



# @ S O F T W A R E

## Windows

A product by Microsoft Corp. (*released in 1985*) that allows you to run tons of different programs by different manufacturers in a visual environment on your P.C. Windows programs can copy and paste stuff between them, and share a lot of the same commands like File and Help from their menu bars.

### The Following Conventions are used in Windows

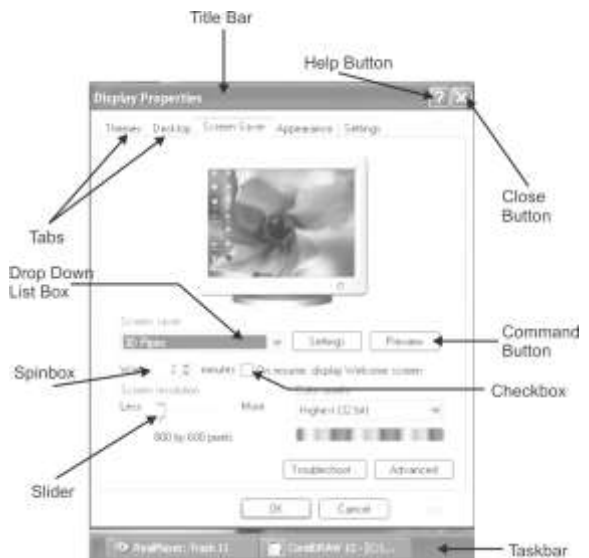
(a) Menu convention (b) Meaning

1a. Dimmed (or not visible) command:

- b. You cannot use the command with your application at the current time. (For example, you may need to select another item before you can use this command.)
- 2a. An ellipsis (...) following a command:**
- b. A dialog box appears when you choose the command. The dialog box contains options you need to select before the command can be carried out.
- 3a. A check mark (✓) to the left of a command:**
- b. The command is in effect. When you remove the check mark (by choosing the command again), the command is no longer in effect.
- 4a. A key combination to the right of a command, (Accelerator key/Hotkey):
- b. The key combination is a shortcut for choosing the command. You can press the keys listed to choose the command without first opening the menu.
- 5a. A triangle (▶) to the right of a command:
- b. When you choose this command, a cascading menu appears.

**Some Parts of A Window**

\* **ICONS:** A graphical representation of an element in windows, such as a disk, drive, directory, group application, or document. A little picture that's either on a button, or in a group in windows program.



- \* **Title Bar:** The horizontal bar (at the top of a window) that contains the title of the window or dialog box. On many windows, the Title bar also contains the Control-Menu box and the Maximise/Restore Down, Close and Minimise button.
- \* **Control Menu Button:** A menu that contains commands you can use to manipulate a window. To open the control menu, you choose the control-menu box to the left of the title bar in a window, or you select an application. Every application that runs in a window and some MS-DOS based applications have a control menu. Document windows and some dialog boxes also have control menus.
- \* **Menu Bar:** The strip on the top of a windows program that generally starts with 'File'.
- \* **Status Bar:** a.k.a. the status line, this is the bar beneath the menu bar, where all the activity you are involved in on your space is displayed.
- \* **Command Buttons:** You choose a command button to initiate an action, such as carrying out or canceling a command. The OK, Cancel and Help buttons are common command buttons. They are often located along the bottom or on the right side of the dialog box.
- \* **Taskbar:** The bar that contains the Start button and appears by default at the bottom of the desktop. You can click the taskbar buttons to switch between programs. You can also hide the taskbar, move it to the sides or top of the desktop, and customize it in other ways.
- \* **List Box:** A list box displays a list of choices. If there are more choices than can fit in the box, scroll bars are provided so you can move quickly through the list.
- \* **Option Buttons:** (Radio Buttons) represent a group of mutually exclusive options. You can select only one option at a time. If you already have one option selected, your current selection replaces

it. The selected option button contains a black dot. Names of unavailable options appear dimmed.

- \* **Check boxes:** presents non-exclusive options, you can select as many check-boxes options as needed. When a Check box is selected, it contains an x.
- \* **Drop-down list boxes:** appears initially as a rectangular box containing the current selection. When you select the down arrow in the square box at the right, a list of available choices appears.

