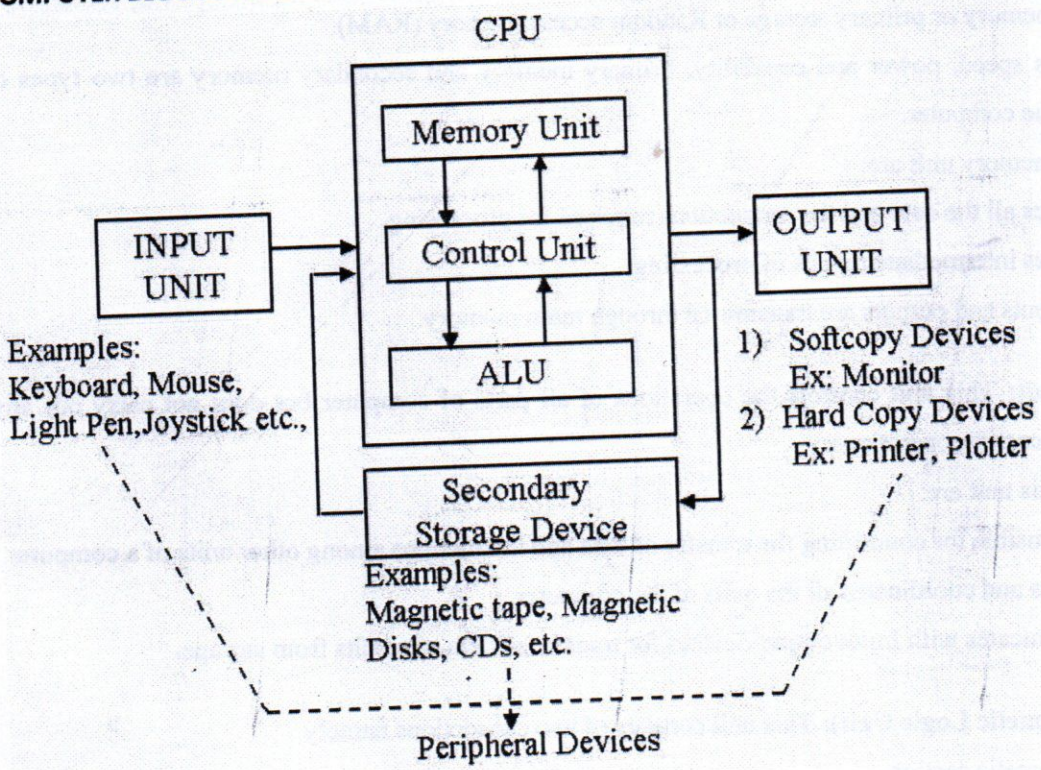
IDENTIFICATION OF PERIPHERALS OF A PC, LAPTOP, SERVERAND SMART PHONES:

COMPUTER:

Computer is an advanced electronic device that takes raw data as input from the user and processes it under the control of set of instructions (called program), gives the result (output), and saves it for the future use.

COMPUTER BLOCK DIAGRAM



1. Input Unit: This unit contains devices with the help of which we enter data into computer. This unit makes link between user and computer. The input devices translate the information into the form understandable by computer.

2. Output Unit: Output unit consists of devices with the help of which we get the information from computer. This unit is a link between computer and users. Output devices translate the computer's output into the form understandable by users.

CPU (Central Processing Unit): CPU is considered as the brain of the computer. CPU performs all types of data processing operations. It stores data, intermediate results and instructions (program). It controls the operation of all parts of computer.

CPU itself has following three components

- ALU(Arithmetic Logic Unit)
- Memory Unit
- Control Unit

3. Memory or Storage Unit: This unit can store instructions, data and intermediate results. This unit supplies information to the other units of the computer when needed. It is also known as internal storage unit or main memory or primary storage or Random access memory (RAM).

Its size affects speed, power and capability. Primary memory and secondary memory are two types of memories in the computer.

Functions of memory unit are:

- It stores all the data and the instructions required for processing.
- It stores intermediate results of processing.
- All inputs and outputs are transmitted through main memory.

4. Control Unit: This unit controls the operations of all parts of computer but does not carry out any actual data processing operations.

Functions of this unit are:

- It is responsible for controlling the transfer of data and instructions among other units of a computer.
- It manages and coordinates all the units of the computer.
- It communicates with Input/output devices for transfer of data or results from storage.

5. ALU (Arithmetic Logic Unit): This unit consists of two subsections namely

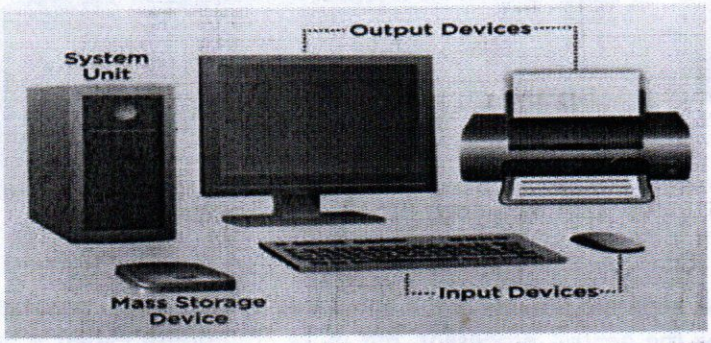
i. Arithmetic section
ii. Logic Section

i. Arithmetic Section: Function of arithmetic section is to perform arithmetic operations like addition, subtraction, multiplication and division. All complex operations are done by making repetitive use of above operations.

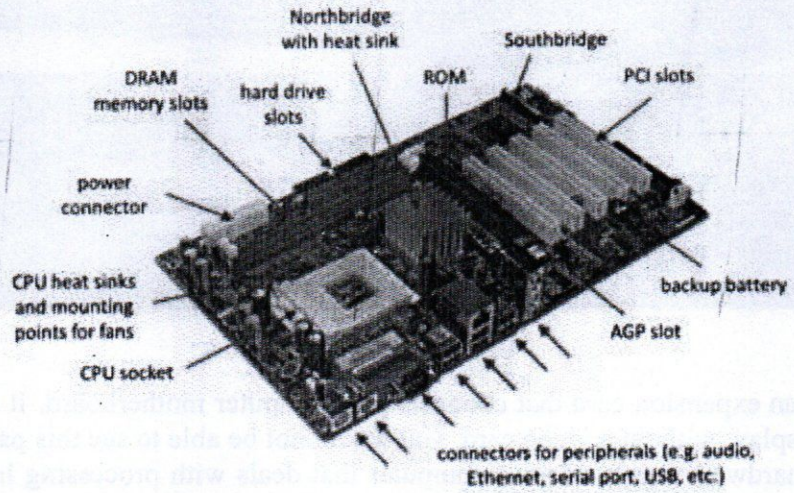
ii. Logic Section: Function of logic section is to perform logic operations such as comparing, selecting, matching and merging of data.

PC: A personal computer is a computer small and low cost, which is intended for personal use (or for use by a small group of individuals). The term "personal computer" is used to describe desktop computers (desktops). It is often shortened to the acronym PC or microcomputer, whose meaning in English is "personal computer". It is a very common type of machines.

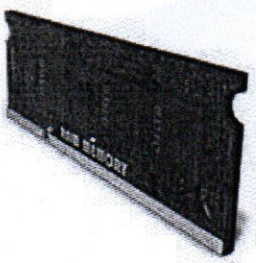
Personal Computer (acronym PC) consists of a central processing unit (CPU) contains the arithmetic, logic, and control circuitry on an single (IC) integrated circuit; two types of memory, main memory, such as RAM, and ROM, magnetic hard disks (HDD) and compact discs and various input/output devices, including a display screen, keyboard and mouse, modem, and printer.



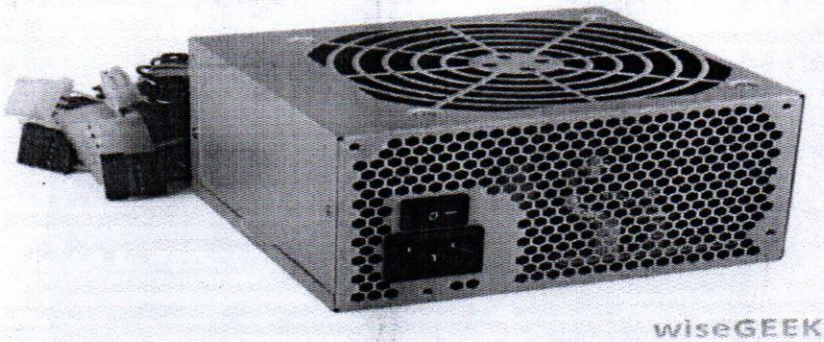
Motherboard: A **motherboard** is one of the most essential parts of a **computer** system. It holds together many of the crucial components of a **computer**, including the central processing unit (CPU), memory and connectors for input and output devices.



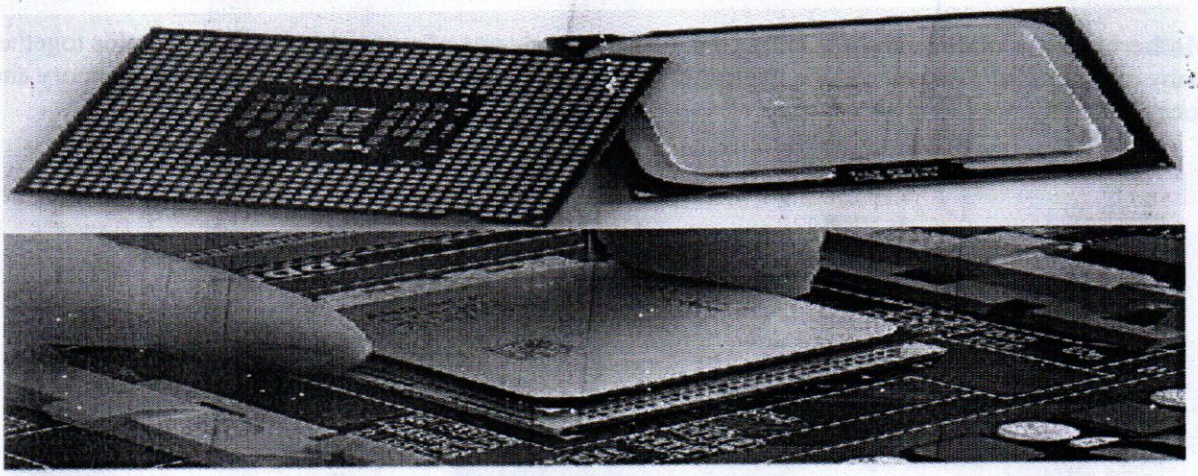
RAM is an acronym for random access memory, a type of **computer** memory that can be accessed randomly; that is, any byte of memory can be accessed without touching the preceding bytes. **RAM** is found in servers, PCs, tablets, smartphones and other devices, such as printers.



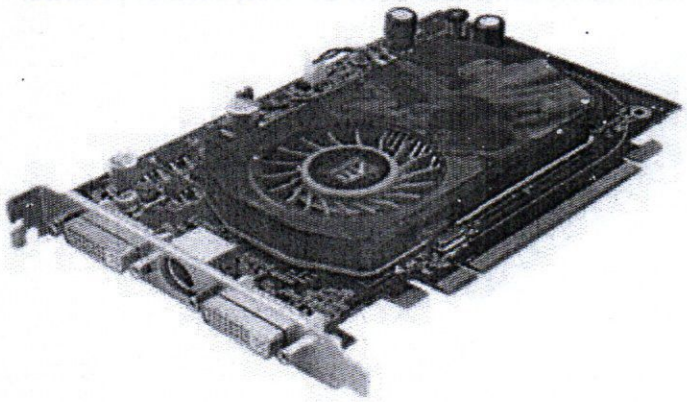
a **power supply** unit or **PSU**, the component that **supplies power** to a **computer**. Most personal **computers** can be plugged into standard **electrical** outlets. The **power supply** then pulls the required amount of **electricity** and converts the AC current to DC current.



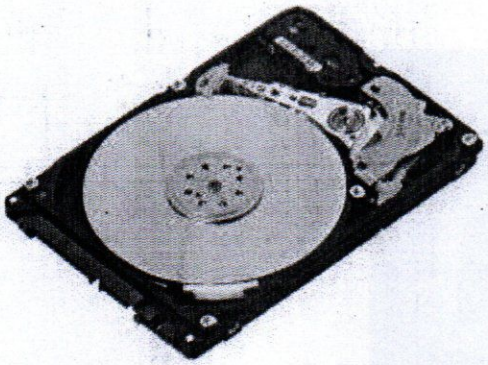
CPU (pronounced as separate letters) is the abbreviation for central processing unit. Sometimes referred to simply as the central processor, but more commonly called a processor, the **CPU** is the brains of the **computer** where most calculations take place.



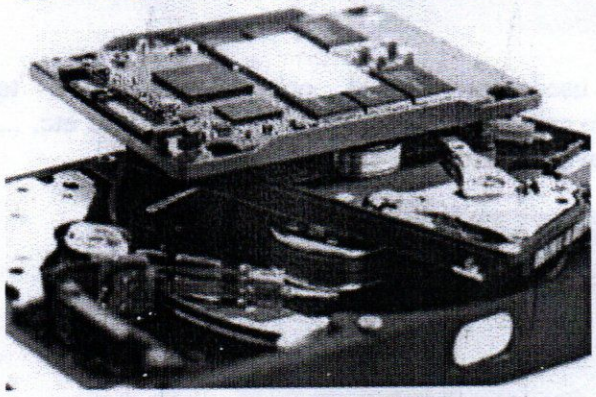
a **video card** is an expansion card that connects to a computer motherboard. It is used to creates a picture on a display; without a video card, you would not be able to see this page. More plainly, it is a piece of hardware inside of your computer that deals with processing images and video, along with some of the tasks normally handled by the CPU.



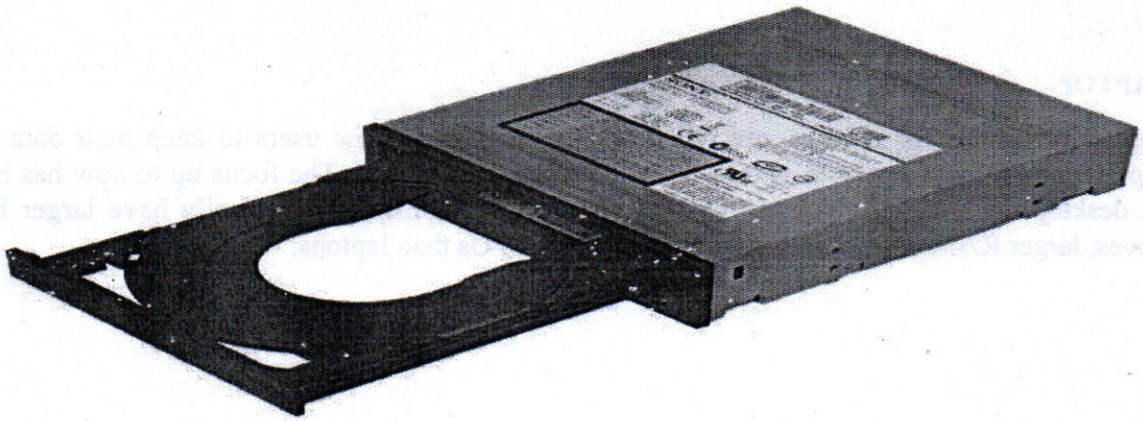
A **hard disk** drive (**HDD**), **hard disk**, **hard drive**, or fixed **disk** is an electro-mechanical data storage device that uses magnetic storage to store and retrieve digital information using one or more rigid rapidly rotating disks (platters) coated with magnetic material



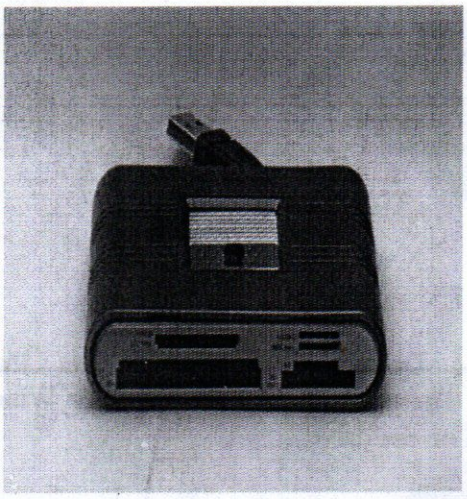
SSD stands for Solid State Drive. The **HDD** or **SDD** is the hardware component in a **computer** that stores data. The operating system (usually Windows on PCs and MacOS on Apple **computers**) is installed on the drive



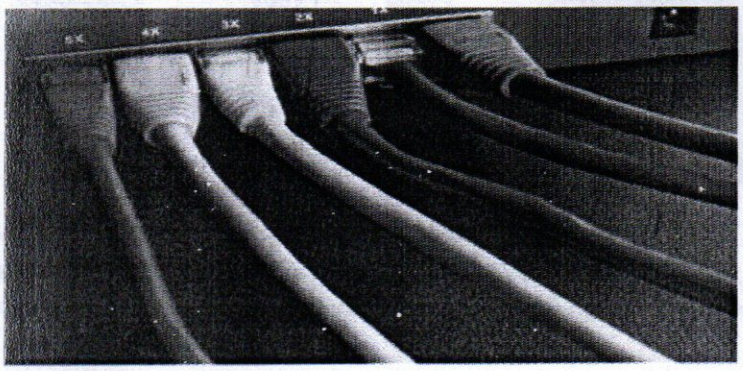
An **Optical Drive** refers to a **computer** system that allows users to use DVDs, CDs and Blu-ray **optical drives**. ... DVDs have a storage capacity of 4.7GB and can be used to store data for various uses. For you to write content/data to a **disc**, you will need a blank recordable **DVD disc**



A **memory card reader** is a device for accessing the data on a **memory card** such as a CompactFlash (CF), Secure Digital (**SD**) or MultiMediaCard (MMC). Most **card readers** also offer write capability, and together with the **card**, this can function as a pen drive.



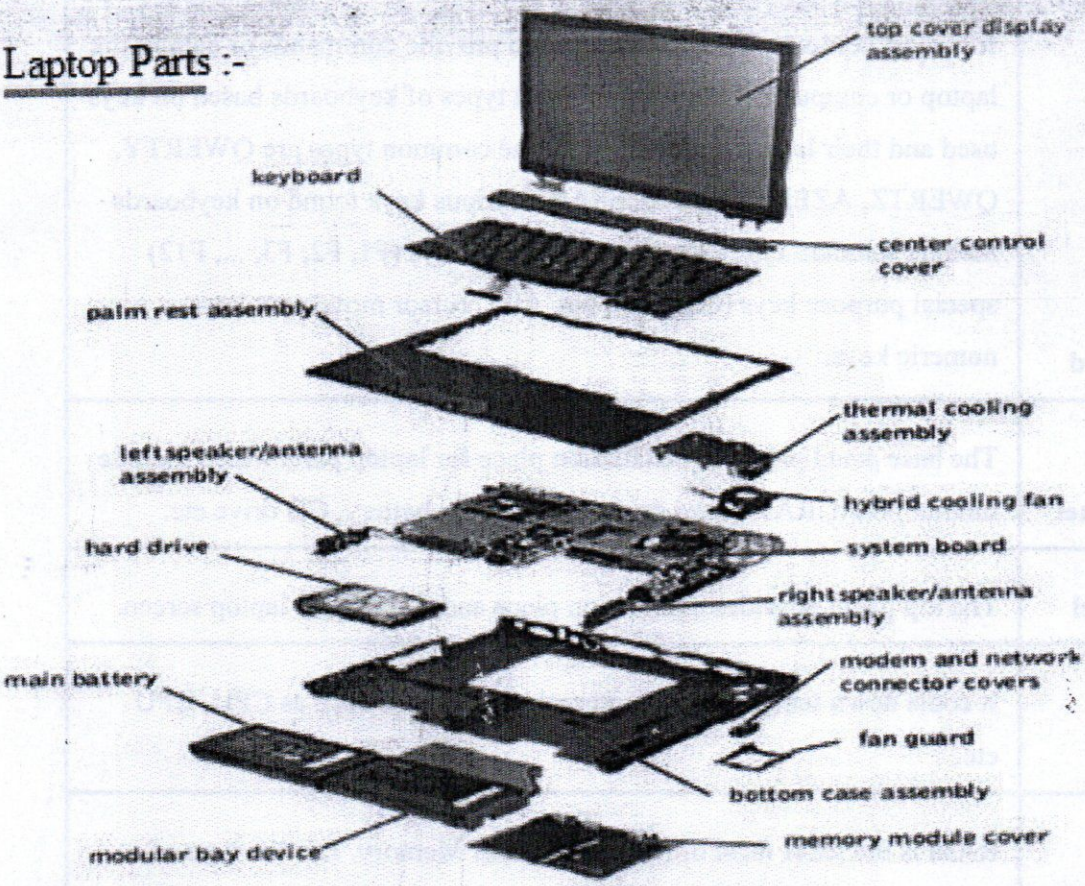
Networking cables are **networking** hardware used to connect one **network** device to other **network** devices or to connect two or more **computers** to share printers, scanners etc. ... Electrical connections using twisted pair or coaxial **cable** are used within a building



LAPTOP

Laptop computers, or **laptops**, are portable computers that allow users to keep their data and applications readily available as they travel between destinations. The focus up to now has been on desktop computers, which are not designed for portability, and typically have larger hard drives, larger RAM counts, and more sophisticated CPUs than laptops.

Laptop Parts :-



Laptop Parts Functions

Following table describes functions of some major laptop parts.

Laptop parts	Functional description
display screen	It functions similar to monitor used in desktop PC. It is known as output device as it is used to display output to the user in desired format. There are different display screens available as per various brands of the laptop viz. SONY, HP, DELL, LENOVO, ACER, ASUS etc. The types include LCD, LED, VGA, XVGA, CCFL etc. The display panel can be touch screen type or non touch screen type. Touch screen allows users to choose from different options by simple touch with their fingers on desired menu or icon displayed on the screen.

keyboard	It is most common input device used to provide commands or data to the laptop or computer. There are different types of keyboards based on keys used and their layout arrangements. The common types are QWERTY, QWERTZ, AZERTY and HCESAR. Various keys found on keyboards include standard typewriter keys, function keys (F1, F2, F3, ..., F12) special purpose keys (Ctrl, Del, Ins, Alt) , cursor movement keys, numeric keys.
base panel	The base panel provides installation place for laptop parts which include mother board, RAM, hard drive, cooling fan, battery, CD drive etc.
top panel	The top panel provides installation place and support for laptop screen.
Cooling Fan	It cools down temperature of internal components such as CPU, GPU etc.
RAM	RAM is the short form of Random Access Memory. It is the type of memory which can be accessed randomly. It is temporary memory which stores data and programs while they are being used and requires power source to maintain its integrity. Laptop computers use DDR SDRAM types which are double data rate synchronous dynamic random access memory (RAM) class of memory ICs. The common types of SDRAM include DDR1, DDR2, DDR3 and DDR4.
Hard disk	The laptop hard disk drives are of two common types viz. IDE (or PATA) hard drive or SATA hard drive. They can be identified based on interface available on them.
palm rest assembly	It provides support to install keyboard, base panel and touchpad. It covers the entire motherboard of the laptop so that any external dust or water or things do not fall on electronic components of it. It allows place to keep hands of the user in order to operate keyboard keys and touchpad.

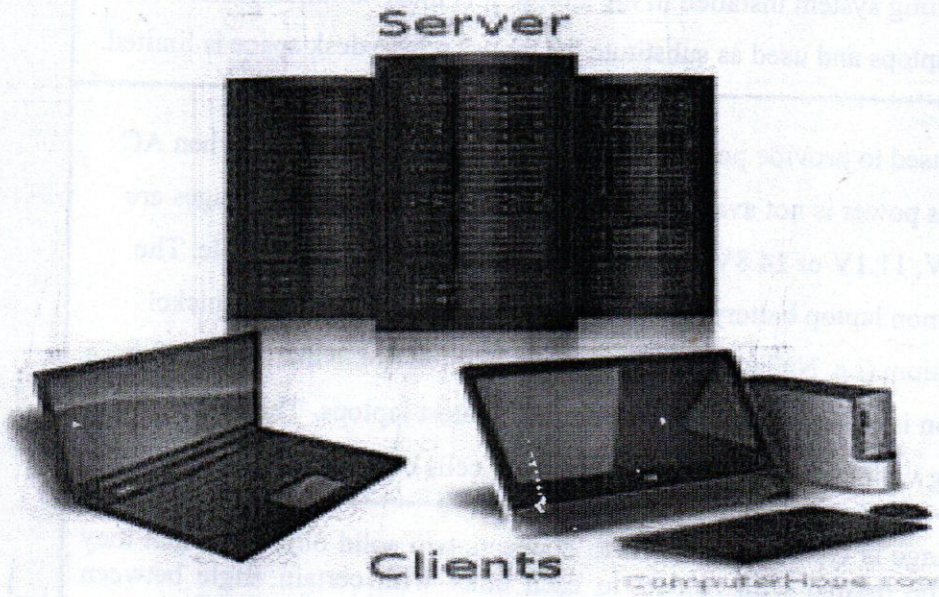
Touchpad	The touchpad or trackpad uses tactile sensor on specialized surface. The touchpad is a pointing device which translates motion and position of fingers on the surface to relative cursor position on the screen of operating system installed in the laptop. It is most common feature of all the laptops and used as substitute for mouse where desk space is limited.
Battery	It is used to provide power backup in order to operate laptop when AC mains power is not available. The common laptop battery voltages are 10.8V, 11.1V or 14.8V. All the laptop batteries are rechargeable. The common laptop battery types include lithium ion (i.e. Li-ion), nickel cadmium (i.e. NiCad) and nickel metal hydride (i.e. NiMH). Out of these Li-ion is being most commonly found in latest laptops. They are made using various combination of cells viz. 3 cells or 4 cells etc.
Hinges	A hinge is type of object which connects two solid objects so that they can be rotated with respect to each other with certain angle between them. In laptop hinges provide laptop screen to be rotated with respect to the base panel. This also helps screen to be completely reside or rest on the laptop base panel when not in use.
Speaker	In general speaker is used to produce sound. Like external speakers, laptop speakers also allows user to control volume up or down as per need. It is available in power ratings of 2.6 watt or 5 watt.
Optical drive	Laptop optical drives can read/write CDs, DVDs or Blu-Ray discs. These drives allow reading and recording of data at very high speeds. One can also use external optical drives.
Antenna	Antenna provides wireless connectivity in the laptop for various applications such as wifi internet, Bluetooth etc. Most commonly laptop antenna operates either in WLAN frequency band or Bluetooth frequency bands as per different standards or classes.

SERVER SYSTEMS

Servers are computers that hold shared files, programs, and the network operating system. Servers provide access to network resources to all the users of the network. There are many different kinds of servers, and one server can provide several functions. **For example, there are**

file servers, print servers, mail servers, communication servers, database servers, fax servers and web servers, to name a few.

A server is a computer or system that provides resources, data, services, or programs to other computers, known as clients. Server computers are usually built from higher grade components than client computers for the reasons given in the preceding section.



The following paragraphs describe the common **components of a server computer**:

Motherboard

The motherboard is the computer's main electronic circuit board to which all the other components of your computer are connected. More than any other component, the motherboard *is* the computer. All other components attach to the motherboard.

The major components on the motherboard include the processor (or CPU), supporting circuitry called the *chipset,* memory, expansion slots, a standard IDE hard drive controller, and input/output (I/O) ports for devices such as keyboards, mice, and printers. Some motherboards also include additional built-in features such as a graphics adapter, SCSI disk controller, or a network interface.

Processor

The processor, or CPU, is the brain of the computer. Although the processor isn't the only component that affects overall system performance, it is the one that most people think of first when deciding what type of server to purchase. At the time of this writing, Intel had four processor models designed for use in server computers:

- **Itanium 2**: 1.60GHz clock speed; 1–2 processor cores
- **Xeon: 1.83**–2.33GHz clock speed; 1–4 processor cores
- **Pentium D**: 2.66-3.6GHz clock speed; 2 processor cores
- **Pentium 4**: 2.4-3.6GHz clock speed; 1 processor core

Memory

Don't scrimp on memory. People rarely complain about servers having too much memory. Many different types of memory are available, so you have to pick the right type of memory to match the memory supported by your motherboard. The total memory capacity of the server depends on the motherboard. Most new servers can support at least 12GB of memory, and some can handle up to 32GB.

Hard drives

Most desktop computers use inexpensive hard drives called IDE drives (sometimes also called ATA). These drives are adequate for individual users, but because performance is more important for servers, another type of drive known as SCSI is usually used instead. For the best performance, use the SCSI drives along with a high-performance SCSI controller card.
Recently, a new type of inexpensive drive called SATA has been appearing in desktop computers. SATA drives are also being used more and more in server computers as well due to their reliability and performance.

Network connection

The network connection is one of the most important parts of any server. Many servers have network adapters built into the motherboard. If your server isn't equipped as such, you'll need to add a separate network adapter card.

Video

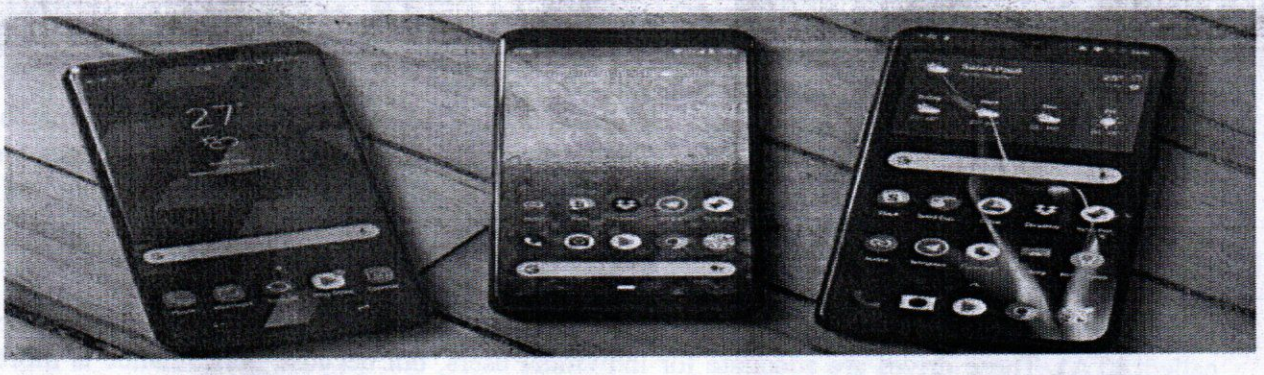
Fancy graphics aren't that important for a server computer. You can equip your servers with inexpensive generic video cards and monitors without affecting network performance. (This is one of the few areas where it's acceptable to cut costs on a server.)

Power supply

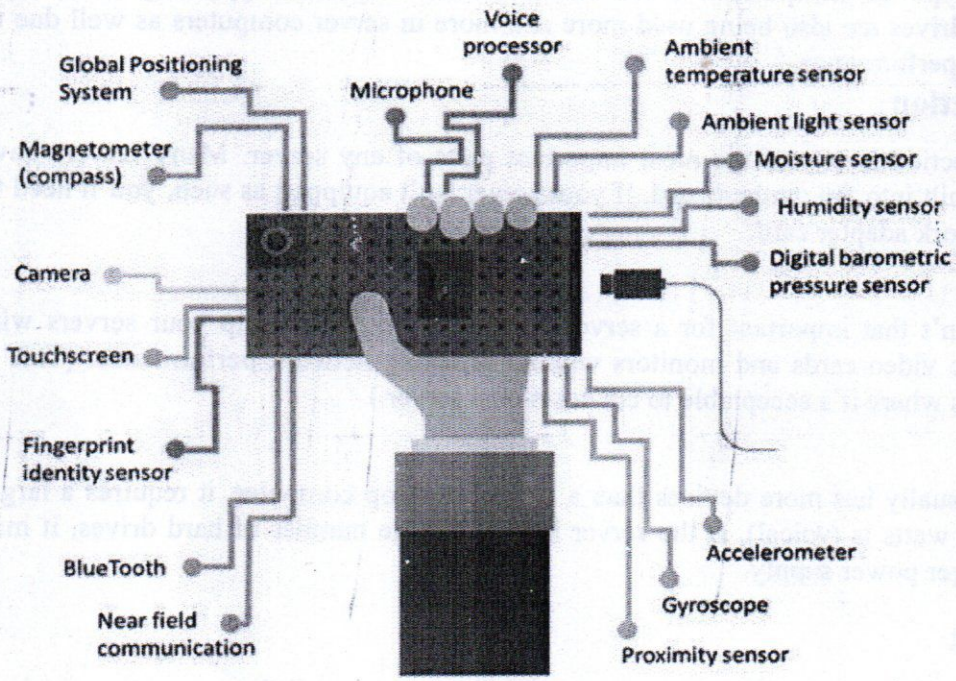
Because a server usually has more devices than a typical desktop computer, it requires a larger power supply (300 watts is typical). If the server houses a large number of hard drives, it may require an even larger power supply.

SMART PHONES

Smartphones are a class of mobile phones and of multi-purpose mobile computing devices. They are distinguished from feature phones by their stronger hardware capabilities and extensive mobile operating systems, which facilitate wider software, internet (including web browsing[1] over mobile broadband), and multimedia functionality (including music, video, cameras, and gaming), alongside core phone functions such as voice calls and text messaging. Smartphones typically include various sensors that can be leveraged by their software, such as a magnetometer, proximity sensors, barometer, gyroscope and accelerometer, and support wireless communications protocols such as Bluetooth, Wi-Fi, and satellite navigation.



Components of a Smart Phone



Display (Touch Screens)

While the display could be seen as an exterior element of a smartphone, it is also an interior one. As the principle method for interacting with our smartphones, it can be argued that it is the most important component. Displays come in a variety of sizes with a whole gamut of screen resolutions. The common sizes are between 4.5 to 5.7 inches (measured across the diagonal) and the key screen resolutions are 1280 x 720, 1920 x 1080 and 2560 x 1440.There are two main types of display technology: LCD and LED.

Battery

The electrical power for all the bits inside your smartphone comes from the battery. A battery can either be user removable, which means you can easily replace it or carry multiple

batteries with you; or it can sealed into the phone, which means it can only be replaced by a technician. The capacity of the battery is a key metric, with most 5.5 inch phones having at least a 3000 mAh unit. When it comes to charging there is a whole spectrum of different charging technologies, however the popular is probably Quick Charge from Qualcomm. Most smartphone batteries today are Lithium-ion (Li-Ion) based, which means you don't need to worry about things like the battery memory effect.

Central processing unit

Smartphone have central processing units (CPUs), similar to those in computers, but optimized to operate in low power environments.

The performance of mobile CPU depends not only on the clock rate (generally given in multiples of hertz)[123] but also on the memory hierarchy. Because of these challenges, the performance of mobile phone CPUs is often more appropriately given by scores derived from various standardized tests to measure the real effective performance in commonly used applications.

Cameras

Cameras have become standard features of smart phones. As of 2019 phone cameras are now a highly competitive area of differentiation between models, with advertising campaigns commonly based on a focus on the quality or capabilities of a device's main cameras. All smart phones come with a rear-facing and front-shooting camera

Accessories

A wide range of accessories are sold for smart phones, including cases, screen protectors, power charging cables, wireless power stations, USB On-The-Go adapters (for connecting USB drives and or, in some cases, a HDMI cable to an external monitor), add-on batteries, headphones, combined headphone-microphones (which, for example, allow a person to privately conduct calls on the device without holding it to the ear), and Bluetooth-enabled powered speakers that enable users to listen to media from their smart phones wirelessly.

Sensors

There are five main sensors in a smart phone that allow it to give you that functionality of a 'touch-enabled smart device'. The names of all these sensors and their importance have been detailed below:

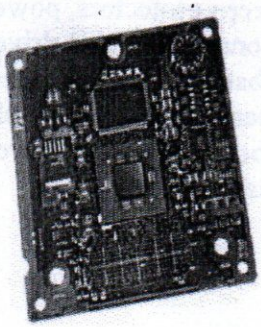
1. **Accelerometer**: Used by apps to detect the orientation of the device and its movements, as well as allow features like shaking the phone to change music.
2. **Gyroscope**: Works with the Accelerometer to detect the rotation of your phone, for features like tilting phone to play racing games or to watch a movie.
3. **Digital Compass**: Helps the phone to find the North direction, for map/navigation purposes.
4. **Ambient Light Sensor**: This sensor is automatically able to set the screen brightness based on the surrounding light, and helps conserve battery life. This would also explain why your smartphone's brightness is reduced in low-light environments, so it helps to reduce the strain on your eyes.
5. **Proximity Sensor**: During a call, if the device is brought near your ears, it automatically locks the screen to prevent unwanted touch commands.

MEMORY IS PRIMARILY OF THREE TYPES

1. Cache Memory
2. Primary Memory/Main Memory
3. Secondary Memory

1. Cache Memory

Cache memory is a very high speed semiconductor memory which can speed up CPU. It acts as a buffer between the CPU and main memory. It is used to hold those parts of data and program which are most frequently used by CPU. The parts of data and programs are transferred from disk to cache memory by operating system, from where CPU can access them.



Advantages

- Cache memory is faster than main memory.
- It consumes less access time as compared to main memory.
- It stores data for

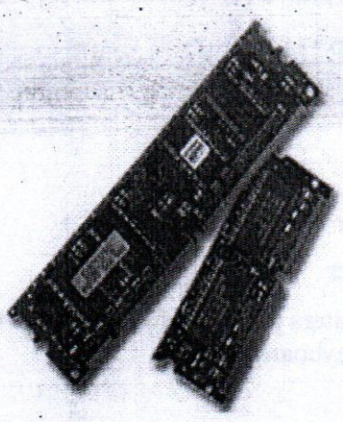
temporary use.

Disadvantages

- Cache memory has limited capacity.
- It is very expensive.
-

2. Primary Memory (Main Memory):

Primary memory holds only those data and instructions on which computer is currently working. It has limited capacity and data is lost when power is switched off. It is generally made up of semiconductor device. These memories are not as fast as registers. The data and instruction required to be processed reside in main memory. It is divided into two subcategories RAM and ROM.

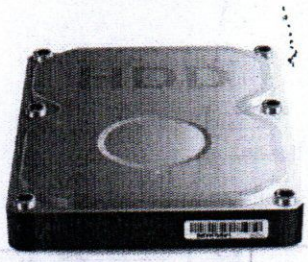


Characteristics of Main Memory

- These are semiconductor memories
- It is known as main memory.
- Usually volatile memory.
- Data is lost in case power is switched off.
- It is working memory of the computer.
- Faster than secondary memories.
- A computer cannot run without primary memory.

3. Secondary Memory

This type of memory is also known as external memory or non-volatile. It is slower than main memory. These are used for storing data/Information permanently Contents of secondary memories are first transferred to main memory, and then CPU can access it. For example: disk, CD-ROM, DVD etc.



Characteristic of Secondary Memory

- These are magnetic and optical memories
- It is known as backup memory.
- It is non-volatile memory.
- Data is permanently stored even if power is switched off.
- It is used for storage of data in a computer.

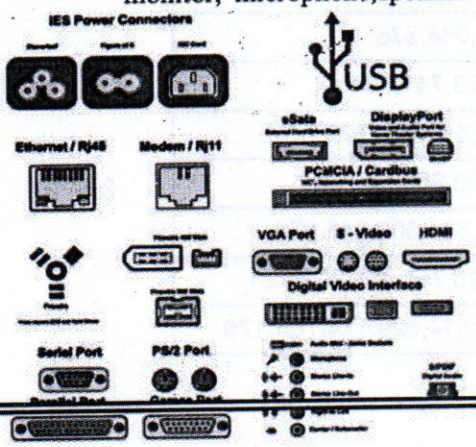
COMPUTER PORTS:

Port: It is a physical docking point using which an external device can be connected to the computer.

Characteristics:

A port has the following characteristics:

- External devices are connected to a computer using cables and ports.
- Ports are slots on the motherboard into which a cable of external device is plugged in.
- Examples of external devices attached via ports are mouse, keyboard, monitor, microphone,speakers etc.



Following are few important types of ports:

Serial Port:

- Used for external modems and older computer mouse
- Two versions : 9 pin, 25 pin model
- Data travels at 115 kilobits per second

Parallel Port

- Used for scanners and printers
- Also called printer port
- 25 pin model

PS/2 Port

- Used for old computer keyboard and mouse
- Also called mouse port
- Most of the old computers provide two PS/2 port, each for mouse and keyboard

Universal Serial Bus (or USB) Port

- It can connect all kinds of external USB devices such as external hard disk, printer, scanner, mouse,keyboard etc.
- Most of the computers provide two USB ports as minimum.
- USB compliant devices can get power from a USB port

VGA Port

- Connects monitor to a computer's video card.
- Similar to serial port connector but serial port connector has pins, it has holes.
- **Internal components** -- CPU, motherboard, RAM etc.

DIGITAL STORAGE BASICS:

The easiest way to understand digital storage begins with something you know: digits and the base-10 or decimal number system. Our base-10 number system likely grew up because we have 10 fingers. A decimal digit is a single place that can hold numerical values between 0 and 9. Digits are normally combined together in groups to create larger numbers. For example, the number 6,357 has four digits. It is understood that in the number 6,357, the 7 is filling the "1s place," while the 5 is filling the 10s place, the 3 is filling the 100s place and the 6 is filling the 1,000s place. So you could express things this way if you wanted to be explicit.

Name	Abbr.	Size
Kilo	K	2^10 = 1,024
Mega	M	2^20 = 1,048,576
Giga	G	2^30 = 1,073,741,824
Tera	T	2^40 = 1,099,511,627,776
Peta	P	2^50 = 1,125,899,906,842,624
Exa	E	2^60 = 1,152,921,504,606,846,976
Zetta	Z	2^70 = 1,180,591,620,717,411,303,424
Yotta	Y	2^80 = 1,208,925,819,614,629,174,706,176

Storage Devices

There are many types of devices that can store digital data. Computer disk drives, CDs, DVDs, Flash drives, iPods etc. all can store some or all of the files types we have discussed - text files, pictures, programs, music, etc.

Some common examples –

Computer Disk Drive	ranging from 20 GB to 400 GB or more, 80
GB is typicalCD ROM disk	650 – 700 MB
DVD ROM disk, single side	4GB
DVD ROM disk, double sided	8GB
Flash drive	128 MB, 256 MB, 512, MB, 1 GB
MP3 Player	1 GB
iPOD nano	2GB, 4GB and 8GB

Installing Operating system steps

Installing Operating system windows 7

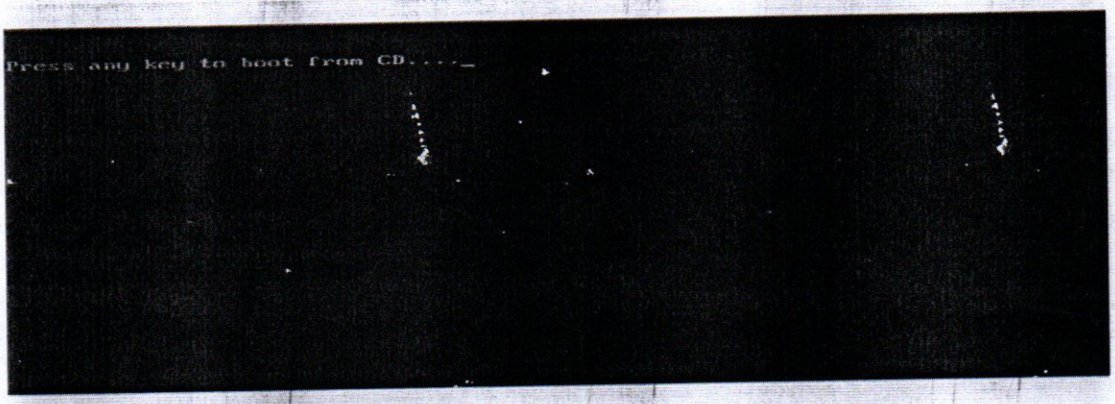
To start Windows 7 from an installation disc or USB flash drive:

Step 1 Turn on your computer, insert the Windows 7 installation CD-ROM or DVD-ROM drive, and then re-start your computer.

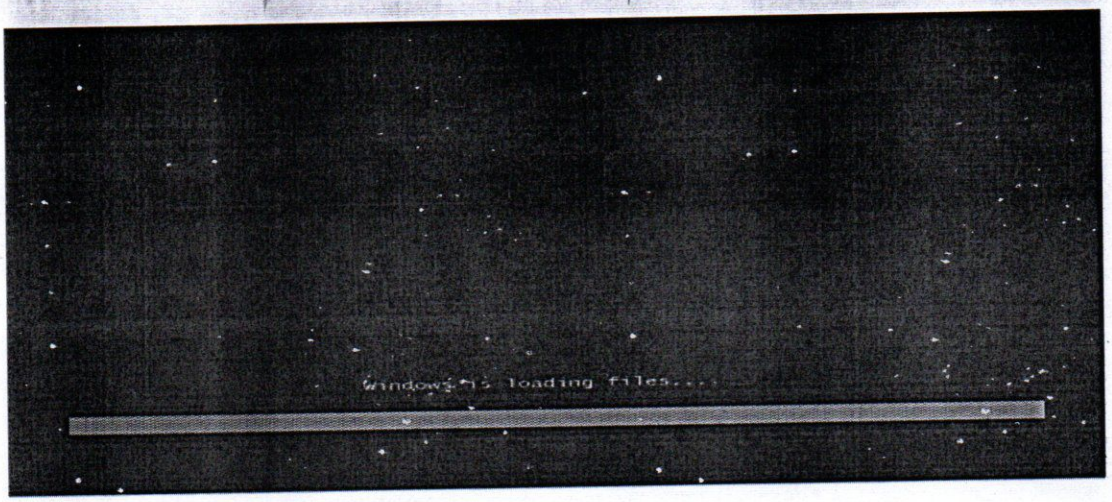
T

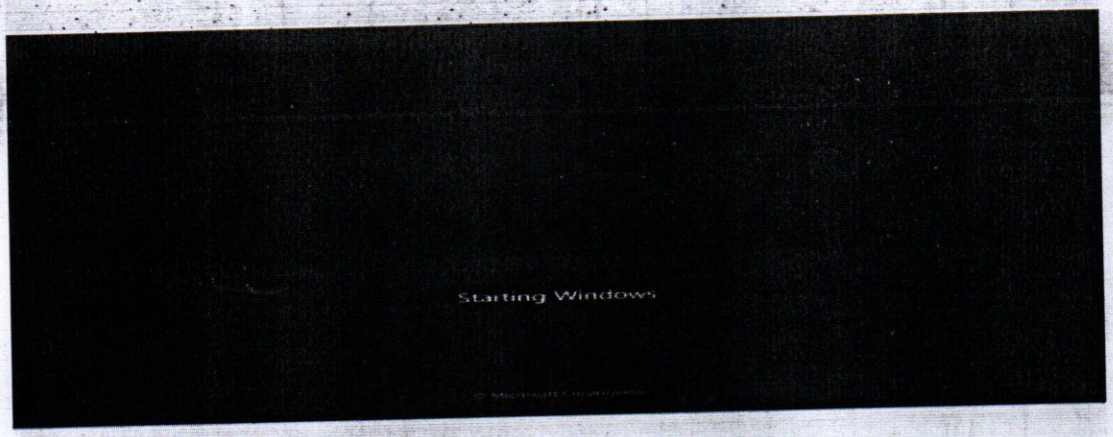
Step 2

The computer will boot from the CD-ROM automatically as the BIOS set up, or the massage of "press any key to boot from CD or DVD" screen will be appear, so Press any key from keyboard.



