique that works in all versions, I will use the Windows Classic interface:

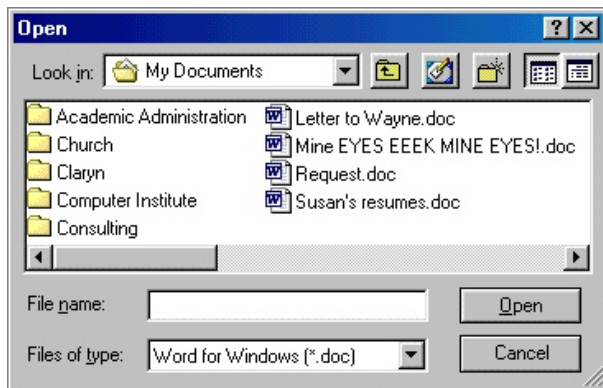


Figure 27

When the technique is specific to Windows® XP or XP-class software, I use the Windows® Luna interface:

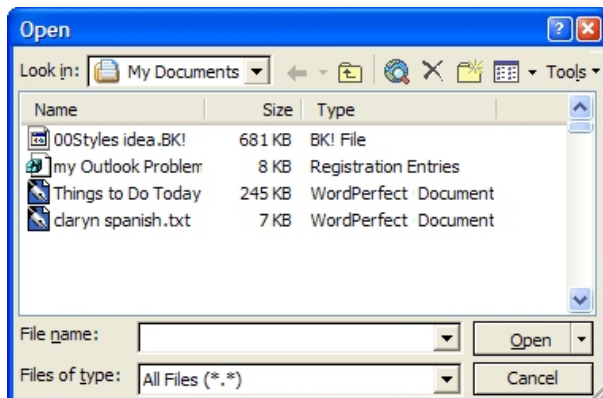


Figure 28

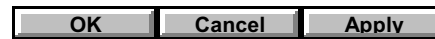
DIALOGS

When Windows® or a Windows® application needs information from you, it displays a dialog. Most dialogs offer you a number of options.

You can navigate around a dialog with either the mouse or the keyboard. Press **Tab** to advance from field to field or **Shift Tab** to reverse direction. If a dialog has tabs along the top, press **Ctrl Tab** to move from tab to tab. In addition, dialogs usually have a set of buttons, such as:



or:



When you have made your choices, you have to close the dialog to continue working. To **apply the changes and then close** the dialog:

- click **OK**; or,
- press **Enter**.

To close the dialog **without** making changes:

- click **Cancel**; or,
- press **Esc**.

To **apply changes** without closing the dialog:

- click **Apply**.

To reiterate:

- Clicking **OK** applies your changes and closes the dialog;
- Clicking **Apply** applies your changes, but leaves the dialog on the screen.

That's the only difference between the two.

CHECK BOXES V. OPTIONS

Note the square check boxes. Clicking an empty check box places a ✓ in the box. This is called "selecting" a check box. Click it again, and the ✓ goes away. This is called "deselecting" the check box.

The round option buttons, also known as "radio buttons" work like check boxes, with one difference: options within a frame are mutually exclusive. You can select more than one check box, as shown in the hypothetical dialog in Figure 29, but you can't select more than one option. Selecting one option deselects the other option buttons in that frame.

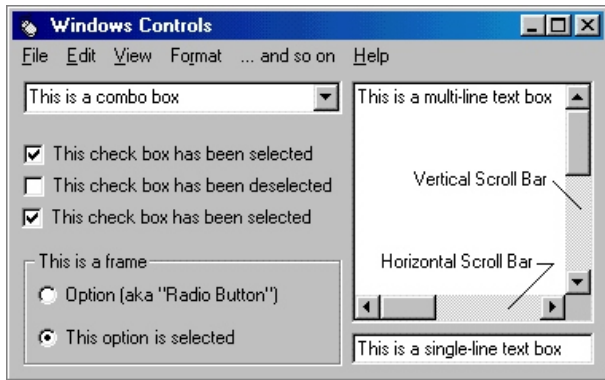


Figure 29

SCROLL BARS

Two more elements in Figure 29 are the horizontal and vertical scroll bars. If a window’s content does not fit, scroll bars may appear along its bottom, its right, or both. You can maneuver around a document, without changing the position of the insertion point, by moving the elevator, as shown in Figure 30.