## **HARDWARE VERSUS SOFTWARE**

**Hardware:** is the machinery & it's physical parts. It includes all parts of the Computer system that you can touch.

**HARDWARE DEVICES:** Each of your computer's hardware components is called a device. Your computer's keyboard, mouse, monitor, printer, disk drives, and memory boards are all devices. Your operating system uses a program called a device driver to control each device and has built-in device drivers for your keyboard, monitor, hard and floppy disk drives, and communication ports.

**ERGONOMIC ENGINEERING:** The external appearance of a computer system and how well it adapts to a user's comfort is an aspect of hardware design called 'Engineering Ergonomics', Examples: Tilt swivel base, keyboards that have 'bucket seat' like depressions, Ergonomic Keyboards, mouse.

## **WHAT IS SOFTWARE?**

Software is more elusive. It is like the music recorded on a CD rather than the CD itself. You can't touch it, you can only hear its results. It is also a set of computer instructions used to perform a task.

Software is a general term used to describe all types of programs that manage a computer's operation.

1. Instructions for the computer- the program is a series of instructions that tells the computer exactly what to do, what kind of information to print, or display. What kind of data to take in, and when to take the data in.
2. PROGRAMMING your computer means you are writing software for it. Creating a set of instructions that tells the computer how to perform the task.
3. Documentation on how to use a computer is software.
4. Program or application package.

### **There are basically 2 types of software**

**(1) APPLICATION SOFTWARE:** is the software that you use actually to perform your work. *NOTE: The term "applications" is often used in computer circles to mean "things that you can do with your computer".*

### **INTRODUCTION TO APPLICATION SOFTWARE**

Application software helps you accomplish tasks. You can use application software to write letters, manage your finances, draw pictures, play games and much more. You can buy software at computer stores. There are also thousands of programs available on the Internet.

**INSTALL SOFTWARE:** Software you buy at a computer store may come on an optical disc. Before you can use the software, you must install, or copy the contents of the disc to your computer.

**SOFTWARE VERSIONS:** Software developers and manufacturers constantly make corrections (*called bug-fixes*) and add new features to the software they create. When a manufacturer releases updated

software, the software is given a new version number, this helps people distinguish new versions of the software from older versions.

**BUNDLED SOFTWARE:** Bundled software is software that comes pre-installed with a new computer system or device, such as a printer. Companies often include bundled software to let you start using the new equipment right away. For example, new computer systems usually come with a 30-day trial version Microsoft Office Suite or most recently, the Starter versions of Word and Excel 2011.

**Application software is available in the following types:**

- a. **Packaged software:** is designed to meet the needs of a wide variety of users, not just a single user or company. Also called commercial off-the-shelf software because you can purchase these programs off the shelf from stores that sell computer products. You can also purchase them from the Internet and at times, you can run the software on the Internet rather than installing them onto your computer.
- b. **Custom Software:** A user or organization may have unique software requirements (due to security concerns), and they may opt for custom software which is designed specifically to meet their needs. These cost much more as they cannot be found in the market.
- c. **Trialware/Shareware:** Software that is distributed free for a trial period. If you want to use the software beyond the trial period, you are expected to pay to the person or company that developed the program. The developer then registers you to receive the activation- key.
- d. **Freeware and Public Domain:** Freeware is software that is provided at no cost to a user or individual. Although it is free, it is copyrighted and you cannot resell it as your own. Public

domain is free software that has been donated for public use and has no copyright restrictions.

**(2) OPERATING SYSTEM:** are programs that act as the intermediary between you and the hardware and, to some extent, between the hardware and the applications software. They ultimately control all aspects of your computer. Software must be written to work with a particular operating system. You can think of different operating systems as speaking different languages. That's why a computer using the Macintosh OS can't operate programs designed for Windows without special translation software. Examples of PC based O/S are: Ms-DOS, (Windows 3.1 was called an **operating environment** because it required DOS. MS-DOS used a text- based interface in which you type commands at the system prompt), Windows 95, 98, 2000, NT, XP, Vista and Windows 7, 10 and 11, Microsoft's newest operating system.

### **LEVELS OF SOFTWARE:**

When we buy a computer, it comes with some manufacturer's S/W or program codes that will control the hardware and make it available for the user. This is called Operating System S/W (O/S). Without the operating system it would be nearly impossible for any unskilled engineer to use a computer. In some systems, the O/S is called **THE MONITOR PROGRAM**. It's main function is to start up the computer (the boot strap process) and transfer control to the user after all necessary initialization. It further assists the user to perform Input/output to other devices. When you switch on your P.C a small piece of software permanently fixed inside, tells it to perform a number of internal checks.