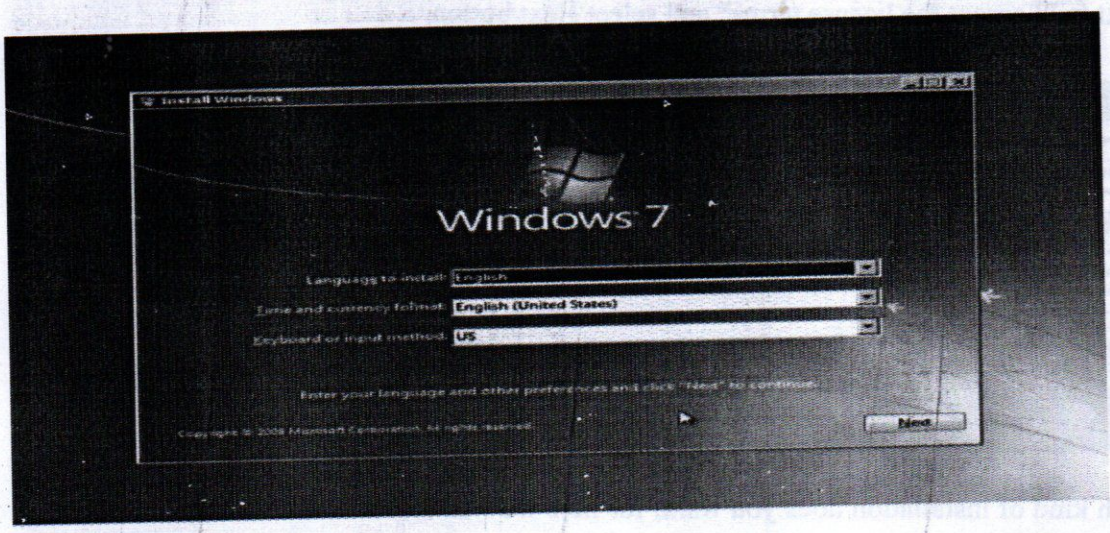
Step 3 Setup is loading the driver files it needs to continue with installation.



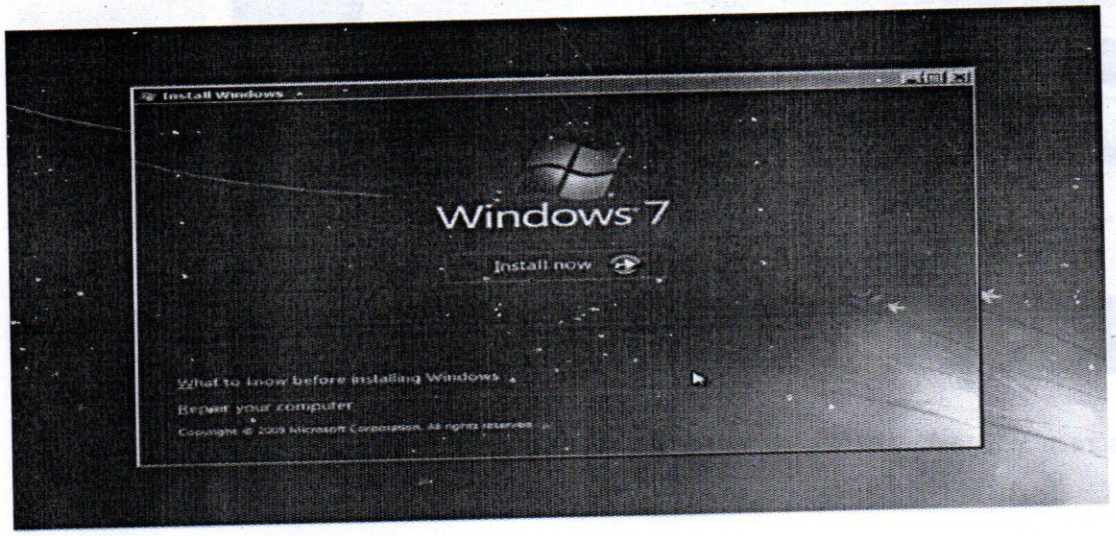


Step 4

The first options you will come across are selections for Language, Time and currency format, and Keyboard language screen will be appear and press the **Next** button.

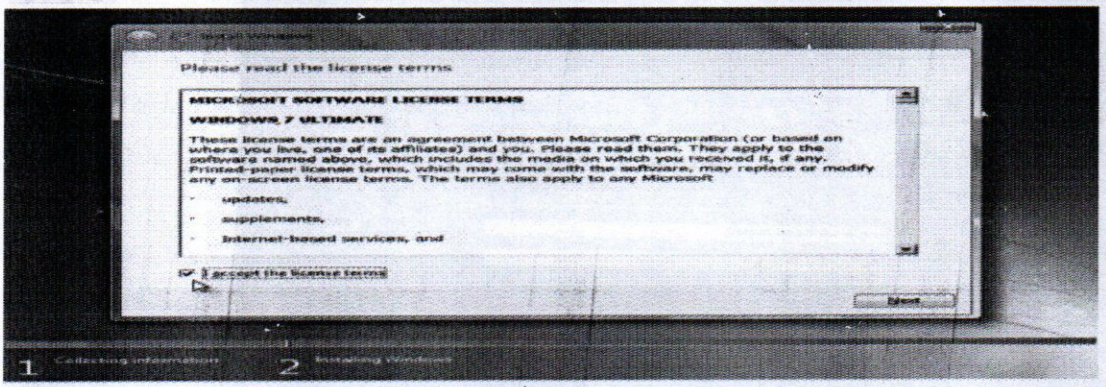


Step 5 When the Install Windows page appears, click Install now to begin the installation process.

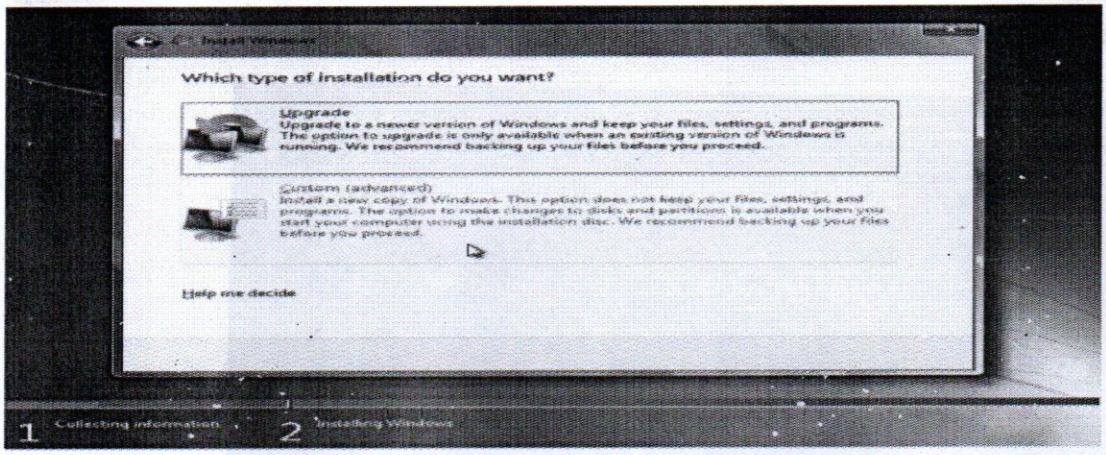


Step 6 Windows 7 is working in the background. This may take several minutes depending on the system

Step 7 Next Screen "License Agreement" will be appear. You must accept before continuing. Check the box next to "I accept the license terms" and select Next button.



Step 8 Select which kind of installation does you want, for here we will select custom advanced.

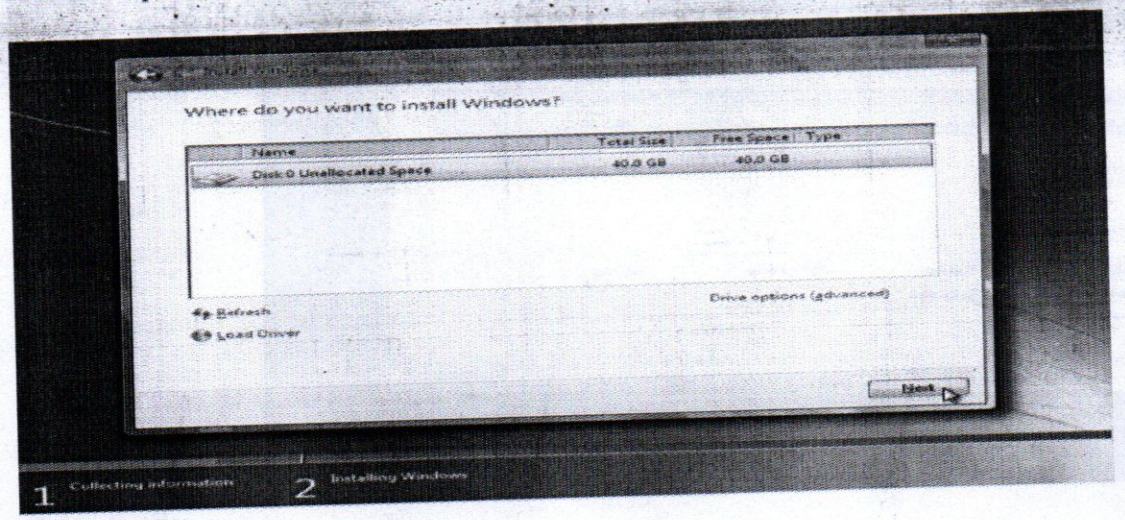


Step 9 The next screen will ask you where you want to install the system, meaning on what partition.

At that point, you need to decide one of the two options:

1- Install Windows on the entire available disk space.

2- Create a partition on the hard disk, and install Windows on that partition.



However we will hose option 2, because we want to create the partition exactly as we want it . Click on"Drive options advanced". The screen will change and show you these buttons:

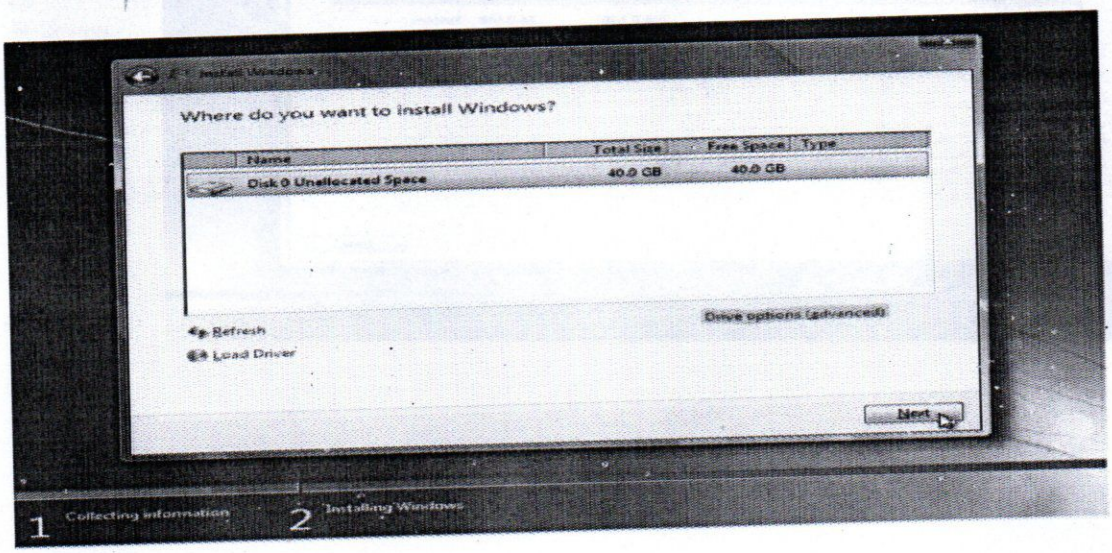
New – to create a new partition.

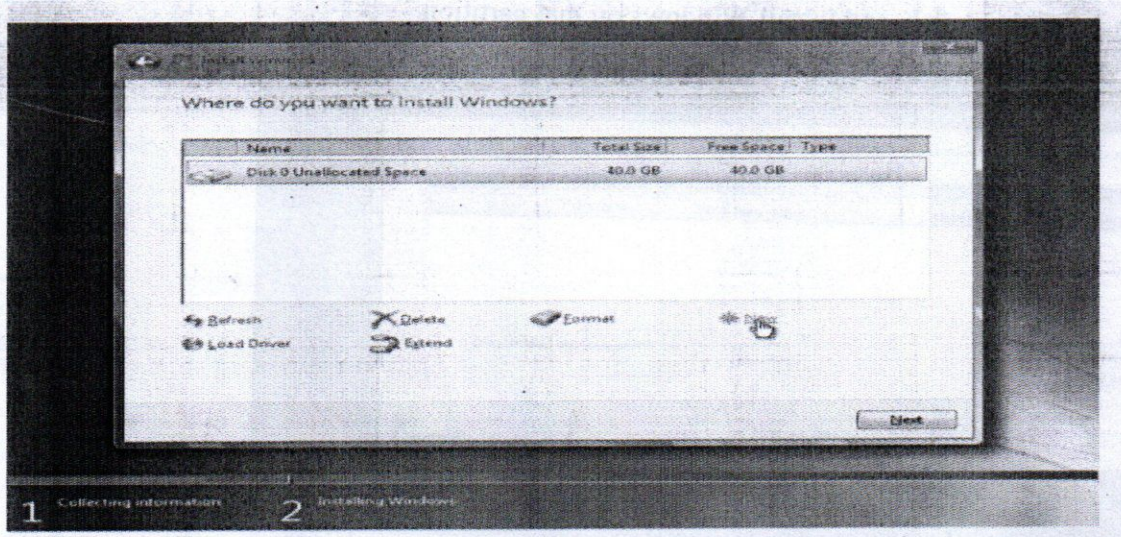
Delete – to delete a specific partition – all data on that partition will be

deleted. **Format** – to format a specific partition – all data on that

partition will be deleted.

Extend – to extend a partition of the limitation of physical disk, and to span the partition on morethan one physical disk.

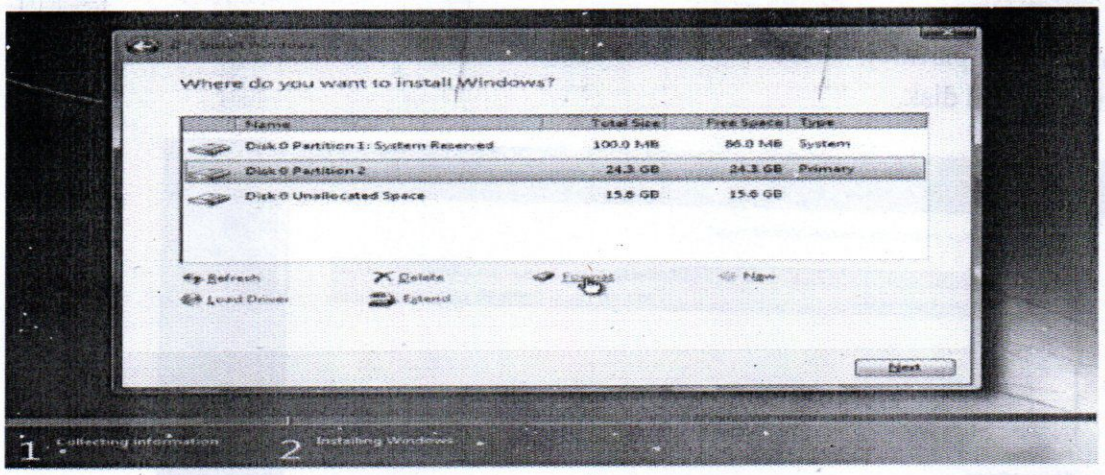


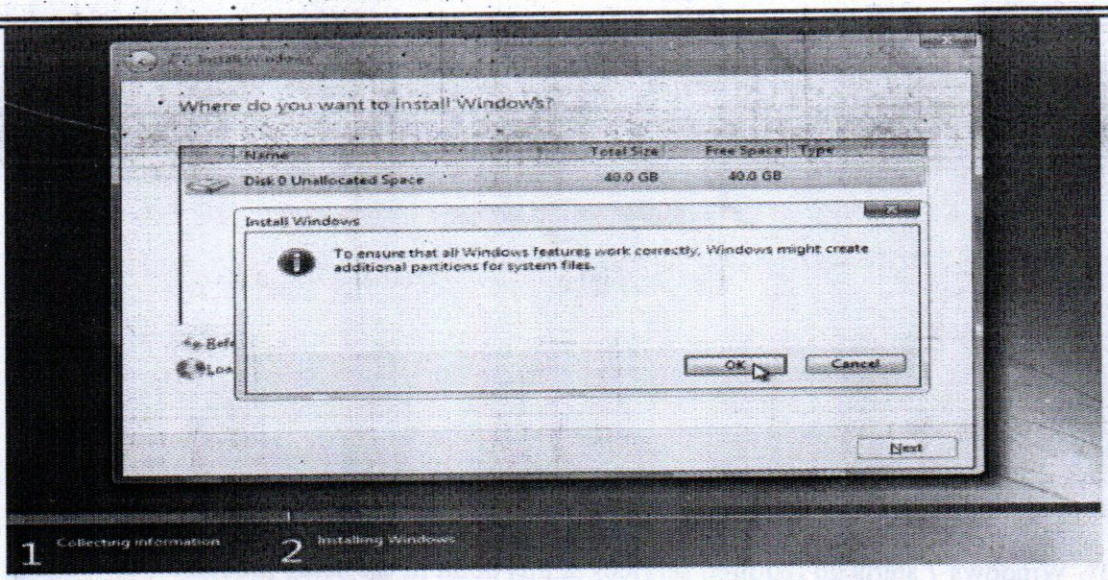


To create a new partition click "New". In the "Size" box, enter the size for the new partition. Whendone, click "Apply".

Note: the size of the partition should be in MB. For example if you want a partition of 24 GB you willmultiply it by 1024 then write that number in the size box.

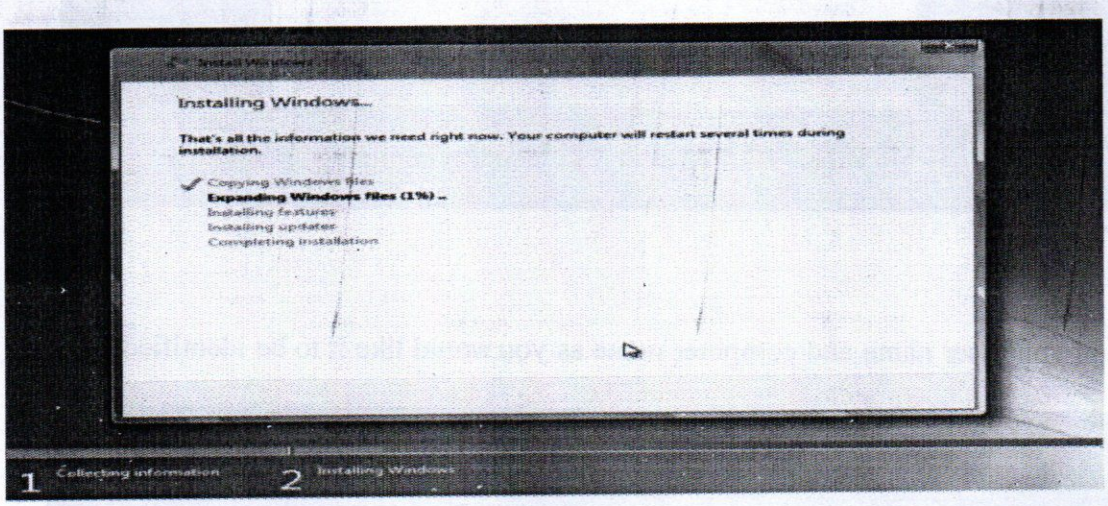
$$24.414 \times 1024 = 25{,}000$$





In most cases, the partition on which Windows will be installed is partition number 2, but you can also choose where do you want to install OS by selecting that partition. Press "Format" to format the new partition.

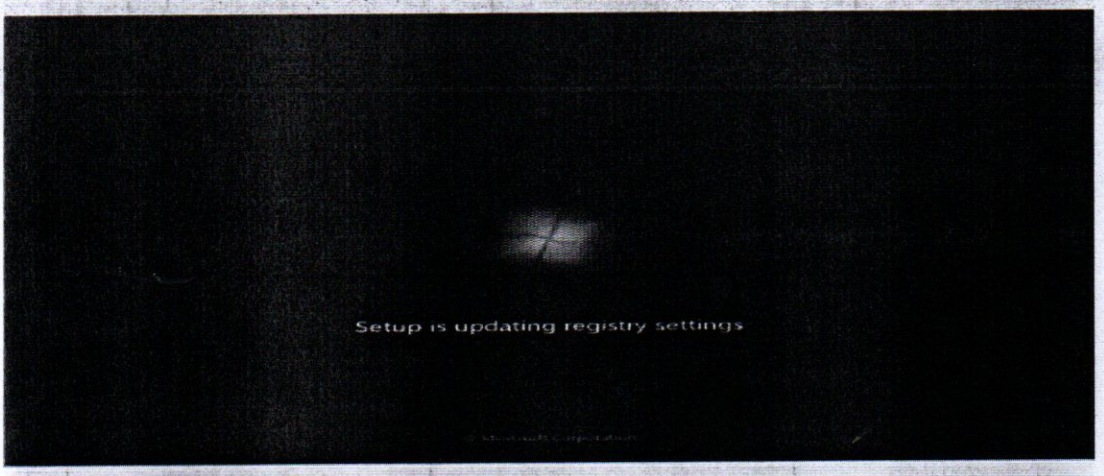
Step 10 Here is where Windows 7 installs major components of the OS. This process can take 10 to 60minutes depending on the system.



Step 11 Here we see the system needing to reboot to continue installation tasks

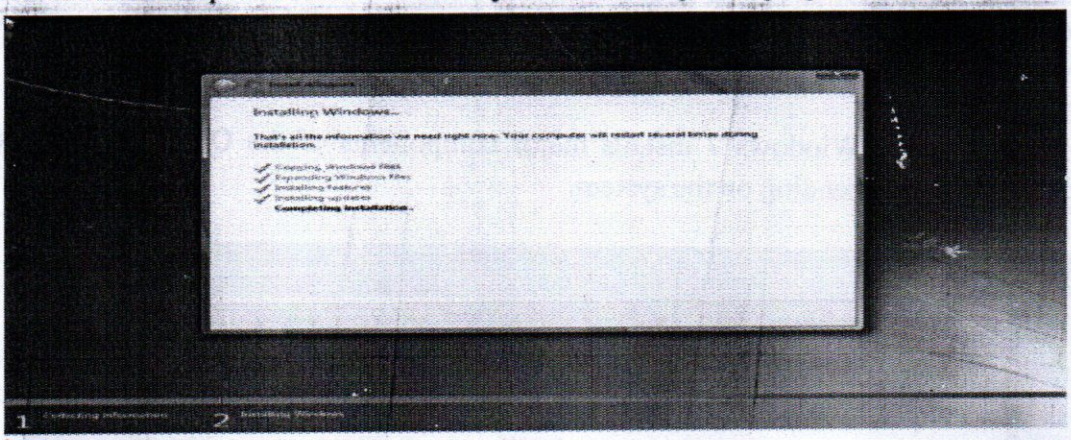
Step 12 Here we see progress as Windows 7 updates the registry settings. This process may take severalminutes before going to the next screen.

Note if you got the message of "press any key to boot from CD or DVD" do not press as it will boot fromhard disk to continue installation.



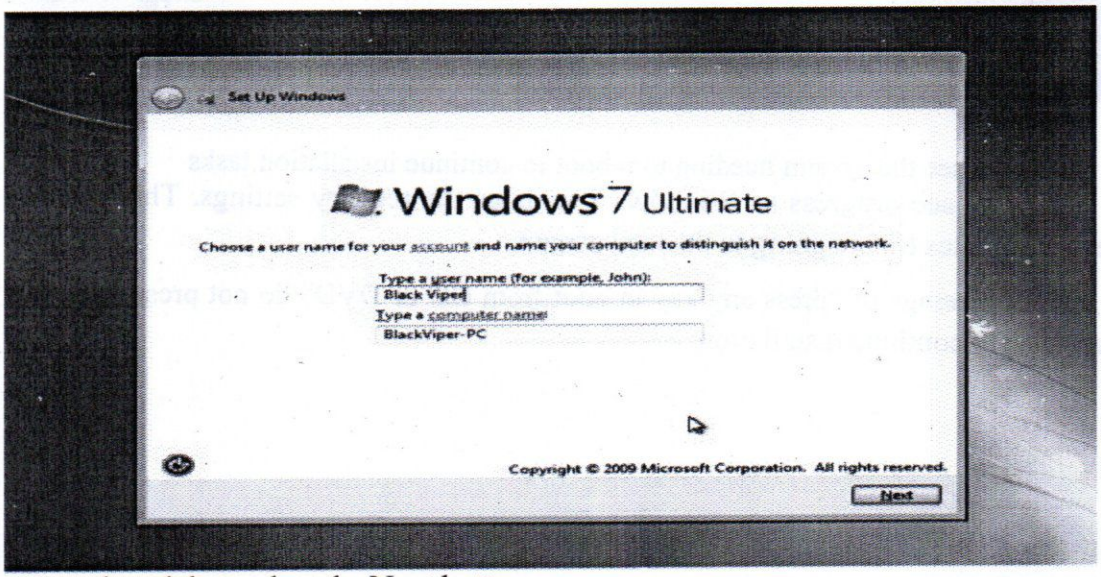
Step 13 Windows 7 starts up required services at this point in the setup process.

Step 14 Windows 7 continues to install at this screen. After initial setup is complete, another reboot is required with no user input. Then setup will prepare the system for initial



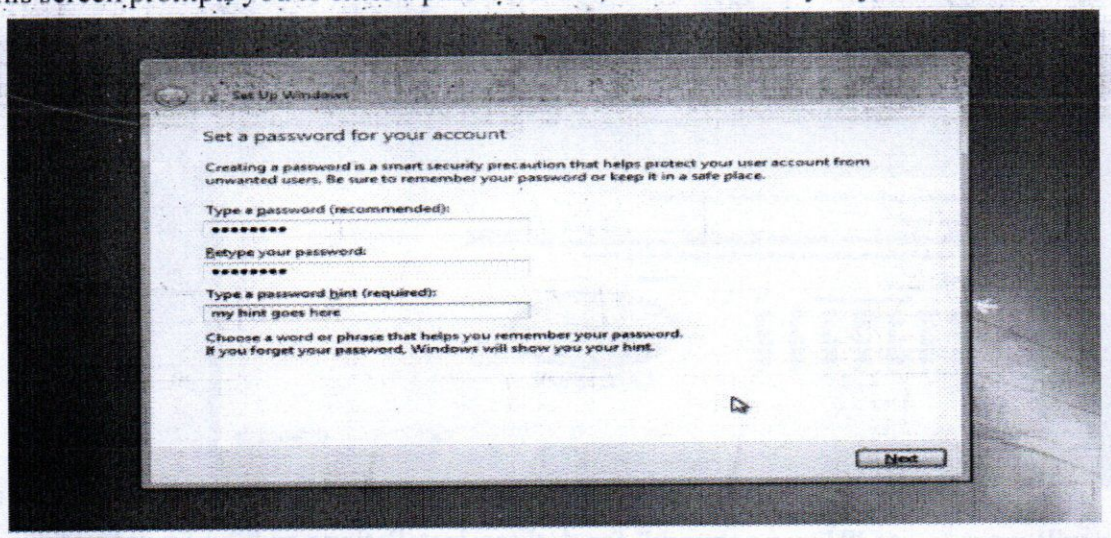
booting

1. Enter in your user name and computer name as you would like it to be identified

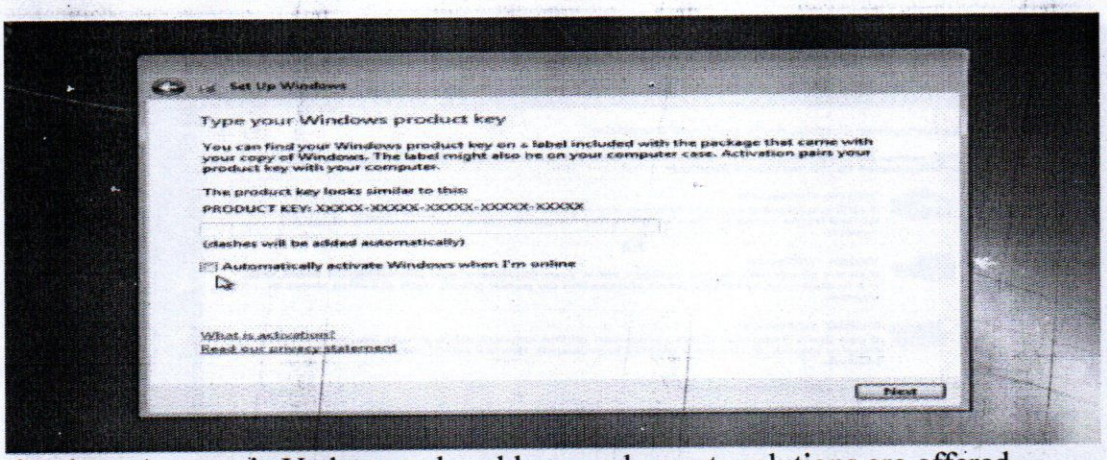


on the network and then select the Next button.

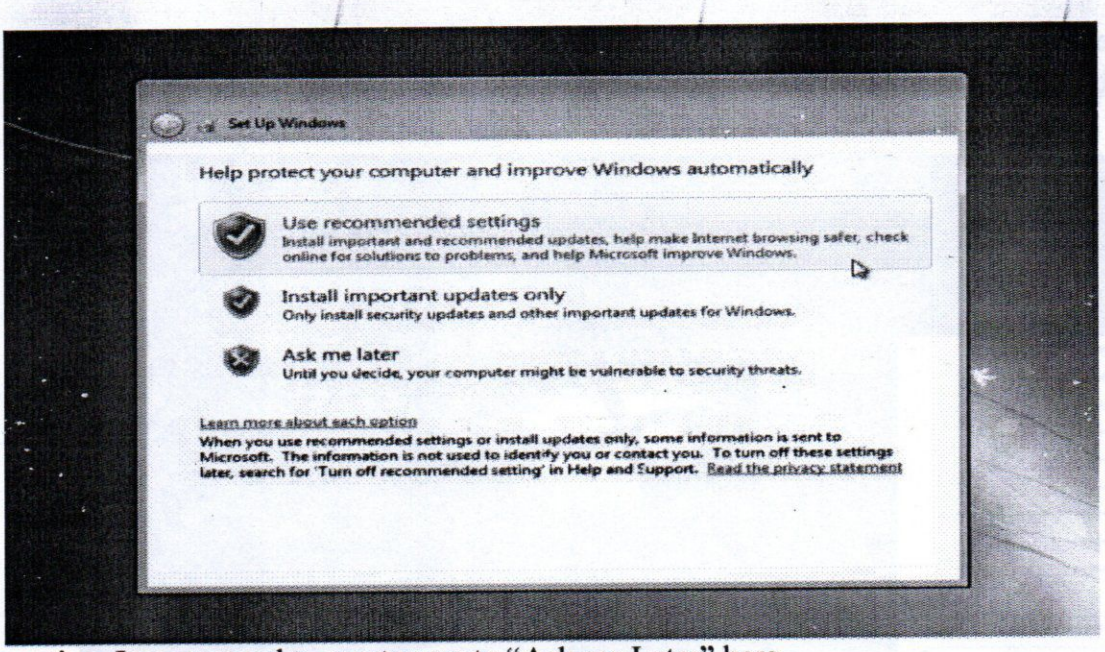
2. This screen prompts you to enter a password for the account that you just created.



Enter your windows product key

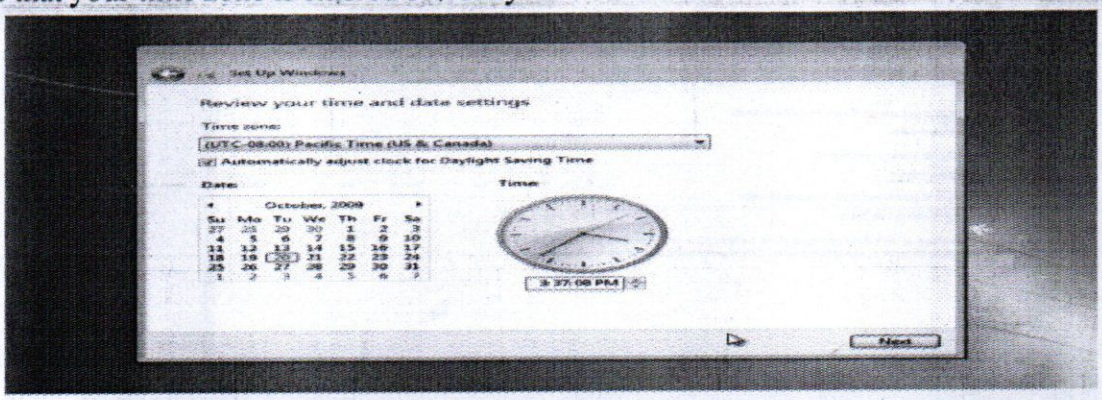


3. This is where Automatic Updates and problems and reports solutions are offered

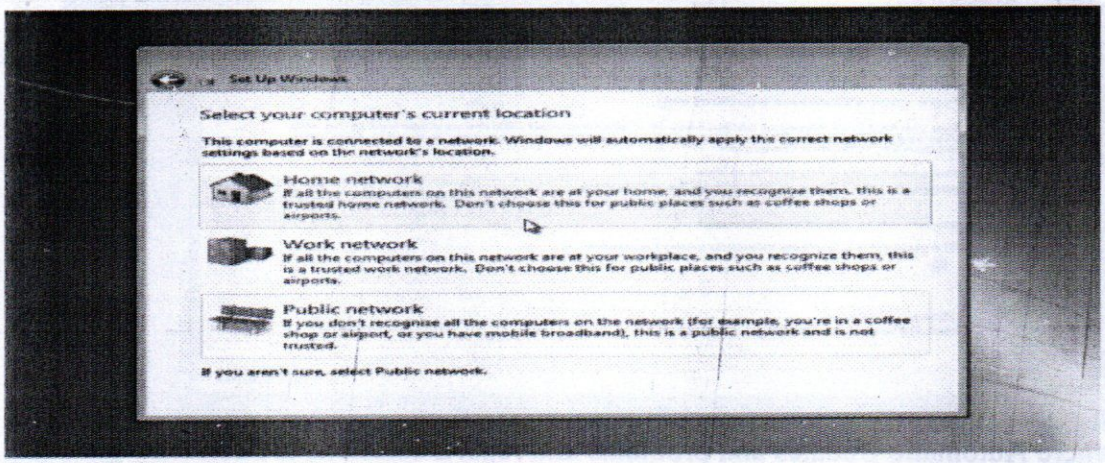


as an option. Irecommend to most users to "Ask me Later" here.

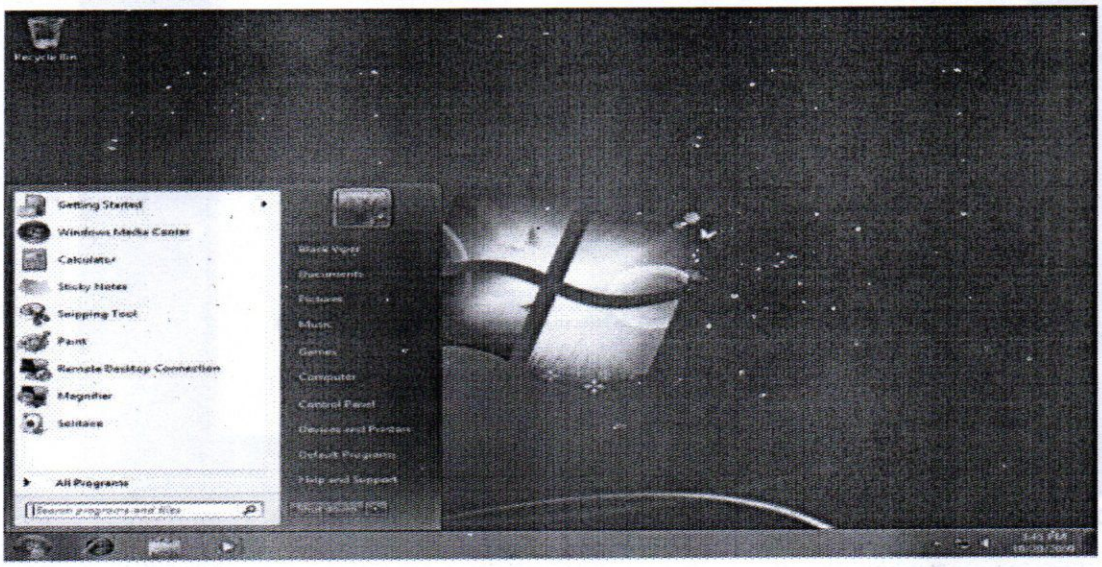
4. Ensure that your time zone is entered correctly



5. Most people will want to use "Home network" for desktop installations or "Public network" for aportable system, like a laptop. Make your selection to continue to the next screen



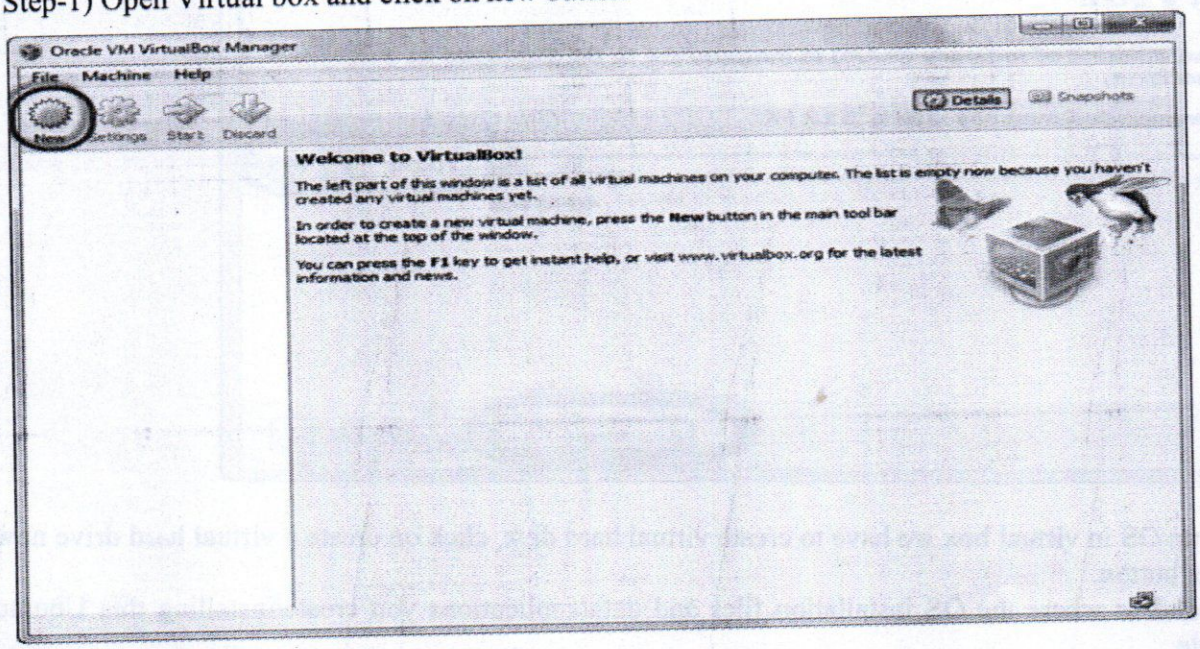
6. Finalizing settings, this should only take a few moments to complete. Then welcome windows willappears, after that preparing for your desk top.



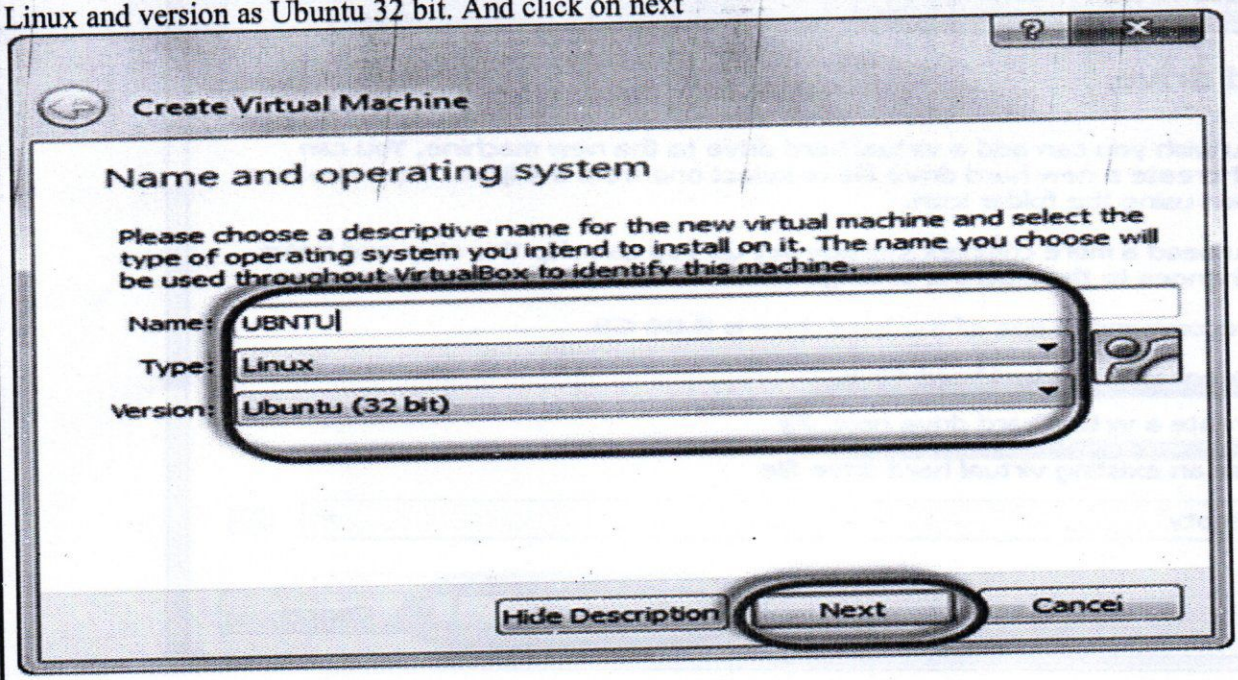
Installation of Linux

Create a Machine in Virtual Box

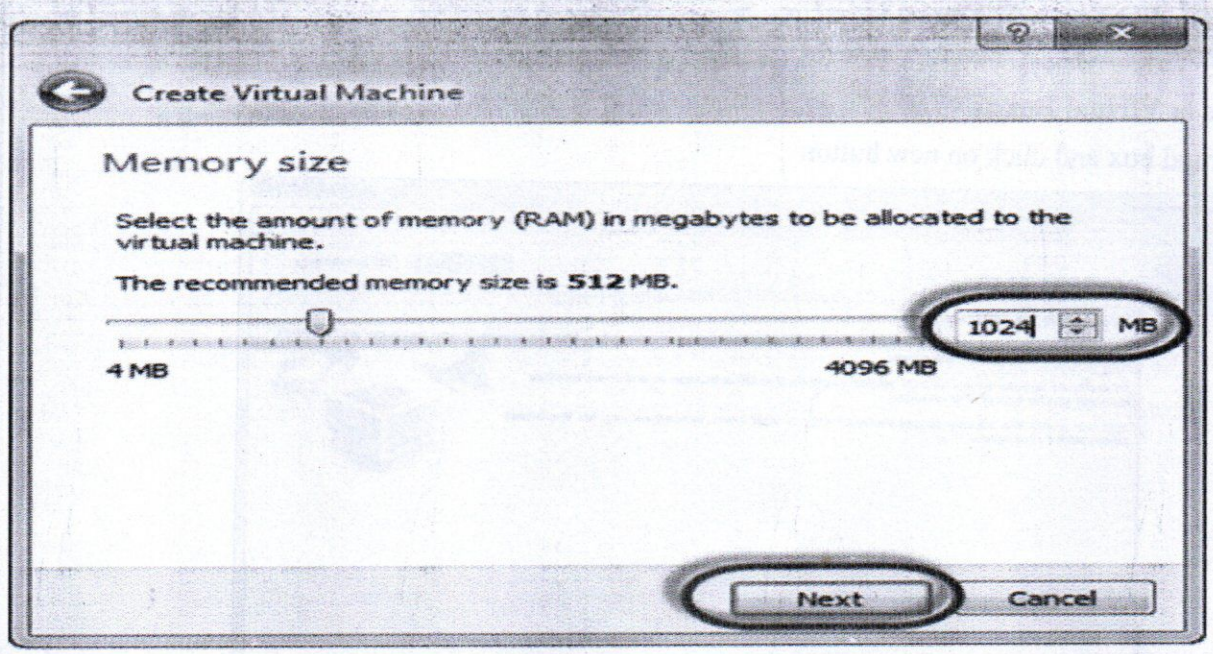
Step-1) Open Virtual box and click on new button



Step-2) In next window, give the name of your OS which you are installing in virtual box. And select OS like Linux and version as Ubuntu 32 bit. And click on next

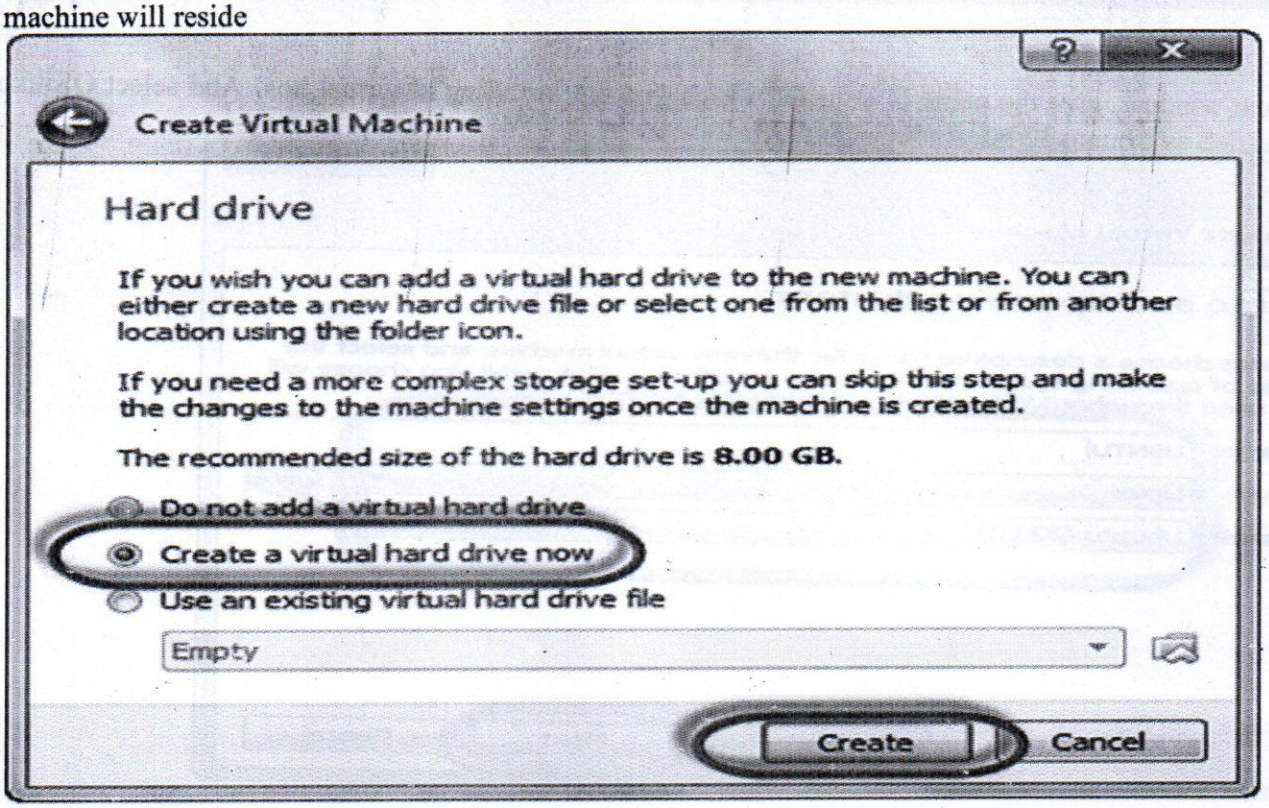


Step-3) Now Allocate Ram Size To your Virtual OS. I recommended keeping 1024mb (1 GB) ram to run Ubuntu better. And click on next.