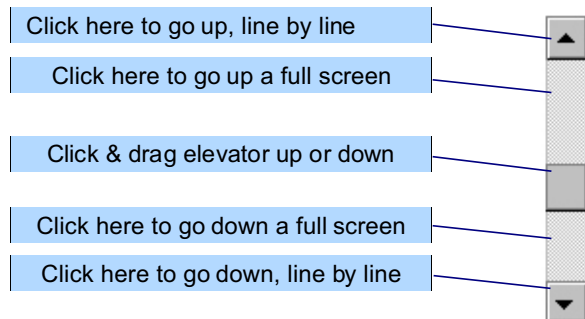


Figure 30

PULL-DOWN MENU

Windows® applications have a pull-down menu under the Title Bar. Click the menu item to see a list of related commands. For example, if you click the word Edit, a pull-down menu of Edit commands, such as Undo, Cut, Copy, and Paste, appears, similar to Figure 31.

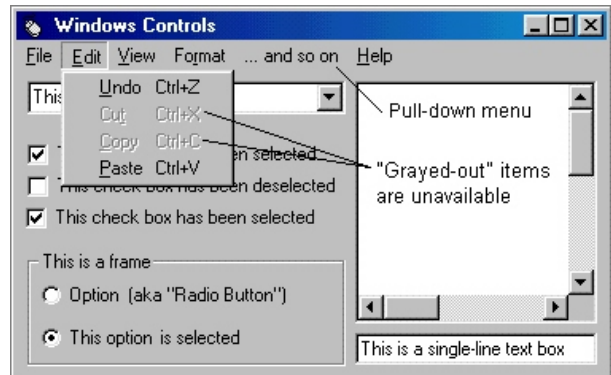


Figure 31

If an option is unavailable, it is “grayed out” on the menu. In Figure 31, the Cut and Copy options are grayed out. These functions are unavailable because if nothing is selected, then nothing can be cut or copied.

COMBO BOX

Figure 29 has a control called a combo box, ▾. A combo box displays a list of options available when you click the drop-down icon, ▾, at its right. When you click the drop-down icon, ▾, a list drops down, which is why these are sometimes called “drop-down boxes” or “drop-down lists.”

You may hear someone say, “pull down the list,” which suggests that you should click and drag something somewhere—but don’t. Simply clicking the drop-down icon, ▾, is all you need, as shown in Figure 36.

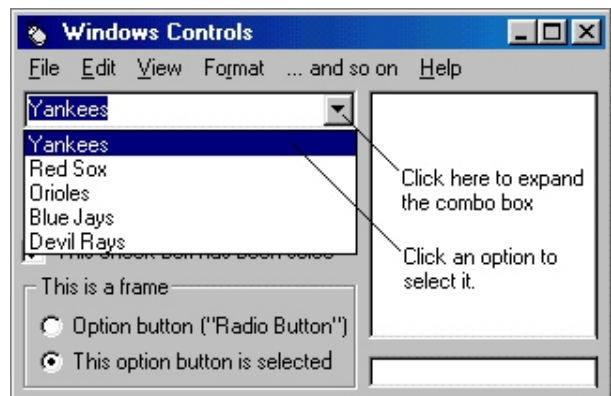


Figure 36

To select an option from a drop-down box, click the item in the expanded list that you desire.

TOOLBARS

Beneath the pull-down menu bar there are usually one or more toolbars, containing drop-down boxes and buttons with little pictures, called icons. To activate one of these features, simply click its corresponding icon.

WYSIWYG

“What You See Is What You Get,” or WYSIWYG, means that the document on the screen looks just like the printed document. Fonts and font attributes (**bold**, *italics*, underlining), vertical and horizontal spacing, headers, footers, footnotes, graphs, tables and so on, appear on the screen as they will when they are printed.

