

Computers I

1. Operating Systems

In order to grasp the concept of Operating Systems and understand the different types of windows available we first need to cover some basic definitions.

1.1 Computer Concepts

A computer is an electronic device, operating under the control of instructions stored in its own memory unit.

The main function of a computer is to process data. In order to process data we need the following:

1. Input – Mouse, Keyboard
2. Process Unit –CPU
3. Output – Printer, Monitor
4. Storage – Hard Disk Drive (permanent storage)

Software, also referred to a computer programs, is a general term for the various kinds of programs used by a computer.

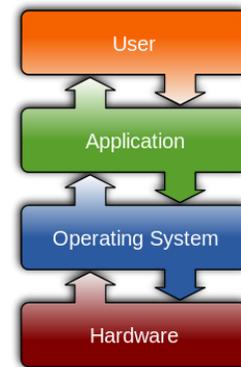
Specifically, there are two types of software, Systems software and Application software.

System software is what operates and controls the computer hardware.

Application software allows users to do things like create text documents, play games, listen to music, or surf the web.

Within System software, a main component is the operating system or OS.

The **Operating System** is a collection of software that manages computer hardware resources and provides common services for computer programs. Application software needs an Operating System for it to function. Essentially, the OS acts as an intermediary between programs and the computer hardware.



Among many other things, the OS interacts with the RAM or Random Access Memory and the CPU or Central Processing Unit

RAM memory is volatile meaning that when the computer is shut off it is not stored.

The **CPU** is what processes and manages the resources of the computer. Think of it as the brains of the computer.

The RAM and CPU are housed in what is called the **motherboard**.

When a programmer sits down to write a **program** which is a set of instructions for your computer he or she is using what is called a **programming language** which consist of symbols and statements that give the computer directions to perform a task. What he writes in this language is referred to as “source code or code”. Many of these languages exist and they all have pros and cons.

Examples are ruby on rails, golang, PHP, visual basic, java, C++

These languages however, are not what the computer understands. Because computers are electrical devices, they only understand machine language or binary code.

Binary code is composed of only 0s and 1s. For example, the lower case letter a is represented by 01100001.

Binary Code is the language of the CPU.

The translation from the source code into binary is done by a separate program called a **compiler**.

1.2 Windows XP

Windows XP was released almost 12 years ago and is still a widely used platform. Since Windows XP, Windows Vista, Windows 7, and Windows 8 have been released. However, Windows Vista was not a popular operating system and proved to have many issues and was difficult to work with. The best of these OS's have been Windows XP and Windows 7 which is the most widely used operating system right now. Although Windows 7 was released in 2009, Windows XP remained in the lead of market share until 2011.

1.3 Windows 7

Windows 7 shares many features with other Windows Programs, so once you learn how to work with Windows 7, you will find it easier to use the programs that run on your computer, and you will also be able to operate Windows XP.

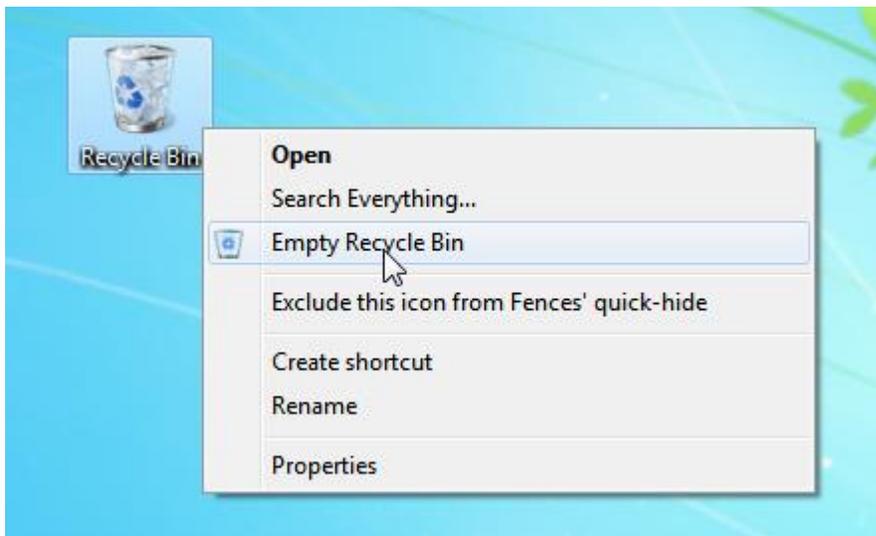
Think of windows 7 as a better Windows XP in every way. It is more efficient on the resources you have. For example it uses less memory to function. It is also a lot faster, more organized, more intuitive, and best of all it comes with a sleek design that is very modern and clean.