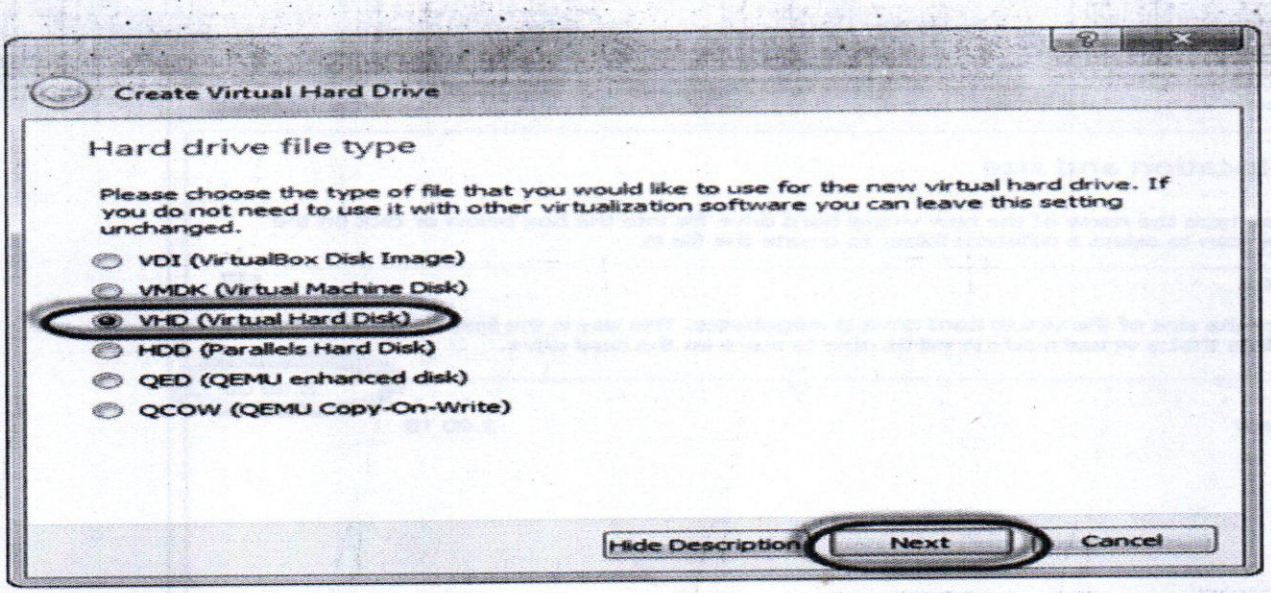


Step-4) Now To run OS in virtual box we have to create virtual hard disk, click on create a virtual hard drive now and click on create button.

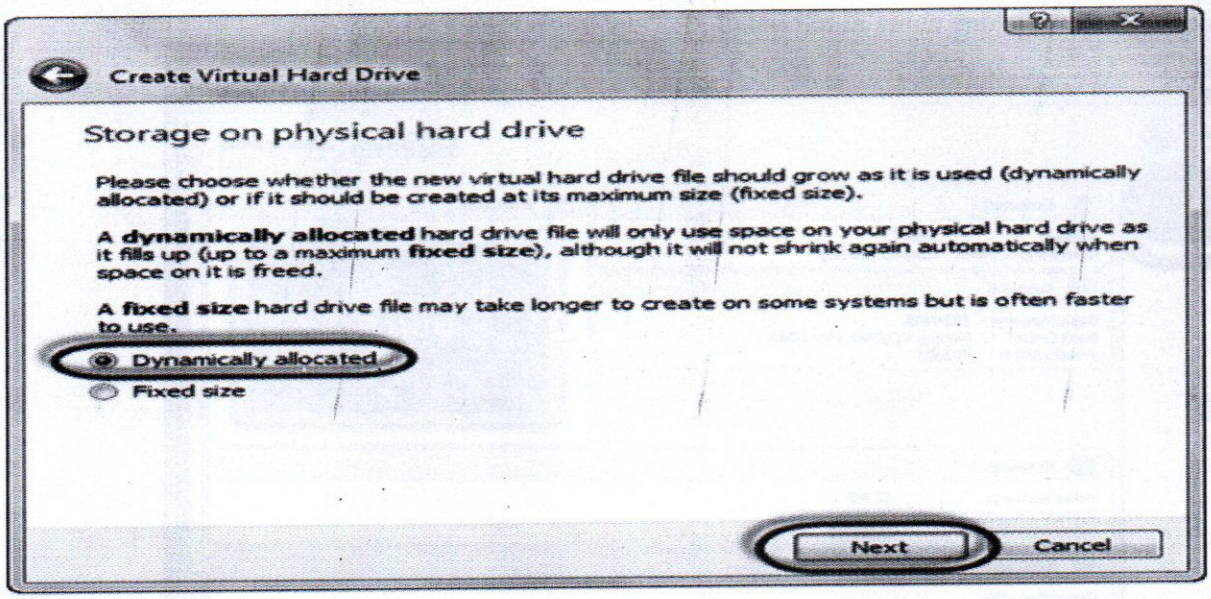
The virtual hard disk is where the OS installation files and data/applications you create/installing this Ubuntu machine will reside



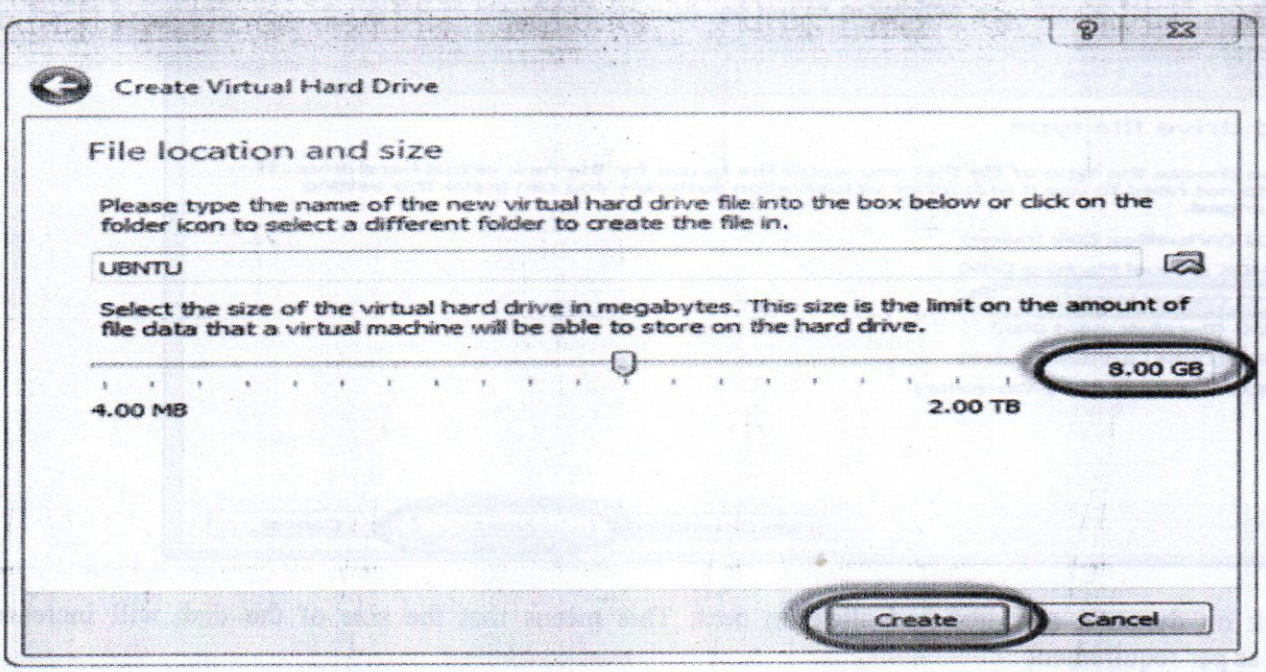
Step-5) select VHD (virtual hard disk) option and click on next



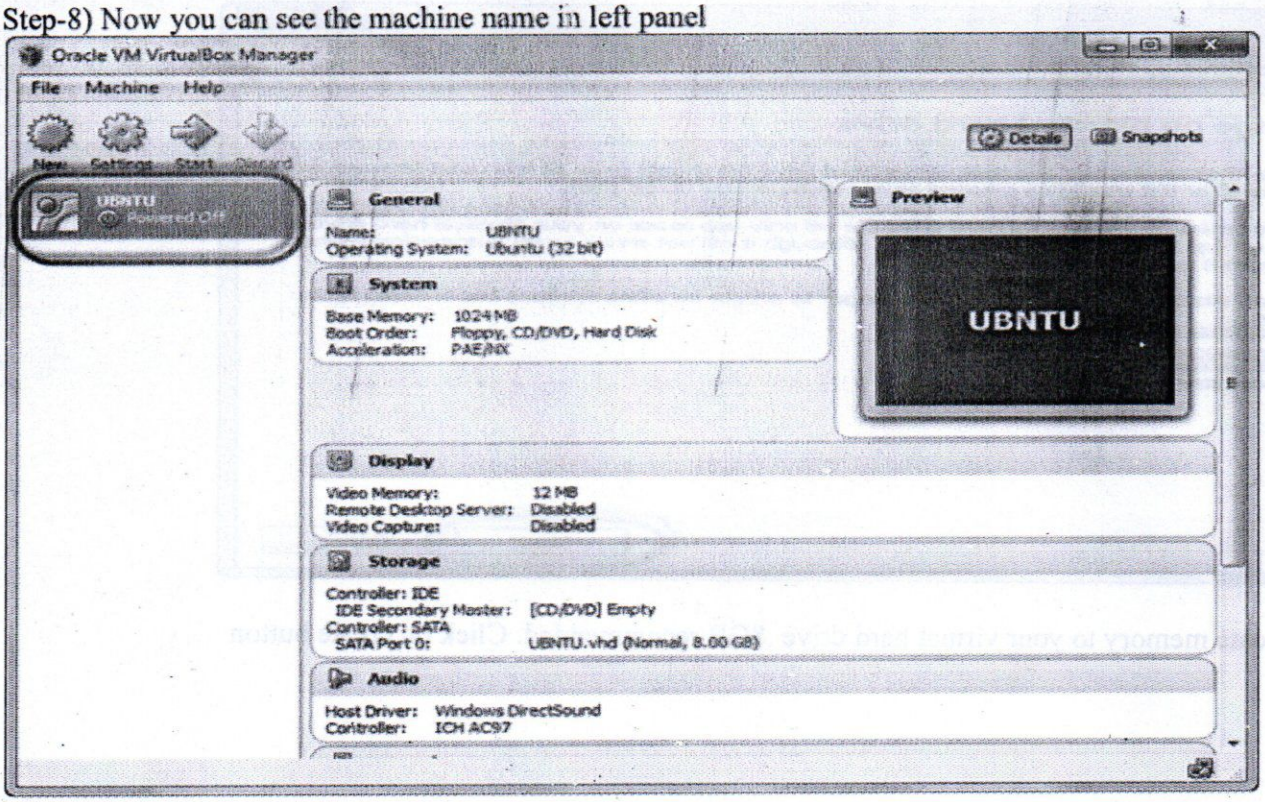
Step-6) Click on dynamic allocated and click on next. This means that the size of the disk will increase dynamically as per requirement



Step-7) Allocate memory to your virtual hard drive .8GB recommended. Click on create button



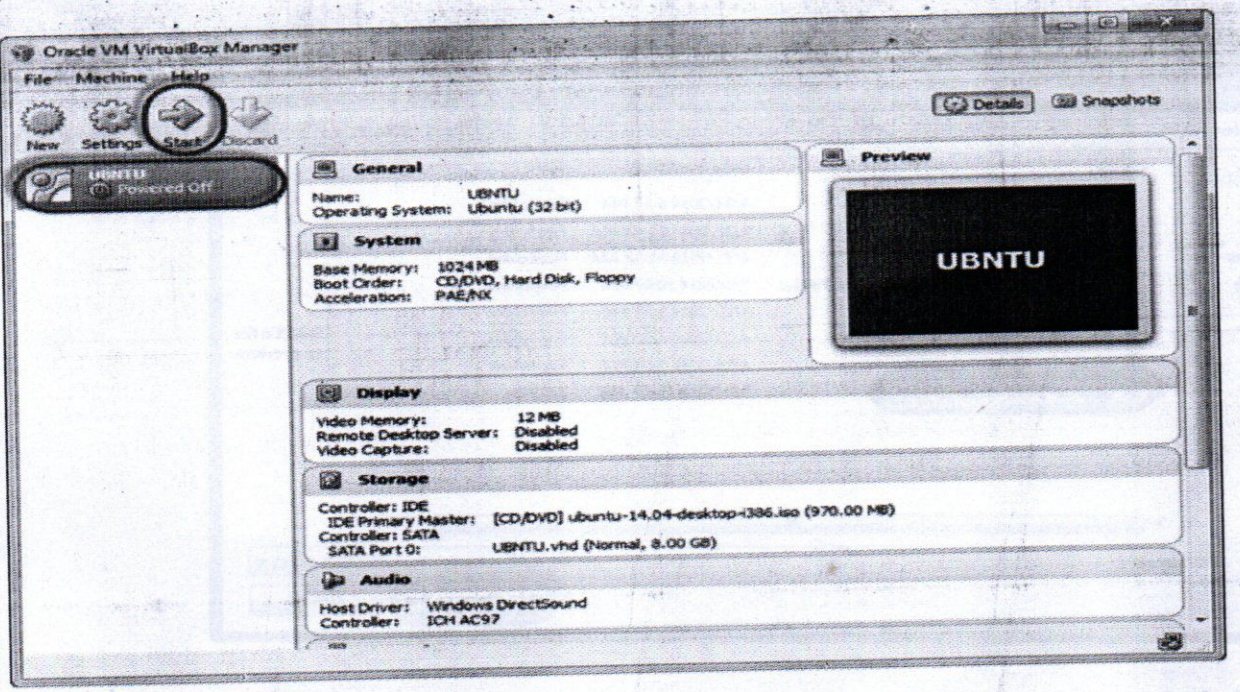
Step-8) Now you can see the machine name in left panel



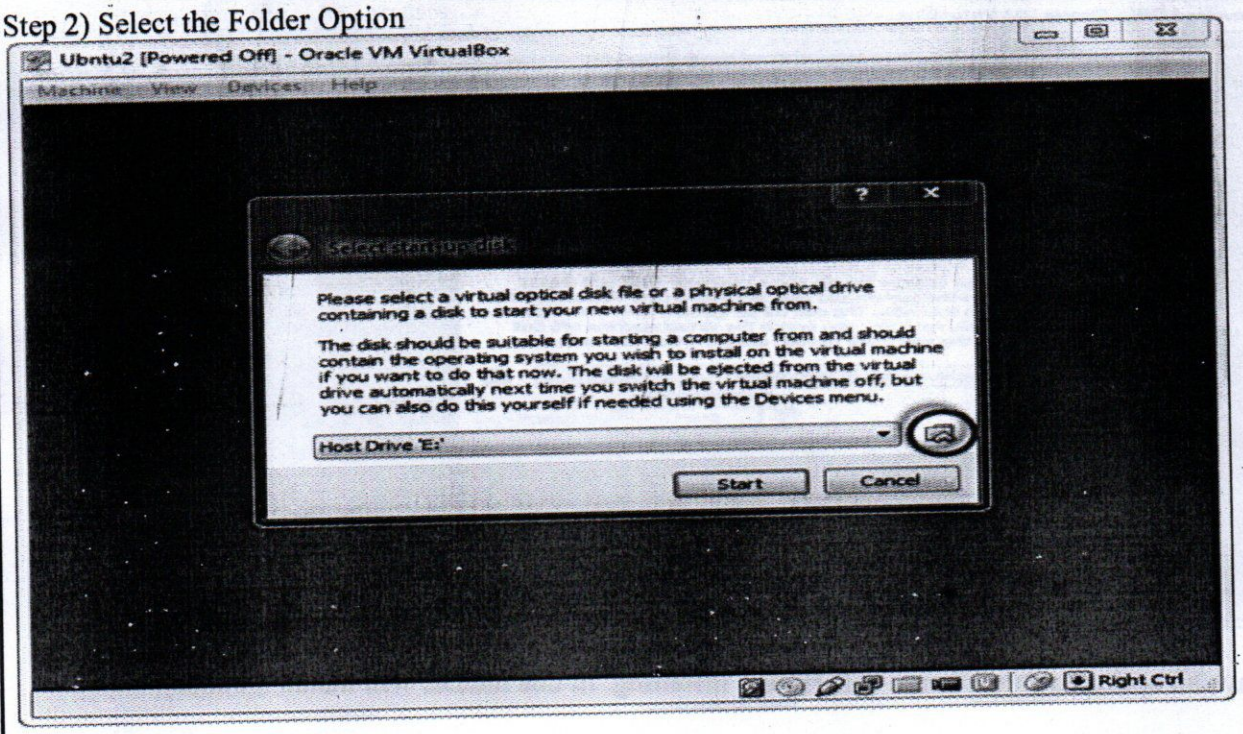
So a Machine (PC) with 8GB Hardisk, 1GB RAM is ready.

How to Install Ubuntu

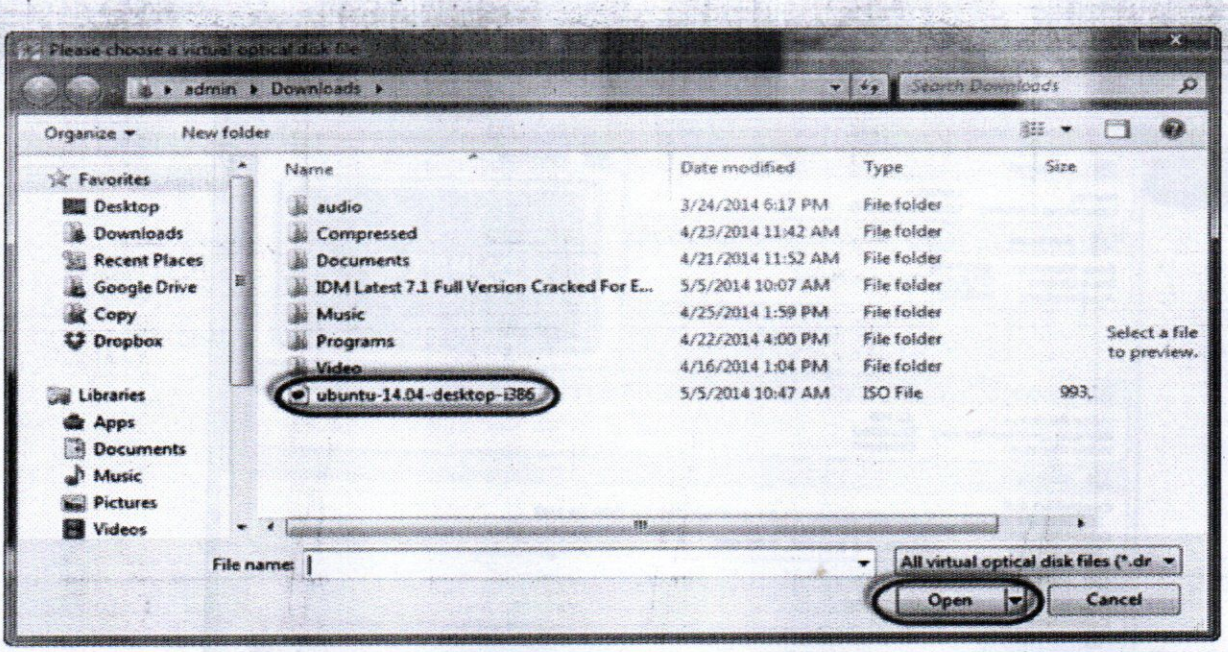
Step 1) Select the Machine and Click on Start



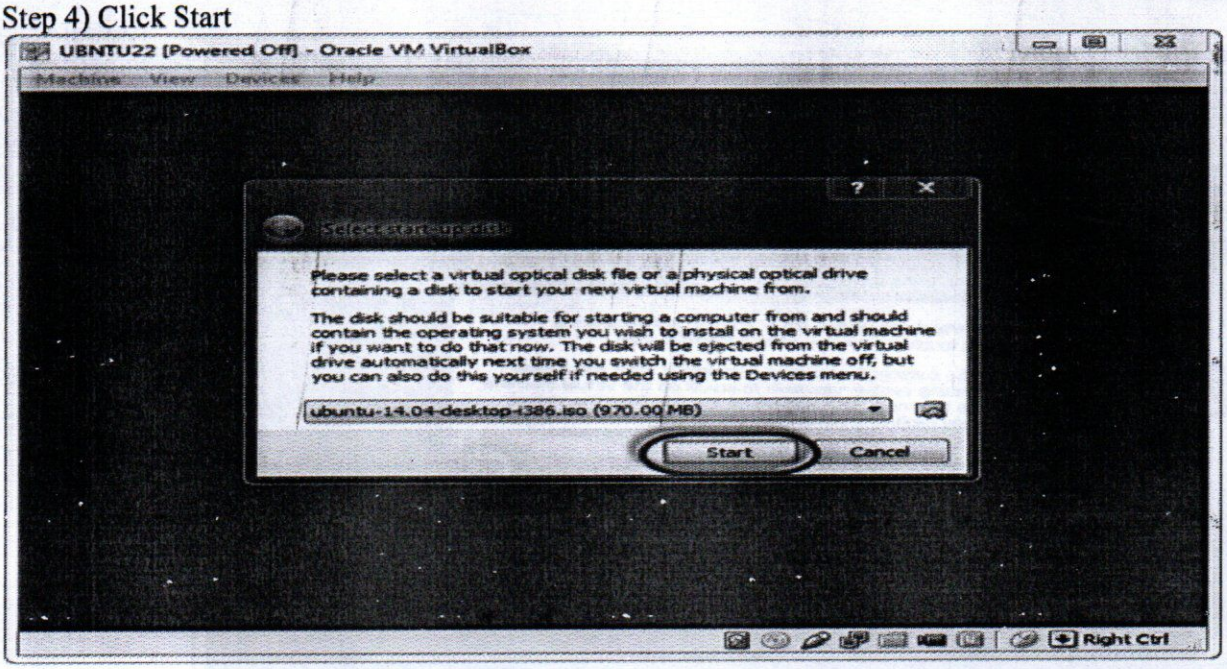
Step 2) Select the Folder Option



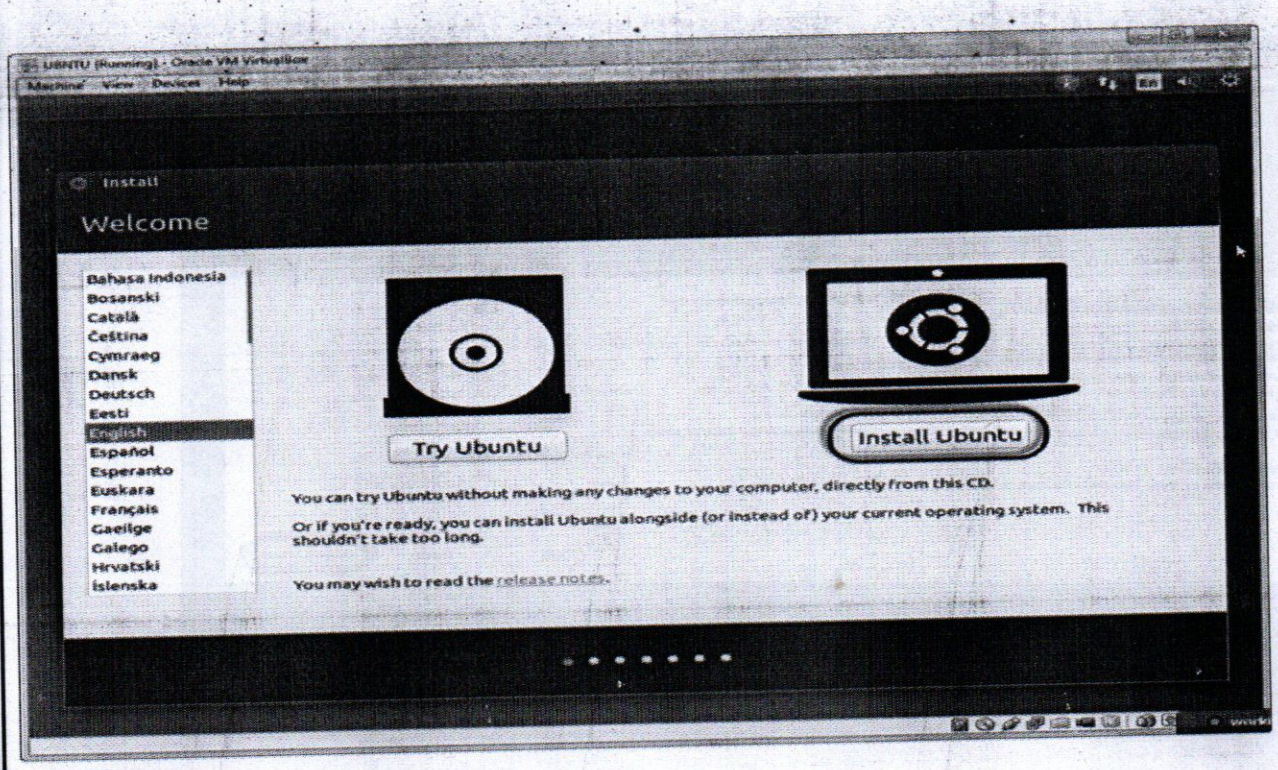
Step 3) Select the Ubuntu iso file



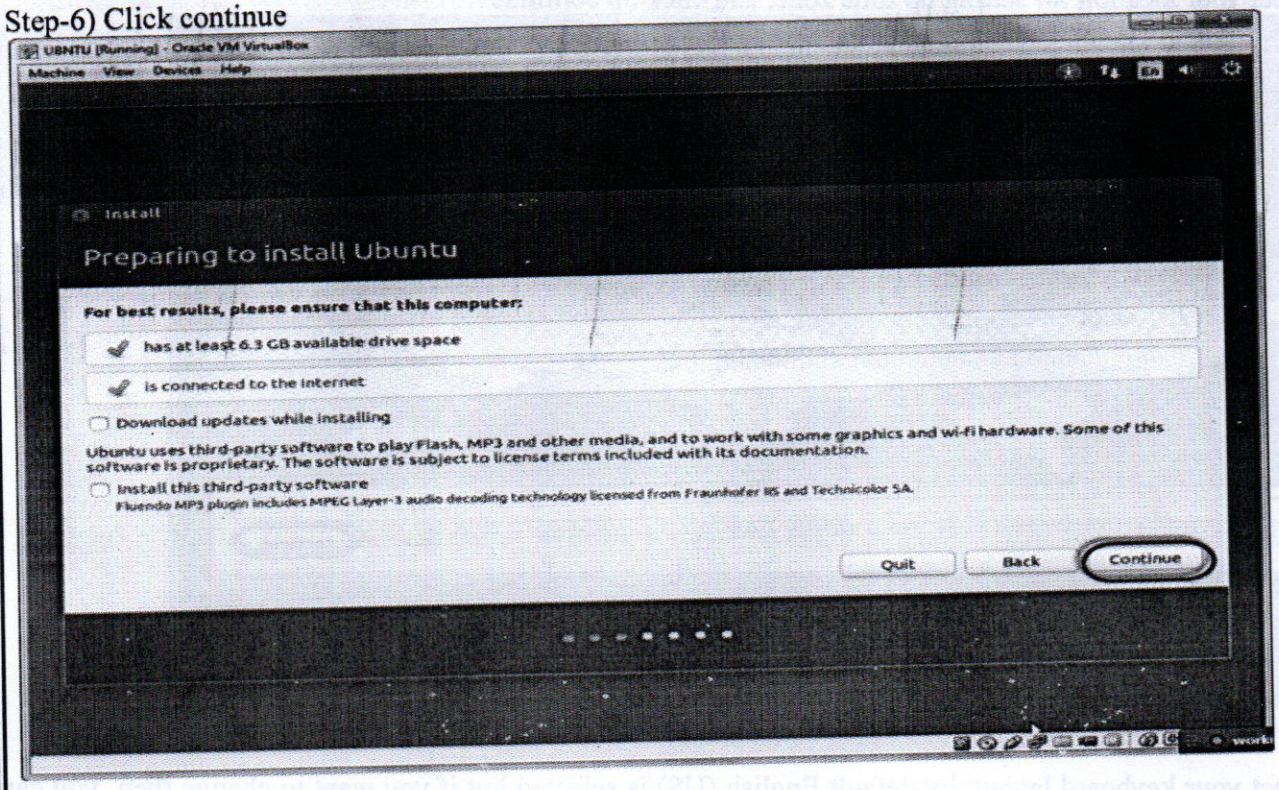
Step 4) Click Start



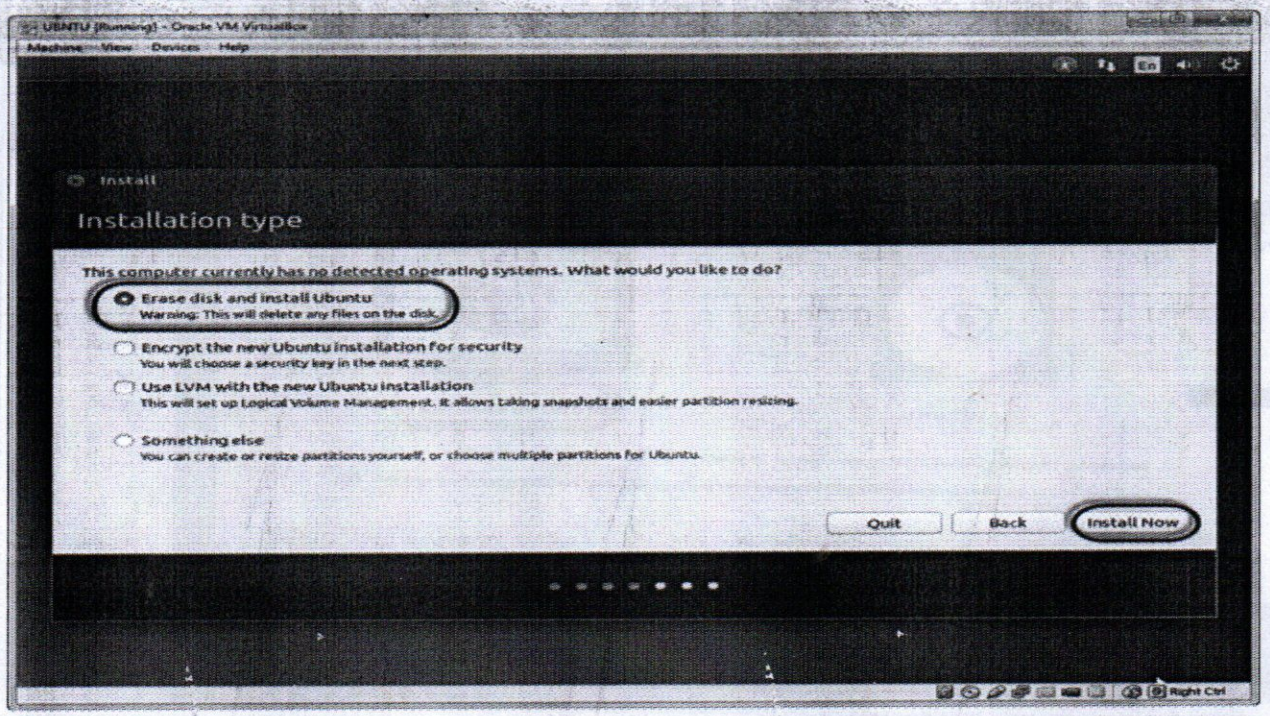
Step-5) You have an option to Run Ubuntu WITHOUT installing. In this tutorial will install Ubuntu



Step-6) Click continue

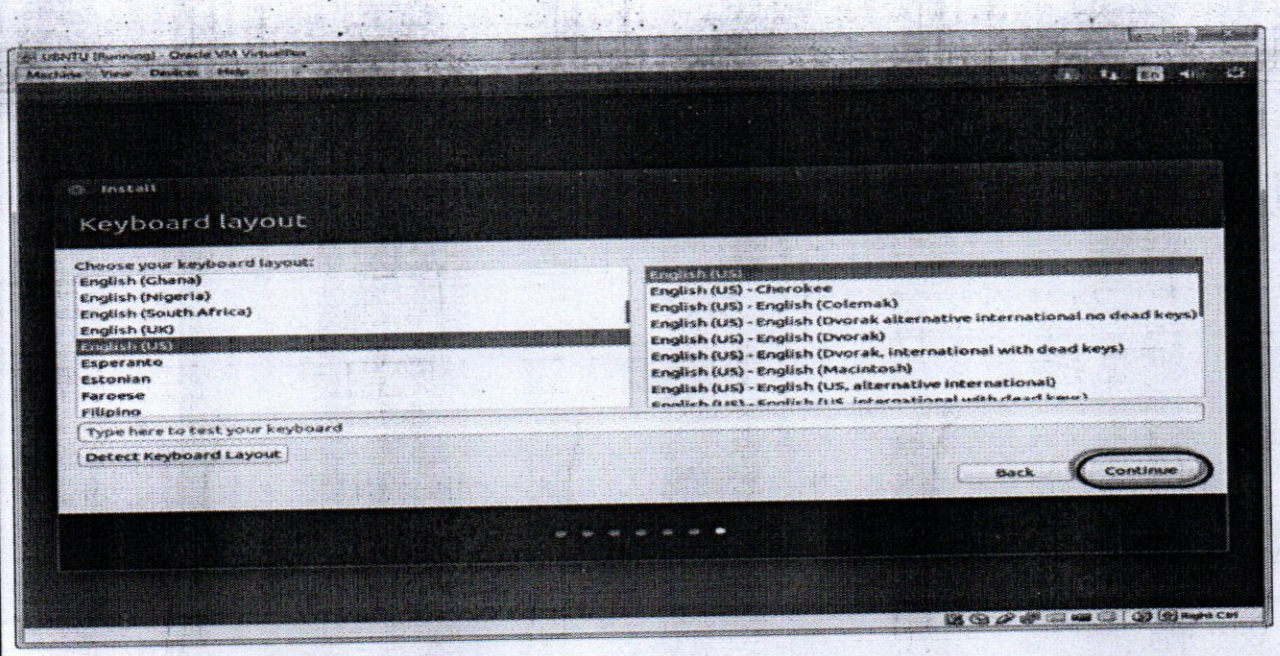


Step-7) Select option to erase the disk and install Ubuntu and click on install now. This option installs Ubuntu into our virtual hard drive which is we made earlier. It will not harm your PC or Windows installation

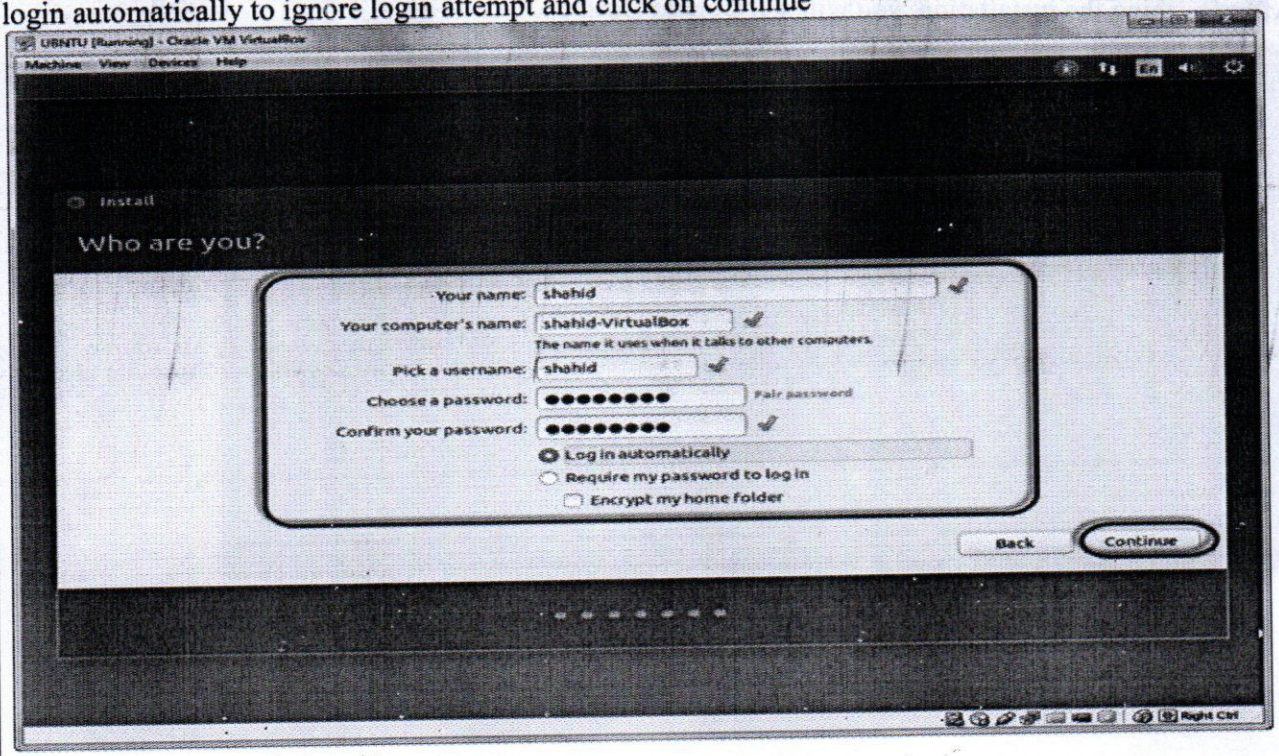


Step-8) Select your location for setting up time zone, and click on continue

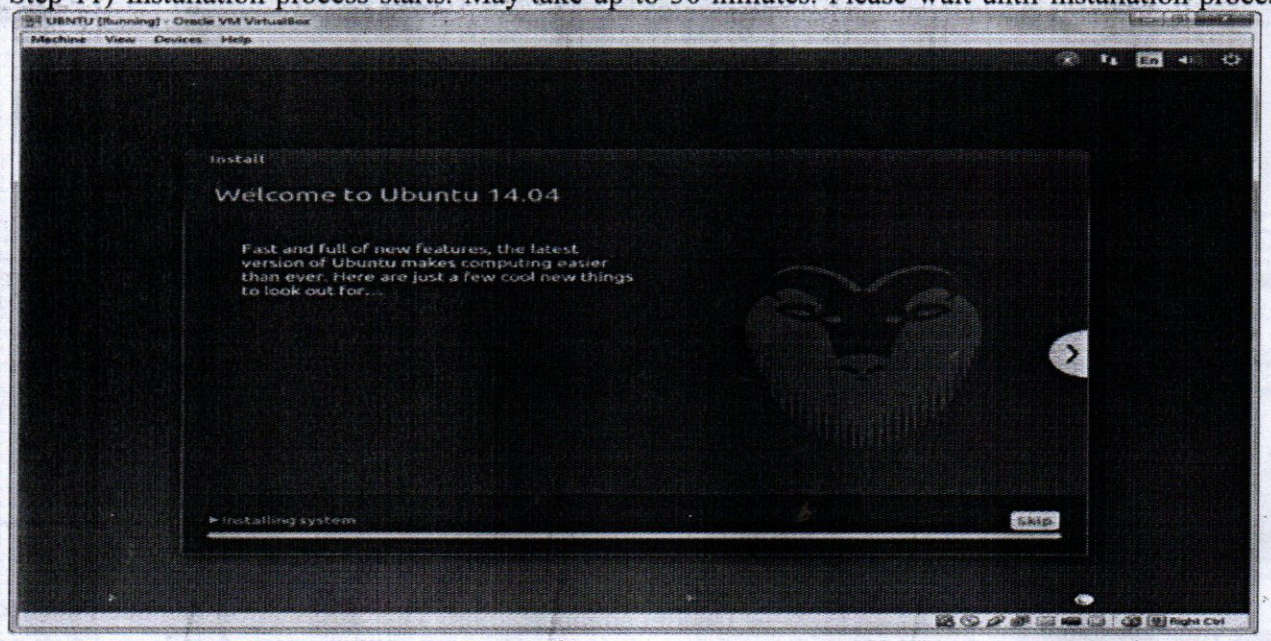
Step-9) Select your keyboard layout, by default English (US) is selected but if you want to change then, you can select in the list. And click on continue



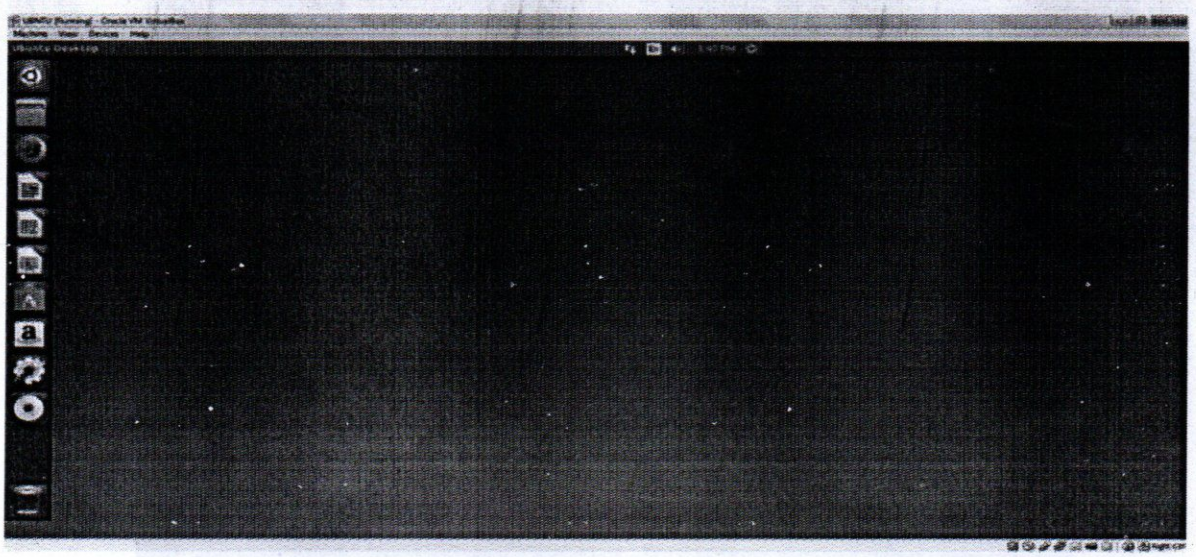
Step-10) Select your username and password for your Ubuntu admin account. This information has been needed for installing any software package into Ubuntu and also for login to your OS. Fill up your details and tick on login automatically to ignore login attempt and click on continue



Step-11) Installation process starts. May take up to 30 minutes. Please wait until installation process completes



Step-12) After finishing the installation, you will see Ubuntu Desktop.



Linux Operating System commands

The Linux command is a utility of the Linux operating system. All basic and advanced tasks can be done by executing commands. The commands are executed on the **Linux terminal**. The terminal is a command-line interface to interact with the system, which is similar to the command prompt in the Windows OS. *Commands in Linux are **case-sensitive**.*

Linux provides a powerful command-line interface compared to other operating systems such as Windows and MacOS. We can do basic work and advanced work through its terminal. We can do some basic tasks such as creating a file, deleting a file, moving a file, and more. In addition, we can also perform advanced tasks such as administrative tasks (including package installation, user management), networking tasks (ssh connection), security tasks, and many more.

We have divided these commands into following sections so that you can easily identify their usage:

- Linux Directory Commands(pwd, mkdir, rmdir, ls, cd)
- Linux File Commands(touch, cat, rm, cp, mv, paste, vi)
- Linux File Content Commands(head, tail, tac)
- Linux User Commands(su, id, useradd, passwd, groupadd)
- Linux Filter Commands(grep, comm, nl, tr, uniq, wc, sort, gzip, gunzip, tar)
- Linux Utility Commands(find, locate, date, cal, sleep, time, zcat, df, mount, exit, clear)
- Linux Networking Command(ping, ssh, ifconfig, scp, netstat, ipstat, nslookup, traceroute, telnet, host, ftp, arp, wget,route)

Linux Directory Commands

1. **pwd Command**

The pwd command is used to display the location of the current working directory.

Syntax: $ pwd

```
javatpoint@javatpoint-Inspiron-3542:~$ pwd
/home/javatpoint
```

2. **mkdir Command**

The mkdir command is used to create a new directory under any directory.

Syntax:

mkdir **<directory** name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ mkdir new_directory
javatpoint@javatpoint-Inspiron-3542:~$
```

3. nl command

   It is a linux command to number lines of the files,

   $nl list.txt

   1 apples
   2 oranges
   3 potatoes
   4 lemons

4. **rmdir Command**

The rmdir command is used to delete a directory.

Syntax:

rmdir **<directory** name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ rmdir new_directory
javatpoint@javatpoint-Inspiron-3542:~$
```

5. **ls Command**

The ls command is used to display a list of content of a directory.

Syntax:

ls

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ ls
a               Desktop          examples.desktop  Music            sample
Akash           Directory        hello.c           pico             snap
a.out           Documents        hello.i           Pictures         Templates
composer.phar   Downloads        hello.o           project          Test.txt
Demo.sh         eclipse          hello.s           Public           Videos
Demo.txt        eclipse-installer index.html       Python
Demo.txt~       eclipse-workspace mail             Python-3.8.0
```

6. **cd Command**

The cd command is used to change the current directory.

There are some shortcuts to help you navigate quickly:

- **cd ..** (with two dots) to move one directory up
- **cd** to go straight to the home folder
- **cd-** (with a hyphen) to move to your previous directory

Syntax:

cd **<directory** name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ cd Desktop
javatpoint@javatpoint-Inspiron-3542:~/Desktop$
```

Linux File commands

1. **touch Command**

The touch command is used to create empty files. We can create multiple empty files by executing it once.

Syntax:

touch **<file** name>

touch **<file1> <file2>** ....

Output:

```
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ touch Demo.txt
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ touch Demo1.txt Demo2.txt
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ ls
Demo1.txt  Demo2.txt  Demo.txt
```

2. **cat Command**

The cat command is a multi-purpose utility in the Linux system. It can be used to create a file, display content of the file, copy the content of one file to another file, and more.

Syntax:

cat [OPTION]... [FILE]..

To create a file, execute it as follows:

cat > **<file** name>

// Enter file content

Press "**CTRL+ D**" keys to save the file. To display the content of the file, execute it as follows:

cat **<file** name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ cat > Demo.txt
This is a text file.
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ cat Demo.txt
This is a text file.
```

3. **rm Command**

The rm command is used to remove a file.

Syntax:

rm <file name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ rm Demo.txt
javatpoint@javatpoint-Inspiron-3542:~/Newfolder$ rm Demo1.txt Demo2.txt
```

4. **cp Command**

The cp command is used to copy a file or directory.

Syntax:

To copy in the same directory:

cp **<existing** file name> **<new** file name>

To copy in a different directory:

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ cp demo.txt demo1.txt
javatpoint@javatpoint-Inspiron-3542:~$ cp demo.txt Documents
```

5. **mv Command**

The mv command is used to move a file or a directory form one location to another location.

Syntax:

mv **<file** name> **<directory** path>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ mv demo.txt Directory
```

6. paste command

Paste command is one of the useful commands in Unix or Linux operating system. It is used to join files horizontally (parallel merging) by outputting lines consisting of lines from each file specified, separated by **tab** as delimiter, to the standard output. When no file is specified, or put dash ("-") instead of file name, paste reads from standard input and gives output as it is until a interrupt command **[Ctrl-c]** is given.

Syntax:

```
paste [OPTION]... [FILES]...
```

Let us consider three files having name **state**, **capital** and **number**. *state* and *capital* file contains 5 names of the Indian states and capitals respectively. *number* file contains 5 numbers.

```
$ cat state
Arunachal Pradesh
Assam
Andhra Pradesh
Bihar
Chhattisgrah

$ cat capital
Itanagar
Dispur
Hyderabad
Patna
Raipur
```

Without any option paste merges the files in parallel. The paste command writes corresponding lines from the files with tab as a deliminator on the terminal.

```
$ paste number state capital
1       Arunachal Pradesh       Itanagar
2       Assam   Dispur
```

```
3       Andhra Pradesh  Hyderabad
4       Bihar   Patna
5       Chhattisgrah    Raipur
```

In the above command three files are merges by paste command.