FONT S

Fonts are the typefaces available to applications on your computer. Here are some examples:

- This is a sans serif font called Arial.
- This is a serif font called Times New Roman, the most commonly used font.
- *This is a script font called Brush Script MT.*
- **This decorative font is called Diploma.**

Some fonts produce icons and symbols, such as:



Some of the more popular of these iconic fonts are Wingdings®, Webdings®, Marlett, Botanical, and Symbol. If you apply an iconic font to text, each character will correspond to a symbol instead of a letter. For example, if you select the WebDings® font and then type:

NYC

you will get this ironic iconic:



Depending on the version, Windows® comes with about fifteen fonts. As you add programs to your PC, many of them will install additional fonts.

STANDARD FONTS		
Arial	Marlett†	Tahoma
Comic Sans MS	MS Sans Serif	Times New Roman
Courier New	MS Serif	Verdana
Impact	Small fonts	Webdings*†
Lucinda Console	Symbol†	Wingdings†

†Marlett, Symbol, Webdings, and Wingdings are iconic fonts.

FONT SIZE

Just to the right of the font name combo box is the font size combo box. It lists standard heights of characters, measured in points. One point is 1/72", so text that is ½" high would be 36 point. Standard business letters use 10 to 12 point Arial or Times New Roman.

MEMORY MANAGEMENT

DOS programs, for the most part, were limited to using the first 640 kilobytes of computer memory. Windows® applications can use all of a computer’s memory. Advanced memory management enables your PC to run much more powerful programs and to do multitasking.

MULTITASKING

Multitasking is the ability to run more than one program at a time. Think of it as the computer’s ability to walk and chew gum at the same time.

TASK SWITCHING

If you are running multiple programs and want to switch from one to another, press **Alt** as you tap **Tab**. Windows® will cycle among the applications that are running, with each tap of the **Alt+Tab**, as shown in Figure 37. Lift your finger from **Alt** when the program you want is highlighted. This is called task switching.



Figure 37

OLE

Object Linking and Embedding (OLE) and a related tool, Dynamic Data Exchange (DDE), allow data from one program to be linked to or embedded in another. For example, one may copy a spreadsheet, or a picture created in Paint into a word processing document.

LEMMING SYNDROME


When you were a child, perhaps you bowed to peer pressure, only to be asked by your parents, “If all the other kids were jumping off a cliff, would you jump too?” As adults, we find that the answer is often yes.

Windows® 95/98/SE/ME and XP are not necessarily the best operating environments in the world. They may not even be the best versions of Windows® in the world. Nonetheless, they *are* the most popular in the world, and that’s not a bad reason to learn something about them.

EXIT WINDOWS®

Never just turn off a PC. Always close the program in which you are working *and then* shut down Windows® before turning off the machine.

SHUT DOWN WINDOWS® 95/98/SE



Step 1: From the Taskbar, click  and select Shut Down.

Step 2: Select the Shut down option, if it’s not already selected, as shown in Figure 38.




Figure 38

Step 3: Either:

- press ; or,
- click .

SHUT DOWN WINDOWS® ME

Step 1: From the Taskbar, click  and select Shut Down.

Step 2: Select Shut down from the drop-down list, as shown in Figure 39.

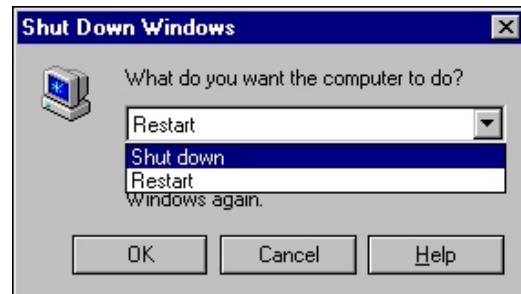
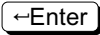
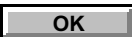


Figure 39

Step 3: Either:

- press ; or,
- click .

SHUTDOWN WINDOWS® XP



Step 1: From the Taskbar, click , Turn Off Computer, as shown in Figure 41.



Figure 41

Step 2: Click the Turn Off icon, .

