What is an Operating System

The operating system is the core software component of your computer. It performs many functions and is, *in very basic terms, an interface between your computer and the outside world.* In the section about hardware, a computer is described as consisting of several component parts including your monitor, keyboard, mouse, and other parts. The operating system provides an interface to these parts using what is referred to as "drivers". This is why sometimes when you install a new printer or other piece of hardware, your system will ask you to install more software called a driver.

The ***Operating system (OS) is the master program that coordinates the workings of all the components (the keyboard, monitor and mouse, among others) of a computer***. It controls the computer's basic functions, such as communicating with the user, organizing the filing system, and loading and running other programs. It provides you a user interface – the visual display on the screen that you use to operate the computer – by choosing which program to run and how to organize your work.

An operating system, or OS, is a software program that enables the computer hardware to communicate and operate with the computer software. Without a computer operating system, a computer would be useless.

GUI Operating System

GUI - Short for Graphical User Interface, a GUI Operating System contains graphics and icons and is commonly navigated by using a computer mouse.

Examples of GUI O.S.

1. Windows 95, 98, 2000, ME, XP 2003, XP 2009, Vista, Seven
2. Mac OS

Functions of the Operating System

- ***Control Program for the computer***
- ***Allocates computer resources (including but not limited to)***
  - CPU
  - memory
  - disk and tape storage
  - printers
  - terminals
  - modems
  - other devices attached to computer
- ***Schedules Tasks to be executed***
- ***Provides the only meaningful way for the user to get their requests made known to the computer***

Operating System Concerns

As mentioned previously, an operating system is a computer program. Operating systems are written by human programmers who make mistakes. Therefore there can be errors in the code even though there

may be some testing before the product is released. Some companies have better software quality control and testing than others so you may notice varying levels of quality from operating system to operating system. Errors in operating systems cause three main types of problems:

- System crashes and instabilities - These can happen due to a software bug typically in the operating system, although computer programs being run on the operating system can make the system more unstable or may even crash the system by themselves. This varies depending on the type of operating system. A system crash is the act of a system freezing and becoming unresponsive which would cause the user to need to reboot.
- Security flaws - Some software errors leave a door open for the system to be broken into by unauthorized intruders. As these flaws are discovered, unauthorized intruders may try to use these to gain illegal access to your system. Patching these flaws often will help keep your computer system secure. How this is done will be explained later.
- Sometimes errors in the operating system will cause the computer not to work correctly with some peripheral devices such as printers.

Operating System Types

There are many types of operating systems. The most common is the Microsoft suite of operating systems. They include from most recent to the oldest:

Windows Operating System

Windows Operating System is among the most established and popular operating systems. This is one of the families of operating system developed by Microsoft, an American Corporation founded by Bill Gates whose main products evolves around computer technology. It uses graphical user interface (GUI), multitasking, virtual memory management and it sustains other peripheral devices.

Windows Operating System got its name because the screen is divided into different windows or areas with one window being active. In every window, different programs can be run. It can also display various information at one glance. Windows can be moved around the display screen and users can manipulate its size and shape. It is the best seller product of Microsoft because its updated version are getting more user friendly which means that it is easier to use. Today, it's enjoying a huge share in the market in terms of operating systems.

Windows Operating System was first introduced in November 1985. In its first version, the 16-bit operating environment. MS-DOS is used for filing system services. It has its own executable file format and support device drivers like graphics, mouse, keyboard, sound and printer. It allows users multi-tasking applications graphically. Then it was updated to a hybrid 16/32 bit operating system. It provided a virtualized tool for the disk controller, keyboard, video card, interrupt controller and timer. It still allows users multi-tasking. Then came the Windows 95 version, which downgraded the MS-DOS as a boot loader only. After Windows 95, Windows 98 was developed and Windows Millennium Edition 2000. Their current versions include Windows CE for embedded system. Among are the Pocket PC (PDAs), handheld PC, Smartphone and the portable media players. Windows XP is also maintained, it's

for notebooks and desktops and is intended for home and professional use. Then it also has the Windows Server 2003 for servers and Windows XP Embedded for embedded systems.

Recently, Microsoft launched its latest version in operating system, the Windows Embedded CE 6.0. This new version is geared toward mobile cell phones and other mobile electronics. It supports data and voice networking with the use of cellular phones. Microsoft intended this to be useful and functional for building networking abilities in vending machines, parking meters or the device for GPS navigation.

Microsoft is always enhancing its operating systems and finding ways to meet the growing needs of the users.