Linux File Content Commands

1. **head Command**

The head command is used to display the content of a file. It displays the first 10 lines of a file.

Syntax:

head <file name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ head Demo.txt
1
2
3
4
5
6
7
8
9
10
```

2. **tail Command**

The tail command is similar to the head command. The difference between both commands is that it displays the last ten lines of the file content. It is useful for reading the error message.

Syntax:

tail <file name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ tail Demo.txt
2
3
4
5
6
7
8
9
10
11
```

3. **tac Command**

The tac command is the reverse of cat command, as its name specified. It displays the file content in reverse order (from the last line).

Syntax:

tac <**file** name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ tac Demo.txt
11
10
9
8
7
6
5
4
3
2
1
```

Linux User Commands

1. **su Command**

The su command provides administrative access to another user. In other words, it allows access of the Linux shell to another user.

Syntax:

su <**user** name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ su javatpoint
Password:
javatpoint@javatpoint-Inspiron-3542:~$
```

2. **id Command**

The id command is used to display the user ID (UID) and group ID (GID).

Syntax:

id

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ id
uid=1000(javatpoint) gid=1000(javatpoint) groups=1000(javatpoint),4(adm),24(cdro
m),27(sudo),30(dip),46(plugdev),116(lpadmin),126(sambashare)
javatpoint@javatpoint-Inspiron-3542:~$
```

3. **useradd Command**

The useradd command is used to add or remove a user on a Linux server.

Syntax:

useradd username

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ sudo useradd JTP
[sudo] password for javatpoint:
javatpoint@javatpoint-Inspiron-3542:~$
```

4. **passwd Command**

The passwd command is used to create and change the password for a user.

Syntax:

passwd **<username>**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ sudo passwd JTP
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
```

5. **groupadd Command**

The groupadd command is used to create a user group.

Syntax:

groupadd **<group** name**>**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ sudo groupadd Developer
javatpoint@javatpoint-Inspiron-3542:~$
```

Linux Filter Commands

1. **grep Command**

The grep is the most powerful and used filter in a Linux system. The 'grep' stands for "**global regular expression print**." It is useful for searching the content from a file. Generally, it is used with the pipe.

Syntax:

command | grep **<searchWord>**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ cat marks.txt | grep 9
celena-90
```

2. **comm Command**

The 'comm' command is used to compare two files or streams. By default, it displays three columns, first displays non-matching items of the first file, second indicates the non-matching item of the second file, and the third column displays the matching items of both files.

Syntax:

comm <file1> <file2>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ comm Demo.txt Demo1.txt
                1
2
                3
comm: file 2 is not in sorted order
        11
                4
                5
        22
        33
6
7
8
9
comm: file 1 is not in sorted order
10
11
```

3. tr Command

The tr command is used to translate the file content like from lower case to upper case.

Syntax:

command | tr <'old'> <'new'>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ cat marks.txt | tr 'prcu' 'PRCU'
alex-50
alen-70
jon-75
CaRRy-85
Celena-90
jUstin-80
```

4. uniq Command

The uniq command is used to form a sorted list in which every word will occur only once.

Syntax:

command **<fileName>** | uniq

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ sort marks.txt |uniq
alen-70
alex-50
carry-85
celena-90
jon-75
justin-80
```

5. **wc Command**

The wc command is used to count the lines, words, and characters in a file.

Syntax:

wc **<file** name**>**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ wc marks.txt
 6  6 52 marks.txt
```

6. **sort Command**

The sort command is used to sort files in alphabetical order.

Syntax:

sort **<file** name**>**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ sort marks.txt
alen-70
alex-50
carry-85
celena-90
jon-75
justin-80
```

7. **gzip Command**

The gzip command is used to truncate the file size. It is a compressing tool. It replaces the original file by the compressed file having '.gz' extension.

Syntax:

gzip **<file1> <file2> <file3>...**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ gzip Demo.txt Demo1.txt
javatpoint@javatpoint-Inspiron-3542:~$ ls
a               Demo.txt.gz          examples.desktop  Music       Python-3.8.0
Akash           Desktop              hello.c           Newfolder   sample
a.out           Directory            hello.i           new.txt     snap
composer.phar   Documents            hello.o           pico        Templates
demo1.pdf       Downloads            hello.s           Pictures    Test.pdf
Demo1.txt.gz    eclipse              index.html        project     Videos
Demo.sh         eclipse-installer    mail              Public
Demo.txt~       eclipse-workspace    marks.txt         Python
```

8. **gunzip Command**

The gunzip command is used to decompress a file. It is a reverse operation of gzip command.

Syntax:

gunzip **<file1> <file2> <file3>**. .

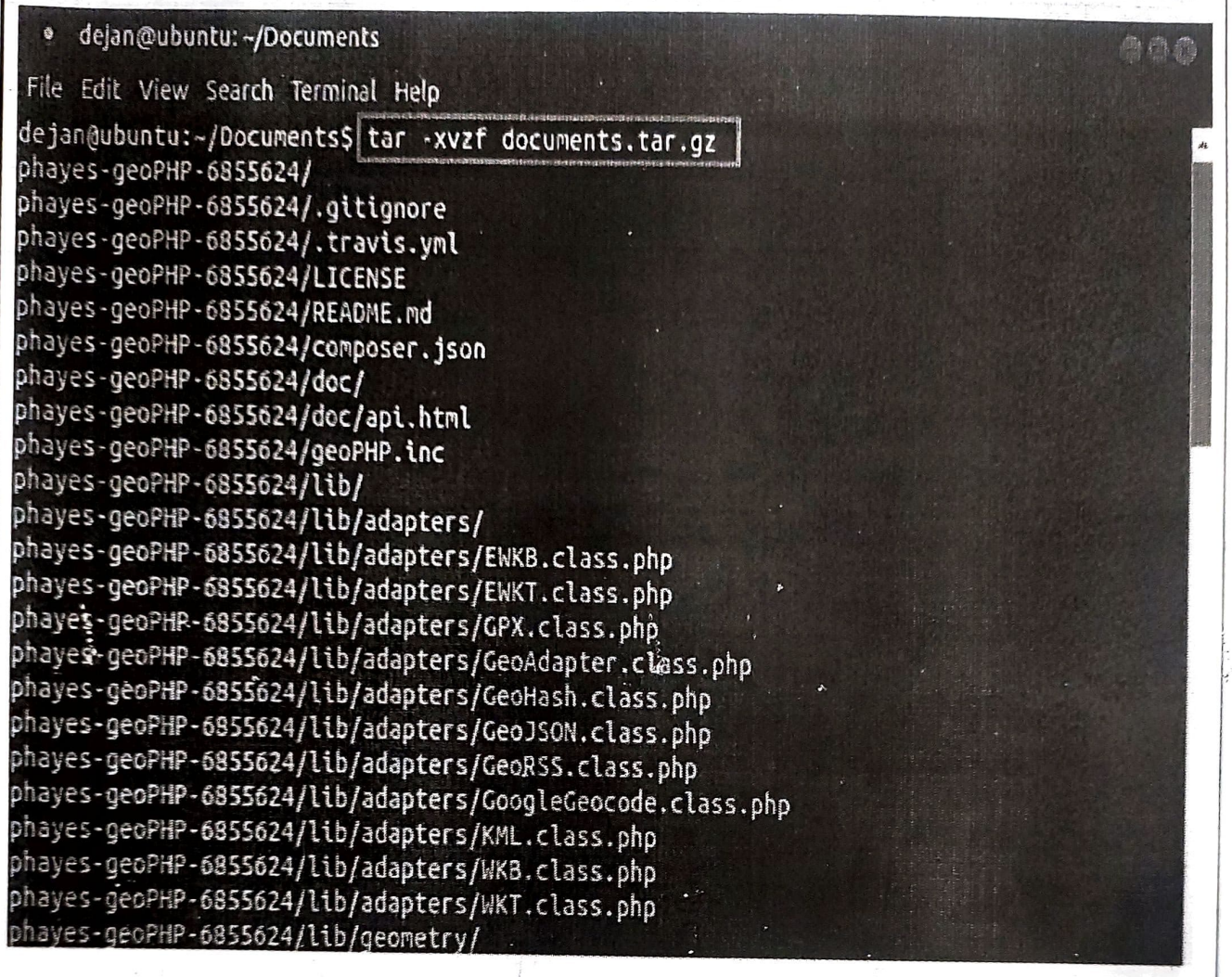
Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ gunzip Demo.txt Demo1.txt
javatpoint@javatpoint-Inspiron-3542:~$ ls
a               Demo.txt~            examples.desktop  Music       Python-3.8.0
Akash           Desktop              hello.c           Newfolder   sample
a.out           Directory            hello.i           new.txt     snap
composer.phar   Documents            hello.o           pico        Templates
demo1.pdf       Downloads            hello.s           Pictures    Test.pdf
Demo1.txt       eclipse              index.html        project     Videos
Demo.sh         eclipse-installer    mail              Public
Demo.txt        eclipse-workspace    marks.txt         Python
```

9. A **tar.gz** file is a combination of a **.tar** file and a **.gz** file. It is an archive file with several other files inside it, which is then compressed.

You can unzip these files the same way you would unzip a regular zipped file:

$ tar –xvzf documents.tar.gz



The basic command is tar, followed by four options:

x – instructs tar to extract the files from the zipped file

v – means verbose, or to list out the files it's extracting

z – instructs tar to decompress the files – without this, you'd have a folder full of compressed files

f – tells tar the filename you want it to work on

1. **find Command**

The find command is used to find a particular file within a directory. It also supports various options to find a file such as byname, by type, by date, and more.

The following symbols are used after the find command:

(.) : For current directory name

(/) : For root

Syntax:

find . -name "*.pdf"

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ find . -name "*.pdf"
./Test.pdf
./Python-3.8.0/Doc/library/turtle-star.pdf
./Akash/Joomla/Origional Copy/Brochure-Joomla-2019.pdf
./Akash/Joomla/Origional Copy/Joomla-Guide-Final.pdf
./.local/share/Trash/files/2400966-250544e72f817db3bcef-1587140240830.pdf
./.local/share/Trash/files/2400966-3ad982eaa58c5d43fb53-1585763620407.pdf
find: './.anydesk/incoming': Permission denied
./Downloads/ConfirmationPage_20030070774.pdf
./demo1.pdf
find: './.dbus': Permission denied
find: './.cache/dconf': Permission denied
./Directory/demo.pdf
./Directory/demo2.pdf
./Directory/demo1.pdf
```

2. **locate Command**

The locate command is used to search a file by file name. It is quite similar to find command; the difference is that it is a background process. It searches the file in the database, whereas the find command searches in the file system. It is faster than the find command. To find the file with the locates command, keep your database updated.

Syntax:

locate **<file name>**

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ locate sysctl.conf
/etc/sysctl.conf
/etc/sysctl.d/99-sysctl.conf
/etc/ufw/sysctl.conf
/snap/core/8935/etc/sysctl.conf
/snap/core/8935/etc/sysctl.d/99-sysctl.conf
/snap/core/9066/etc/sysctl.conf
/snap/core/9066/etc/sysctl.d/99-sysctl.conf
/snap/core18/1705/etc/sysctl.d/99-sysctl.conf
/snap/core18/1754/etc/sysctl.d/99-sysctl.conf
/usr/share/doc/procps/examples/sysctl.conf
/usr/share/man/man5/sysctl.conf.5.gz
```

3. **date Command**

The date command is used to display date, time, time zone, and more.

Syntax:

date

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ date
Fri May 22 21:51:05 IST 2020
```

Examples:

Command:
$date "+%D"
Output:
10/11/17
Command:
$date "+%D %T"
Output:
10/11/17 16:13:27
Command:
$date "+%Y-%m-%d"
Output:
2017-10-11
Command:
$date "+%Y/%m/%d"
Output:
2017/10/11
Command:
$date "+%A %B %d %T %y"
Output:
Thursday October 07:54:29 12 17

4. **cal Command**

The cal command is used to display the current month's calendar with the current date highlighted.

Syntax:

$ cal [MONTH] [YEAR]

Output:

$cal

```
javatpoint@javatpoint-Inspiron-3542:~$ cal
      May 2020
Su Mo Tu We Th Fr Sa
                1  2
 3  4  5  6  7  8  9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
```

$ cal 08 2020

```
dharam@dharam-H110MHC: ~
dharam@dharam-H110MHC:~$ cal 08 2000
    August 2000
Su Mo Tu We Th Fr Sa
          1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
```

cal 2018 : Shows the whole calendar of the year.

```
dharam@dharam-H110MHC: ~
dharam@dharam-H110MHC:~$ cal 2018
                               2018
      January               February                March
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
    1  2  3  4  5  6                  1  2  3                  1  2  3
 7  8  9 10 11 12 13   4  5  6  7  8  9 10   4  5  6  7  8  9 10
14 15 16 17 18 19 20  11 12 13 14 15 16 17  11 12 13 14 15 16 17
21 22 23 24 25 26 27  18 19 20 21 22 23 24  18 19 20 21 22 23 24
28 29 30 31           25 26 27 28           25 26 27 28 29 30 31


      April                 May                   June
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7                  1  2  3  4  5                  1  2
 8  9 10 11 12 13 14   6  7  8  9 10 11 12   3  4  5  6  7  8  9
15 16 17 18 19 20 21  13 14 15 16 17 18 19  10 11 12 13 14 15 16
22 23 24 25 26 27 28  20 21 22 23 24 25 26  17 18 19 20 21 22 23
29 30                 27 28 29 30 31        24 25 26 27 28 29 30


      July                  August                September
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7                  1  2  3  4                     1
 8  9 10 11 12 13 14   5  6  7  8  9 10 11   2  3  4  5  6  7  8
15 16 17 18 19 20 21  12 13 14 15 16 17 18   9 10 11 12 13 14 15
22 23 24 25 26 27 28  19 20 21 22 23 24 25  16 17 18 19 20 21 22
29 30 31              26 27 28 29 30 31     23 24 25 26 27 28 29
                                            30


      October               November              December
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
    1  2  3  4  5  6                  1  2  3                     1
 7  8  9 10 11 12 13   4  5  6  7  8  9 10   2  3  4  5  6  7  8
14 15 16 17 18 19 20  11 12 13 14 15 16 17   9 10 11 12 13 14 15
21 22 23 24 25 26 27  18 19 20 21 22 23 24  16 17 18 19 20 21 22
28 29 30 31           25 26 27 28 29 30     23 24 25 26 27 28 29
                                            30 31
```

cal -3 : Shows calendar of previous, current and next month

$cal -3

```
dharam@dharam-H110MHC: ~
dharam@dharam-H110MHC:~$ cal -3
    November 2018          December 2018          January 2019
Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa  Su Mo Tu We Th Fr Sa
                 1  2  3                  1            1  2  3  4  5
 4  5  6  7  8  9 10   2  3  4  5  6  7  8   6  7  8  9 10 11 12
11 12 13 14 15 16 17   9 10 11 12 13 14 15  13 14 15 16 17 18 19
18 19 20 21 22 23 24  16 17 18 19 20 21 22  20 21 22 23 24 25 26
25 26 27 28 29 30     23 24 25 26 27 28 29  27 28 29 30 31
                      30 31
```

5. whoami Command: This command reveals the user who is currently logged in.

$whoami

Raghu

6. **clear Command**

Linux **clear** command is used to clear the terminal screen.

Syntax:

$ clear

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ ls
a               Demo.txt.gz          examples.desktop  Music       Python-3.8.0
Akash           Desktop              hello.c           Newfolder   sample
a.out           Directory            hello.i           new.txt     snap
composer.phar   Documents            hello.o           pico        Templates
demo1.pdf       Downloads            hello.s           Pictures    Test.pdf
Demo1.txt       eclipse              index.html        project     Videos
Demo.sh         eclipse-installer    mail              Public
Demo.txt~       eclipse-workspace    marks.txt         Python
javatpoint@javatpoint-Inspiron-3542:~$ clear
```

After pressing the ENTER key, it will clear the terminal screen.

7. Help command

With almost every command, '—help' option shows usage summary for that command.

```
[mahesh_cse@localhost ~]$ date --help
Usage: date [OPTION]... [+FORMAT]
  or:  date [-u|--utc|--universal] [MMDDhhmm[[CC]YY][.ss]]
Display the current time in the given FORMAT, or set the system date.

  -d, --date=STRING          display time described by STRING, not 'now'
  -f, --file=DATEFILE        like --date once for each line of DATEFILE
  -r, --reference=FILE       display the last modification time of FILE
  -R, --rfc-2822             output date and time in RFC 2822 format.
                             Example: Mon, 07 Aug 2006 12:34:56 -0600
```

8. Man Command

man command In Linux is used to display the user manual of any **command** that we can run on the terminal. It provides a detailed view of the **command** which includes NAME, SYNOPSIS, DESCRIPTION, OPTIONS, EXIT STATUS, RETURN VALUES, ERRORS, FILES, VERSIONS Info

Syntax :

```
$man [OPTION]... [COMMAND NAME]...
```

$man date

9. **sleep Command**

The sleep command is used to hold the terminal by the specified amount of time. By default, it takes time in seconds.

Syntax:

sleep <time>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ sleep 4
```

10. **time Command**

The time command is used to display the time to execute a command.

Syntax:

time

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ time

real    0m0.000s
user    0m0.000s
sys     0m0.000s
```

11. **zcat Command**

The zcat command is used to display the compressed files.

Syntax:

zcat <file name>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ ls
a                Demo.txt.gz          examples.desktop  Music       Python-3.8.0
Akash            Desktop              hello.c           Newfolder   sample
a.out            Directory            hello.i           new.txt     snap
composer.phar    Documents            hello.o           pico        Templates
demo1.pdf        Downloads            hello.s           Pictures    Test.pdf
Demo1.txt        eclipse              index.html        project     Videos
Demo.sh          eclipse-installer    mail              Public
Demo.txt~        eclipse-workspace    marks.txt         Python
javatpoint@javatpoint-Inspiron-3542:~$ zcat Demo.txt
1
2
3
4
5
6
```

12. df Command

The df command is used to display the disk space used in the file system. It displays the output as in the number of used blocks, available blocks, and the mounted directory.

Syntax:

df

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ df
Filesystem     1K-blocks     Used Available Use% Mounted on
udev             1931652        0   1931652   0% /dev
tmpfs             393260     1756    391504   1% /run
/dev/sda1      479668904 26471148 428762148   6% /
tmpfs            1966284   243536   1722748  13% /dev/shm
tmpfs               5120        4      5116   1% /run/lock
tmpfs            1966284        0   1966284   0% /sys/fs/cgroup
/dev/loop1        231936   231936         0 100% /snap/wine-platform-runtime/136
/dev/loop2        144128   144128         0 100% /snap/gnome-3-26-1604/98
/dev/loop4           384      384         0 100% /snap/gnome-characters/539
/dev/loop6        220160   220160         0 100% /snap/wine-platform-5-stable/4
/dev/loop5        164096   164096         0 100% /snap/gnome-3-28-1804/116
```

13. mount Command

The mount command is used to connect an external device file system to the system's file system.

Syntax:

mount -t type <device> <directory>

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=1931652k,nr_inodes=482913,mo
de=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmod
e=000)
tmpfs on /run type tmpfs (rw,nosuid,noexec,relatime,size=393260k,mode=755)
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relat
ime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev)
```

14. **exit Command**

Linux exit command is used to exit from the current shell. It takes a parameter as a number and exits the shell with a return of status number.

Syntax:

exit

Output:

```
javatpoint@javatpoint-Inspiron-3542:~$ exit
```

After pressing the ENTER key, it will exit the terminal.

Linux Networking Commands

- **ping**

The ping command sends an echo request to a host available on the network. Using this command you can check if your remote host is responding well or not.

The ping command is useful for the following:

- Tracking and isolating hardware and software problems.
- Determining the status of the network and various foreign hosts.

- Testing, measuring, and managing networks.

Syntax:
Following is the simple syntax to use **ping** command:
$ping hostname or ip-address

The above command starts printing a response after every second. To come out of the command, you can terminate it by pressing **CNTRL + C** keys.

Example
Following is an example to check the availability of a host available on the network –
$ping google.com
PING google.com (74.125.67.100) 56(84) bytes of data.
64 bytes from 74.125.67.100: icmp_seq=1 ttl=54 time=39.4 ms
64 bytes from 74.125.67.100: icmp_seq=2 ttl=54 time=39.9 ms
64 bytes from 74.125.67.100: icmp_seq=3 ttl=54 time=39.3 ms
64 bytes from 74.125.67.100: icmp_seq=4 ttl=54 time=39.1 ms
64 bytes from 74.125.67.100: icmp_seq=5 ttl=54 time=38.8 ms
--- google.com ping statistics ---
22 packets transmitted, 22 received, 0% packet loss, time 21017ms
rtt min/avg/max/mdev = 38.867/39.334/39.900/0.396 ms
$
If a host does not exist, you will receive the following output –
$ping giiiiigle.com
ping: unknown host giiiiigle.com
$

➢ ftp

Here, **ftp** stands for File Transfer Protocol. This utility helps you upload and download your file from one computer to another computer. The ftp utility has its own set of Unix-like commands. These commands help you perform tasks such as –
- Connect and login to a remote host.
- Navigate directories.
- List directory contents.
- Put and get files.
- Transfer files as **ascii, ebcdic** or **binary.**

Syntax
Following is the simple syntax to use the ping command –
$ftp hostname or ip-address
The above command would prompt you for the login ID and the password. Once you are authenticated, you can access the home directory of the login account and you would be able to perform various commands.
Example
Following is the example to show the working of a few commands –
$ftp amrood.com
Connected to amrood.com.
220 amrood.com FTP server (Ver 4.9 Thu Sep 2 20:35:07 CDT 2009)

```
Name (amrood.com:amrood): amrood
331 Password required for amrood.
Password:
230 User amrood logged in.
ftp> dir
200 PORT command successful.
150 Opening data connection for /bin/ls.
total 1464
drwxr-sr-x 3 amrood group 1024 Mar 11 20:04 Mail
drwxr-sr-x 2 amrood group 1536 Mar 3 18:07 Misc
drwxr-sr-x 5 amrood group 512 Dec 7 10:59 OldStuff
drwxr-sr-x 2 amrood group 1024 Mar 11 15:24 bin
drwxr-sr-x 5 amrood group 3072 Mar 13 16:10 mpl
-rw-r--r-- 1 amrood group 209671 Mar 15 10:57 myfile.out
drwxr-sr-x 3 amrood group 512 Jan 5 13:32 public
```

➢ telnet

There are times when we are required to connect to a remote Unix machine and work on that machine remotely. **Telnet** is a utility that allows a computer user at one site to make a connection, login and then conduct work on a computer at another site.

Once you login using Telnet, you can perform all the activities on your remotely connected machine. The following is an example of Telnet session –

```
C:>telnet amrood.com
Trying...
Connected to amrood.com.
Escape character is '^]'.
login: amrood
amrood's Password:
**********************************************************
* *
* *
* WELCOME TO AMROOD.COM *
* *
* *
**********************************************************
Last unsuccessful login: Fri Mar 3 12:01:09 IST 2009
Last login: Wed Mar 8 18:33:27 IST 2009 on pts/10
{ do your work }
$ logout
Connection closed.
C:>
```

➢ ssh

SH client utility in unix or linux server is used to logging into a remote host and execute commands on the remote machine. The rlogin and rsh commands can also be used to login into the remote machine. However these are not secure. The ssh command provides a secure connection between two hosts over a insecure network.

1. Logging to a remote server

You can login to a remote server from the local host as shown below:

```
localhost:[~]> ssh -l username remote-server
```

```
username@remote-server password:

remote-server:[~]>
```

Alternatively you can use the below ssh command for connecting to remote host:

```
localhost:[~]> ssh username@remote-server

username@remote-server password:

remote-server:[~]>
```

➢ ifconfig

ifconfig stands for "interface configuration." It is used to view and change the configuration of the network interfaces on your system.

Running the **ifconfig** command with no arguments, like this:

```
ifconfig
```

...displays information about all network interfaces currently in operation. The output will resemble the following:

```
eth0        Link encap:Ethernet  HWaddr 09:00:12:90:e3:e5
            inet addr:192.168.1.29 Bcast:192.168.1.255  Mask:255.255.255.0
            inet6 addr: fe80::a00:27ff:fe70:e3f5/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:54071 errors:1 dropped:0 overruns:0 frame:0
            TX packets:48515 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:22009423 (20.9 MiB)  TX bytes:25690847 (24.5 MiB)
            Interrupt:10 Base address:0xd020
lo          Link encap:Local Loopback
            inet addr:127.0.0.1  Mask:255.0.0.0
            inet6 addr: ::1/128 Scope:Host
            UP LOOPBACK RUNNING  MTU:16436  Metric:1
            RX packets:83 errors:0 dropped:0 overruns:0 frame:0
```

```
          TX packets:83 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:7766 (7.5 KiB)  TX bytes:7766 (7.5 KiB)
wlan0     Link encap:Ethernet  HWaddr 58:a2:c2:93:27:36
            inet addr:192.168.1.64
            Bcast:192.168.2.255  Mask:255.255.255.0
            inet6 addr: fe80::6aa3:c4ff:fe93:4746/64 Scope:Link
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:436968 errors:0 dropped:0 overruns:0 frame:0
            TX packets:364103 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
          RX bytes:115886055 (110.5 MiB)  TX bytes:83286188 (79.4 MiB)
```

Here, **eth0, lo** and **wlan0** are the names of the active network interfaces on the system.

- **eth0** is the first Ethernet interface. (Additional Ethernet interfaces would be named **eth1, eth2,** etc.) This type of interface is usually a NIC connected to the network by a category 5 cable.
- **lo** is the loopback interface. This is a special network interface that the system uses to communicate with itself.
- **wlan0** is the name of the first wireless network interface on the system. Additional wireless interfaces would be named **wlan1, wlan2,** etc.

➢ scp

SCP (secure copy) is a command-line utility that allows you to securely copy files and directories between two locations.

With scp, you can copy a file or directory:

- From your local system to a remote system.
- From a remote system to your local system.
- Between two remote systems from your local system.

When transferring data with scp, both the files and password are encrypted, so that anyone snooping on the traffic doesn't get anything sensitive.

Copy a Local File to a Remote System with the `scp` Command

To copy a file from a local to a remote system run the following command:

```
$ scp file.txt remote_username@10.10.0.2:/remote/directory
```

Where, `file.txt` is the name of the file we want to copy, `remote_username` is the user on the remote server, `10.10.0.2` is the server IP address. The `/remote/directory` is the path to the directory you want to copy the file to. If you don't specify a remote directory, the file will be copied to the remote user home directory.

You will be prompted to enter the user password, and the transfer process will start.

Output:

```
remote_username@10.10.0.2's password:
file.txt                                      100%    0     0.0KB/s   00:00
```

➢ netstat

netstat ("network statistics") is a command-line tool that displays network connections (both incoming and outgoing), routing tables, and many network interface (network interface controller or software-defined network interface) and network protocol statistics.
It is used for finding problems in the network and to determine the amount of traffic on the network as a performance measurement.

List All Ports (both listening and non listening ports)

List all ports using netstat -a

```
# netstat -a | more

Active Internet connections (servers and established)

Proto Recv-Q Send-Q Local Address           Foreign Address         State

tcp        0      0 localhost:30037         *:*                     LISTEN

udp        0      0 *:bootpc                *:*


Active UNIX domain sockets (servers and established)

Proto RefCnt Flags       Type       State         I-Node   Path

unix  2      [ ACC ]     STREAM     LISTENING     6135     /tmp/.X11-unix/X0

unix  2      [ ACC ]     STREAM     LISTENING     5140     /var/run/acpid.socket
```

List all tcp ports using netstat -at

```
# netstat -at

Active Internet connections (servers and established)

Proto Recv-Q Send-Q Local Address           Foreign Address         State
```

```
tcp        0      0 localhost:30037         *:*                     LISTEN

tcp        0      0 localhost:ipp           *:*                     LISTEN

tcp        0      0 *:smtp                  *:*                     LISTEN

tcp6       0      0 localhost:ipp           [::]:*                  LISTEN
```

List all udp ports using netstat -au

```
# netstat -au

Active Internet connections (servers and established)

Proto Recv-Q Send-Q Local Address           Foreign Address         State

udp        0      0 *:bootpc                *:*

udp        0      0 *:49119                 *:*

udp        0      0 *:mdns                  *:*
```

➢ ipstat

ipstat command to report statistics about IP traffic. ipstat provides options to gather and report statistics only on IP traffic matching specified source or destination address, interface, and higher layer protocol. For more information, refer to the ipstat man page.

To gather and report statistics on IP traffic based on the selected output mode and sort order, use the "ipstat -l" with command.

Example 1 Reporting the Five Most Active IP Traffic Flows

The following command reports the five most active IP traffic flows.

```
# ipstat -l 5
SOURCE                    DEST                      PROTO    IFNAME     BYTES
adc-twvpn-2.oraclevpn.com duff.cs.uni.edu           UDP      net0        6.6K
inet-bip2v-10.oracle.com  bud.bang.uni.edu          TCP      tun0        6.1K
duff.cs.uni.edu           adc-twvpn-2.oraclevpn.com UDP      net0       964.0
bud.bang.uni.edu          inet-bip2v-10.oracle.com  TCP      tun0       563.0
coors.foo.uni.edu         255.255.255.255           UDP      net0        66.0
Total: bytes in: 12.6K bytes out:  2.2K
```

Example 2 Displaying a Timestamp

The following command reports the top IP traffic with a timestamp in standard date format. New reports are

printed below previous reports, and the interval is set to ten seconds.

```
# ipstat -d d -c 10
Monday, March 26, 2012 08:34:07 PM EDT
SOURCE                      DEST                        PROTO    IFNAME     BYTES
adc-twvpn-2.oraclevpn.com   duff.cs.uni.edu             UDP      net0       15.1K
inet-bip2v-10.oracle.com    bud.bang.uni.edu            TCP      tun0       13.9K
duff.cs.uni.edu             adc-twvpn-2.oraclevpn.com   UDP      net0        2.4K
bud.bang.uni.edu            inet-bip2v-10.oracle.com    TCP      tun0        1.5K
coors.foo.uni.edu           255.255.255.255             UDP      net0       66.0
bigip-stbeehive-adc.oracle  bud.bang.uni.edu            TCP      tun0       29.0
bud.bang.uni.edu            bigip-stbeehive-adc.oracle  TCP      tun0       20.0
Total: bytes in: 29.1K bytes out:  3.8K
```

➢ nslookup

nslookup (name server lookup) is a tool used to perform DNS lookups in Linux. It is used to display DNS details, such as the IP address of a particular computer.

For example, to display the IP address of a hostname, use the following command:

```
susel:~ # nslookup linux-bible.com
Server:         192.168.198.2
Address:        192.168.198.2#53

Non-authoritative answer:
Name:   linux-bible.com
Address: 198.57.241.163
```

To do a reverse DNS lookup, use the following command:

```
susel:~ # nslookup 208.117.229.183
Server:         192.168.198.2
Address:        192.168.198.2#53

Non-authoritative answer:
183.229.117.208.in-addr.arpa    name = cache.google.com.

Authoritative answers can be found from:
```

➢ traceroute

The traceroute command prints the route that packets take to a network host.

The Internet is a large and complex aggregation of network hardware, connected together by gateways. Tracking the route your packets follow (or finding a gateway that's discarding your packets) can be difficult. The traceroute command utilizes the IP protocol "time to live" field and attempts to elicit an ICMP **TIME_EXCEEDED** response from each gateway along the path to some host.

Example

```
$traceroute computerhope.com
```

Trace the route that packets take between your system and the host named **computerhope.com**, using the default method (udp datagram, 16 simultaneous probes). The results will look similar to the following output:

```
traceroute to computerhope.com(166.70.10.23), 30 hops max, 60 byte packets
 1  176.221.87.1 (176.221.87.1)  1.474 ms  1.444 ms  1.390 ms
 2  f126.broadband2.quicknet.se (92.43.37.126)  10.047 ms  19.868 ms  23.156 ms
 3  10.5.12.1 (10.5.12.1)  24.098 ms  24.340 ms  25.311 ms
 4  212.247.178.9 (212.247.178.9)  25.777 ms  27.184 ms  27.625 ms
 5  vst-ncore-1.bundle-ether1.tele2.net (130.244.39.46)  30.632 ms  31.610 ms
32.194 ms
 6  kst5-core-1.bundle-ether6.tele2.net (130.244.71.178)  33.608 ms  15.274 ms
16.449 ms
 7  kst5-peer-1.ae0-unit0.tele2.net (130.244.205.125) 252.53 ms 11.169 ms 12.158 ms
 8  avk6-peer-1.ae0-unit0.tele2.net (130.244.64.71)  19.661 ms  25.765 ms  26.730
ms
 9  peer-as3257.avk6.tele2.net (130.244.200.106)  25.390 ms  24.863 ms xe-5-0-
0.nyc30.ip4.tinet.net (89.149.181.109)  23.626 ms
10  fortress-gw.ip4.tinet.net (216.221.158.90)  29.943 ms  31.112 ms  29.002 ms
11  208.116.63.254 (208.116.63.254)  32.102 ms  29.862 ms  29.337 ms
```

➢ host

host performs DNS lookups, converting domain names to IP addresses and vice versa. When no arguments or options are given, host prints a short summary of its command line arguments and options.

EXAMPLE-1:

Making simple query for any site say google.com using site name

$ host google.com

output:

```
google.com has address 172.217.26.174
google.com has IPv6 address 2404:6800:4007:801::200e
google.com mail is handled by 20 alt1.aspmx.l.google.com.
google.com mail is handled by 30 alt2.aspmx.l.google.com.
google.com mail is handled by 40 alt3.aspmx.l.google.com.
google.com mail is handled by 10 aspmx.l.google.com.
google.com mail is handled by 50 alt4.aspmx.l.google.com.
```

EXAMPLE-2:

```
$host 204.228.150.3
```

This command performs a reverse lookup on the IP address **204.228.150.3**, which results in the output:

```
3.150.228.204.in-addr.arpa domain name pointer
www.computerhope.com.
```

➢ arp

The **arp** command manipulates or displays the kernel's IPv4 network neighbour cache. It can add entries to the table, delete one, or display the current content.

ARP stands for **Address Resolution Protocol,** which is used to find the address of a network neighbor for a given IPv4 address.

Arp is part of the **net-tools** package. For example, on systems that use APT for package management, it can be installed with **apt-get**:

```
sudo apt-get update && sudo apt-get install net-tools
```

Example 1: Display entries

Invoking the arp command without any options will display the contents of the arp cache table.

```
[root@linuxnix ~]# arp
Address          HWtype  HWaddress          Flags Mask      Iface
192.157.175.1    ether   00:50:55:c0:00:07  C               eth0
192.157.175.2    ether   00:50:55:fd:b2:1a  C               eth0
192.157.175.254  ether   00:50:55:e5:7d:12  C               eth0
[root@linuxnix ~]#
```

Example 2: Display entries for particular addresses.

If we have a large arp cache and need to get entries for a particular IP address then we could do so by using the arp command with the -a option followed by the IP address. Given below is an example:

```
[ssuri@linuxnix-phy:~] $ arp -a 159.254.171.22
? (159.254.171.22) at f7:bd:75:ac:dd:7a [ether] on bond0
? (159.254.171.22) at f7:bd:75:ac:dd:7a [ether] on bond1
```

➢ wget

wget command is a Linux command line utility that helps us to download the files from the web. We can download the files from web servers using HTTP, HTTPS and FTP protocols.

The simplest way to use wget is to provide it with the location of a file to download over HTTP. For example, to download the file **http://website.com/files/file.zip**, this command:

```
wget http://website.com/files/file.zip
```

...would download the file into the working directory.

There are many options that allow you to use **wget** in different ways, for different purposes. These are outlined below.

➢ route

In computer networking, a router is a device responsible for forwarding network traffic. When datagrams arrive at a router, the router must determine the best way to *route* them to their destination.

The **route** command displays or modifies the IP routing table.

Running **route** at the command line without any options displays the routing table entries:

```
route
```

```
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         192.168.1.2     0.0.0.0         UG    1024   0        0 eth0
192.168.1.0     *               255.255.255.0   U     0      0        0 eth0
```

This shows us how the system is currently configured. If a packet comes into the system and has a destination in the range **192.168.1.0** through **192.168.1.255**, then it is forwarded to the gateway *****, which is **0.0.0.0**— a special address which represents an invalid or non-existant destination. So, in this case, our system will not route these packets.

If the destination is not in this IP address range, it is forwarded to the default gateway (in this case, **192.168.1.2**, and that system will determine how to forward the traffic on to the next step towards its destination.

MICROSOFT OFFICE WORD & MICROSOFT POWER POINT

Microsoft Office Word 2010 allows you to create and edit personal and business documents, such as letters, reports, invoices, emails and books.

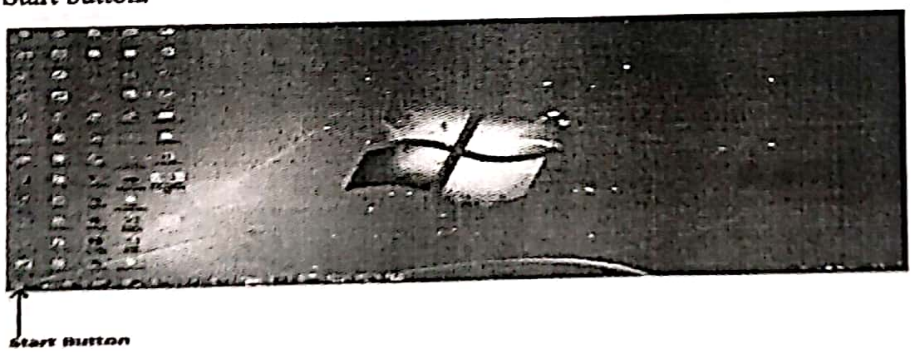
By default, documents saved in Word 2010 are saved with the .docx extension. Microsoft Word can be used for the following purposes:

- To create business documents having various graphics including pictures, charts, and diagrams.
- To store and reuse ready-made content and formatted elements such as cover pages and sidebars.
- To create letters and letterheads for personal and business purpose.
- To design different documents such as resumes or invitation cards etc.
- To create a range of correspondence from a simple office memo to legal copies and reference documents.

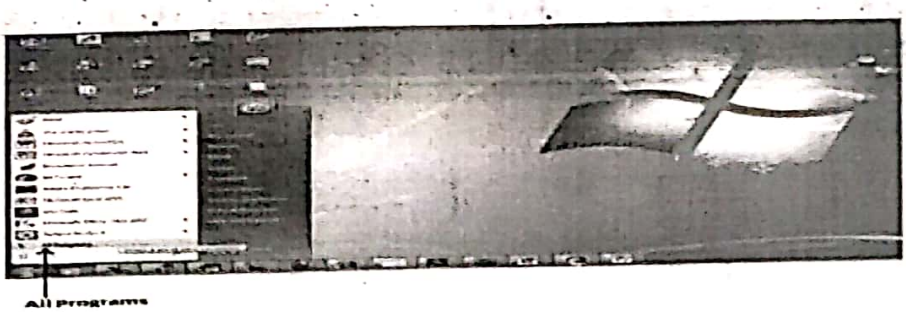
GETTING STARTED WORD 2010

To start a word 2010 application in simple steps. Assuming you has Microsoft Office 2010 installed in your PC, to start word application, follow the following steps at your PC:

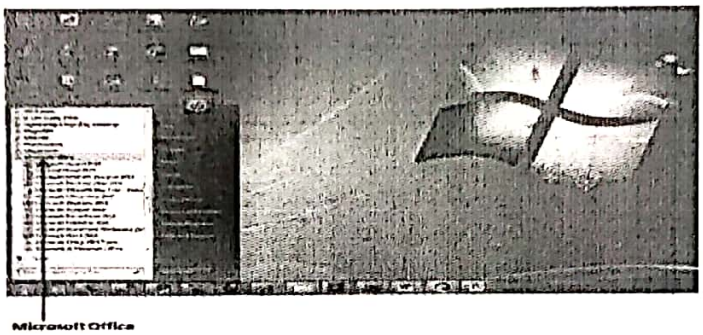
Step (1): Click Start button.



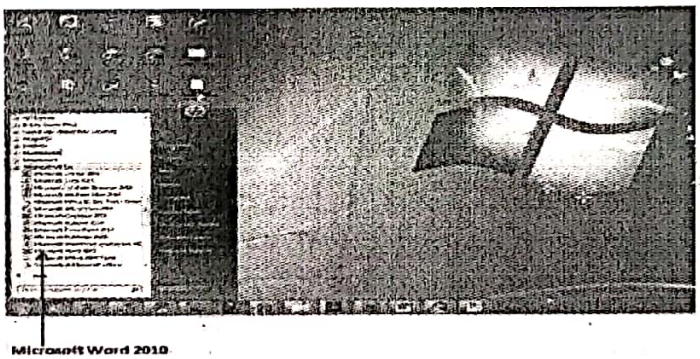
Step (2): Click All Programs option from the menu.



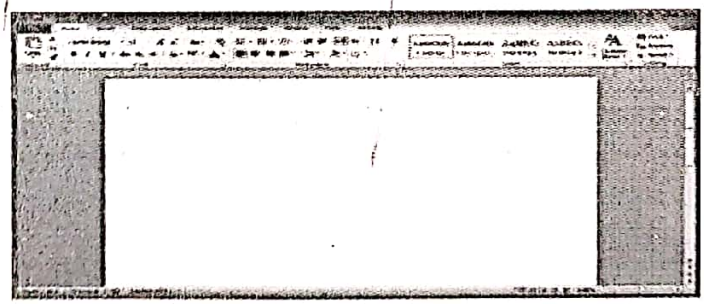
Step (3): Search for Microsoft Office from the sub menu and click it.



Step (4): Search for Microsoft Word 2010 from the submenu and click it.

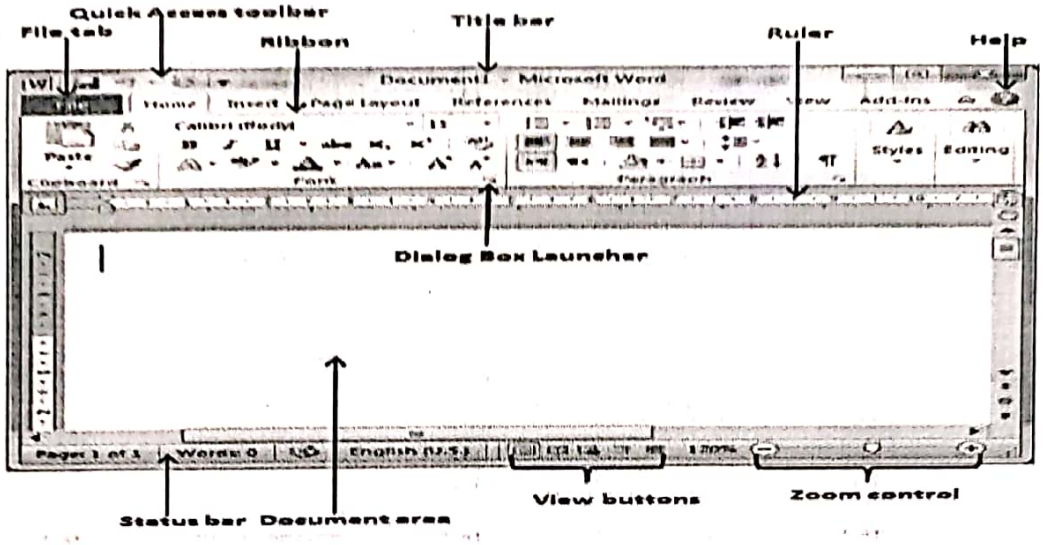


This will launch Microsoft Word 2010 application and you will see the following word window.



EXPLORE WINDOW IN WORD 2010

Following is the basic window which you get when you start word application. Let us understand various important parts of this window.



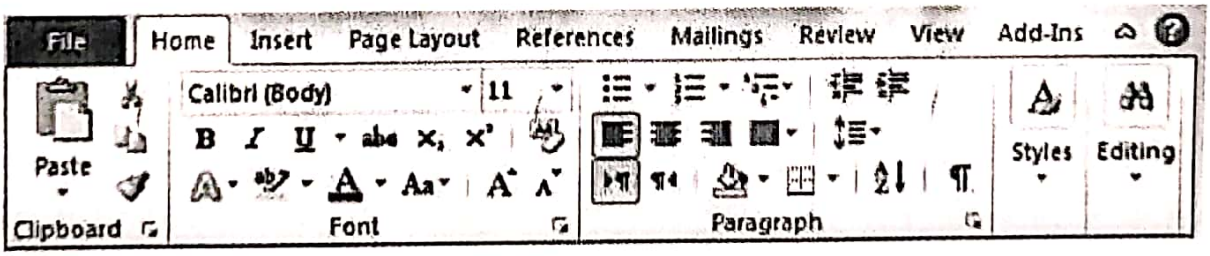
File Tab:

The File tab replaces the Office button from Word 2007. You can click it to check backstage view, which is the place to come when you need to open or save files, create new documents, print a document, and do other file-related operations.

Quick Access Toolbar:

This you will find just above the File tab and its purpose is to provide a convenient resting place for the Word most frequently used commands. You can customize this toolbar based on your comfort.

Ribbon:



Ribbon contains commands organized in three components:

- **Tabs:** They appear across the top of the Ribbon and contain groups of related commands. Homes, Insert, Page Layout are example of ribbon tabs.
- **Groups:** They organize related commands; each group name appears below the group on the Ribbon. For example group of commands related to fonts or or group of commands related to alignment etc.
- **Commands:** Commands appear within each group as mentioned above.

Title bar:

This lies in the middle and at the top or the window. Title bar shows the program and document titles.

Rulers:

Word has two rulers - a horizontal ruler and a vertical ruler. The horizontal ruler appears just beneath the Ribbon and is used to set margins and tab stops. The vertical ruler appears on the left edge of the Word window and is used to gauge the vertical position of elements on the page.

Help:

The Help Icon can be used to get word related help anytime you like. This provides nice tutorial on various subjects related to word.

Zoom Control: Zoom control lets you zoom in for a closer look at your text. The zoom control consists of a slider that you can slide left or right to zoom in or out, . and + buttons you can click to increase or decrease the zoom factor.

View Buttons:

The group of five buttons located to the left of the Zoom control, near the bottom of the screen, lets you switch among Word's various document views.

Print Layout view: This displays pages exactly as they will appear when printed.

Full Screen Reading view: This gives a full screen look of the document.

Web Layout view: This shows how a document appears when viewed by a Web browser, such as Internet Explorer.

Outline view: This lets you work with outlines established using Word's standard heading styles.

Draft view: This formats text as it appears on the printed page with a few exceptions. For example, headers and footers aren't shown. Most people prefer this mode.

Document Area:

The area where you type. The flashing vertical bar is called the insertion point and it represents the location where text will appear when you type.

Status Bar:

This displays document information as well as the insertion point location. From left to right, this bar contains the total number of pages and words in the document, language etc.

You can configure the status bar by right-clicking anywhere on it and by selecting or deselecting options from the provided list.

Dialog Box Launcher:

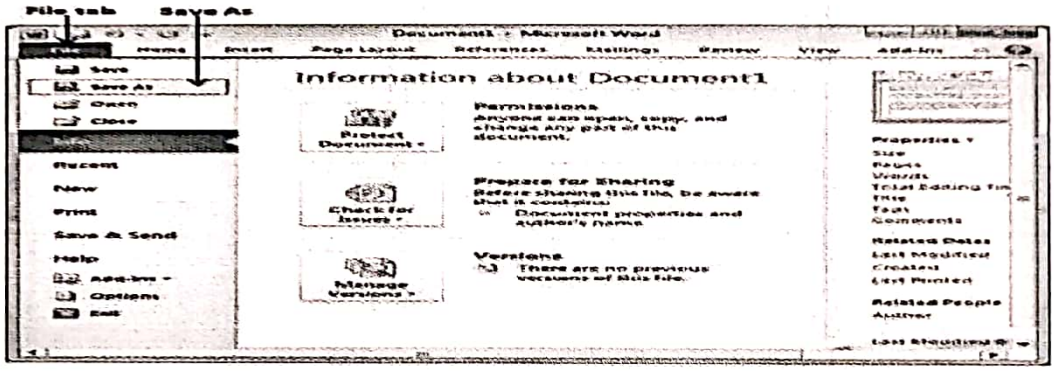
This appears as very small arrow in the lower-right corner of many groups on the Ribbon. Clicking this button opens a dialog box or task pane that provides more options about the group.

SAVE DOCUMENT IN WORD 2010

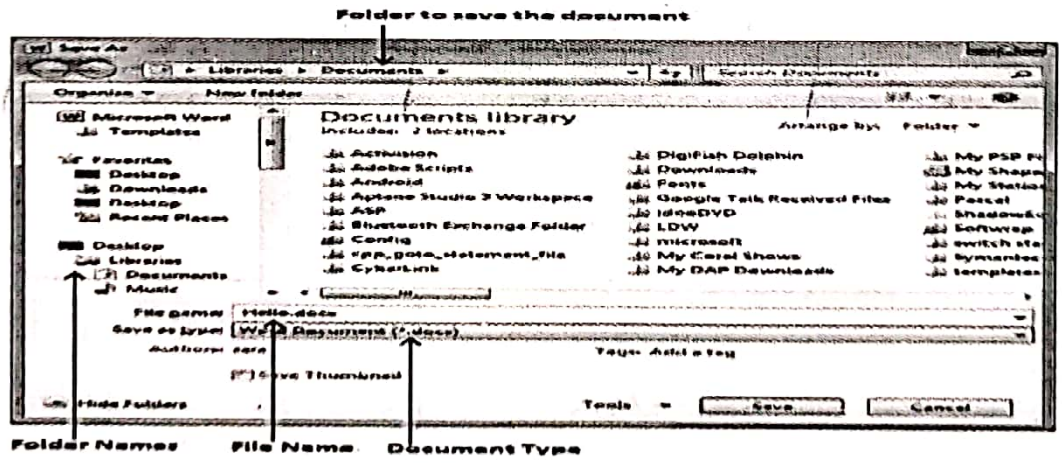
SavingNewDocument:

Once you are done with typing in your new word document, it is time to save your document to avoid losing work you have done on a Word document. Following are the steps to save an edited word document:

Step (1): Click the File tab and select Save As option.



Step (2): Select a folder where you would like to save the document, Enter file name which you want to give to your document and Select a Save as type, by default it is .docx format.



Step (3): Finally, click on save button and your document will be saved with the entered name in the selected folder.

Saving New Changes:

There may be a situation when you open an existing document and edit it partially or completely, or even you would like to save the changes in between editing of the document. If you want to save this document with the same name then you can use either of the following simple options:

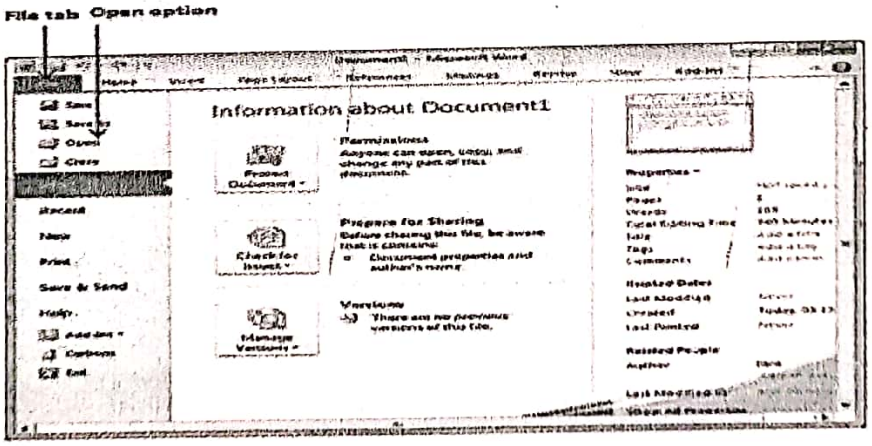
- Just press Ctrl + S keys to save the changes.
- You can also use third method to save the changes, which is save option available just above the Save As option as shown in the above screen capture.
- If your document is new and it was never saved so far, then with any of the three options, word would display you a dialogue box to let you select a folder, and enter document name as explained in case of saving new document.

OPEN DOCUMENT IN WORD 2010

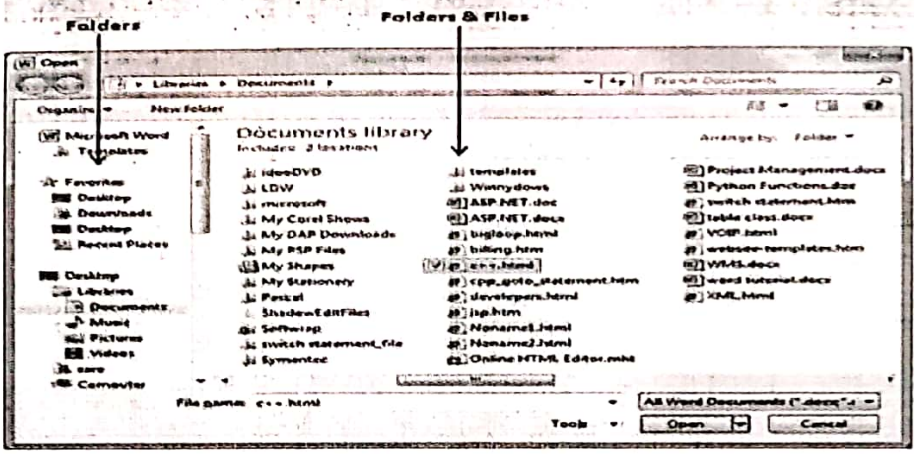
OpeningExistingDocument:

There may be a situation when you open an existing document and edit it partially or completely. If you want to open an existing document then follow the following simple options:

Step (1): Click the File tab and select Open option.



Step (2): This will display following file Open dialog box, which lets you navigate through different file folders and also lets you select a file which you want to open.



Step (3): Finally locate and select a file which you want to open and click small triangle available on Open button to open the file. You will have different options to open the file, but simply use Open option.

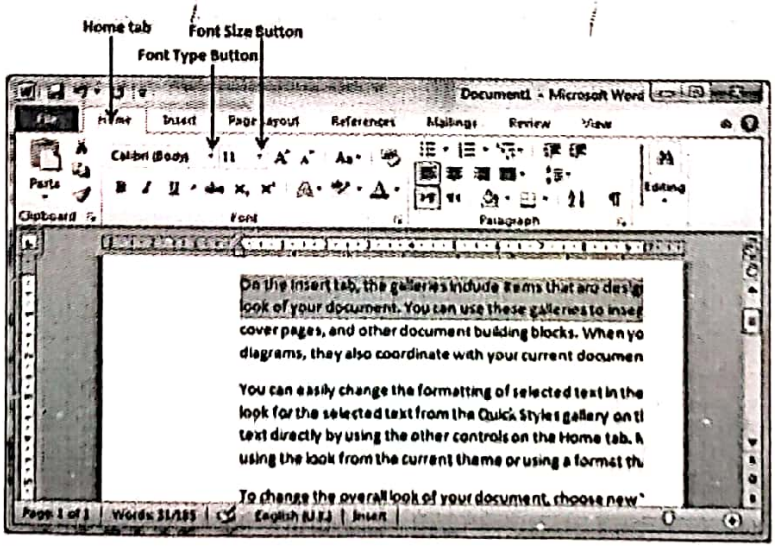
FORMATTING TABS

Setting Text Fonts and Size in Word 2010

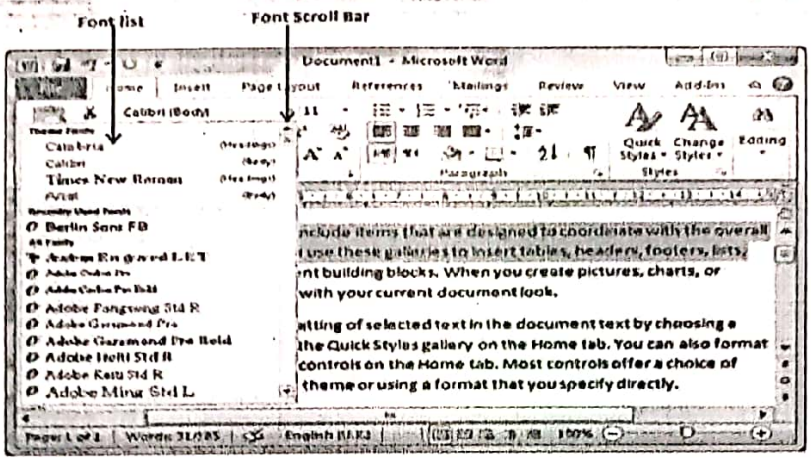
Microsoft word allows you to use different fonts with different size. You can change your document's appearance by changing the fonts and their size. Usually you use different fonts for paragraphs and headings. So it is important to learn how to use different fonts.

1) CHANGE THE FONT TYPE & SIZE:

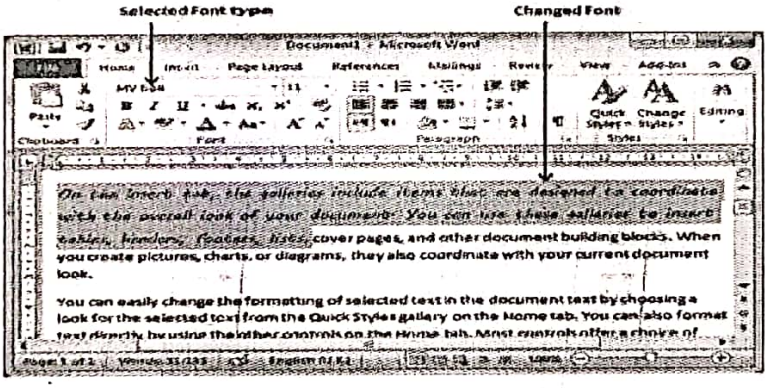
Let me give a brief idea about font buttons which we are going to use in this tutorial. Here is a screen capture to show you few font related buttons.



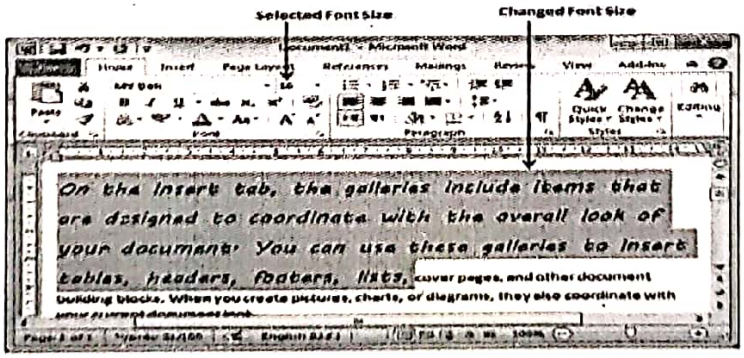
Step (1): Select the text that you want to change to a different font and click Home tab. Now click Font Type button to list down all the fonts available as shown below.



Step (2): Try to move mouse pointer over different fonts listed. You will see that text font changes when you move mouse pointer over different fonts. You can use Font Scroll Bar to display more fonts available. Finally select a desired font by clicking over the font name in the list. I selected MV Boli for my sample text.

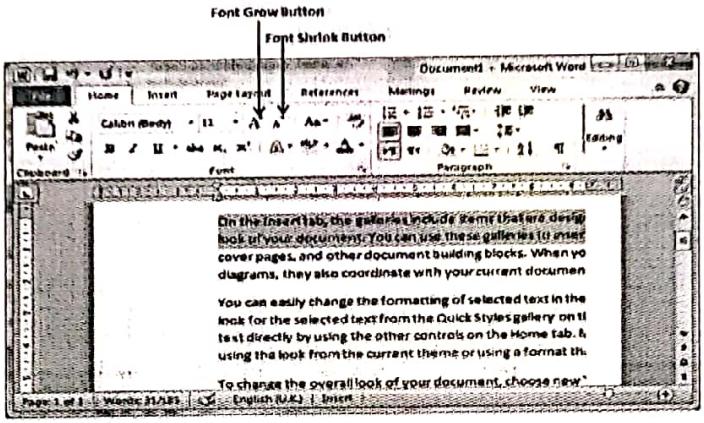


Step (3): Similar way, to change the font size, click over the Font Size button which will display a font size list. You will use same procedure to select a desired font size what you have used while selecting a font type.



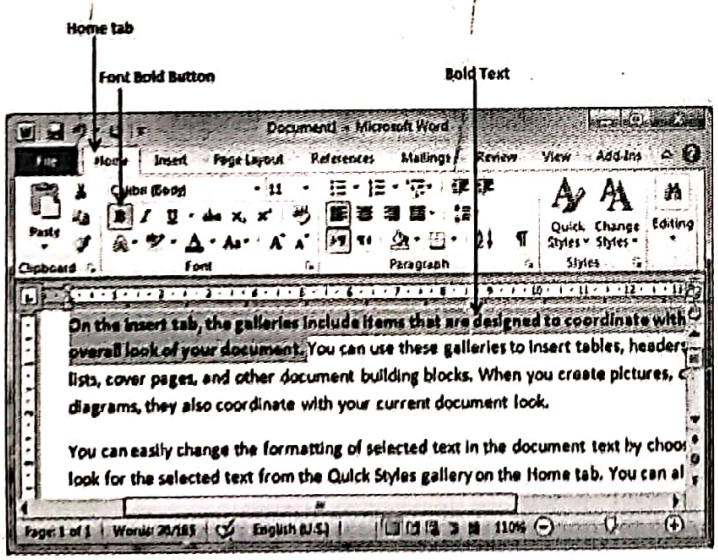
Use Shrink and Grow Buttons:

You can use a quick way to reduce or enlarge the font size. As shown in first screen capture, Shrink Font button can be used to reduce the font size whereas Grow Font button can be used to enlarge font size.



Try to click either of these two buttons and you will see the effect. You can click a single button multiple times to apply the effect. Each time you click either of the buttons; it will enlarge or reduce the font size by 1 point.

2) Text Decoration in Word 2010

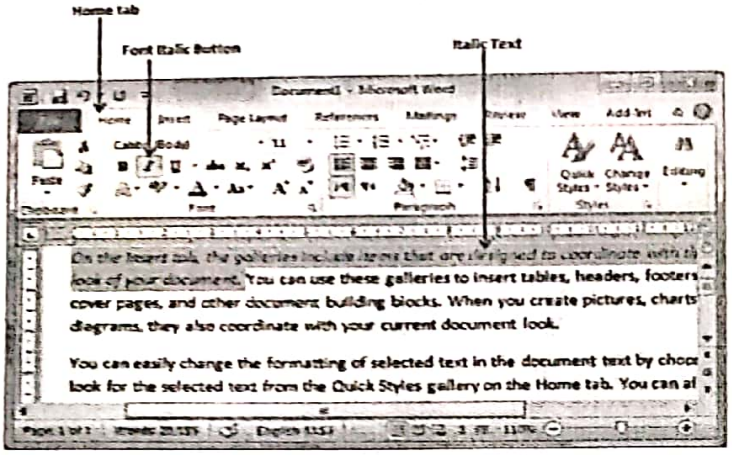


This chapter will teach you how to decorate your text in Microsoft word 2010. When I'm saying decorate, it means decorate by making it in italic shape, underlining the text or making it bold to look more fancy. Finally we will see how we can strikethrough a text.

Making text bold: A bold text appears with heavy weight and dark ink and we use bold text to give more emphasis on the sentence. This is very simple to change selected text into bold font by following two simple steps:

Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click Font Bold [B] button in the Home tab Font group, or simply use Ctrl + B keys to make selected text bold.



Making text Italic:

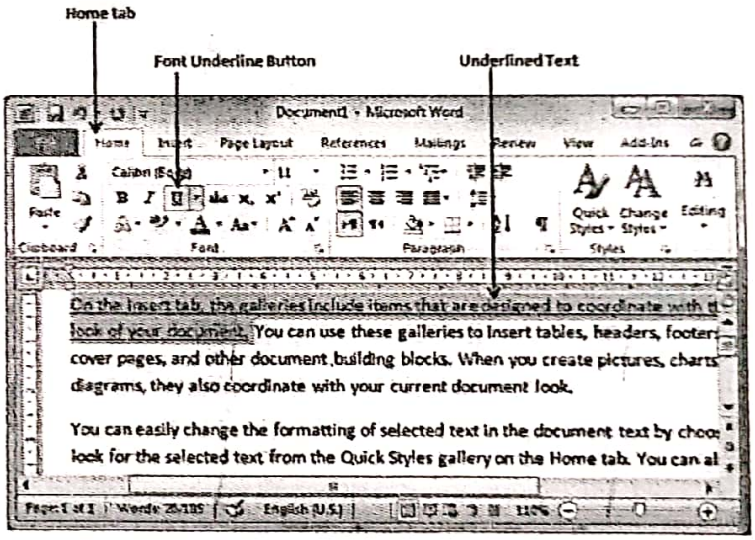
An italic text appears with a small inclination and we use italicized text to differentiate to differentiate it from other text. This is very simple to change selected text into italic font by following two simple steps:

Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click Font Italic *[I]* button in the Home tab Font group, or simply use Ctrl + I keys to convert text in italic font.

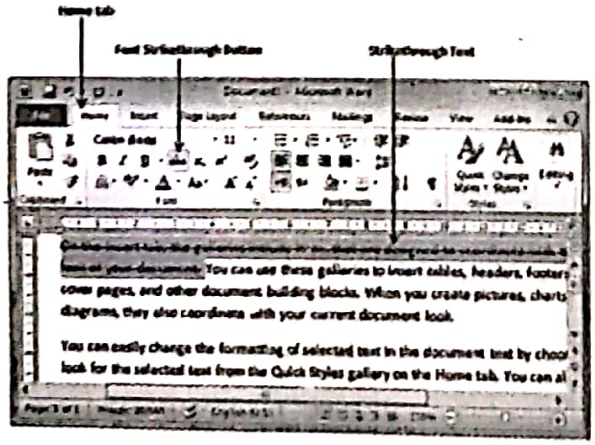
Underline the Text:

An underlined text appears with an underline and we use underlined text to make it more distinguished from other text. This is very simple to change selected text into underlined font by following two simple steps:



Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click Font Underline [U] button in the Home tab Font group, or simply use Ctrl + U keys to put an underline under the text.



Strikethrough the Text:

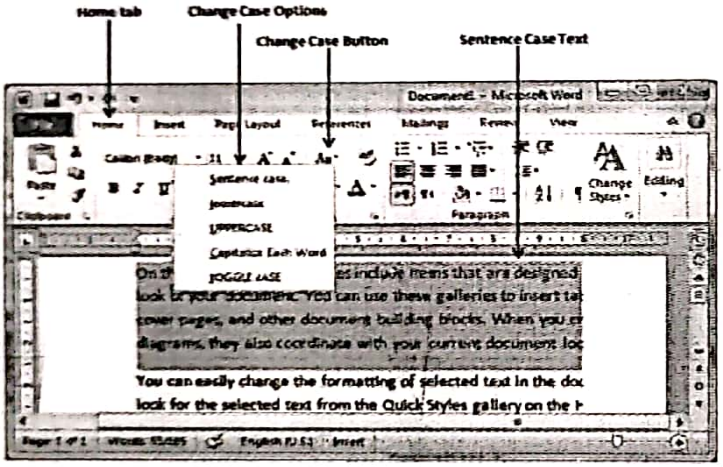
Strikethrough text will look like a line has been drawn through its middle. A strikethrough text indicates that it has been deleted and not any more required. This is very simple to change selected text into strikethrough font by following two simple steps:

Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click Font Strikethrough [abe] button in the Home tab Font group to put a line in the middle of the text which is called strikethrough the text.

3) CHANGE TEXT CASES IN WORD 2010

This chapter will teach you how to change cases of your text in Microsoft word 2010. You can also capitalize a character you are typing by pressing and holding SHIFT while you type. You can also press CAPS LOCK to have every letter that you type be capitalized, and then press CAPS LOCK again to turn off capitalization.



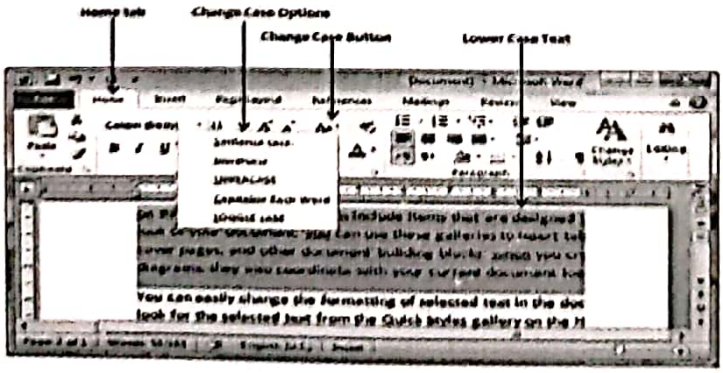
Change Text to Sentence Case:

A sentence case is the case where first character of every sentence is capitalized. This is very simple to change selected text into sentence case by following two simple steps:

Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click the Change Case button and then select Sentence Case option to capitalize the first character of every selected sentence.

Change Text to Lowercase:



A lowercase: is the case where every word of a sentence is in lowercase. This is very simple to change selected text into lowercase by following two simple steps:

Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

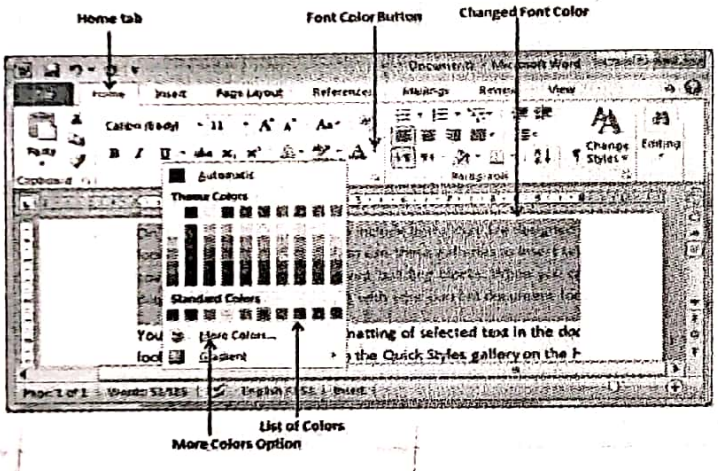
Step (2): Click the Change Case button and then select Lowercase option to display all selected words in lowercase.

4) CHANGE TEXT COLORS IN WORD 2010

This chapter will teach you how to change text colors and how to mark text which should look like it was marked with a highlighter pen. Finally we will learn how to apply different effects on a text.

Change Font Colors:

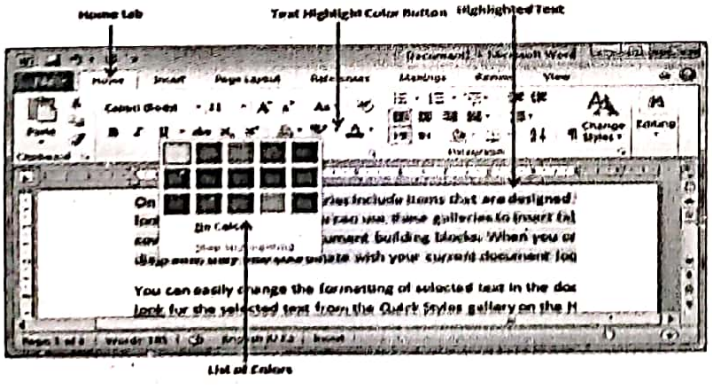
By default any typed text comes in black color, but you can change your font color to any of the color which can imagine. This is very simple to change text color by following two simple steps:



Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click the Font Color button triangle to display a list of colors. Try to move your mouse pointer over different colors and you will see text color will change automatically. You can select any of the colors available by simply clicking over it.

- If you click at the left portion of the Font Color button, then already selected color will be applied to the text, so you would have to click over small triangle to display a list of colors.
- If you do not find a color of your choice, you can use More Colors option to display color pallet box which allows you to select a color from range of millions of colors.



Highlight Text with Colors:

You can highlight a selected text using any color and it will look like it was marked with a highlighter pen. Usually we highlight a text using yellow color. This is very simple to highlight a text with a color by following two simple steps

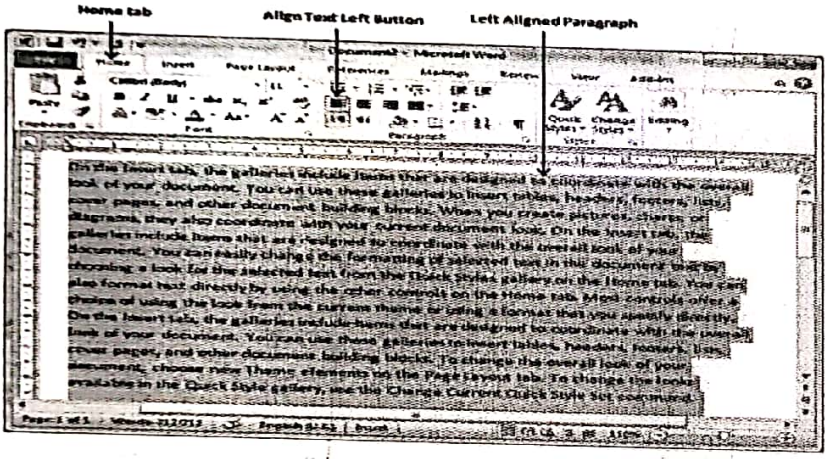
Step (1): Select the text that you want to change to a bold font. You can use any of the text selection method to select the text.

Step (2): Click the Text Highlight Color button triangle to display a list of colors. Try to move your mouse pointer over different colors and you will see text color will change automatically. You can select any of the colors available by simply clicking over it.

5) TEXT ALIGNMENTS IN WORD 2010

There are four types of paragraph alignment are available in Microsoft Word left-aligned, centered, right-aligned, and justified.

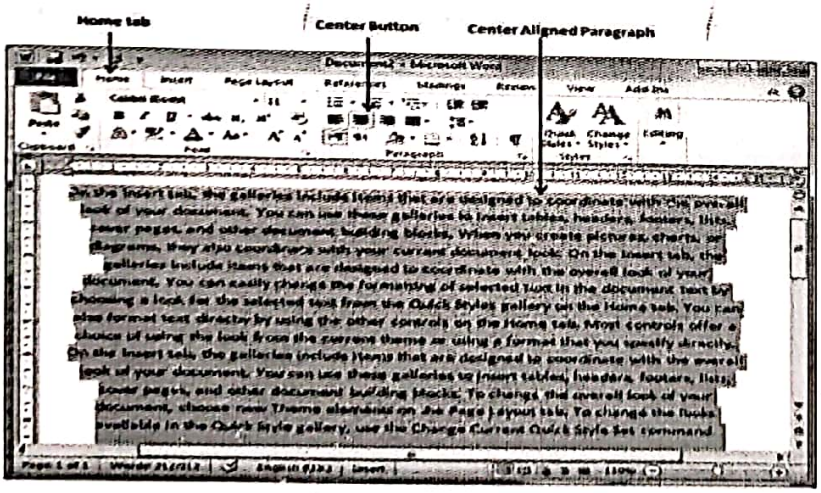
Left Aligned Text:



A paragraph's text will be said left aligned if it is aligned with left margin. Here is a simple procedure to make a paragraph text left aligned.

Step (1): Click anywhere on the paragraph you want to align and click Align Text Left button available on Home tab or simply press Ctrl + L keys.

Center Aligned Text:

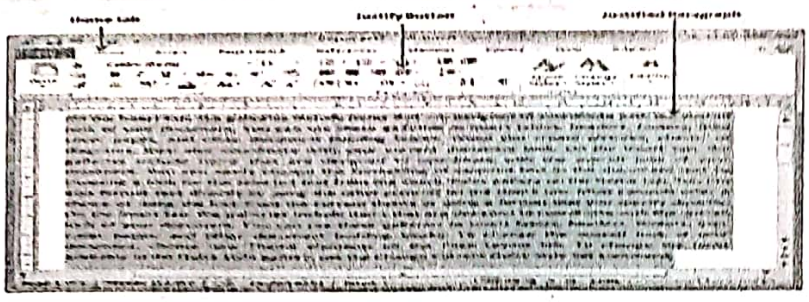


A paragraph's text will be said center aligned if it is in the center of the left and right margins. Here is a simple procedure to make a paragraph text center aligned.

Step (1): Click anywhere on the paragraph you want to align and click Center button available on Home tab or simply press Ctrl + E keys.

Justify Aligned Text:

A paragraph's text will be said justify aligned if it is aligned with both left and right margins. Here is a simple procedure to make a paragraph text justify aligned.



Step (1): Click anywhere on the paragraph you want to align and click Justify button available on Home tab or simply press Ctrl + J keys.

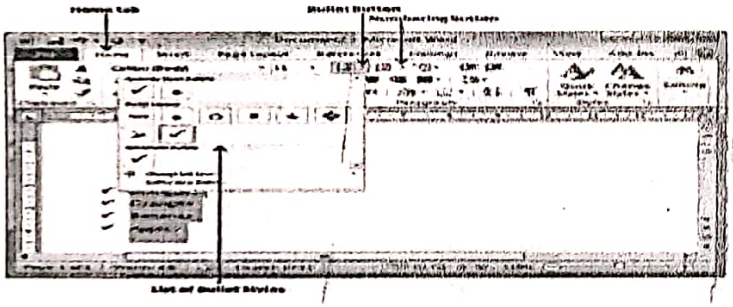
When you click Justify button, it displays four options, justify, justify low, justify high and justify medium. You need to select only justify option. Difference between these options is that low justify creates little space between two words, medium creates a bit more space and high creates maximum space between two words to justify the text.

6) CREATE BULLETS IN WORD 2010

Microsoft word provides bullets and numbers to put a list of items in a nice order. This chapter will teach you simple steps to create either of the bulleted or numbered lists in simple steps.

Create a List from Existing Text:

This is very simple to convert a list of lines into a bulleted or numbered list. Following are the simple steps to create either bulleted list or numbered list.



Step (1): Select a list of text to which you want to assign bullets or numbers. You can use any of the text selection method to select the text.

Step (2): Click the Bullet Button triangle to display a list of bullets you want to assign to the list. You can select any of the bullet style available by simply clicking over it.

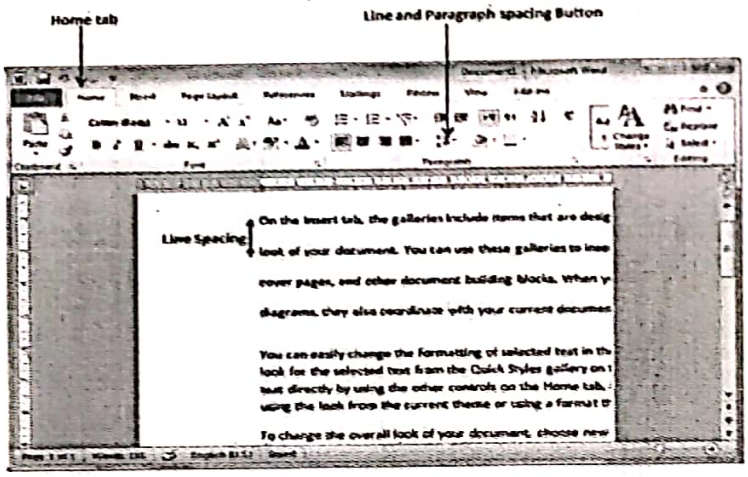
Step (3): If you are willing to create a list with numbers then click the Numbering Button triangle instead of bullet button to display a list of numbers you want to assign to the list. You can select any of the numbering style available by simply clicking over it.

7) SET LINE SPACING IN WORD 2010

Line spacing is the distance between two lines in a Microsoft Word document. You can increase or decrease this distance as per your requirement by following few simple steps. This chapter will explain how to set distance between two lines as well as how to set distance between two paragraphs.

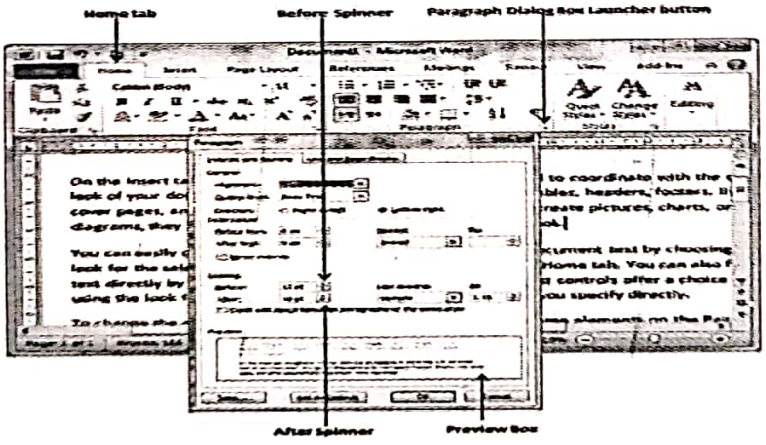
Spacing between Lines:

Following are the simple steps to adjust spacing between two lines of the document.



Step (1): Select the paragraph or paragraphs for which you want to define spacing. You can use any of the text selection method to select the paragraph(s).