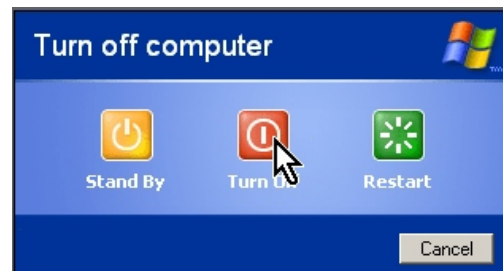


Figure 43


IN ALL CASES

Wait for a message that it's safe to shut off your computer and then turn off the power switch. Newer PCs may turn themselves off, or go into stand-by mode, automatically.


WINDOWS® & DOS

Windows® ME was a transitional product, bridging the gap between Windows® 98 and Windows® XP. Unlike Windows® 95/98/ME, Windows® XP wasn't based on MS-DOS®, as Microsoft began shutting out the lights on its venerable operating system. As you can see when you compare Figure 38 and Figure 39, you cannot restart Windows® ME in DOS's real-mode from the Shut Down Windows® dialog.


You can still access a DOS command prompt through the Windows® ME:

- click  and select Programs, MS DOS prompt;


or a DOS-like command prompt through Windows® XP:


- click  and select All Programs, Accessories, Command Prompt.

REBOOTING

There are times when you must wait for your PC to perform one task before you can continue with another. When this happens, you will see an hour glass icon, . The hour glass often appears for a few seconds, more or less, depending on the task.

Occasionally a program will fail. When an application “locks up” or “freezes,” all changes you have made to the document since your last save will be lost.

When this happens, press . In DOS and Windows® 3.x, this was called a “warm boot.” It restarted your computer from scratch. (Starting a PC with the power switch is called a “cold boot.”)

Pressing  is called a local reboot. In Windows® 95/98/ME, this opens the Close Program dialog seen in Figure 46:

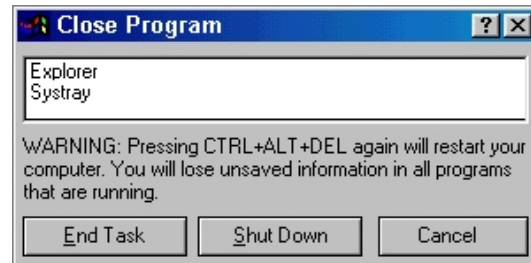


Figure 46

In Windows® XP, this opens Task Manager, shown in Figure 47.

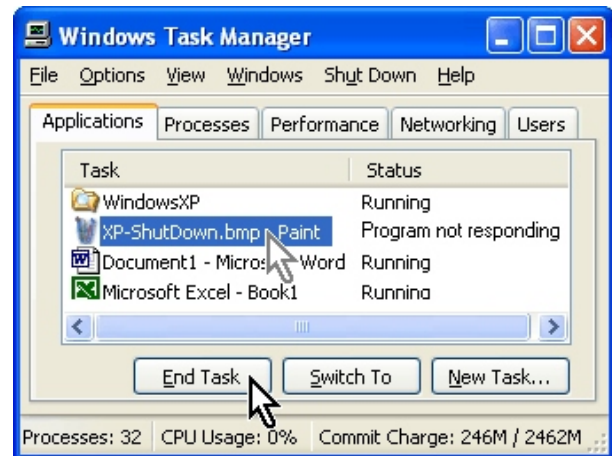




Figure 47

In either case, if your program has crashed, the phrase “Program not responding” will appear after its name. If this happens, select the program from the list and click . This closes the errant program, allowing you to return to other programs and save any documents that you are working on. Next, you should reboot your PC or restart Windows®.





RESTARTING V. REBOOTING

To reboot your system:


Step 1: From the Taskbar, click  and select Shutdown.

Step 2: Select Restart the computer.



Step 3: Either:

-  press ; or,
-  click .

There is a faster way to restart Windows® without rebooting your PC:

Step 1: From the Taskbar, click  and select Shut Down.

Step 2: Select Restart the computer, as before.

Step 3: Hold down  and press .

Restarting Windows® with this method skips the Power On Self Test (POST) that occurs when you reboot.

NOTES

1. . . . or woman, of course.
2. Translator programs allow programs designed for one operating system, such as Windows, to be run on another operating system, such as Macintosh or Linux. Their use is not widespread.