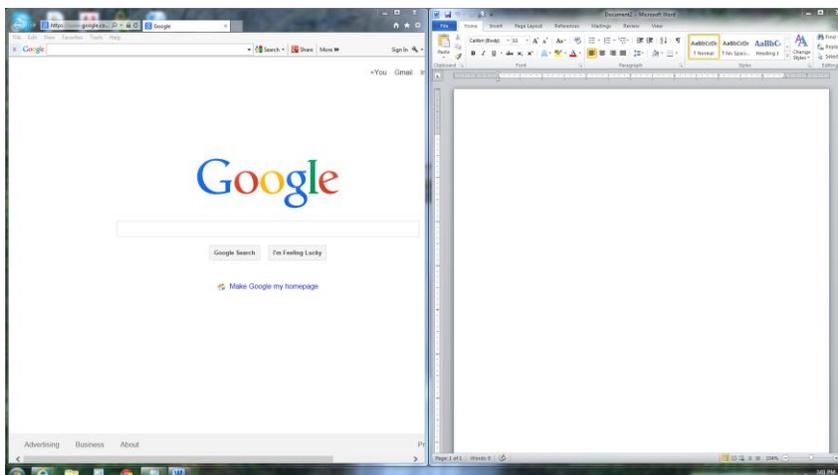
The **taskbar** at the bottom contains the start button as well as other buttons representing programs, folders, and files.

On the desktop, **shortcuts** or quick access paths to programs can be placed. Typically, when you install a new program, the program asks you if you would like to create a shortcut. Although these are a good thing and convenient make sure not to have too many as it will slow your computer down.

When **deleting files**, they are automatically sent to the recycling bin; however, they are not actually deleted. The only way to permanently delete a file is to right-click the recycling bin and click on “Empty Recycle Bin”.



Windows 7 allows users to **work on Multiple windows simultaneously**, for example you could open a webpage and drag it to the left most side of the computer and it will be pin itself there and do the same to the right side with a word document and see both of them at the same time. This avoids having to switch back and forth between windows.



1.4 Windows 8

Windows 8 completely remodeled the way windows looked like never before. So much so, that some people spent 15 minutes just trying to get into the desktop and many more couldn't figure it out and quit.

The new windows 8 required you to drag down on your screen to see the login screen, and it only worked if you dragged from top to bottom and it didn't come with so much as a hint. After logging in, you were presented with a GUI that was never before seen in any prior windows OS.



This display instead of being called a desktop is now called the **Metro**. The metro consists of many apps although called **Tiles** in Windows 8.

The taskbar and other tools are hidden and you must point or drag from the right side of the screen. However, every toolbar and search bar is tuned only to work in the specific area that you are in.

For example, if you are in Gmail, you will only see tool options for Gmail; if you are in pictures you will only see tool options or search options for pictures.

If you would like to go to the original desktop, you have to click on the desktop tile and then sent there.

Essentially, Windows 8 is a hybrid between a mobile operating system and a traditional windows OS. For this very reason is why sales have been lower than expected and people are reluctant to switch over from windows 7.

1.5 Linux and Mac OS

UNIX was one of the first operating systems to be created in 1971.

The Linux operating system is derived UNIX and is what is called Open Source. It is free and can be edited and revised by anyone instead of the privately owned Mac OS by Apple and Windows by Microsoft.

Linux is an extremely efficient and reliable operating system that is used by many giant corporations because they don't need to pay to upgrade or buy licenses for their computers. Linux is by the people and for the people it is constantly being improved and added useful features to.

Mac OS is also derived from UNIX and that is why it is such a good operating system and one that is continually attaining market share.

Contrary to popular belief, Macs can get viruses, however, the reason they usually don't is that the vast majority of computers are still Windows and thus it is more effective to build a virus that attacks a Windows based machine than a Mac.