Step (2): Click the Line and Paragraph Spacing Button triangle to display a list of options to adjust space between the lines. You can select any of the option available by simply clicking over it.



Spacing between Paragraphs:

You can also set distance between two paragraphs. Following are the simple steps to set this distance.

Step (1): Select the paragraph or paragraphs for which you want to define spacing and click the Paragraph Dialog Box Launcher available on Home tab.

Step (2): Click before spinner to increase or decrease the space before the selected paragraph. Similar ways click after spinner to increase or decrease the space after the selected paragraph. Finally click OK button to apply the changes.

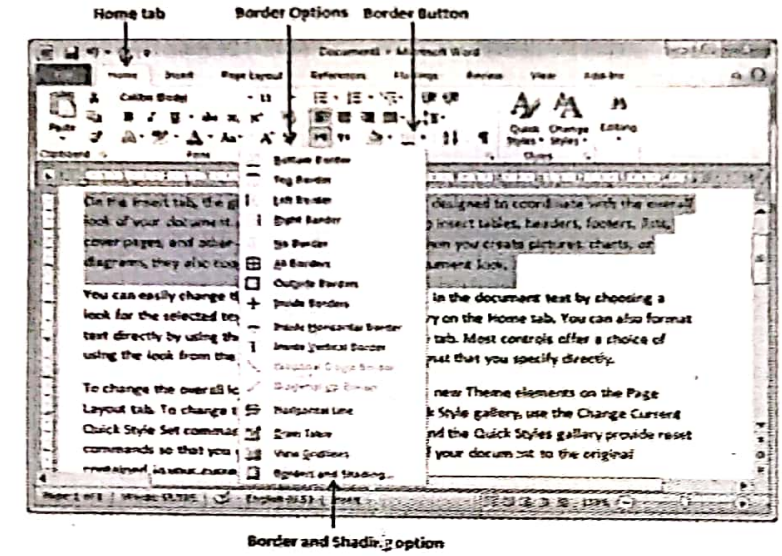
You can use Line Spacing option available at the dialog box to set line spacing as we have seen in previous example. You can try it yourself.

9) BORDERS AND SHADES IN WORD 2010

Microsoft Word allows you to place a border on any or all of the four sides of selected text, paragraphs, and pages. You can also add many type of shading to the space occupied by selected text, paragraphs, and pages. This chapter will teach you how to add any of the borders (left, right, top or bottom) around a text or paragraph or a page and how to add different shadows to them.

Add Borders To Text:

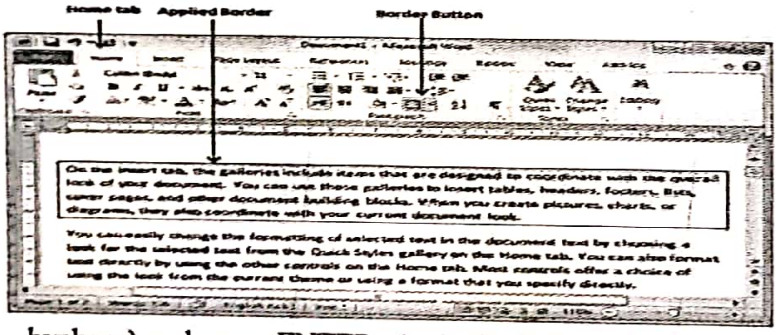
Following are the simple steps to add border to any text or paragraph.



Step (1): Select the text or paragraph to which you want to add border. You can use any of the text selection method to select the paragraph(s).

Step (2): Click the Border Button to display a list of options to put a border around the selected text or paragraph. You can select any of the option available by simply clicking over it.

Step (3): Try to add different borders like left, right top or bottom by selecting different options from the border options.

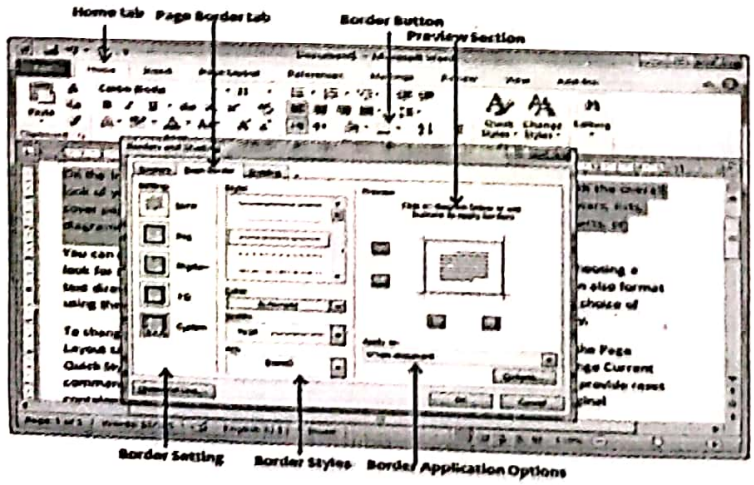


Step (4): To delete the existing border, simply select No Border option from the border options.

Note: You can add a horizontal line by selecting Horizontal Line option from the border options. Otherwise type --- (three hyphens) and press ENTER. A single, light horizontal line will be created between the left and right margins

Add Borders To Page:

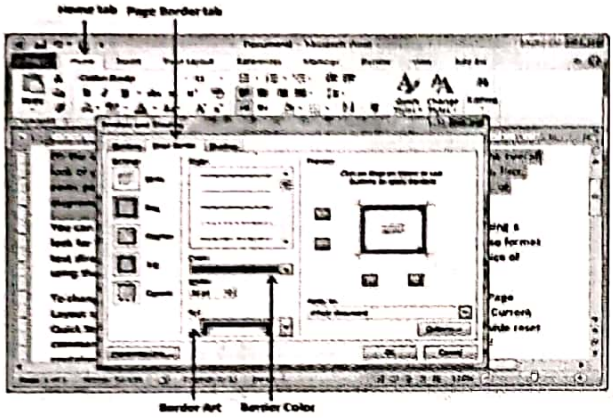
You can add borders of your choice to word pages by following the simple steps given below.



Step (1): Click the Border Button to display a list of options to put a border. Select Border and Shading option available at the bottom of list of the options as shown in above screen capture. This will display a Border and Shading dialog box. This dialog box can be used to set borders and shading around a selected text or page borders.

Step (2): Click Page Border tab which will display a list of border settings, styles and options whether this border should be applied to the whole document or just one page or first page.

Step (3): You can use Preview section to disable or enable left, right , top or bottom borders of the page. Follow the given instruction in preview section itself.



Step (4): You can customize your border by setting its color, width by using different art available under style section.

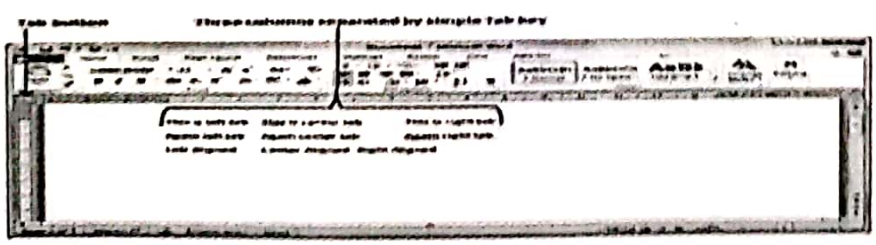
You can have similar or even better borders as given below.

SET TABS IN WORD 2010

Microsoft Word tabs help in setting up information properly within a column. Word enables you to set left, center, right, decimal, or bar tabs to line up columnar information. By default, Word places tabs every .5 inch across the page between the left and right margins.

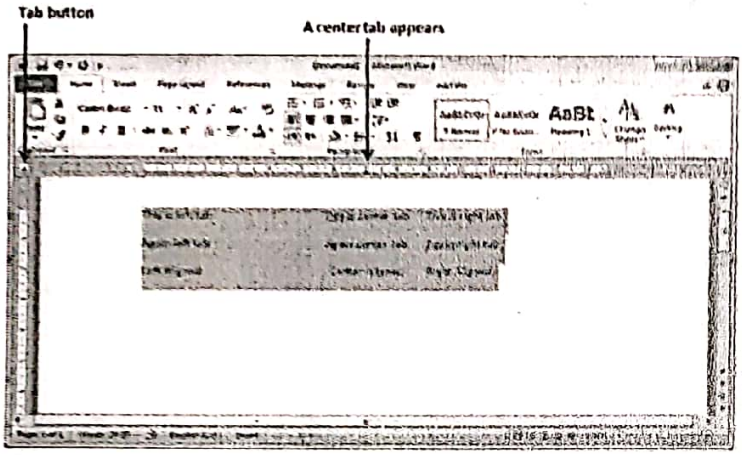
Tab	Description
Left	Left-aligns text at tab stop and this is the default tab.
Center	Centers text over tab stop.
Right	Right-aligns text at tab stop.
Decimal	Aligns numbers at decimal point over tab stop.
Bar	Creates a bar to separate the text.

Setting a Tab:

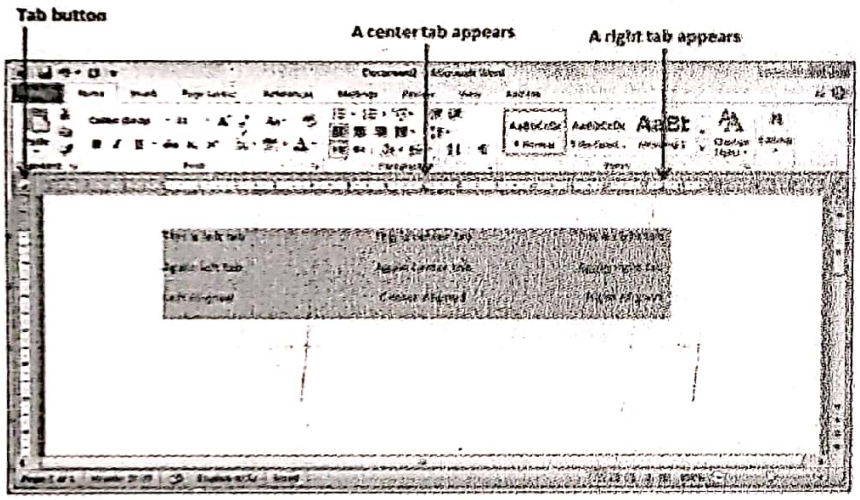


Following are the simple steps to set center and right tabs in a word document. You can use similar steps but different tabs to setup decimal and bar tabs.

Step (1): Type some text that you want to line up with tab stops. Press the Tab key only once between each column of information you to want to line up. I typed following three lines



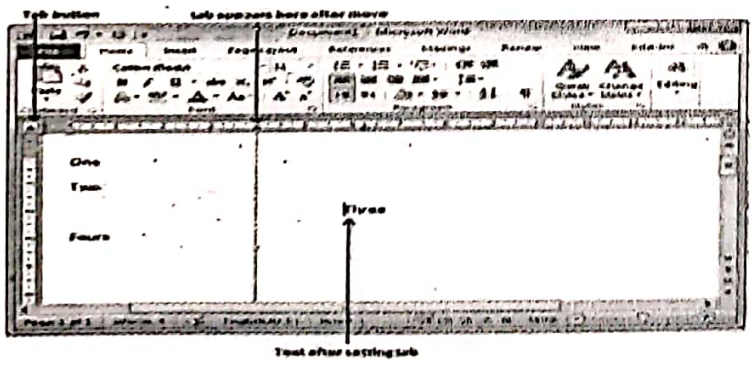
Step (2): Select a tab type using Tab Button, let's say center tab and finally select the paragraph or paragraphs whose tabs you want to set. Next click the ruler where you want the tab to appear, a tab will appear at the ruler where you just clicked and selected text will be adjusted in the center.



Step (3): Now select right tab using Tab Button and click the ruler at the right side where you want to align text at right side. A right tab will appear at the ruler where you just clicked and selected text will be right aligned.

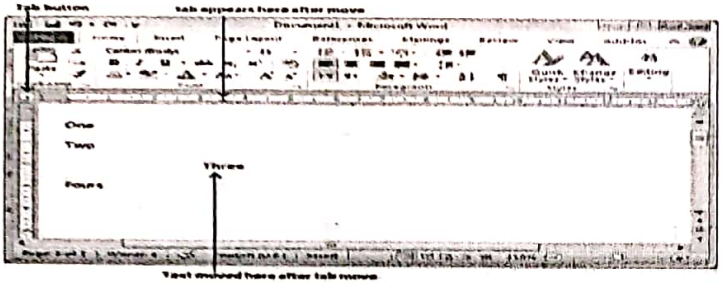
Moving a Tab:

You can move an already set tab at a particular location by following the simple steps.



Step (1): Click just before the line for which you want to change the tab setting. Drag the tab sign available at the ruler to the left or right.

Step (2): A vertical line marks its position as you drag and when you click and drag a tab, the text moves with the tab.

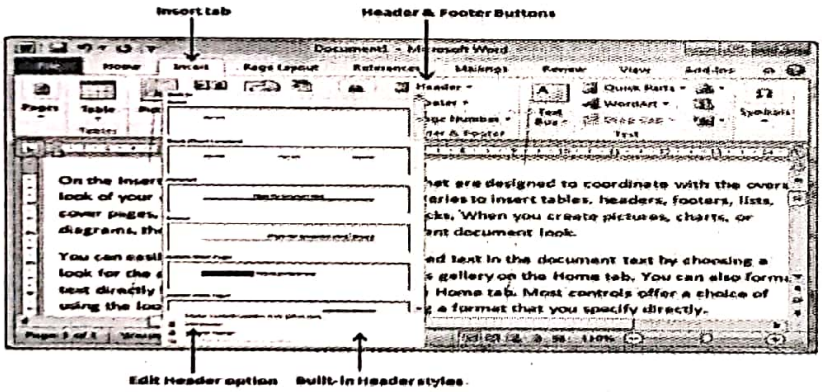


ADD HEADER AND FOOTER IN WORD 2010

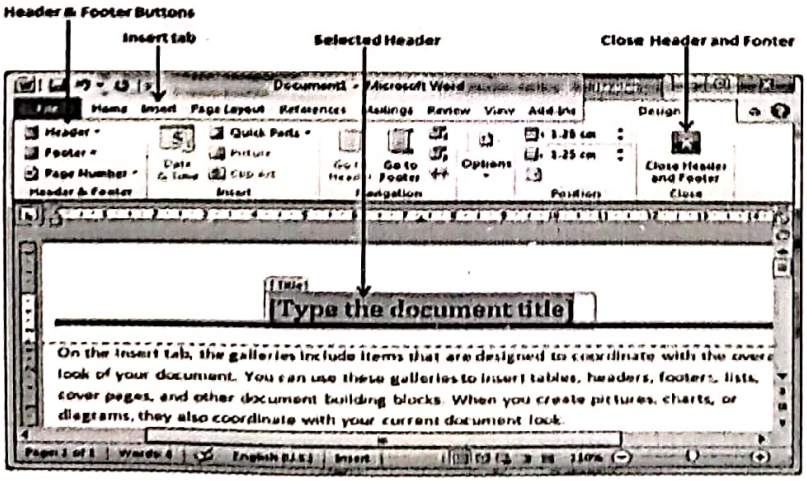
Headers and footers are parts of a document that contain special information such as page numbers and the total number of pages, the document title, company logo, any photo etc. The header appears at the top of every page, and the footer appears at the bottom of every page.

Add Header and Footer:

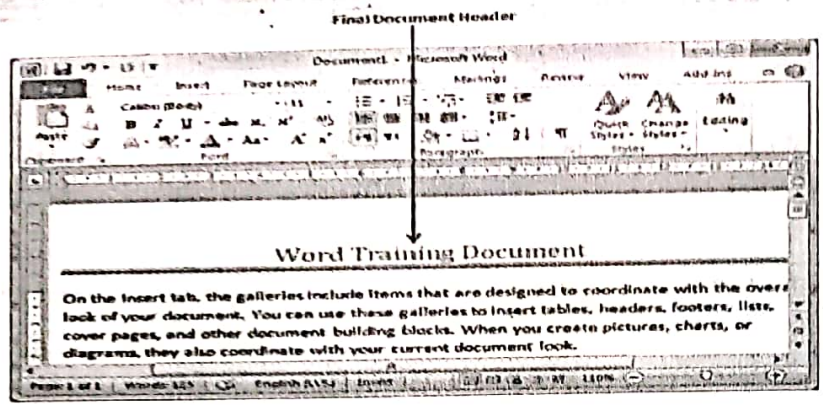
Following are the simple steps to add header and footer in a word document.



Step (1): Click the Insert tab, and click either Header button or Footer button whatever you want to add first. Assume you are going to add Header, so when you click Header button it will display a list of built-in Headers from where you can choose any of the headers by simply clicking on it.



Step (2): Once you select any of the headers, it will be applied to the document in editable mode and the text in your document will appear dimmed, Header and Footer buttons appear on the Ribbon and a Close Header and Footer button will also appear at the top-right corner.

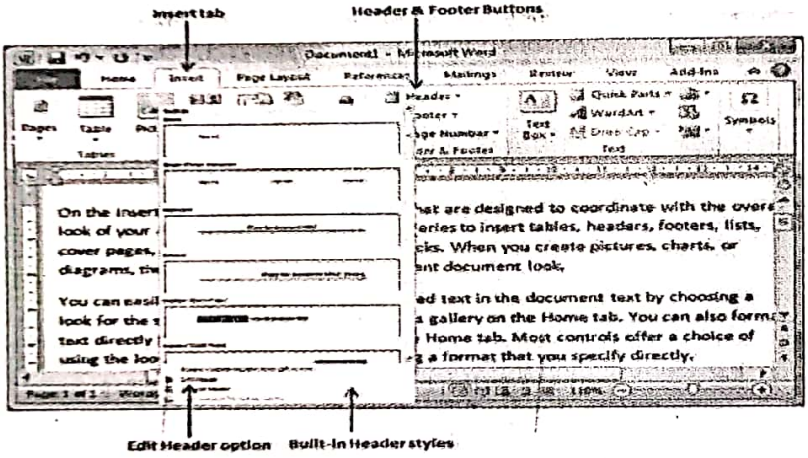


Step (3): Finally you can type your information whatever you want to have in your document header and once you are done, click Close Header and Footer to come out of header insertion mode. You will see final result as follows.

You can follow a similar procedure to add footer in your document.

Edit Header and Footer:

Follow the following simple steps in case you want to edit existing header or footer of your document.



Step (1): Click the Insert tab, and click either Header button or Footer button whatever you want to edit. Assume you are going to edit Header, so when you click Header button it will display a list of options including Edit Header option.

Step (2): Just click on it and word will display editable header for you as shown below.

Step (3): Now you can edit your document header and once you are done, click Close Header and Footer to come out of header edit mode.

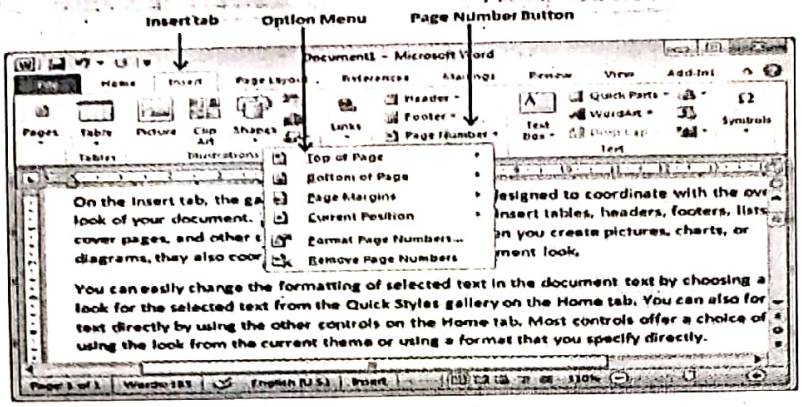
You can follow a similar procedure to edit footer in your document.

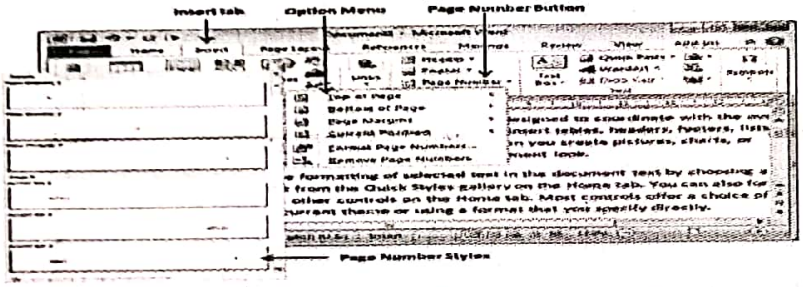
ADD PAGE NUMBERS IN WORD 2010

Microsoft Word automatically assigns page numbers on the pages of your document. Typically, page numbers are printed either in header or footer but you have option also can display the page number in the left or right margins at the top or the bottom of a page.

Add Page Numbers:

Following are the simple steps to add page numbers in a word document.





Step (1): Click the Insert tab, and click Page Number button available in header and footer section. This will display a list of options to display page number at the top, bottom, current position etc.

Step (2): When you move your mouse pointer over the available options, it displays further styles of page numbers to be displayed. For example when I take mouse pointer at Bottom of Page option it displays following list of styles.

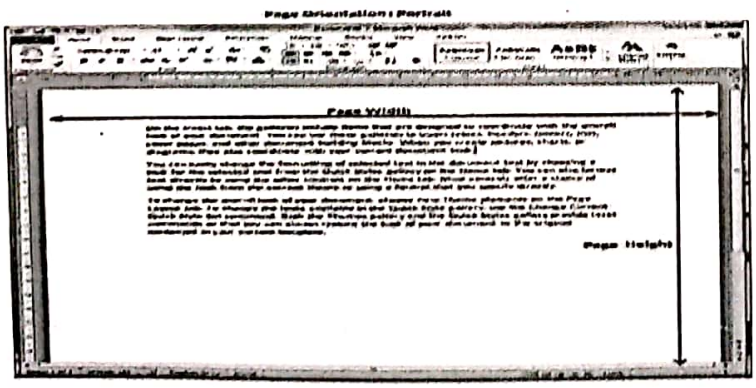
Step (3): Finally select of the page number styles which you like most. I selected Accent Bar 1 style by clicking over it. After this step you will enter in Page Footer modification mode, so you would have to click Close Header and Footer button to come out of footer edit mode.

You can format your page numbers using Format Page Numbers option available under the listed options.

PAGE ORIENTATION IN WORD 2010

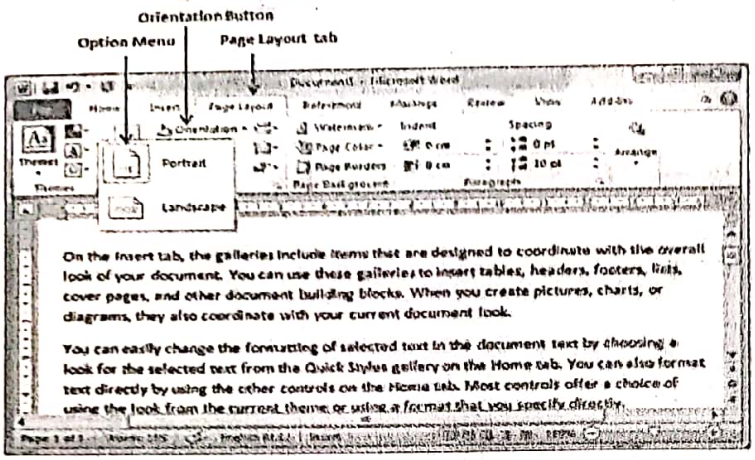
Page Orientation is useful when you print your pages. By default Microsoft Word shows a page in portrait orientation and in this case page width is less than page height and page will be 8.5 inches x 11 inches. You can change page orientation from portrait to landscape orientation in which case page width will be more than page height and page will be 11 inches x 8.5 inches.

Change Page Orientation:



Following are the simple steps to change the page orientation of a word document.

Step (1): Open a word document for which you want to change the orientation. By default, orientation will be Portrait Orientation as shown below.



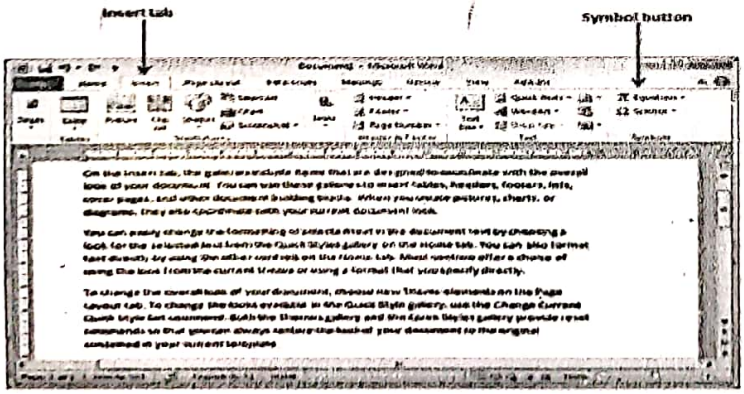
Step (2): Click the Page Layout tab, and click Orientation button available in the Page Setup group. This will display an Option Menu having both the options (Portrait & Landscape) to be selected.

Step (3): Click any of the options you want to set to orientation. Because my page is already in portrait orientation, so I will click Landscape option to change my orientation to landscape orientation.

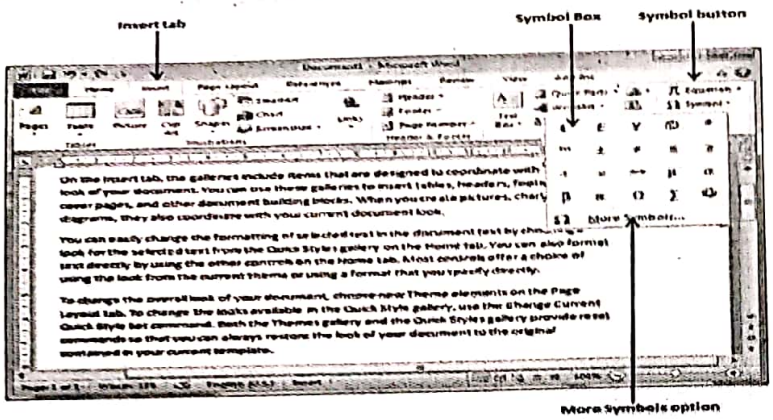
SPECIAL SYMBOLS IN WORD 2010

Your keyboard may not have many characters available but you want to use those characters in your document, in such situation you have option to insert Special Symbols the way. To insert symbols you use occasionally, follow the steps in this section. If you find yourself using a particular symbol frequently, you can assign a keyboard shortcut to it.

Insert Special Symbols:



Here is the simple procedure to apply zoom-in or zoom-out operation using view tab:Step (1): To insert a special symbol, bring your cursor at the place where you want to insert the symbol. Click the Insert tab. You will find two options under symbol button (a) Equation and (b) Symbols. Click either of these two options based on your requirement. You would use equations while preparing mathematical or scientific or any similar document. For now I'm going to click Symbol button which is shown below.

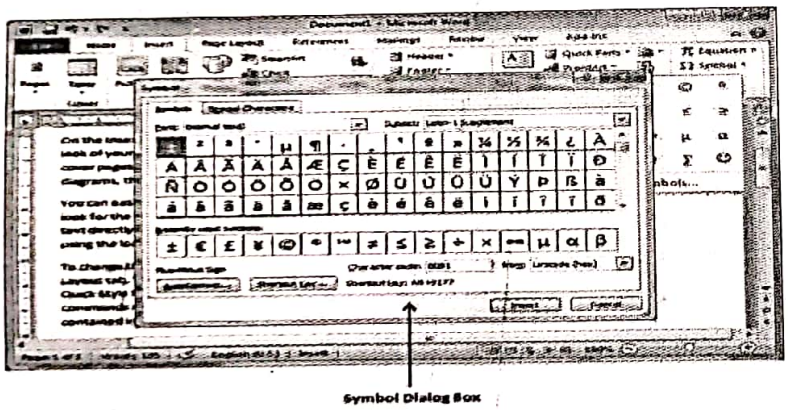


Step (2): When you click Symbol button, a small list of symbols will appear as shown below.

Step (3): Now click on any of the available symbols in the box to insert that in your document at the selected location. If you do not find desired symbol in this small box then you can click at More Symbols option to have a wide range of symbols as shown below in the symbol dialog box. You can select any of the symbols and then click Insert button to insert the selected symbol.

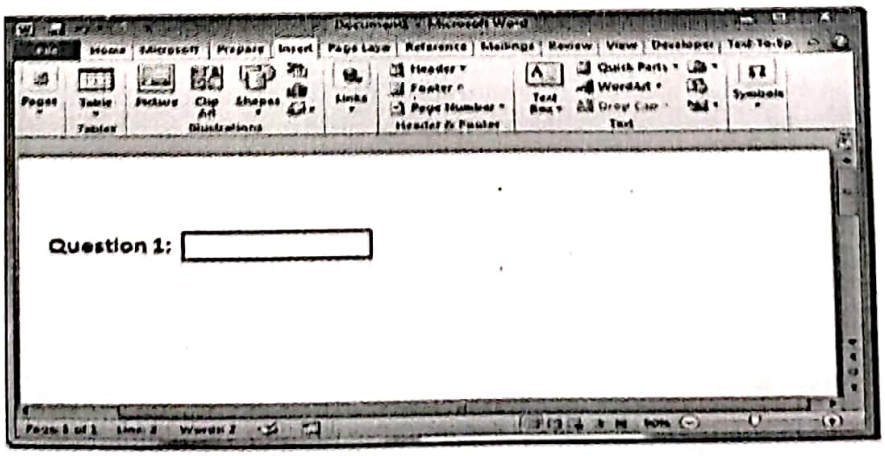
EQUATIONS WITH WORD 2010

EQUATION EDITOR

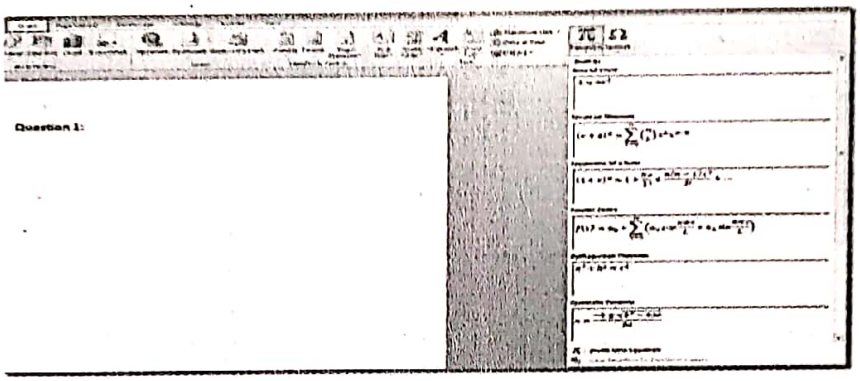


When writing a document which primarily covers mathematical signs and equations then using Word 2010 built-in Equation feature would be of great help. In Word 2010, you can insert Equation from the built-in list instantly. Handling equation that you have written by yourself would be a bit tedious task to get by, but through this feature of Word you can manipulate them by performing simple actions and clicks. In this post we will explain how easy it is to use Equations in Word.

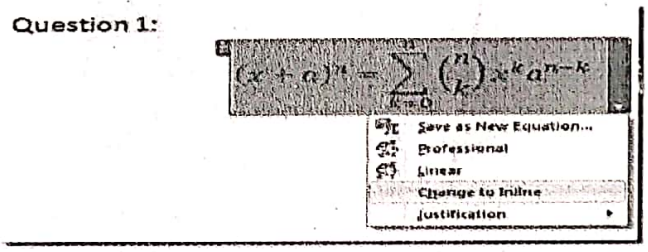
Launch Word 2010 document, in which you want to insert any mathematical equation.



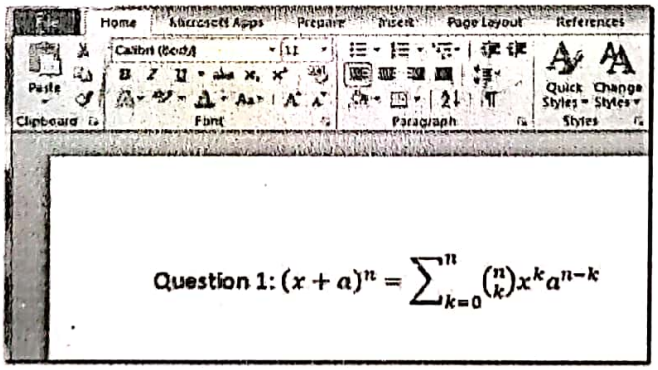
Now navigate to Insert tab, and Click *Equation drop-down button* to view built-in list, containing different equations.



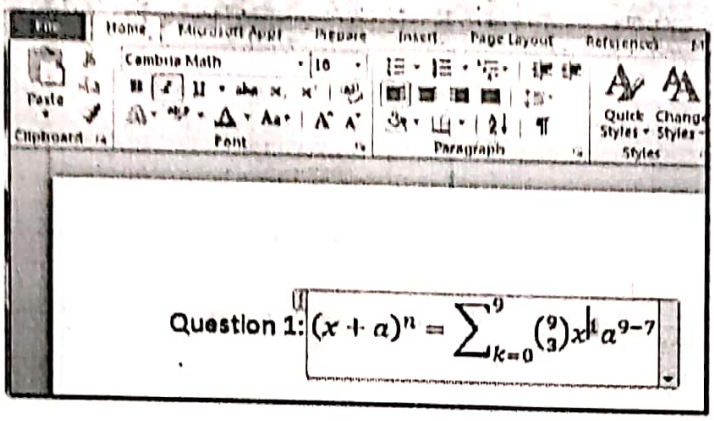
Upon click desired equation from list, it will be automatically added into the document. Now click the drop-down button being present in the equation box for more options, click *Change to Inline,* to place it in the line you were editing.



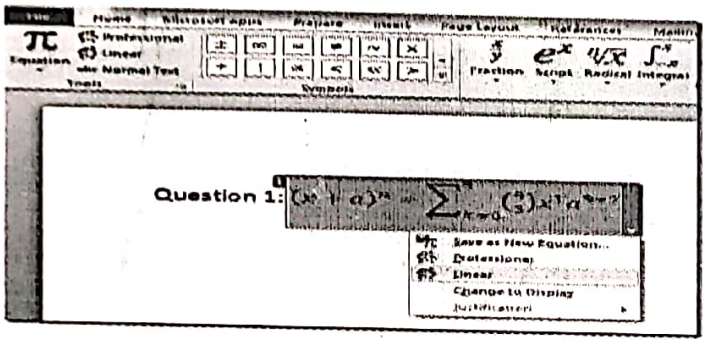
Upon click, it will be adjusted properly in the line, as shown in the screenshot below.



For editing equation values you need to click inside equation box to change values manually.



For viewing it or checking equivalent linear equation, click drop-down button in equation box and click *Linear*. You can also save the newly created equation through single click on *Save as New Equation.*

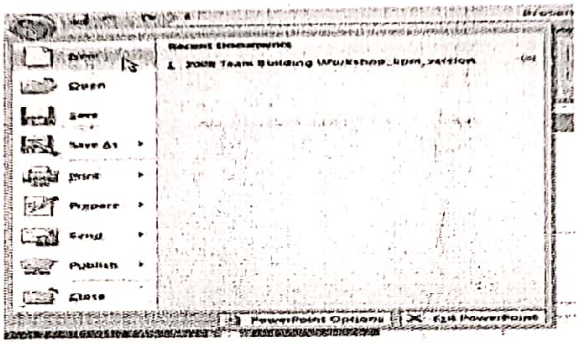


MICROSOFT POWER POINT

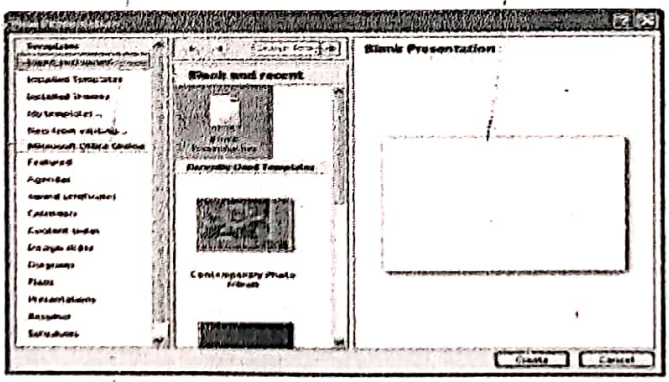
Creating New Presentations

When you open PowerPoint from the Start menu or from an icon on your desktop, a new presentation with one slide appears by default. You can also create a new presentation while PowerPoint is already open.

Click the **Microsoft Office button**, and choose **New** from the menu.



The **New Presentation** dialog box will appear. **Blank** presentation is selected by default.



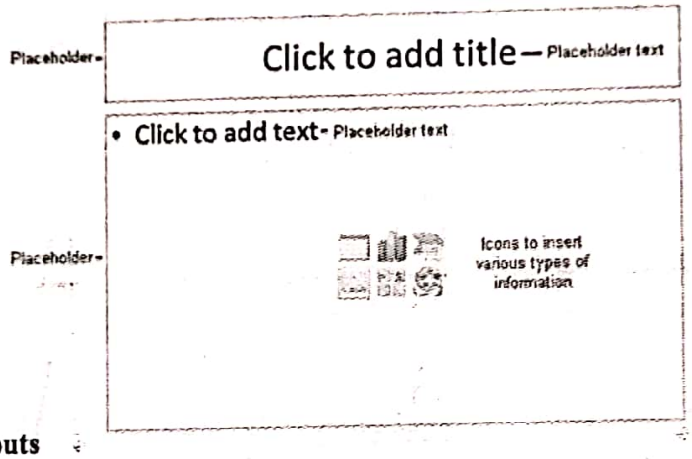
Click **Create**, and a new presentation will open in the PowerPoint window.

The default slide that appears when you create a new presentation is a **Title Slide** layout.

Slide Basics

About the slides:

Slides contain **placeholders,** or areas on a slide that are enclosed by dotted borders. Placeholders can contain many different items, including text, pictures, and charts. Some placeholders have **placeholder text**—or text you can replace— and **thumbnail-sized icons** that represent specific commands such as Insert Picture, Insert Chart, and Insert Clip Art. Hover over each icon to see the type of information you can insert.



About Slide Layouts

The placeholders are arranged in different **layouts** you can select when you **insert a new slide** or that can be **applied to existing slides.** In the example above, the layout is called **Title and Content** and includes title and content placeholders. A slide layout **arranges** your slide content. Layouts contain different types of placeholders you can use, depending on what information you want to include in your presentation. Each layout has a descriptive name, but the image of the layout shows you how the placeholders are arranged on the slide.

To Insert Text Into A Placeholder:

Click inside the **placeholder.** The placeholder text will disappear, and the **insertion point** will appear.

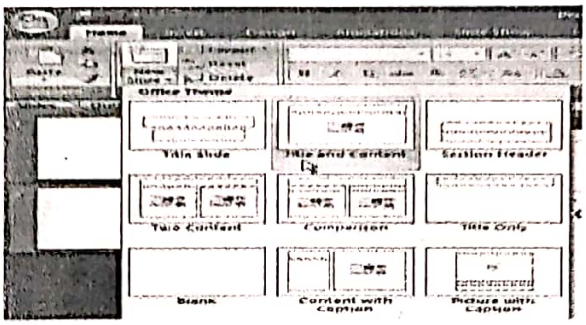
Type your text once the insertion point is visible.

Click **outside the placeholder** when you have entered all of your text into the placeholder.

When you enter text or use the icons to insert items, the placeholder text and/or icons disappear as soon as you start typing.

To Insert A New Slide:

Click the **New Slide** command in the **Slides** group on the Home tab. A menu will appear with your slide layout options.

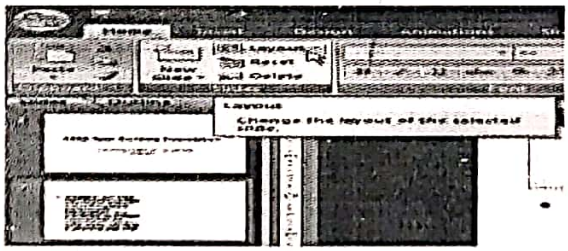


Click the slide you want to insert. A new slide with the chosen layout will appear in the center of the PowerPoint window and in the pane on the left.

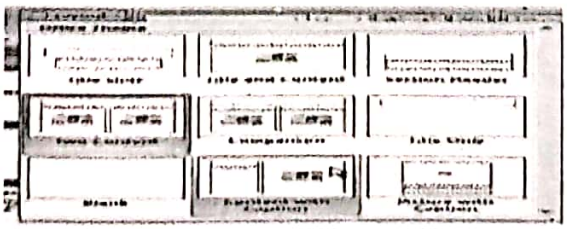
To Change The Layout Of An Existing Slide:

Select the slide you want to change.

Click the **Layout** command in the **Slides** group on the Home tab. A menu appears with your options



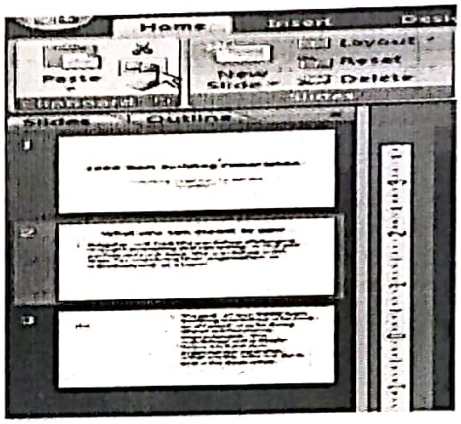
Click an option to select it. The slide will change in the presentation.



To Copy And Paste A Slide:

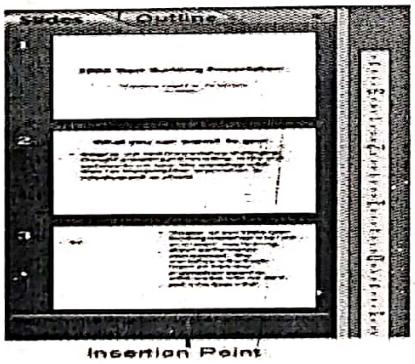
Select the slide you want to copy.

Click the **Copy** command on the Home tab.



Click inside the **Slides** tab on the left task pane. A **horizontal insertion point** will appear.

Move the insertion point to the location where you want the copy of the slide to appear.



To move a slide:

Select the slide you want to **move** on the Slides tab in the left task pane. Click and drag the slide to a new location. The insertion point will appear. Release the mouse button. The slide will appear in the new location

Saving your presentation

If you are saving a document for the first time, you will need to use the **Save As** command; however, if you have already saved a presentation, you can use the **Save** command.

To Use The Save Command:

Click the **Microsoft Office button.**

Select **Save** from the menu.

Using the Save command saves the document in its current location using the same file name.

(F) Applying Themes to slides, Inserting Pictures, Smart Art, Clip Art, Shapes and Chats into your slide.

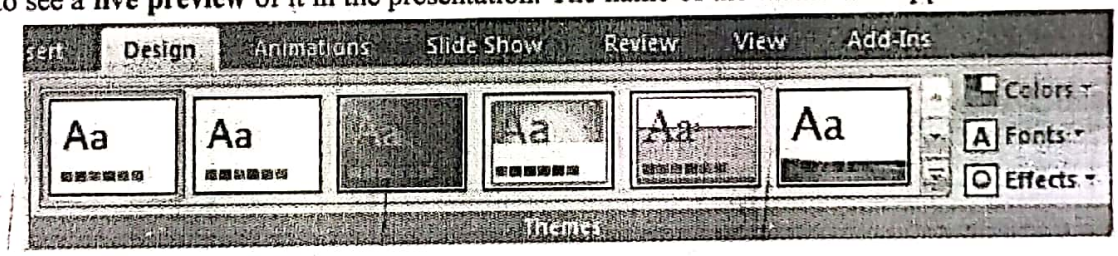
To Apply A Theme:

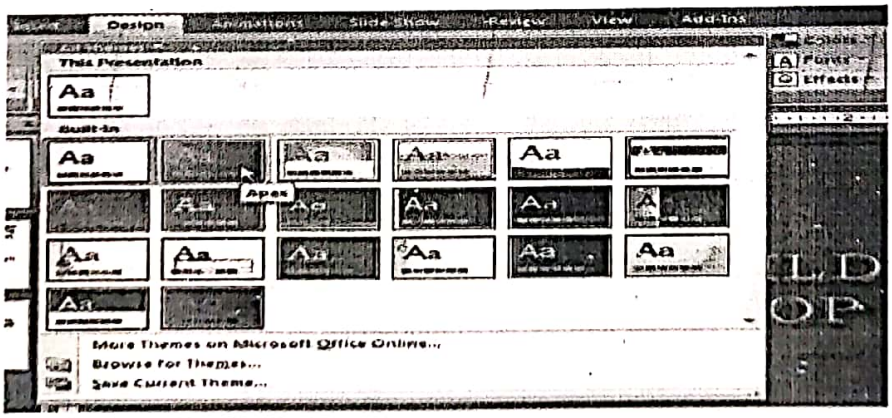
Select the **Design** tab.

Locate the **Themes** group. Each image represents a them

Click the drop-down arrow to access more themes.

Hover over a theme to see a **live preview** of it in the presentation. The name of the theme will appear as you hover over it.





Click a theme to apply it to the slides.

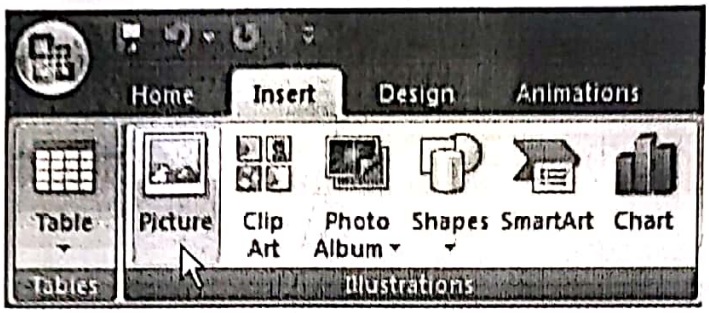
You can access additional themes on Microsoft Office Online or create your own.

Fonts that are changed with the font size and style menus will not change when you apply a new theme.

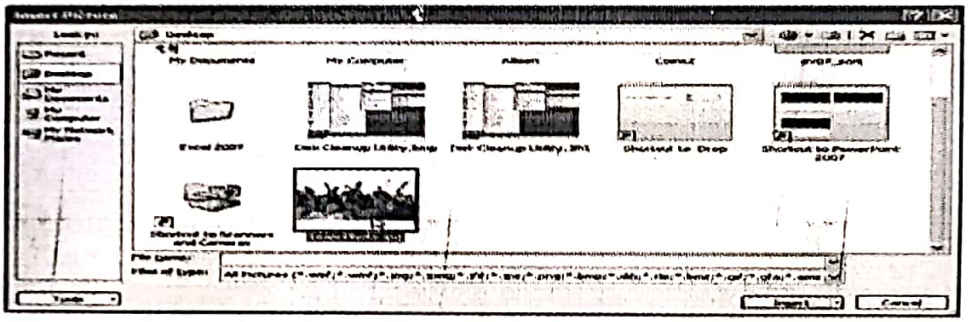
To Insert A Picture From The Ribbon:

Select the **Insert** tab.

Click the **Insert Picture** command in the **Illustrations** group. The Insert Picture dialog box will appear.



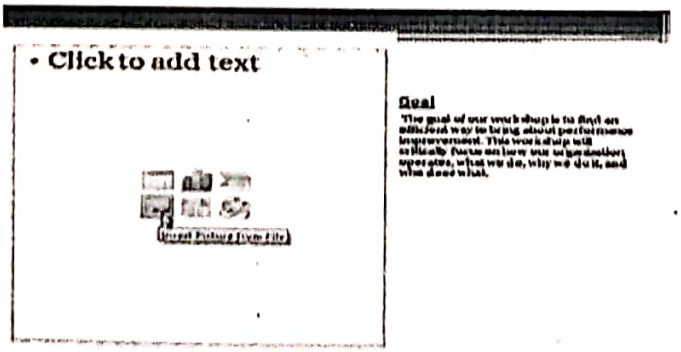
Locate and select the picture you want to use.



Click **Insert,** and it will appear on the slide.

To Insert A Picture From A Placeholder Command:

Click the **Insert Picture** command in the placeholder. The Insert Picture dialog box will appear.

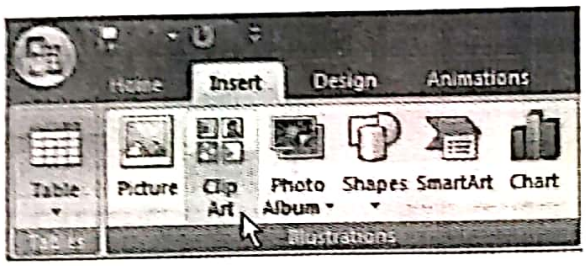


Locate and select the picture you want to use. Click **Insert**, and it will appear on the slide.