## **Operating System: What does it do?**

1. It bootstraps your computer-the computer at power on. That is it starts up your machine.
2. It manages other devices connected to the computer (called peripherals).
3. It is a file manager. It starts your application programs and takes over when it stops.
4. Communicates between users in a multi-user system and controls allocation of resources to each user.

## **MEMORY versus STORAGE**

One of the most important things you should understand is the difference between **memory** and **hard disk storage**. Many users mistake hard disk space for PC memory. A hard disk drive is a place where you can magnetically store programs and other information inside your PC. You can also have an SSD Solid State Drive (which does not have the mechanical parts the HDD has, and loads much faster). When you buy and install programs, you're copying the disc's contents to your PC's hard drive, not to memory.

Computer memory in general refers to your PC's random-access memory (RAM), a place that your PC temporarily keeps the information that it's working on. Another big difference between storage and actual memory is that the CPU (the chip that acts as the 'brain' of the PC) only has quick, direct access to whatever is in those gigabytes of RAM memory-it can't see the hard disk drive. The only way (the CPU) can work with a program is after that program is copied from the disk drive onto RAM memory. After the CPU is through calculating and working with the information currently in RAM, then it can put the information back on the hard disk drive. But during the time the calculating is happening, it's all happening between the CPU and RAM.

Memory works like a blackboard that is constantly being overwritten with new data. The data stored in memory disappears when you turn off the computer.

**Memory Size:** The amount of memory determines the number of programs a computer can run at once and how fast programs will operate. Memory is measured in gigabytes or terabytes. You can also improve on a computer by adding more memory (upgrading).

**Program Requirements:** A programs will usually tell you the minimum amount of memory, hard disk space, and operating system your computer needs to use the program.

## CONNECTING YOUR PHONE TO A COMPUTER

- **A Cable:** physically connects your phone to your Pc. USB or HDMI are examples
- \* **Bluetooth:** Lets two devices like a phone and headset, communicate with each other wirelessly. In order to use Blue tooth technology to connect your phone to your PC, your phone and PC must have the Bluetooth feature and the feature must be turned on.



**ONCE SAVED, FOREVER SAVED? How Often Should I Save My Work?** Save Often!!! This depends on what you are doing, and how easy it would be to do it over. You could have a power failure, software ‘hang’, while working away on your PC, and all your work may be lost. (Don’t rely on the auto-recovery feature in some

software). A good rule of thumb is that ***you should save your work every time you'd be unhappy if you had to do it over again.***

## **FILES, DIRECTORIES & DRIVES**

All data on disks is stored in files. (Data means Information, which can be either Picture, Text, or Sound).

A file is simply a **named collection of information** stored on a disk. There are two basic types of files: **program files**, which contain instructions to your P.C., and **data files**, which contain data you enter through an application program. A file is an electronic document or an application or program that has been named and is stored on your computer. A file could be a memo you have written or the word-processing application you used to create the memo. Files have unique names, such as LETTER.TXT and APPLICATION.EXE, and they can be organised into directories. A file is the primary unit of storage on your computer. *A file enables your operating system to distinguish one collection of information from another.* For example, when you use a word-processing program to write a letter, you store the letter in its own file. Every file has a name, which generally indicates what type of information the file contains. The files on your computer came from various sources. Some files come with your OS, while others come with applications such as a word processor. These files contain codes and other information that are necessary to make your computer and applications run. Before long, there will be hundreds or even thousands of files on your computer.

### **DIRECTORIES:**

A Directory is a collection of files and/or other directories (sometimes called sub-directories).

Storing groups of files in different directories makes files easier to find. Like files, directories can be created by you or by an application.

- a. **Current Directory:** Directories would be hard to use if you did not know which one you were in.  
The directory you are in is called the current directory. Knowing which directory is current helps you find files and helps you move from one directory to another more easily.
- b. **Sub-directories:** Directories can contain other directories. A directory within another directory is called a sub-directory. By creating sub-directories, you can better categorize your files.
- c. **The Root Directory:** Strictly speaking, all directories have names, except for one, which is called the root directory. The root directory is the starting point from which all other directories branch out. The root directory does not have a name.  
Because the root directory is the basis for all other directories, you cannot delete it. Avoid unnecessarily storing files in the root directory. There is a limit to the number of files and directories the root directory can hold.