List of Microsoft Windows versions

Current versions

Windows 7

Windows 7 Variants

- Windows 7 Starter
- Windows 7 Home Basic
- Windows 7 Home Premium
- Windows 7 Professional
- Windows 7 Enterprise
- Windows 7 Ultimate

- **Windows Server 2008 R2**
- Windows Mobile 6.5 for smartphones and PDAs

Past versions

- Windows Mobile 6.1 for smartphones and PDAs

Windows Vista

Windows Vista Variants

- Windows Vista Starter
- Windows Vista Home Basic
- Windows Vista Home Premium.
- Windows Vista Business
- Windows Vista Enterprise
- Windows Vista Ultimate

Windows Server 2003

- Windows Mobile 6 for smartphones and PDA

Windows XP

- Windows XP variants
  - Windows XP Starter Edition
  - Windows XP Home Edition
  - Windows XP Home Edition N
  - Windows XP Professional,

- Windows XP Professional N,
- Windows XP Professional x64 Edition
- Windows XP Tablet PC Edition,
- Windows XP Media Center Edition

Windows 2000 –

- Windows 2000 Professional
- Windows 2000 Server
- Windows 2000 Advanced Server
- Windows 2000 Datacenter Server

Windows Millennium Edition, or **Windows Me**
Windows 98 (codenamed **Memphis**)
Windows NT 4.0
Windows 95
Windows 3.1
Windows 3.0
1989 March 13 - Windows 2.11

- 1988 May 27 - Windows 2.10
- 1987 December 9 - Windows 2.03
- 1987 April - Windows 1.04
- 1986 August - Windows 1.03
- 1986 May - Windows 1.02
- 1985 November 20 - Windows 1.01

There are other worthwhile types of operating systems not made by Microsoft. The greatest problem with these operating systems lies in the fact that not as many application programs are written for them. However if you can get the type of application programs you are looking for, one of the systems listed below may be a good choice.

- **Unix -** A system that has been around for many years and it is very stable. It is primary used to be a server rather than a workstation and should not be used by anyone who does not understand the system. It can be difficult to learn. Unix must normally run on a computer made by the same company that produces the software.
- **Linux -** Linux is similar to Unix in operation but it is free. It also should not be used by anyone who does not understand the system and can be difficult to learn.
- **Apple MacIntosh** - Most recent versions are based on Unix but it has a good graphical interface so it is both stable (does not crash often or have as many software problems as other systems may have) and easy to learn. One drawback to this system is that it can only be run on Apple produced hardware.

DOS, short for "Disk Operating System", is a shorthand term for several closely related operating systems that dominated the IBM PC compatible market between 1981 and 1995, or until about 2000 if one includes the partially DOS-based Microsoft Windows versions 95, 98, and Millennium Edition.

MS-DOS (pronounced /ˌɛmɛsˈdɒs/, *em-es-dos*; short for **M**icro**S**oft **D**isk **O**perating **S**ystem) is an operating system for x86-based personal computers, which was purchased by Microsoft. It was the most commonly used member of the DOS family of operating systems, and was the main operating system for personal computers during the 1980s up to mid 1990s. It was preceded by M-DOS (also called MIDAS), designed and copyrighted by Microsoft in 1979. MSDOS was written for the Intel 8086 family of microprocessors, particularly the IBM PC and compatibles.

Linux Operating System

Linux Operating System was developed in 1991 by a young student, Linus Torvalds, a student in the University of Helsinki in Finland. Started as a hobby and later grown into a large company. Linux interest in Minix, a small UNIX leads to the development of Linux Kernel which became the center for all Linux system and some organizations. Based on this, Linux Operating System was developed.

Importance of Operating System

1. It moderates the relationship between the computer and its peripherals
2. It helps in the management of files,- copying, deleting, moving of files from one storage location to the other.
3. It encourages the memory for its efficient usage and thus adding the speed of the computer.
4. It manages the activities of the processor in terms of job execution according to the priority of arrival, of jobs.
5. It informs the user of nay hardware or software error
6. It makes communication between the computer and the user or the operator possible.

What is a Driver and what does it do?

A driver *is a specially written program which understands the operation of the device it interfaces* to, such as a printer, video card, sound card or CD ROM drive. It *translates commands from the operating system or user into commands understood by the component computer part it interfaces with*. It also translates responses from the component computer part back to responses that can be understood by the operating system, application program, or user. The below diagram gives a graphical depiction of the interfaces between the operating system and the computer component.