To insert a clip art from the Ribbon:

Select the **Insert** tab.

Click the **Clip Art** command in the **Illustrations** group. The Clip Art task pane will appear on the right.

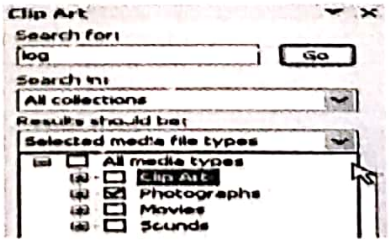


Enter keywords in the **Search** field that are related to the image you want to insert. Click the drop-down arrow next to the **collections** field.

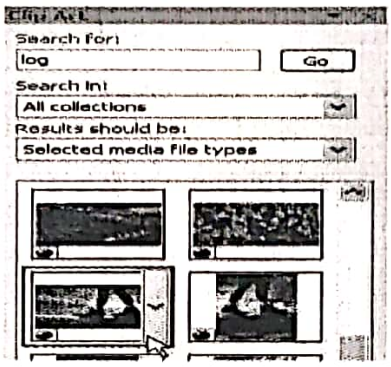
Select Everywhere to make sure PowerPoint searches your computer and online resources for an image that meets your criteria.

Click the drop-down arrow in the media file types field.

Deselect any file types you do not want to see. In this example, we only want photographs, so we'll deselect the other options.



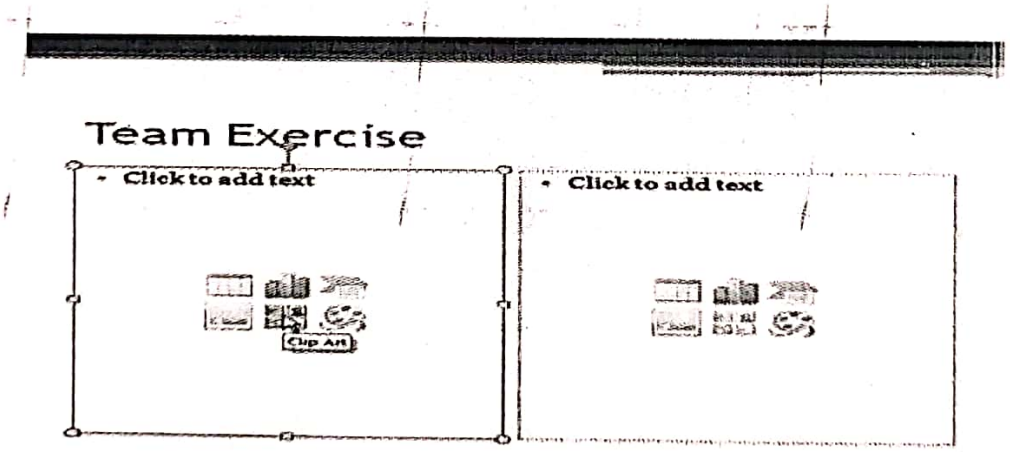
Click **Go**. A list of clip art images related to the search terms is displayed.



Click a clip art image to insert it, or click the drop-down arrow next to the clip art and select Insert from the menu. The clip art will appear in the slide.

To insert clip art from a placeholder command:

Click the **Clip Art** command in the placeholder. The Clip Art task pane will appear on the right.



Enter keywords in the **Search** field that are related to the image you want to insert. Click the drop-down arrow next to the **collections** field.

Select **Everywhere** to make sure PowerPoint searches your computer and online resources for an image that meets your criteria.

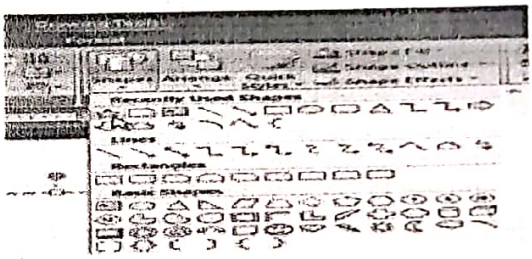
Click the drop-down arrow in the **media file types** field.

Deselect any file types you do not want to see. In this example, we only want photographs, so we'll deselect the other options.

Click **Go**.

A list of clip art images related to the search terms is displayed.Click a clip art image to insert it, or click the drop-down arrow next to the clip art and select Insert from the menu. The clip art will appear in the slide.

To Insert A Shape:



Select the **Home** tab.

Click the **Shapes** command. Click a shape from the menu

Move your cursor toward the slide. It will appear as a **cross shape.**

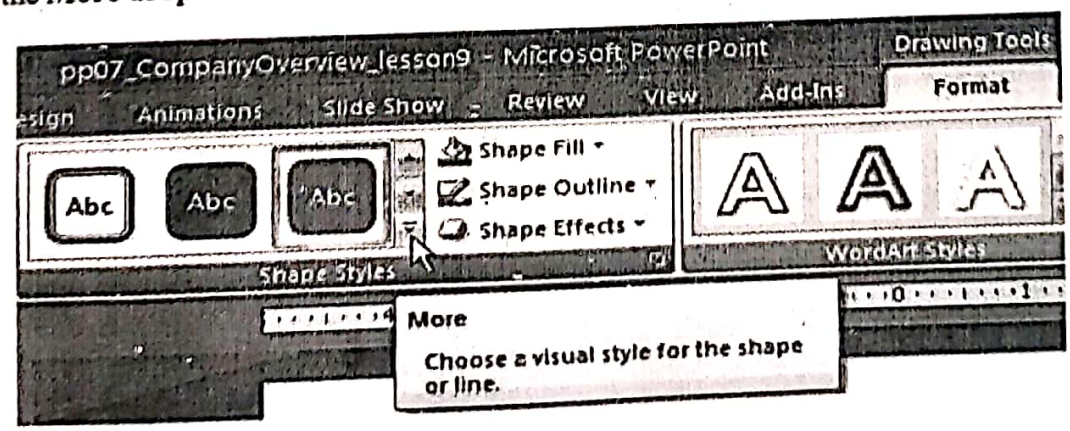
Click and hold down the mouse button, and drag the cursor until the shape is the desired size.

Release the mouse button to **insert** the shape.

To Change A Shape Style:

Select the **shape.** The Format tab will appear. Select the Format tab.

Click the **More drop-down arrow** in the Shapes Style group to display more style options.



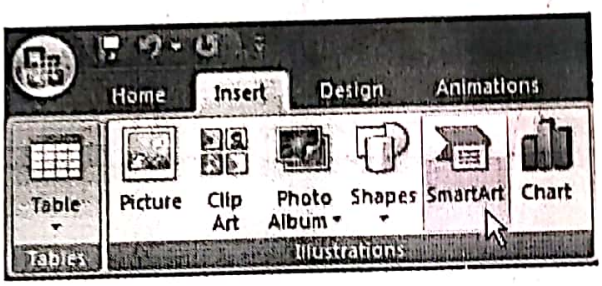
Move your cursor over a style to see a live preview of the style on the slide.

Click a style to select it.

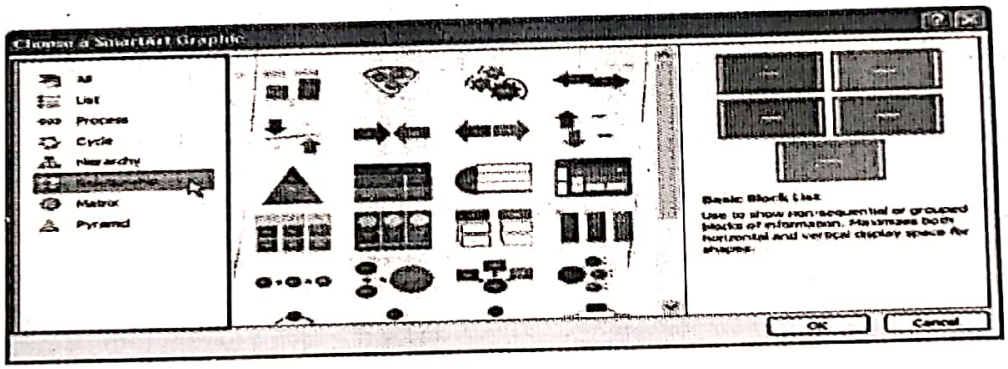
To Insert A Smartart Graphic:

Select the **slide** where you want to insert the SmartArt graphic. Select the **Insert** tab.

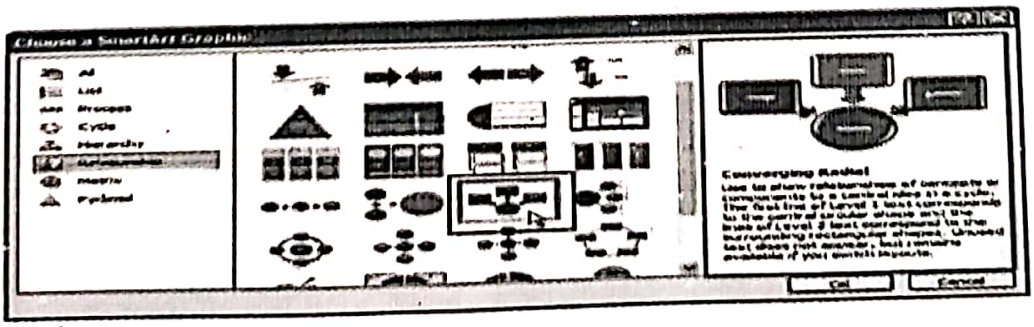
Select the **SmartArt** command in the Illustrations group. A dialog box appears.



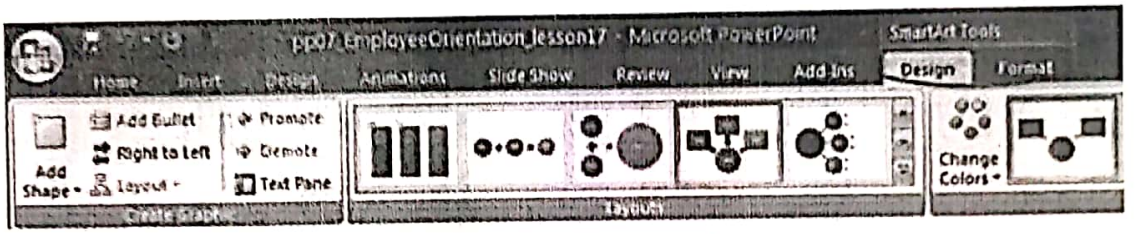
Select a **category** on the left of the dialog box, and review the SmartArt graphics that appear in the **center.**



Click a graphic to select it. A larger version of the graphic, along with text details, will appear on the right side of the dialog box.



Click **OK**. The graphic will appear on the slide, and two new SmartArt Tools tabs— Design and Format—will appear on the Ribbon.



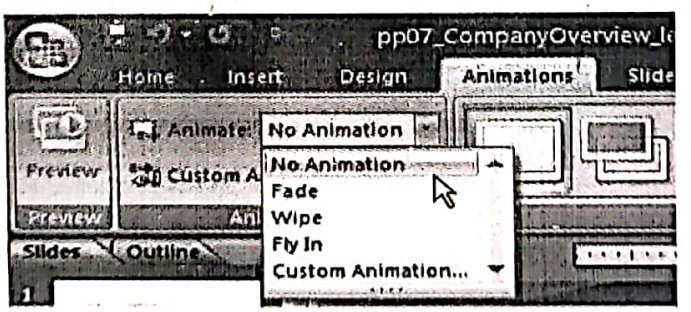
You can also insert a SmartArt graphic by clicking the **Insert SmartArt** command in the placeholder, if the slide layout includes a content placeholder.

How to apply Default and Custom animations to text and Transitions to slides in your presentations.

To Apply A Default Animation Effect:

Select the **text** or **object** on the slide you want to animate. Select the **Animations** tab.

Click the **Animate** drop-down menu in the Animations group to see the **animation options** for the selection. The options change based on the selected item.



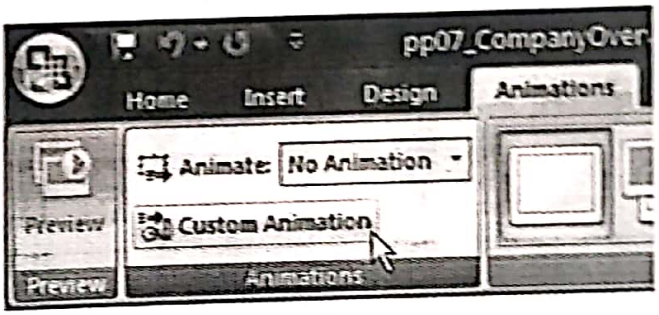
Move your cursor over each option to see a live preview of the animation on the slide.

Click an option to select it.

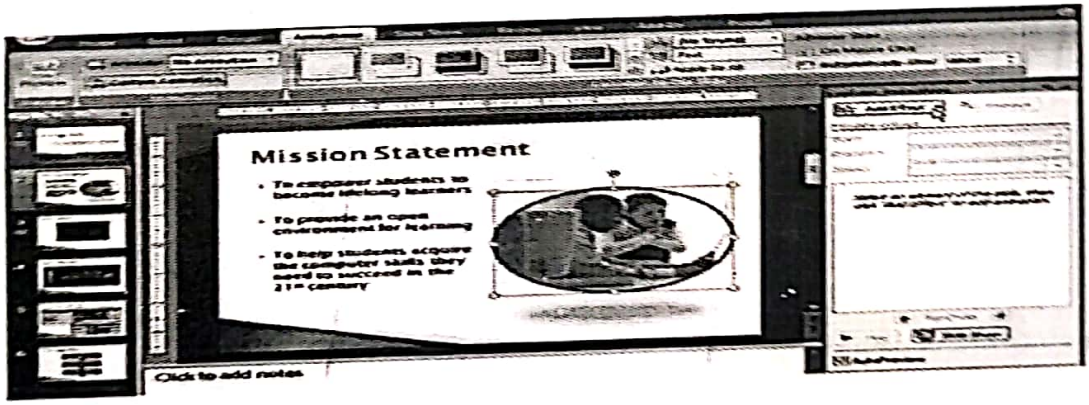
To apply a custom animation effect:

Select the **text** or **object** on the slide you want to animate. Select the **Animations** tab.

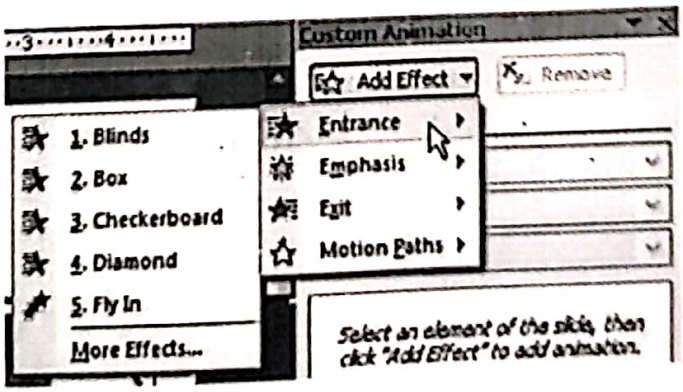
Click **Custom Animation** in the Animations group. The Custom Animation task pane will appear on the right.



Click **Add Effect** in the task pane to add an animation effect to the selected text or object.



Select **Entrance, Emphasis, Exit,** or **Motion Path** to display a submenu of animation effects for the category.

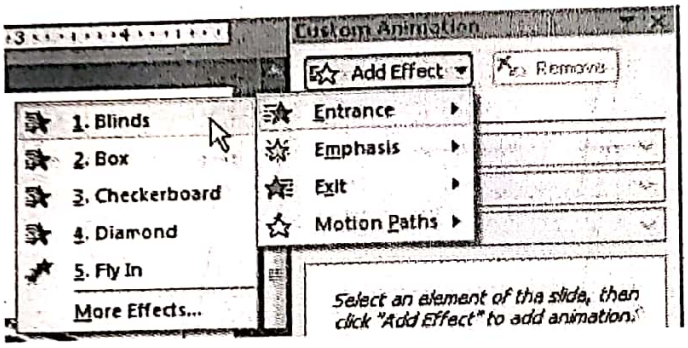


Entrance: Changes how the selected item appears on the page

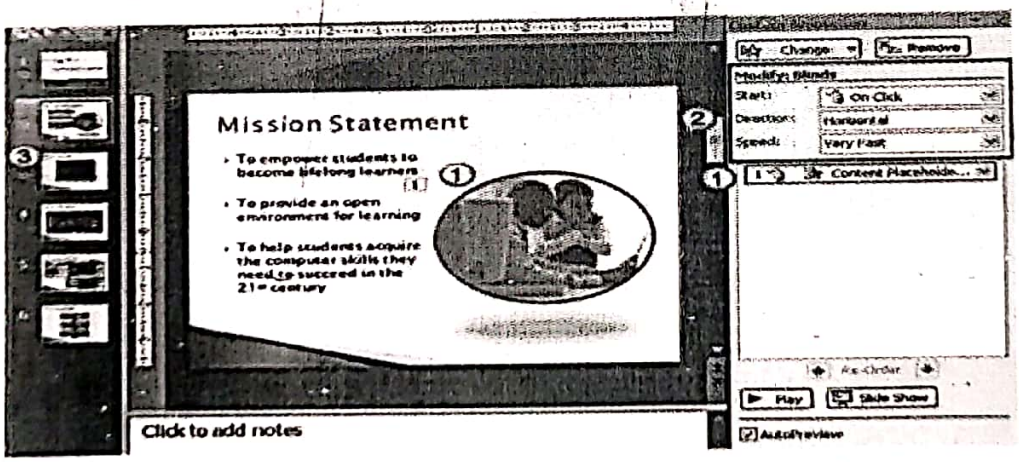
Emphasis: Draws attention to the selected item while the slide is displayed o **Exit**: Changes the way the selected item disappears from the slide

Motion Path: Animates the selected item so it moves to a specific place on the screen

Select an **animation effect** to apply it.



The animation will display on the selected item on the slide and will appear listed in the Custom Animation task pane.



A number label appears on the slide next to the animated object. A matching number label also appears next to the animation in the Custom Animation task pane list.

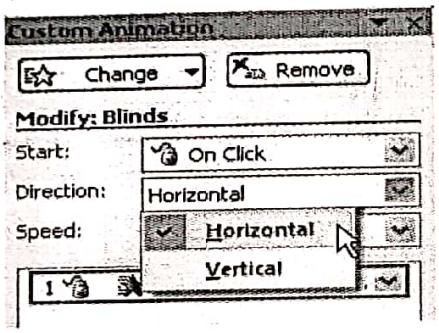
Drop-down menus appear at the top of the Custom Animation task pane. You can define the animation effect in greater detail here.

The star **Play Animations** icon appears beneath the slide on the Slides tab in the task pane on the left. It indicates that the slide has an animation effect.

To Modify A Default Or Custom Animation Effect:

After you apply an animation effect, **drop-down menus** will appear at the **top** of the Custom Animation task pane. The menus vary based on the animation effect.

Select an option from a drop-down menu to **change** the **default** setting.



Repeat until all menu options are at desired settings.

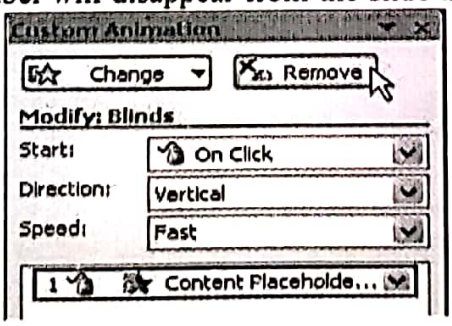
To Remove An Animation Effect:

Select the **text** or **object** on the slide you want to modify. Select the **Animations** tab.

Click **Custom Animation** in the Animations group. The Custom Animation task pane will appear on the right.

Select the animation in the Custom Animation task pane list, if it is not already selected.

Click **Remove.** The animation label will disappear from the slide and from the Custom Animation task pane list.



To Preview An Animation Effect:

Select the **text** or **object** you want to modify on the slide. Select the **Animations** tab.

Click **Custom Animation** in the Animations group. The Custom Animation task pane will appear on the right.

Select the animation in the Custom Animation task pane list.

Click **Play** at the bottom of the task pane to see a **preview** of the animation **in Normal view.**

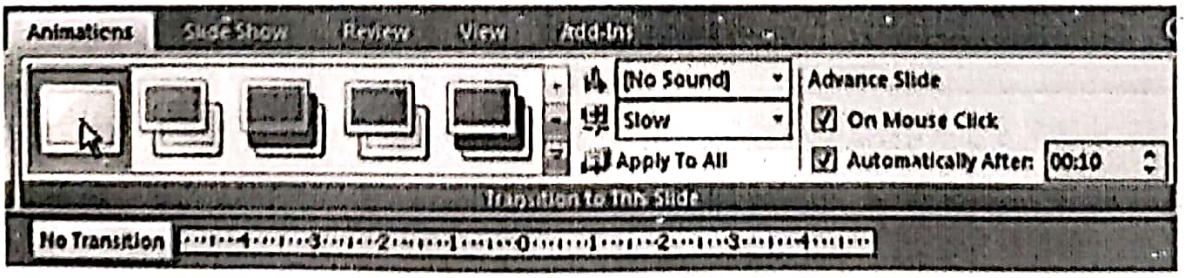
OR

Click **Slide Show** to see the animation **in Slide Show view.** Press the **Esc** key to return to Normal view

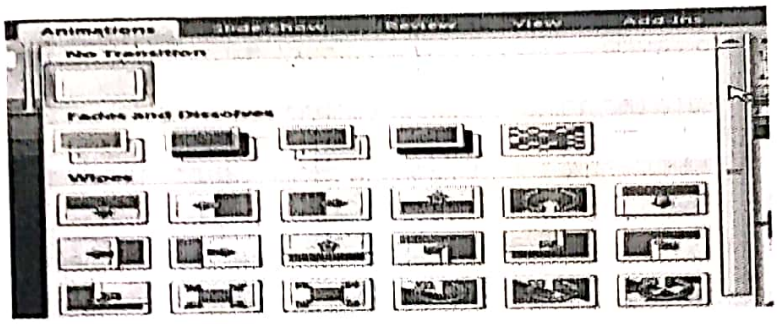
To apply a transition to one slide:

Select the **slide** you want to modify. Select the **Animations** tab.

Locate the **Transition to This Slide** group. By default, **No Transition** is applied to each slide.



Click the **More** drop-down arrow to display all available transition effects.



Click a **slide transition effect** to apply it to the selected slide.

Hover over a slide transition effect to see a live preview of the effect on the slide.

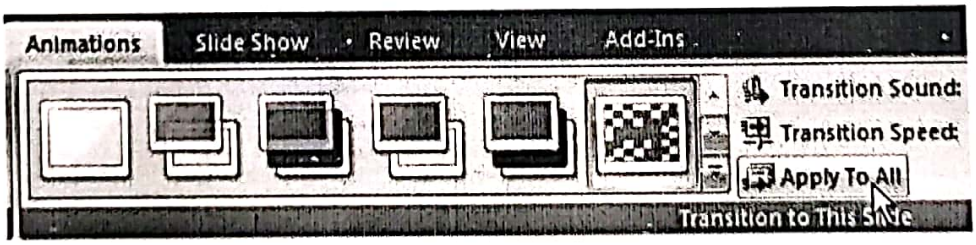
To apply a slide transition to all slides:

Select the **slide** you want to modify. Select the **Animations** tab.

Locate the **Transition to This Slide** group. By default, **No Transition** is applied to each slide.

Click the **More** drop-down arrow to display all transition effects. Click a **slide transition effect** to apply it to the selected slide.

Click **Apply To All** to apply the transition to all slides in the presentation.

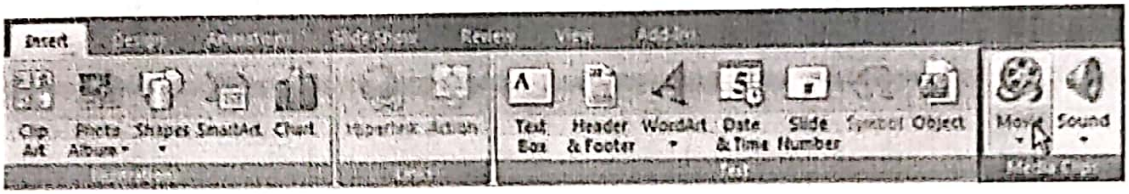


How to insert Audio and Video files from system into the Presentation.

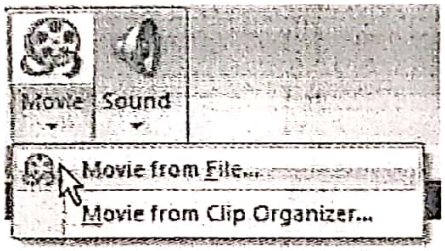
To Insert A Movie From A File On Your Computer:

Select the **slide** where you want to insert the movie. Select the **Insert** tab.

Click the drop-down arrow on the **Movie** command in the **Media Clips** group.



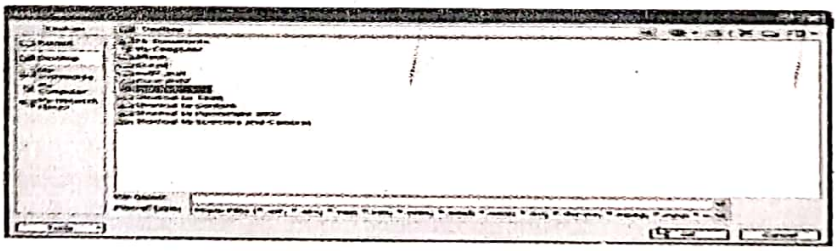
Select **Insert a Movie from File** from the menu. The Insert Movie dialog box will appear.



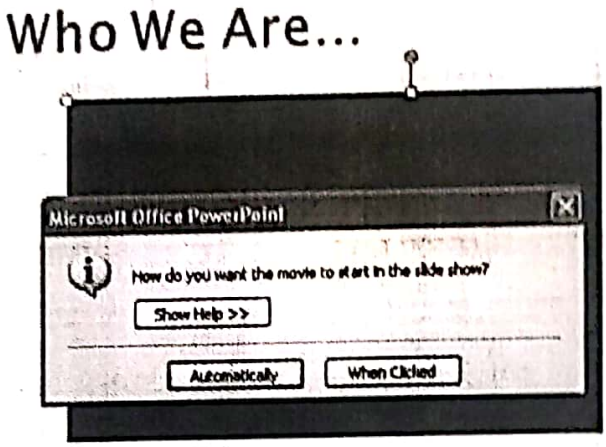
Locate the file you want to insert from your computer.

Click the **file name.**

Click **OK.** The movie will appear on the slide. The Movie Tools Options tab and Picture Tools Format tab appear on the Ribbon when the movie is inserted.



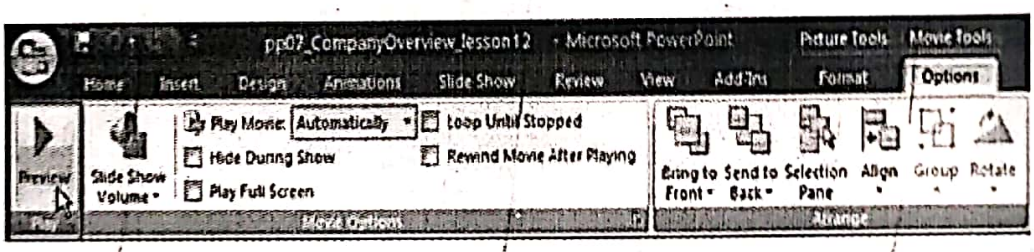
A dialog box will appear. Click **Automatically** or **When Clicked.** Automatically will start the movie automatically as soon as the slide appears in Slide Show view, while When Clicked will start the movie when you click.



To Preview The Movie:

Select the movie on the slide. Select the **Options** tab.

Click the **Preview** command in the **Play** group.

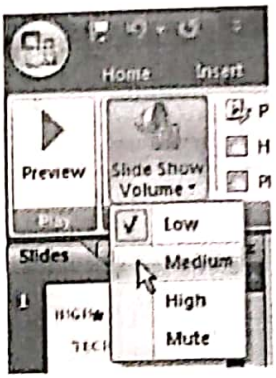


Press the **Preview** command again to stop the movie before it finishes playing.

To Change The Movie Volume:

Select the movie on the slide. Select the **Options** tab.

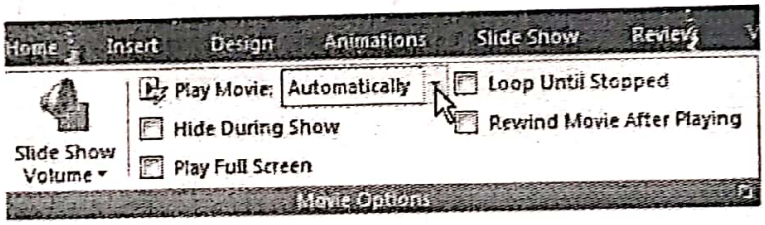
Click the **Slide Show Volume** command in the Movie Options group. Select low, medium, high, or mute to change the movie volume



To Change When The Movie Starts:

Select the movie on the slide. Select the **Options** tab.

Select the drop-down menu next to **Play Movie:** in the Movie Options group to change whether the movie plays **Automatically** or **When Clicked.**



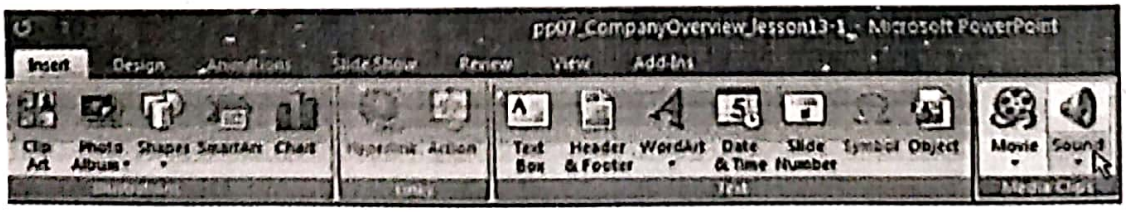
To Delete A Media Clip:

Select the movie from your computer or the clip organizer. Click the **Delete** key.

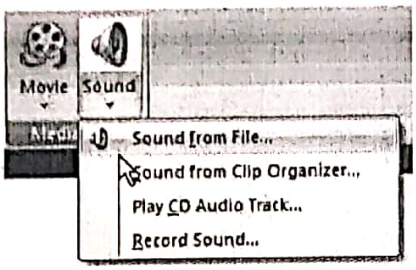
To Insert A Sound File From Your Computer:

Select the slide where you want to add sound. Select the **Insert** tab.

Click the drop-down arrow on the **Sound** command in the Media Clips group.



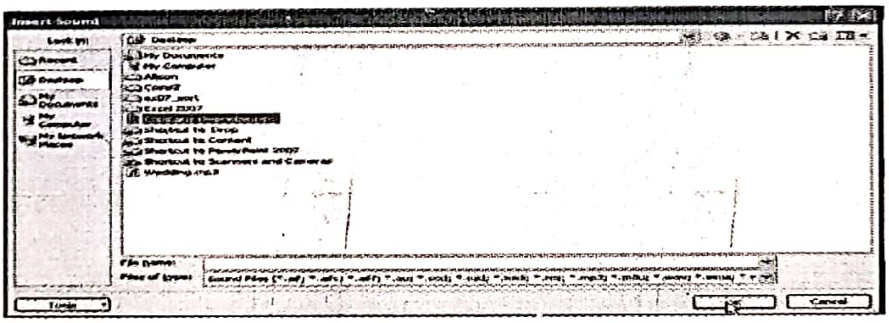
Select **Sound from File** from the menu. The Insert Sound dialog box will appear.



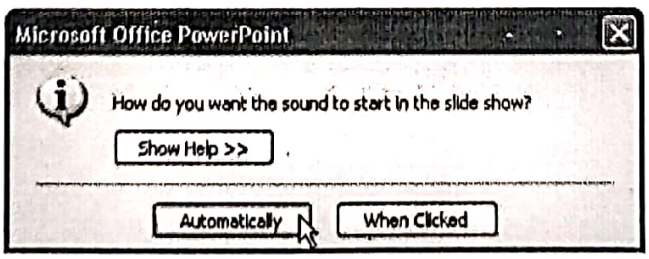
Locate the sound file on your computer.

Select the file.

Click **OK**. A sound icon and a dialog box will appear.



Select **Automatically** or **When Clicked**. Automatically will start the sound automatically as soon as the slide appears in Slide Show view, while When Clicked will start the sound when you click.



To delete the sound:

Select the **sound icon.**

Press the **Delete** key on your keyboard.

MICROSOFT EXCEL

Microsoft Excel is a commercial spreadsheet application, written and distributed by Microsoft for Microsoft Windows and Mac OS X.

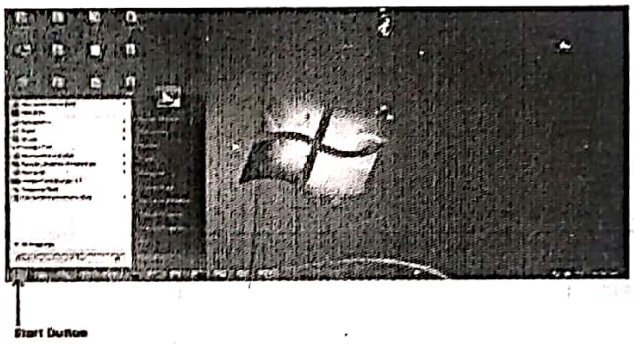
Microsoft Excel is a spreadsheet tool capable of performing calculations, analyzing data and integrating information from different programs.

By default, documents saved in Excel 2010 are saved with the **.xlsx** extension whereas the file extensions of the prior Excel versions are .xls.

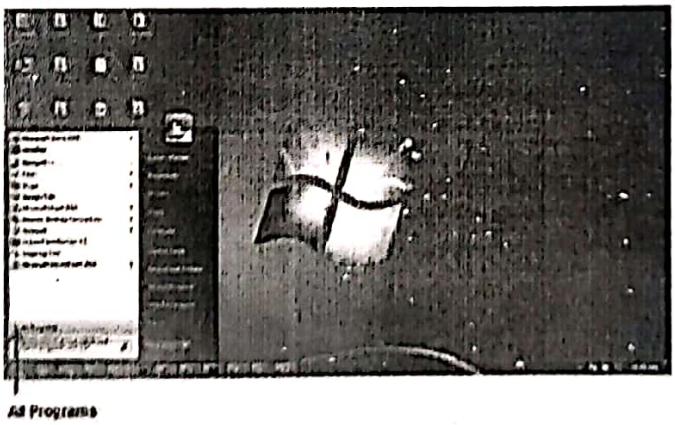
GETTING STARTED WITH EXCEL 2010

This chapter teaches you how to start an excel 2010 application in simple steps. Assuming you have Microsoft Office 2010 installed in your PC, start the excel application following the below mentioned steps in your PC.

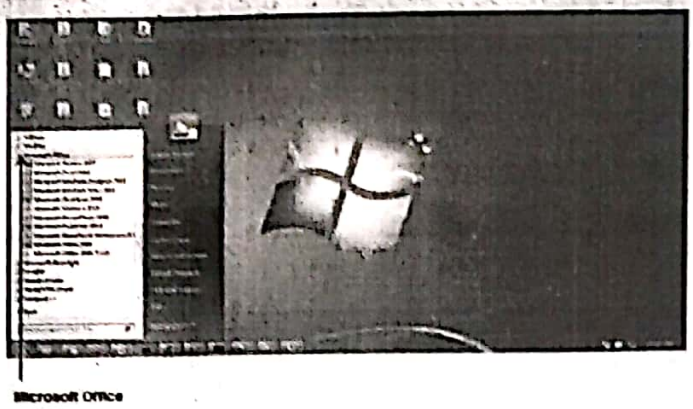
Step 1 – Click on the Start button.



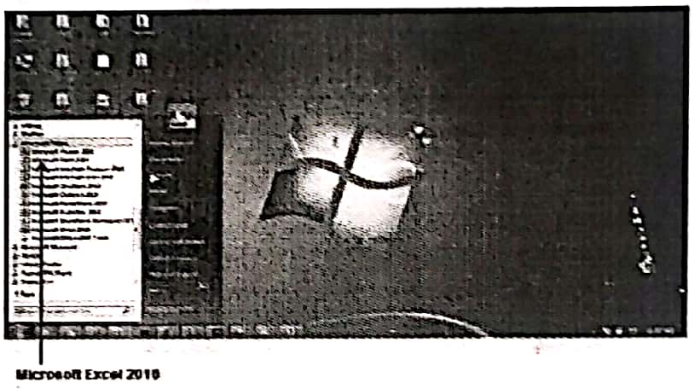
Step 2 – Click on All Programs option from the menu.



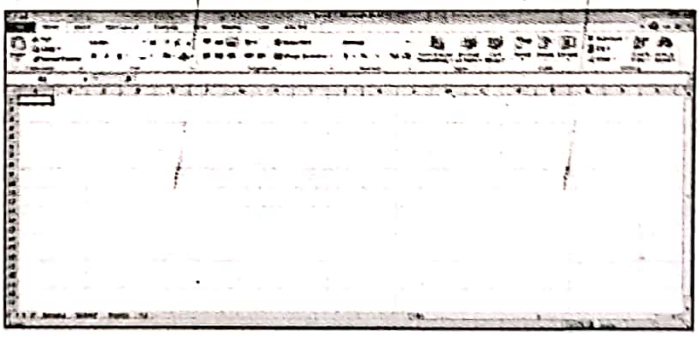
Step 3 – Search for Microsoft Office from the sub menu and click it.



Step 4 – Search for Microsoft Excel 2010 from the submenu and click it.

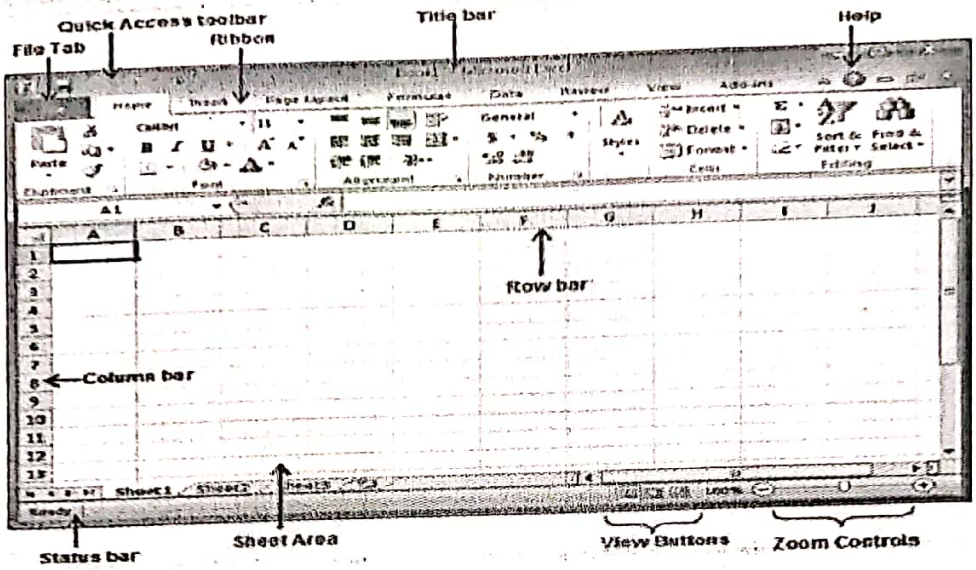


This will launch the Microsoft Excel 2010 application and you will see the following excel window.



EXPLORE WINDOW IN EXCEL 2010

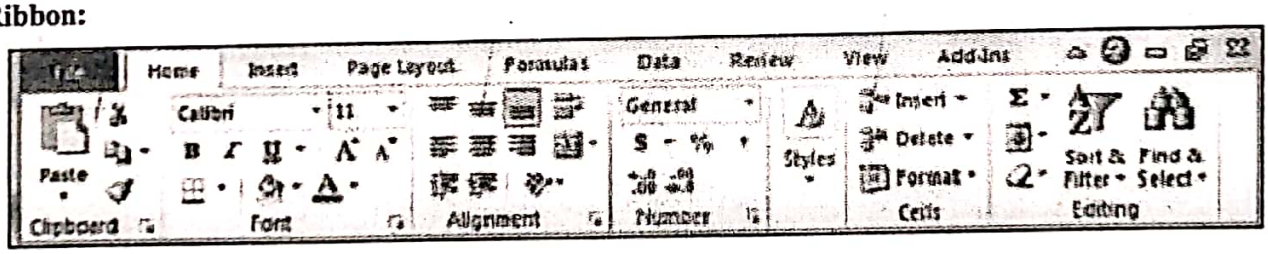
The following basic window appears when you start the excel application. Let us now understand the various important parts of this window.



File Tab: The File tab replaces the Office button from Excel 2007. You can click it to check the backstage view, where you come when you need to open or save files, create new sheets, print a sheet, and do other file-related operations.

Quick Access Toolbar: You will find this toolbar just above the File tab and its purpose is to provide a convenient resting place for the Excel's most frequently used commands. You can customize this toolbar based on your comfort.

Ribbon:



Ribbon contains commands organized in three components –

i) Tabs – They appear across the top of the Ribbon and contain groups of related commands. Home, Insert, Page Layout is the examples of ribbon tabs.

ii) Groups – They organize related commands; each group name appears below the group on the Ribbon. For example, group of commands related to fonts or group of commands related to alignment etc.

iii) Commands – Commands appear within each group as mentioned above.

Title Bar: This lies in the middle and at the top of the window. Title bar shows the program and the sheet titles.

Help: The Help Icon can be used to get excel related help anytime you like. This provides nice tutorial on various subjects related to excel.

Zoom Control: Zoom control lets you zoom in for a closer look at your text. The zoom control consists of a slider that you can slide left or right to zoom in or out. The + buttons can be clicked to increase or decrease the zoom factor.

View Buttons: The group of three buttons located to the left of the Zoom control, near the bottom of the screen, lets you switch among excel's various sheet views.

i) Normal Layout view – This displays the page in normal view.

ii) Page Layout view – This displays pages exactly as they will appear when printed. This gives a full screen look of the document.

iii) Page Break view – This shows a preview of where pages will break when printed.

Sheet Area: The area where you enter data. The flashing vertical bar is called the insertion point and it represents the location where text will appear when you type.

Row Bar: Rows are numbered from 1 onwards and keeps on increasing as you keep entering data. Maximum limit is 1,048,576 rows.

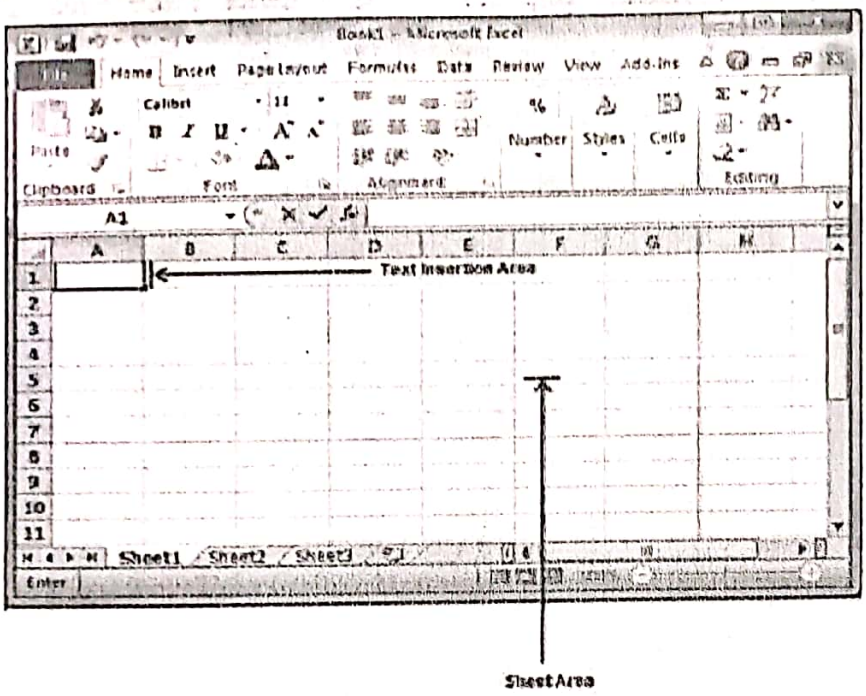
Column Bar: Columns are numbered from A onwards and keeps on increasing as you keep entering data. After Z, it will start the series of AA, AB and so on. Maximum limit is 16,384 columns.

Status Bar: This displays the sheet information as well as the insertion point location. From left to right, this bar can contain the total number of pages and words in the document, language etc.

You can configure the status bar by right-clicking anywhere on it and by selecting or deselecting options from the provided list

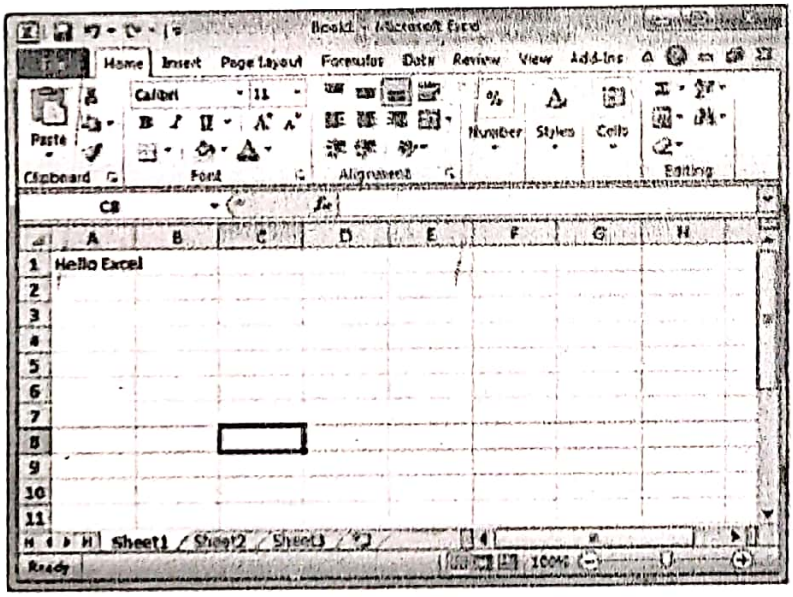
ENTERING VALUES IN EXCEL 2010

Entering values in excel sheet is a child's play and this chapter shows how to enter values in an excel sheet. A new sheet is displayed by default when you open an excel sheet as shown in the below screen shot.



Sheet area is the place where you type your text. The flashing vertical bar is called the insertion point and it represents the location where text will appear when you type. When you click on a box then the box is highlighted. When you double click the box, the flashing vertical bar appears and you can start entering your data.

So, just keep your mouse cursor at the text insertion point and start typing whatever text you would like to type. We have typed only two words "Hello Excel" as shown below. The text appears to the left of the insertion point as you type.



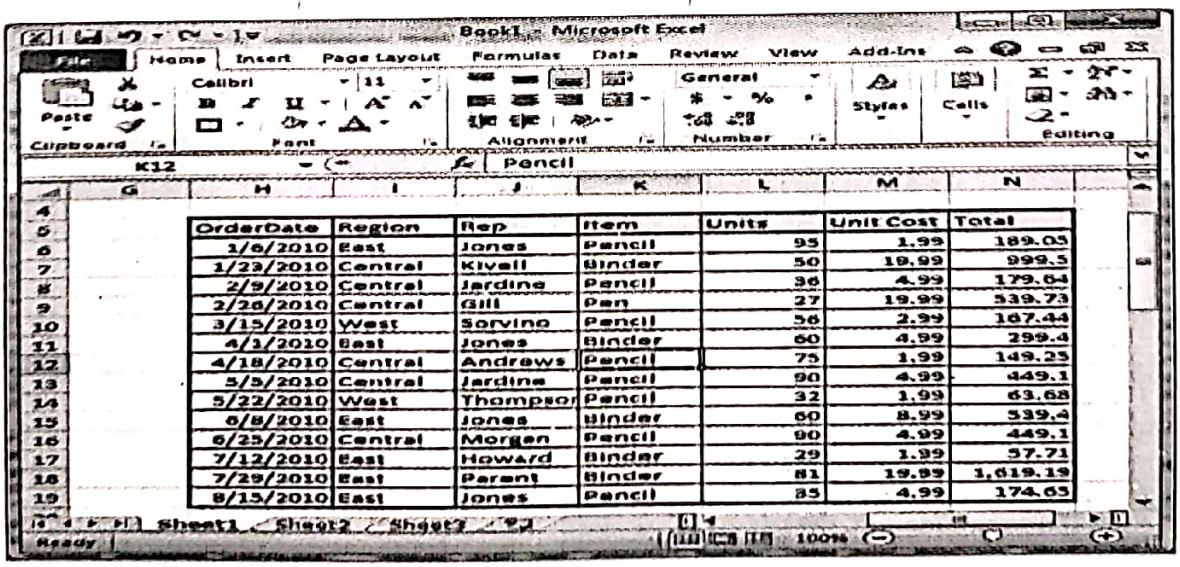
There are following three important points, which would help you while typing –

- Press Tab to go to next column.
- Press Enter to go to next row.
- Press Alt + Enter to enter a new line in the same column.

Excel provides a number of ways to move around a sheet using the mouse and the keyboard.

First of all, let us create some sample text before we proceed. Open a new excel sheet and type any data. We've shown a sample data in the screenshot

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
1/6/2010	East	Jones	Pencil	95	1.99	189.05
1/23/2010	Central	Kivell	Binder	50	19.99	999.5
2/9/2010	Central	Jardine	Pencil	36	4.99	179.64
2/26/2010	Central	Gill	Pen	27	19.99	539.73
3/15/2010	West	Sorvino	Pencil	56	2.99	167.44
4/1/2010	East	Jones	Binder	60	4.99	299.4
4/18/2010	Central	Andrews	Pencil	75	1.99	149.25
5/5/2010	Central	Jardine	Pencil	90	4.99	449.1
5/22/2010	West	Thompson	Pencil	32	1.99	63.68
6/8/2010	East	Jones	Binder	60	8.99	539.4
6/25/2010	Central	Morgan	Pencil	90	4.99	449.1
7/12/2010	East	Howard	Binder	29	1.99	57.71
7/29/2010	East	Parent	Binder	81	19.99	1,619.19
8/15/2010	East	Jones	Pencil	35	4.99	174.65

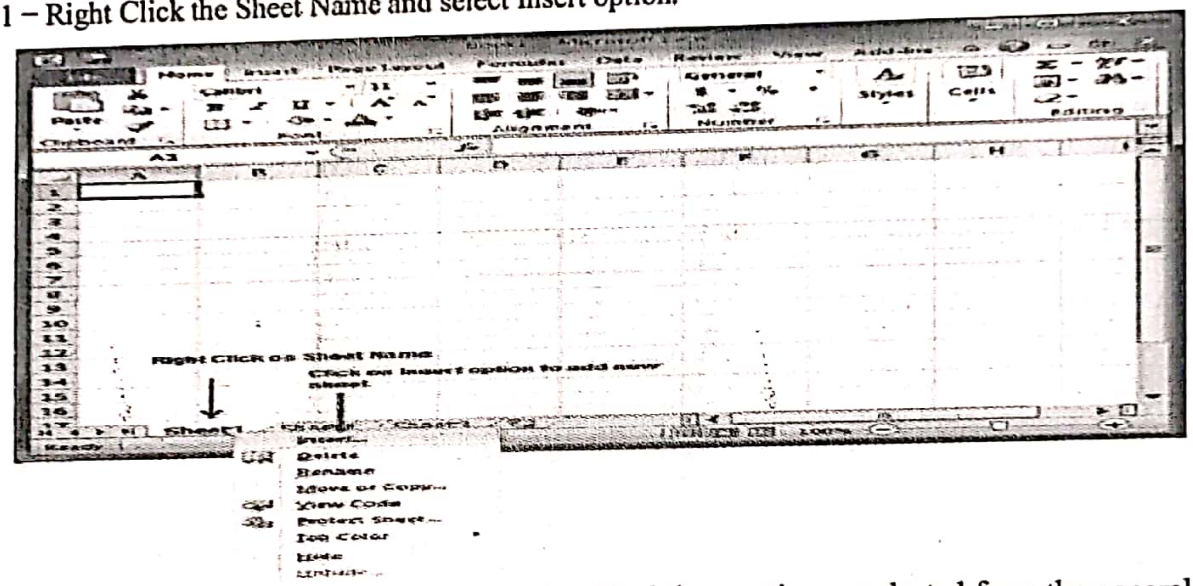


CREATE WORKSHEET IN EXCEL 2010

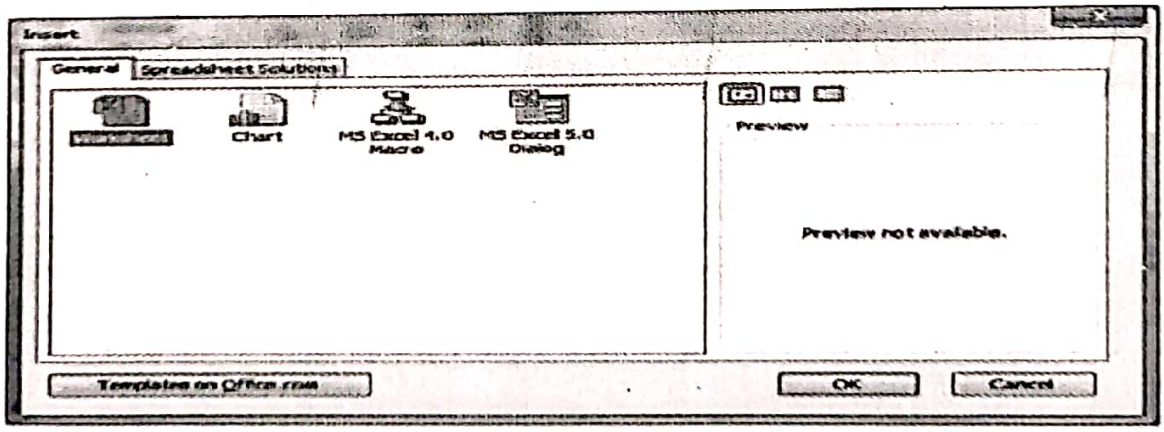
Creating New Worksheet

Three new blank sheets always open when you start Microsoft Excel. Below steps explain you how to create a new worksheet if you want to start another new worksheet while you are working on a worksheet, or you closed an already opened worksheet and want to start a new worksheet.

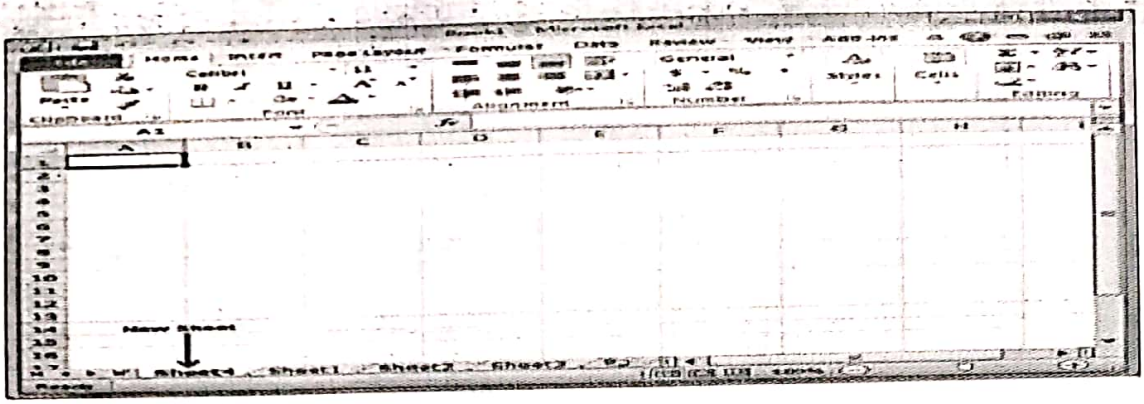
Step 1 – Right Click the Sheet Name and select Insert option.



Step 2 – Now you'll see the Insert dialog with select Worksheet option as selected from the general tab. Click the Ok button.



Now you should have your blank sheet as shown below ready to start typing your text.



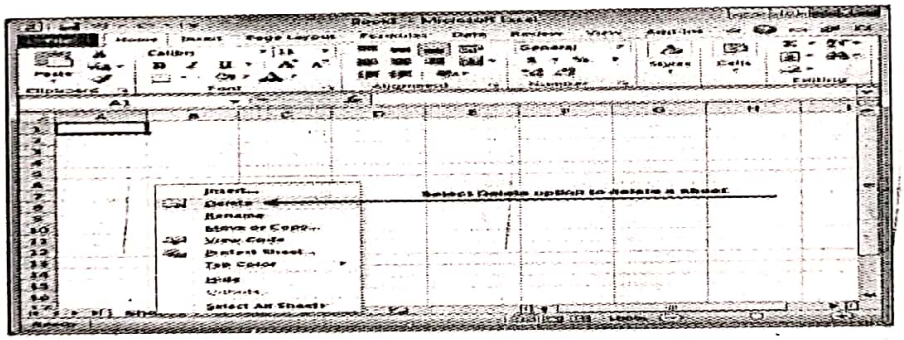
You can use a short cut to create a blank sheet anytime. Try using theShift+F11 keys and you will see a new blank sheet similar to the above sheet is opened

DELETE WORKSHEET IN EXCEL 2010

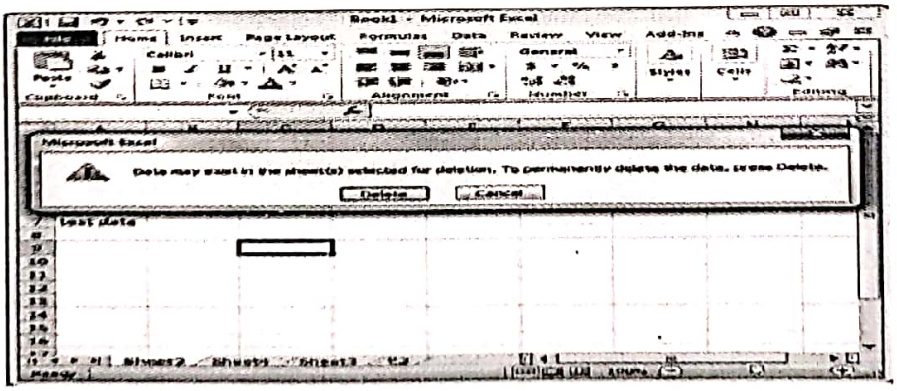
Delete Worksheet

Here is the step to delete a worksheet.

Step – Right Click the Sheet Name and select the Delete option.