### **FILE EXTENSIONS:**

Most file names have two parts: the name and the extension. These parts are separated by a period. The name (before the period) can be up to eight characters long and should reflect the contents of the file. The extension (after the period) can be up to three characters long. Extensions can also be used in directory names, but are not commonly used for that purpose. E.g. CorelDraw (.cdr), Word (.doc, .docx) Photoshop (.psd).

### **DRIVES:**

A drive is a collection of directories and is always represented by a Drive letter followed by a colon.

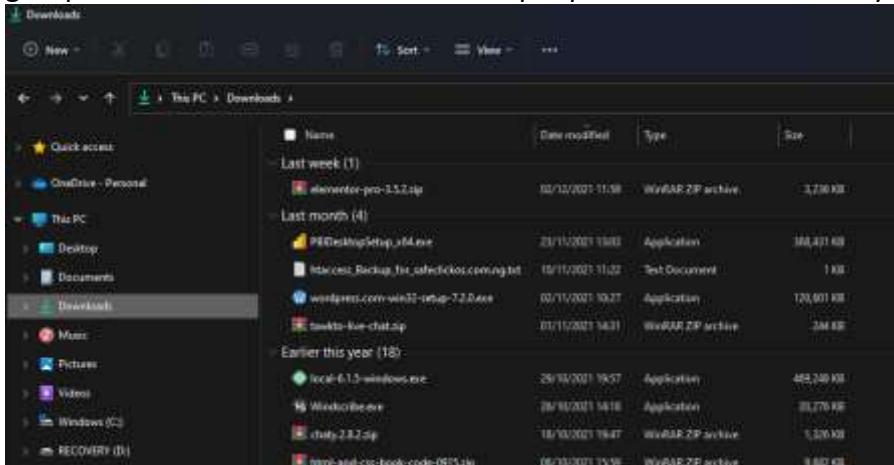
Most laptops have 2 disk drives – C: and D: (*mostly used for system and restore files*). The optical disc drive may show only when a disc

is inserted into it. Computers now come with huge hard disks of 500GB or up to 1 Terabyte. They normally arrive with only one main C drive partition. This can make backing up and keeping your disk tidy very tricky. It's far more convenient if you can separate your operating system, applications and data into separate logical volumes on the drive. This also makes it easier if you want to do a clean reinstall of Windows: just reformat the C: partition and your data is still safe on a different partition.

The hard drive however can be divided (partitioned) into two or more drives. The actual hard disk drive is called the **physical drive**; each partition is called a **logical drive**.

### Windows Explorer

Windows Explorer provides a graphical way to organize your files and directories. You can use Windows Explorer to move and copy files, start applications, print documents, and maintain disks. You can also use Explorer to share your files and directories, with a work group or to connect to other peoples shared directory.



The Directory Window is divided by the **Split Bar**. The left side of the window displays the structure of the current drive, or the directory

tree. The right side of the window displays a list of files in the selected directory.

## **VIRUSES**

When it comes to securing your system from viruses, trust no one, not even your mother when you exchange disks with her, that is. Computer viruses are **programs** designed to replicate and spread sometimes without indicating that they exist. Viruses work by copying themselves into legitimate files called **hosts**, from there, they often branch out, replicating themselves in more and more files on the disk affecting application programs, data files, operating system etc. They can also be defined *as a piece of software designed and written to adversely affect a computer* by altering the way it works without the user's permission or knowledge. It is a segment of program code that implants itself in an executable file and spreads systematically from one file to another. Whenever you copy an infected file, the viruses reproduce by cloning themselves. They can produce a variety of symptoms on your computer some of which are: files that disappear or inexplicably grow in size, machines that keep rebooting, and systems with less available random-access memory (RAM).

### **PREVENTION FROM VIRUSES:**

1. Back up your data
2. Use Anti-virus programs. TSR – Terminate and Stay Resident (*slows down the pc slightly*) or Scan-on command, (riskier if you forget to turn them on.)
3. Update anti-virus programs regularly. New viruses come out all the time. Virus database signatures must be kept up to date or your anti-virus may be ineffective in protection from newer viruses.