Sheet will get deleted if it is empty, otherwise you'll see a confirmation message.



Press the Delete Button.

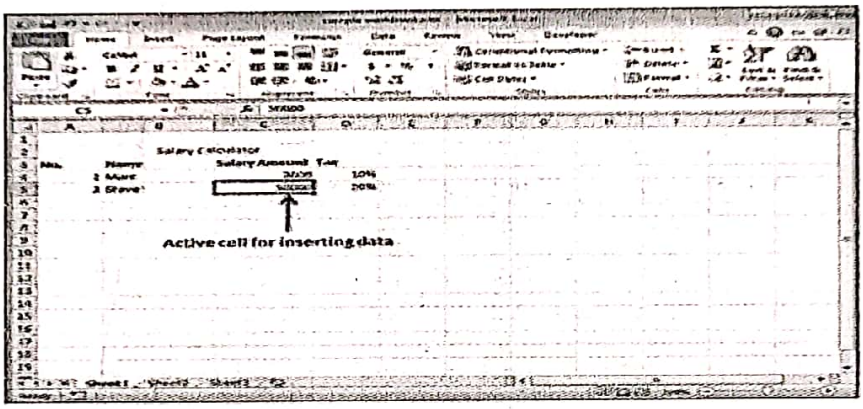
Now your worksheet will get deleted.

INSERT DATA IN EXCEL 2010

In MS Excel, there are 1048576*16384 cells. MS Excel cell can have Text, Numeric value or formulas. An MS Excel cell can have maximum of 32000 characters

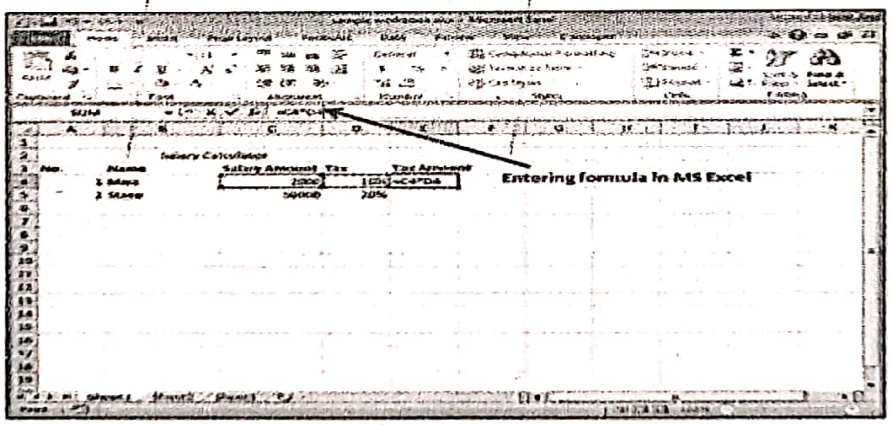
Inserting Data

For inserting data in MS Excel, just activate the cell type text or number and press enter or Navigation keys.



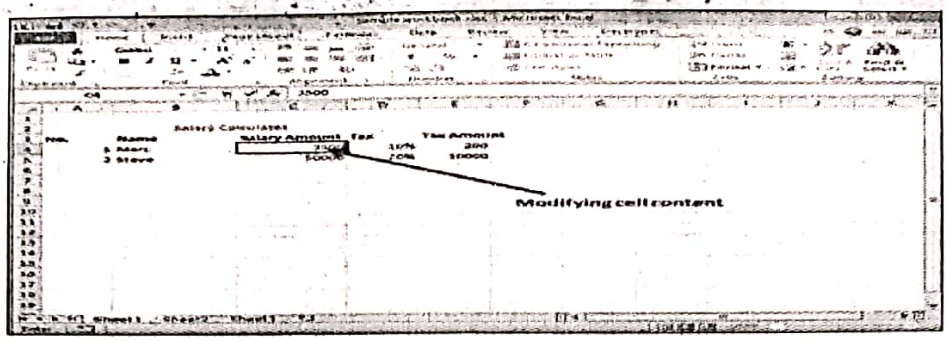
Inserting Formula

For inserting formula in MS Excel go to the formula bar, enter the formula and then press enter or navigation key. See the screen-shot below to understand it.



Modifying Cell Content

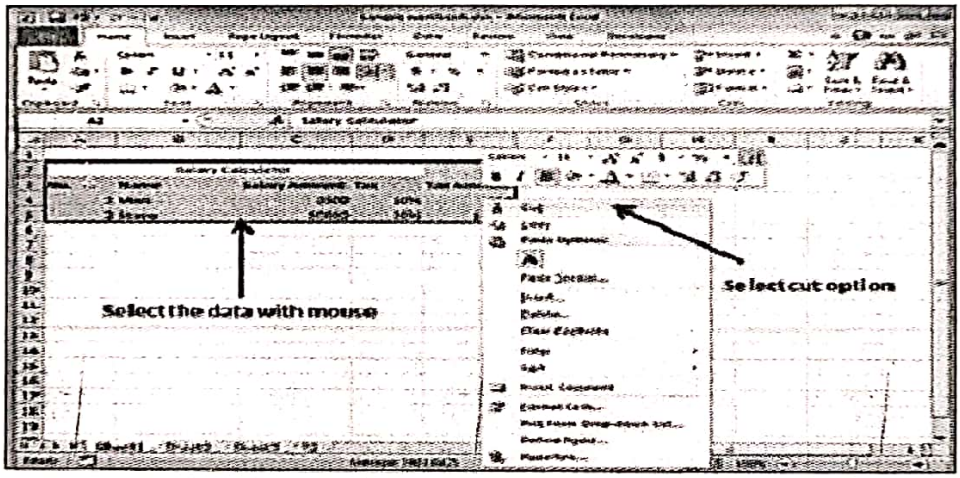
For modifying the cell content just activate the cell, enter a new value and then press enter or navigation key to see the changes. See the screen-shot below to understand it.



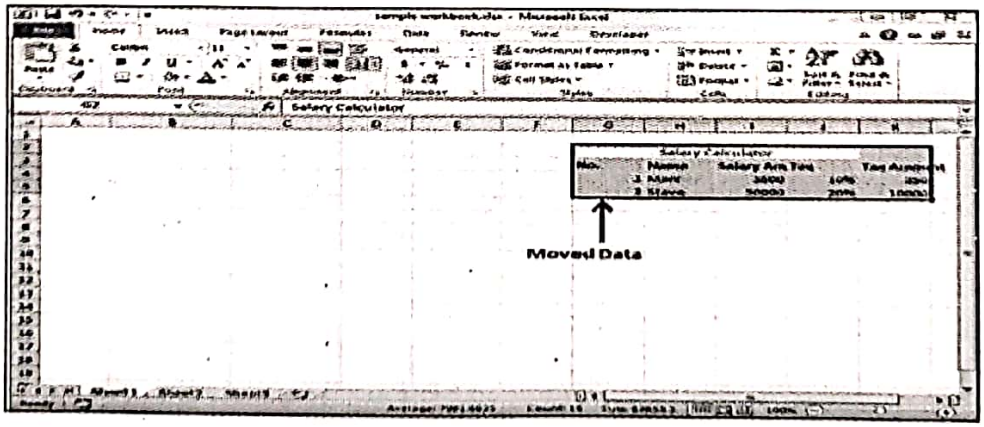
MOVE DATA IN EXCEL 2010

Let us see how we can Move Data with MS Excel.

Step 1 – Select the data you want to Move. Right Click and Select the cut option.



Step 2 – Select the first cell where you want to move the data. Right click on it and paste the data. You can see the data is moved now.



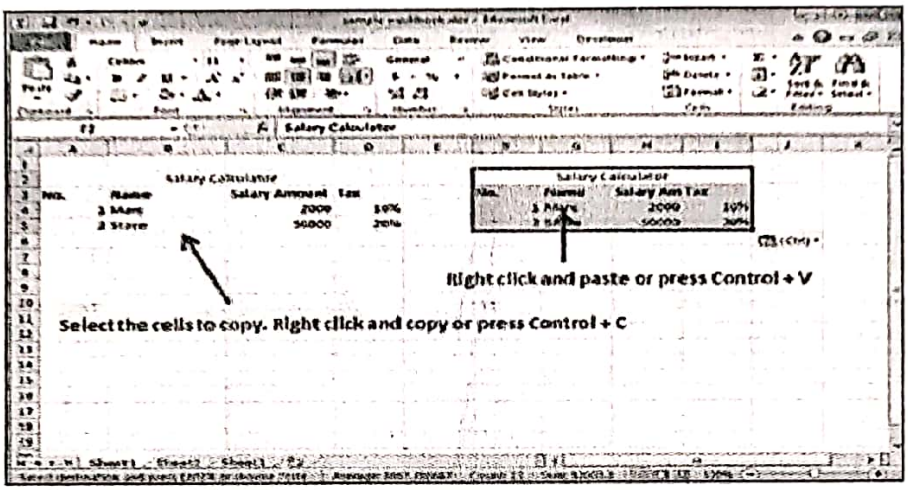
COPY & PASTE IN EXCEL 2010

MS Excel provides copy paste option in different ways. The simplest method of copy paste is as below.

Copy Paste

To copy and paste, just select the cells you want to copy. Choose copy option after right click or press Control + C.

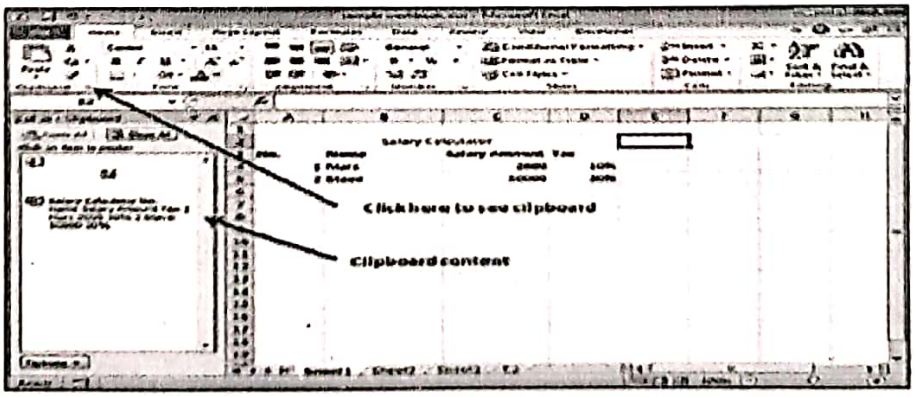
Select the cell where you need to paste this copied content. Right click and select paste option or press Control + V.



In this case, MS Excel will copy everything such as values, formulas, Formats, Comments and validation. MS Excel will overwrite the content with paste. If you want to undo this, press Control + Z from the keyboard.

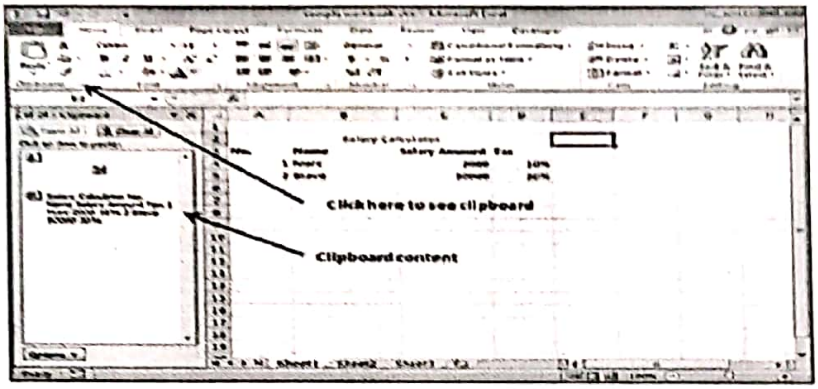
Copy Paste using Office Clipboard

When you copy data in MS Excel, it puts the copied content in Windows and Office Clipboard. You can view the clipboard content by Home → Clipboard. View the clipboard content. Select the cell where you need to paste. Click on paste, to paste the content.



Copy Paste in Special way

You may not want to copy everything in some cases. For example, you want to copy only Values or you want to copy only the formatting of cells. Select the paste special option as shown below.



Below are the various options available in paste special:

All – Pastes the cell's contents, formats, and data validation from the Windows Clipboard.

Formulas – Pastes formulas, but not formatting.

Values – Pastes only values not the formulas.

Formats – Pastes only the formatting of the source range.

Comments – Pastes the comments with the respective cells.

Validation – Pastes validation applied in the cells.

All using source theme – Pastes formulas, and all formatting.

All except borders – Pastes everything except borders that appear in the source range.

Column Width – Pastes formulas, and also duplicates the column width of the copied cells.

Formulas & Number Formats – Pastes formulas and number formatting only.

Values & Number Formats – Pastes the results of formulas, plus the number.

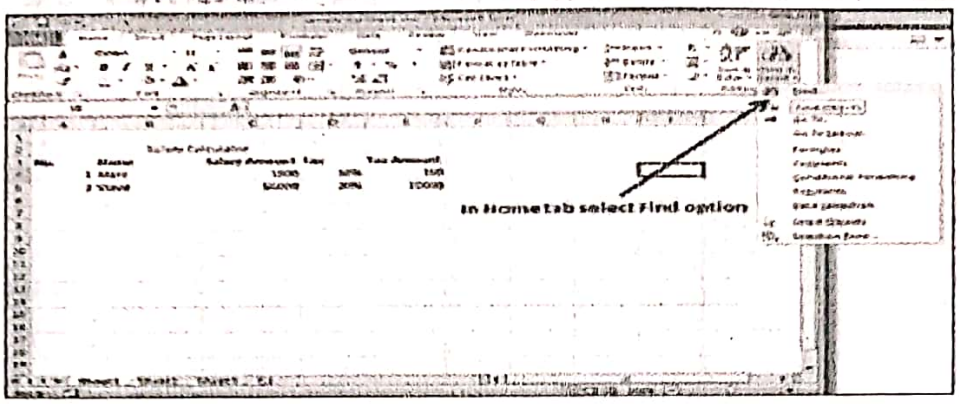
FIND & REPLACE IN EXCEL 2010

MS Excel provides Find & Replace option for finding text within the sheet.

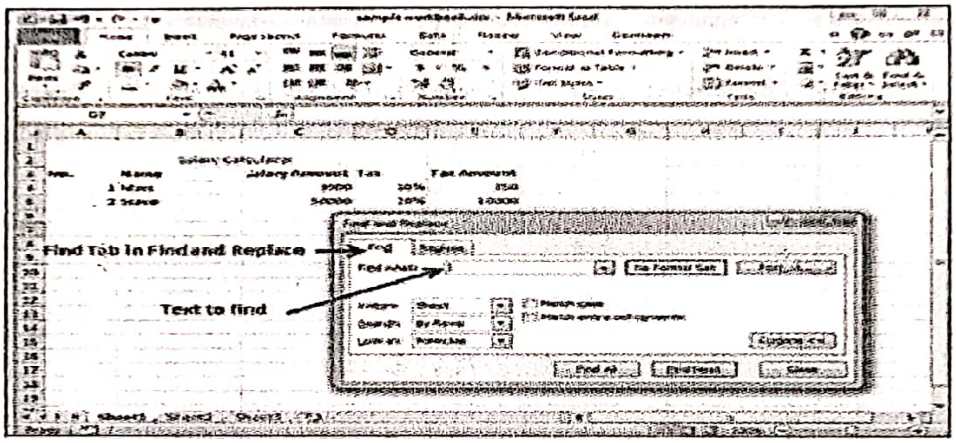
Find and Replace Dialogue

Let us see how to access the Find & Replace Dialogue.

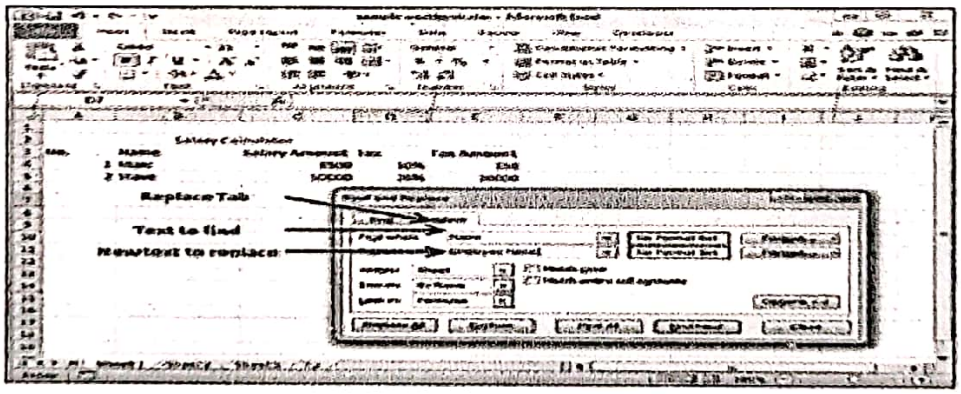
To access the Find & Replace, Choose Home → Find & Select → Find or press Control + F Key. See the image below.



You can see the Find and Replace dialogue as below.



You can replace the found text with the new text in the Replace tab.



Exploring Options

Now, let us see the various options available under the Find dialogue.

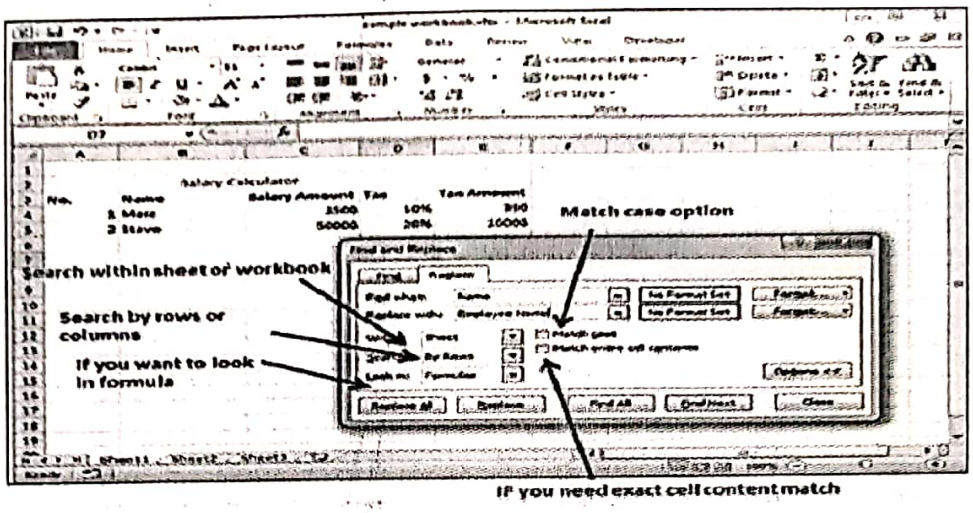
Within – Specifying the search should be in Sheet or workbook.

Search By – Specifying the internal search method by rows or by columns.

Look In – If you want to find text in formula as well, then select this option.

Match Case – If you want to match the case like lower case or upper case of words, then check this option.

Match Entire Cell Content – If you want the exact match of the word with cell, then check this option.



CREATING FORMULAS IN EXCEL 2010

Formulas in MS Excel

Formulas are the Bread and butter of worksheet. Without formula, worksheet will be just simple tabular representation of data. A formula consists of special code, which is entered into a cell. It performs some calculations and returns a result, which is displayed in the cell.

Formulas use a variety of operators and worksheet functions to work with values and text. The values and text used in formulas can be located in other cells, which makes changing data easy and gives worksheets their dynamic nature. For example, you can quickly change the data in a worksheet and formulas works.

Elements of Formulas

A formula can consist of any of these elements –

1) Mathematical operators, such as + (for addition) and *(for multiplication)

Example: =A1+A2 Adds the values in cells A1 and A2.

2) Values or text

Example: =200*0.5 Multiplies 200 times 0.15. This formula uses only values, and it always returns the same result as 100.

3) Cell references (including named cells and ranges)

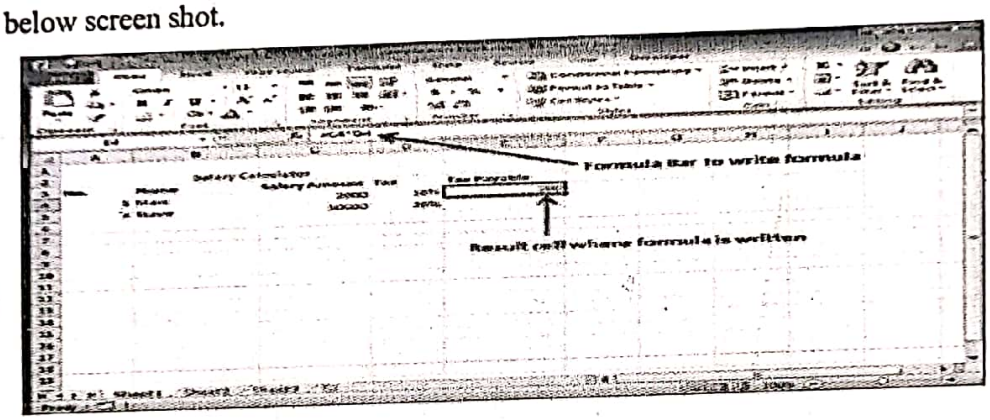
Example: =A1=C12 Compares cell A1 with cell C12. If the cells are identical, the formula returns TRUE; otherwise, it returns FALSE.

4) Worksheet functions (such as SUM or AVERAGE)

Example: =SUM (A1:A12) Adds the values in the range A1:A12.

Creating Formula

For creating a formula you need to type in the Formula Bar. Formula begins with '=' sign. When building formulas manually, you can either type in the cell addresses or you can point to them in the worksheet. Using the Pointing method to supply the cell addresses for formulas is often easier and more powerful method of formula building. When you are using built-in functions, you click the cell or drag through the cell range that you want to use when defining the function's arguments in the Function Arguments dialog box. See the below screen shot.



As soon as you complete a formula entry, Excel calculates the result, which is then displayed inside the cell within the worksheet (the contents of the formula, however, continue to be visible on the Formula bar anytime the cell is active). If you make an error in the formula that prevents Excel from being able to calculate the formula at all, Excel displays an Alert dialog box suggesting how to fix the problem.

COPYING FORMULAS IN EXCEL 2010

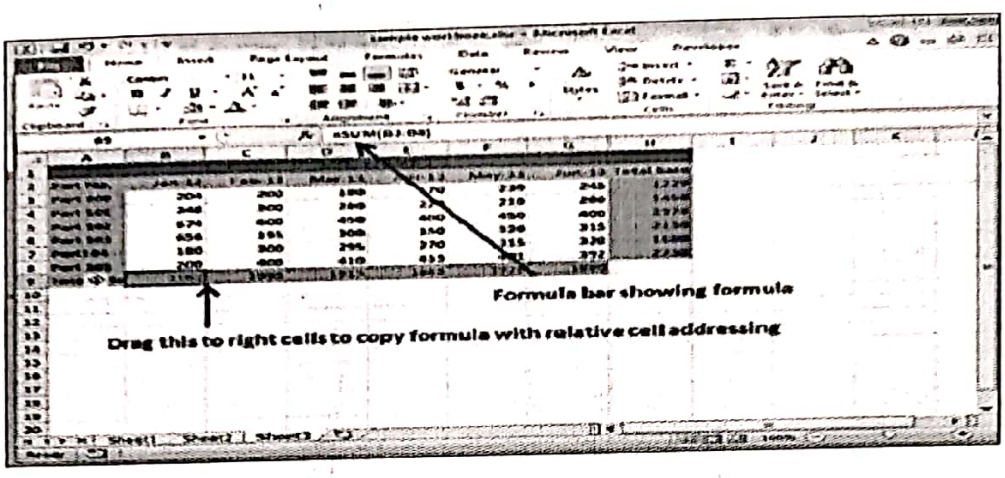
Copying Formulas in MS Excel

Copying formulas is one of the most common tasks that you do in a typical spreadsheet that relies primarily on formulas. When a formula uses cell references rather than constant values, Excel makes the task of copying an original formula to every place that requires a similar formula.

Relative Cell Addresses

MS Excel does it automatically adjusting the cell references in the original formula to suit the position of the copies that you make. It does this through a system known as relative cell addresses, where by the column references in the cell address in the formula change to suit their new column position and the row references change to suit their new row position.

Let us see this with the help of example. Suppose we want the sum of all the rows at last, then we will write a formula for first column i.e. B. We want sum of the rows from 3 to 8 in the 9th row.



After writing formula in the 9th row, we can drag it to remaining columns and the formula gets copied. After dragging we can see the formula in the remaining columns as below.

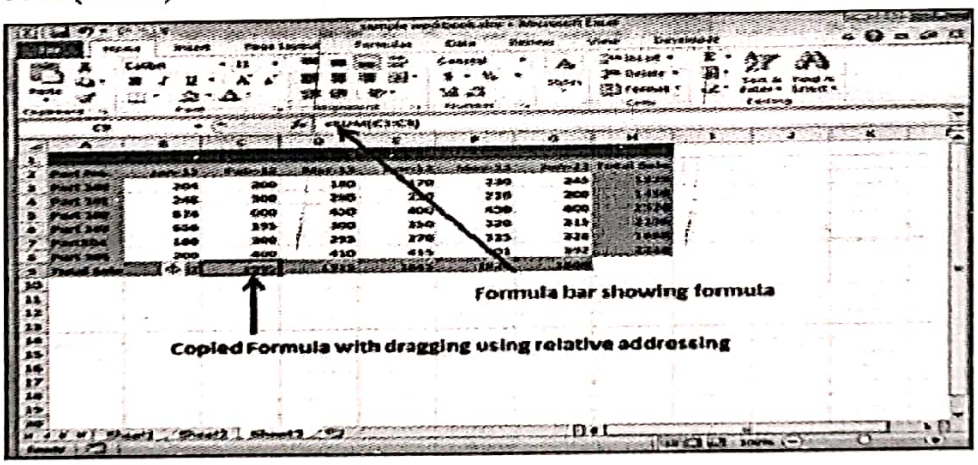
Column C: =SUM (C3:C8)

Column D: =SUM (D3:D8)

Column E: =SUM (E3:E8)

Column F: =SUM (F3:F8)

Column G: =SUM (G3:G8)



FORMULA REFERENCE IN EXCEL 2010

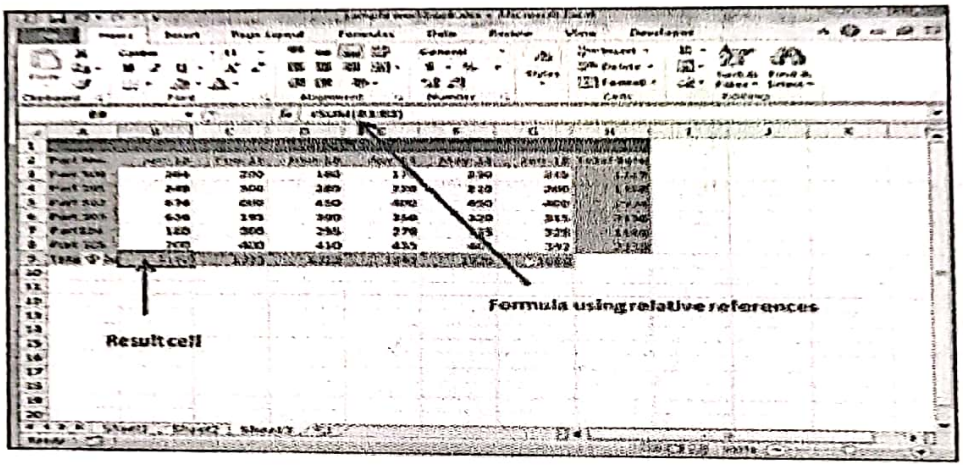
Cell References in Formulas

Most formulas you create include references to cells or ranges. These references enable your formulas to work dynamically with the data contained in those cells or ranges. For example, if your formula refers to cell C2 and you change the value contained in C2, the formula result reflects new value automatically. If you didn't use references in your formulas, you would need to edit the formulas themselves in order to change the values used in the formulas.

When you use a cell (or range) reference in a formula, you can use three types of references – relative, absolute, and mixed references.

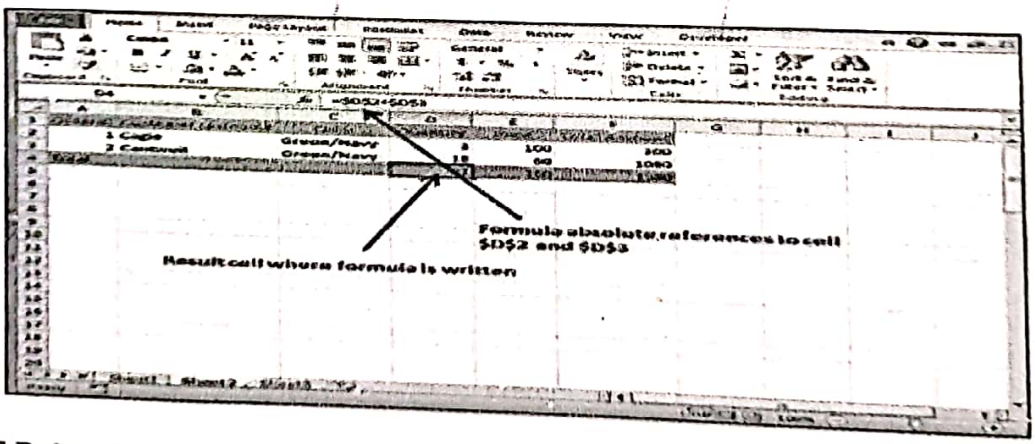
Relative Cell References

The row and column references can change when you copy the formula to another cell because the references are actually offsets from the current row and column. By default, Excel creates relative cell references in formulas. .



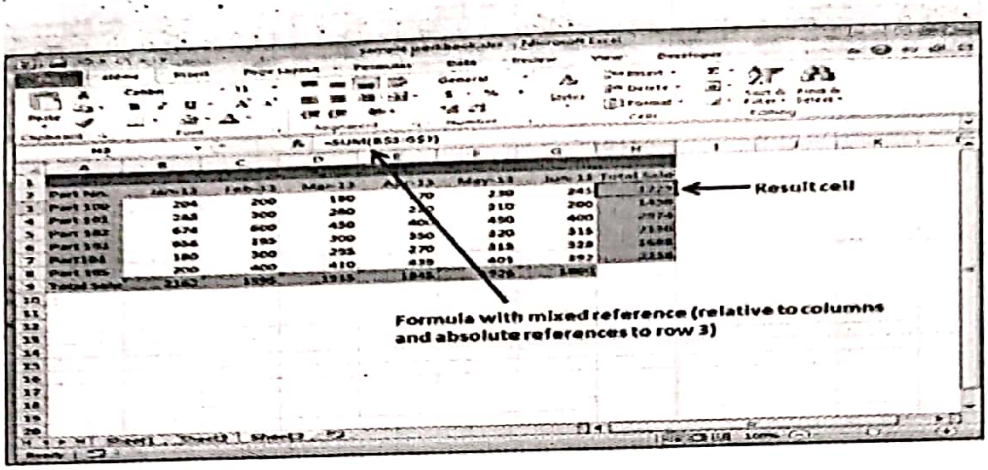
Absolute Cell References

The row and column references do not change when you copy the formula because the reference is to an actual cell address. An absolute reference uses two dollar signs in its address: one for the column letter and one for the row number (for example, A5).



Mixed Cell References

Both the row or column reference is relative and the other is absolute. Only one of the address parts is absolute (for example, $A5 or A$5).



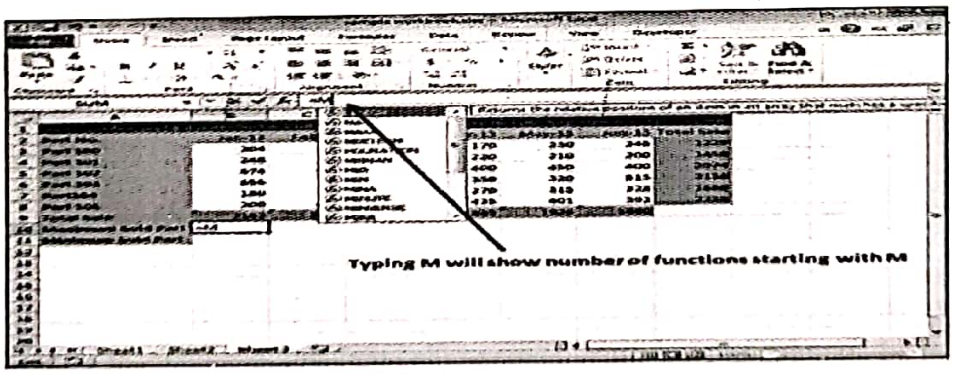
USING FUNCTIONS IN EXCEL 2010

Functions in Formula

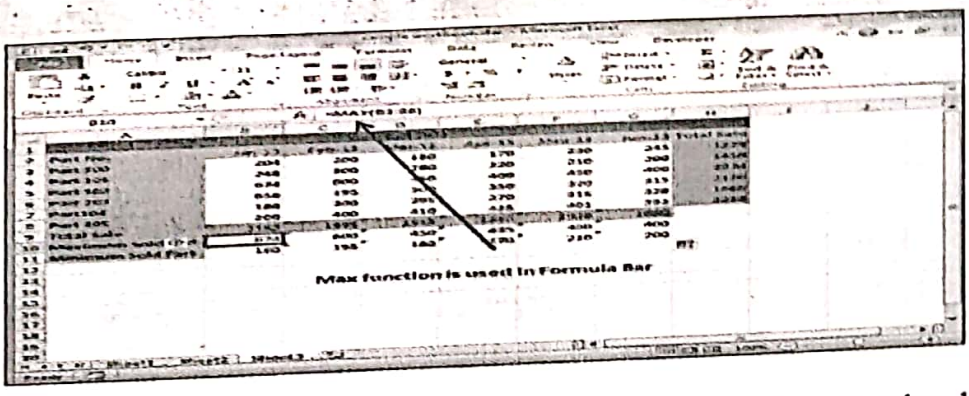
Many formulas you create use available worksheet functions. These functions enable you to greatly enhance the power of your formulas and perform calculations that are difficult if you use only the operators. For example, you can use the LOG or SIN function to calculate the Logarithm or Sin ratio. You can't do this complicated calculation by using the mathematical operators alone.

Using Functions

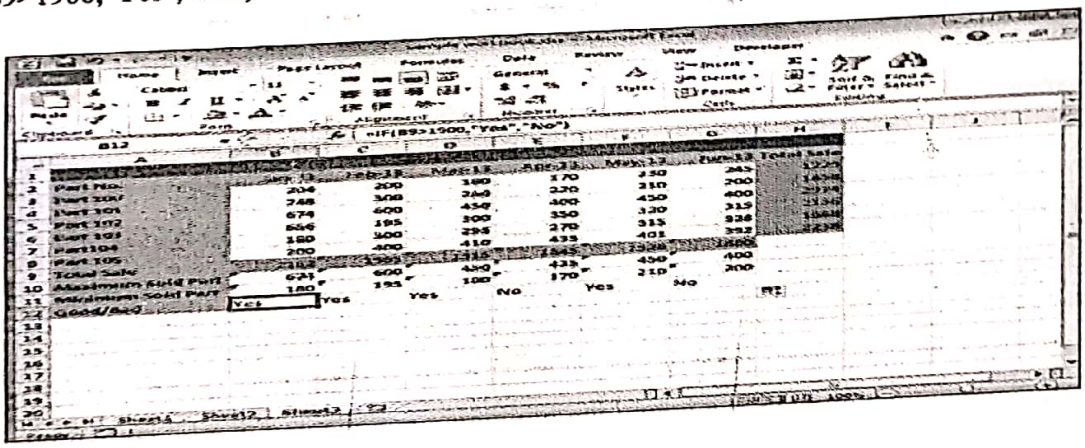
When you type = sign and then type any alphabet you will see the searched functions as below.



Suppose you need to determine the largest value in a range. A formula can't tell you the answer without using a function. We will use formula that uses the MAX function to return the largest value in the range B3:B8 as =MAX (A1:D100).



Another example of functions. Suppose you want to find if the cell of month is greater than 1900 then we can give Bonus to Sales representative. The we can achieve it with writing formula with IF functions as=IF (B9>1900,"Yes","No")



Function Arguments

In the above examples, you may have noticed that all the functions used parentheses. The information inside the parentheses is the list of arguments.

Functions vary in how they use arguments. Depending on what it has to do, a function may use.

No arguments – Examples – Now (), Date (), etc.

One argument – UPPER (), LOWER (), etc.

A fixed number of arguments – IF (), MAX (), MIN (), AVERGAGE (), etc.

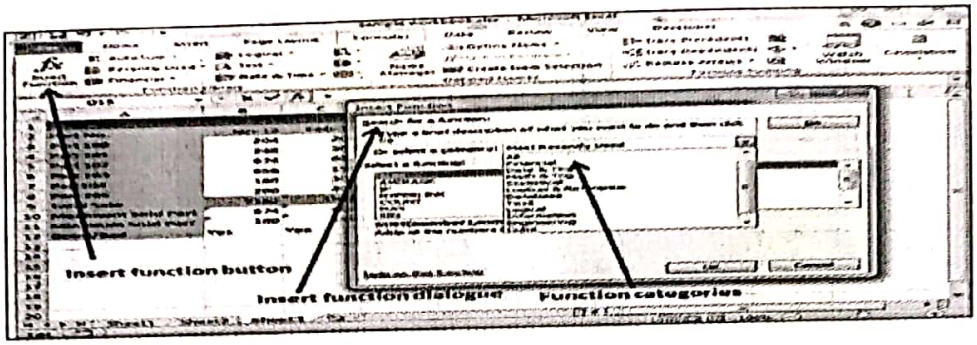
Infinite number of arguments

Optional arguments

BUILT-IN FUNCTIONS IN EXCEL 2010

Built In Functions

MS Excel has many built in functions, which we can use in our formula. To see all the functions by category, choose Formulas Tab » Insert Function. Then Insert function Dialog appears from which we can choose the function.



Functions by Categories

Let us see some of the built in functions in MS Excel.

Text Functions

LOWER – Converts all characters in a supplied text string to lower case

UPPER – Converts all characters in a supplied text string to upper case

TRIM – Removes duplicate spaces, and spaces at the start and end of a text string

CONCATENATE – Joins together two or more text strings.

LEFT – Returns a specified number of characters from the start of a supplied text string.

MID – Returns a specified number of characters from the middle of a supplied text string

RIGHT – Returns a specified number of characters from the end of a supplied text string.

LEN – Returns the length of a supplied text string

FIND – Returns the position of a supplied character or text string from within a supplied text string (case-sensitive).

Date & Time

DATE – Returns a date, from a user-supplied year, month and day.

TIME – Returns a time, from a user-supplied hour, minute and second.

DATEVALUE – Converts a text string showing a date, to an integer that represents the date in Excel's date-time code.

TIMEVALUE – Converts a text string showing a time, to a decimal that represents the time in Excel.

NOW – Returns the current date & time.

TODAY – Returns today's date.

Statistical

MAX – Returns the largest value from a list of supplied numbers.

MIN – Returns the smallest value from a list of supplied numbers.

AVERAGE – Returns the Average of a list of supplied numbers.

COUNT – Returns the number of numerical values in a supplied set of cells or values.

COUNTIF – Returns the number of cells (of a supplied range), that satisfies a given criteria.

SUM – Returns the sum of a supplied list of numbers

Logical

AND – Tests a number of user-defined conditions and returns TRUE if ALL of the conditions evaluate to TRUE, or FALSE otherwise

OR – Tests a number of user-defined conditions and returns TRUE if ANY of the conditions evaluate to TRUE, or FALSE otherwise.

NOT – Returns a logical value that is the opposite of a user supplied logical value or expression i.e. returns FALSE if the supplied argument is TRUE and returns TRUE if the supplied argument is FAL

Math & Trig

ABS – Returns the absolute value (i.e. the modulus) of a supplied number.

SIGN – Returns the sign (+1, -1 or 0) of a supplied number.

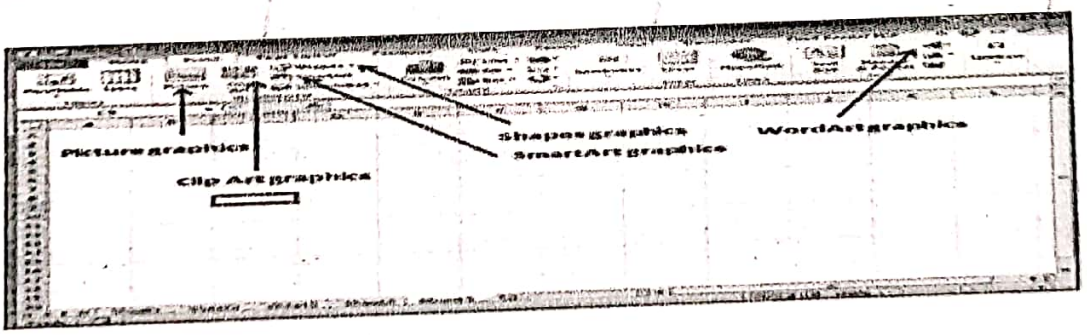
SQRT – Returns the positive square root of a given number.

MOD – Returns the remainder from a division between two supplied numbers.

ADDING GRAPHICS IN EXCEL 2010

Graphic Objects in MS Excel

MS Excel supports various types of graphic objects like Shapes gallery, Smart Art, Text Box, and WordArt available on the Insert tab of the Ribbon. Graphics are available in the Insert Tab. See the screenshots below for various available graphics in MS Excel 2010.

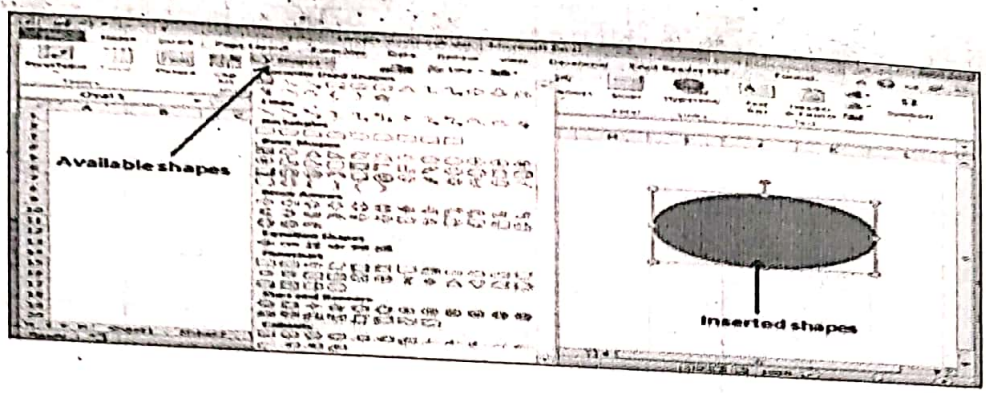


Insert Shape

Choose Insert Tab » Shapes dropdown.

Select the shape you want to insert. Click on shape to insert it.

To edit the inserted shape just drag the shape with the mouse. Shape will adjust the shape.



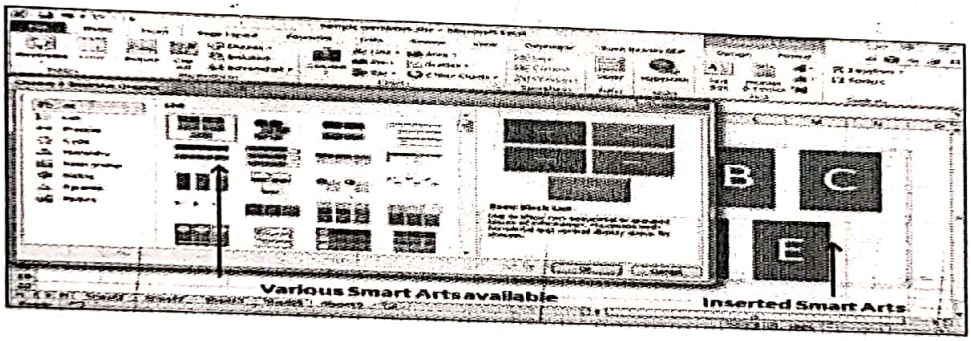
Insert Smart Art

Choose Insert Tab » SmartArt.

Clicking SmartArt will open the SmartArt dialogue as shown below in the screen-shot. Choose from the list of available smartArts.

Click on SmartArt to Insert it in the worksheet.

Edit the SmartArt as per your need.

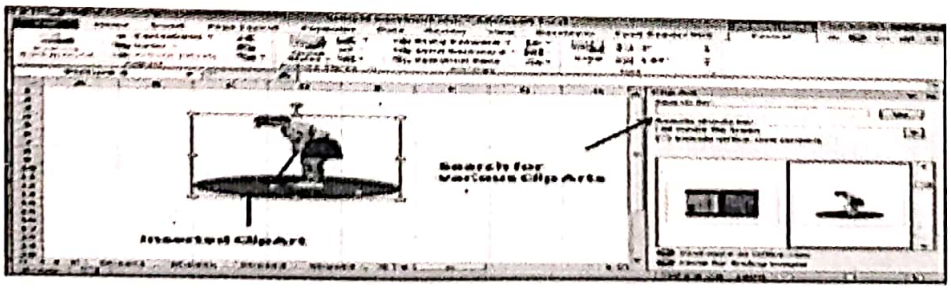


Insert Clip Art

Choose Insert Tab » Clip Art.

Clicking Clip Art will open the search box as shown in the below screen-shot. Choose from the list of available Clip Arts.

Click on Clip Art to Insert it in the worksheet.



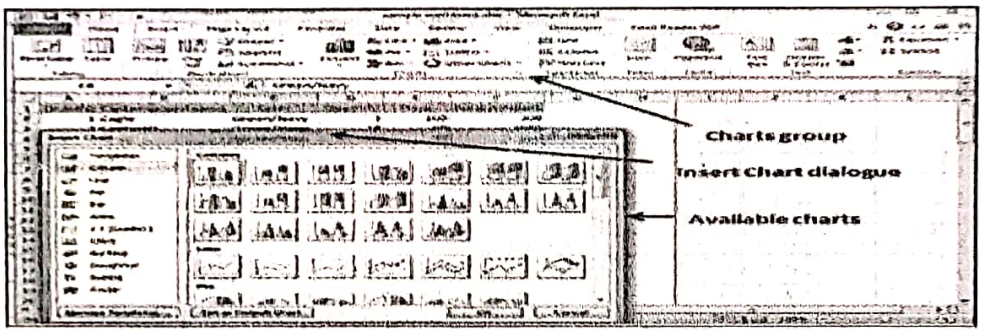
SIMPLE CHARTS IN EXCEL 2010

Charts

A chart is a visual representation of numeric values. Charts (also known as graphs) have been an integral part of spreadsheets. Charts generated by early spreadsheet products were quite crude, but thy have improved significantly over the years. Excel provides you with the tools to create a wide variety of highly customizable charts. Displaying data in a well-conceived chart can make your numbers more understandable. Because a chart presents a picture, charts are particularly useful for summarizing a series of numbers and their interrelationships.

Types of Charts

There are various chart types available in MS Excel as shown in the below screen-shot.



Column – Column chart shows data changes over a period of time or illustrates comparisons among items.

Bar – A bar chart illustrates comparisons among individual items.

Pie – A pie chart shows the size of items that make up a data series, proportional to the sum of the items. It always shows only one data series and is useful when you want to emphasize a significant element in the data.

Line – A line chart shows trends in data at equal intervals.

Area – An area chart emphasizes the magnitude of change over time.

X Y Scatter – An xy (scatter) chart shows the relationships among the numeric values in several data series, or plots two groups of numbers as one series of xy coordinates.

Stock – This chart type is most often used for stock price data, but can also be used for scientific data (for example, to indicate temperature changes).

Surface – A surface chart is useful when you want to find the optimum combinations between two sets of data. As in a topographic map, colors and patterns indicate areas that are in the same range of values.

Doughnut – Like a pie chart, a doughnut chart shows the relationship of parts to a whole; however, it can contain more than one data series.

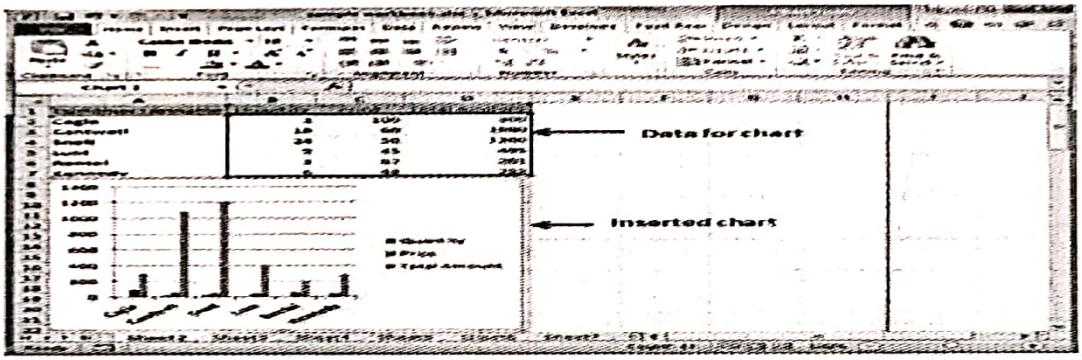
Bubble – Data that is arranged in columns on a worksheet, so that x values are listed in the first column and corresponding y values and bubble size values are listed in adjacent columns, can be plotted in a bubble chart.

Radar – A radar chart compares the aggregate values of a number of data series.

Creating Chart

To create charts for the data by below mentioned steps.

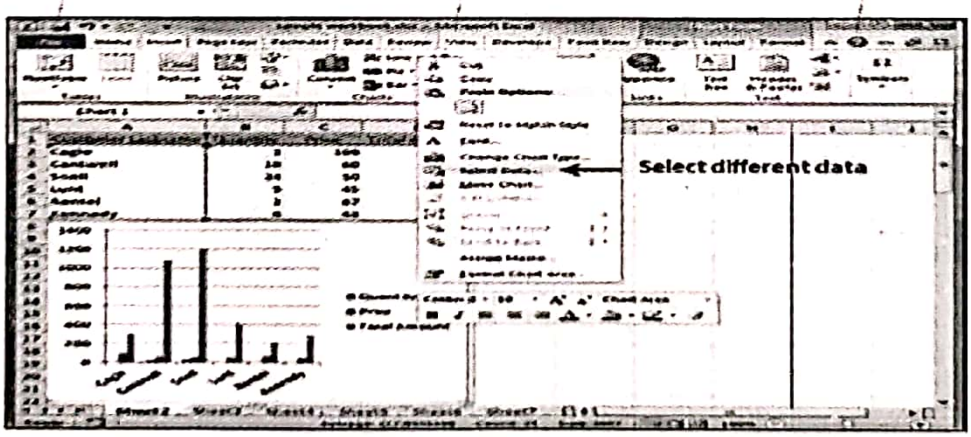
- Select the data for which you want to create the chart.
- Choose Insert Tab » Select the chart or click on the Chart group to see various chart types.
- Select the chart of your choice and click OK to generate the chart.



Editing Chart

You can edit the chart at any time after you have created it.

You can select the different data for chart input with Right click on chart » Select data. Selecting new data will generate the chart as per the new data, as shown in the below screen-shot.



You can change the X axis of the chart by giving different inputs to X-axis of chart.

You can change the Y axis of chart by giving different inputs to Y-axis of chart.

PIVOT CHARTS EXCEL 2010

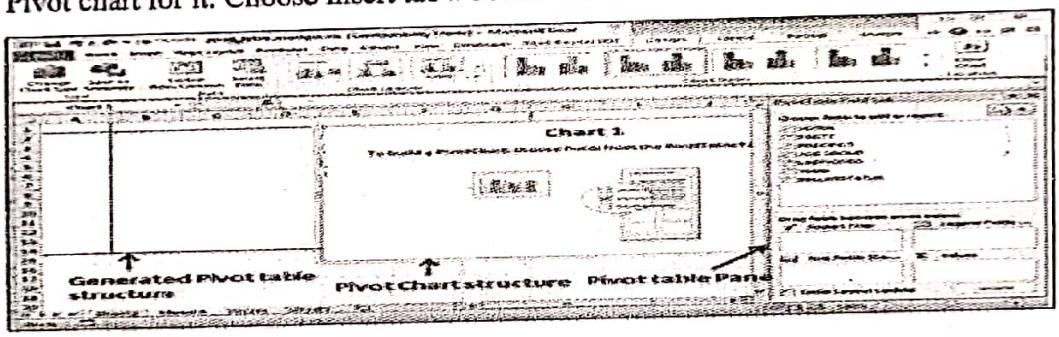
Pivot Charts

A pivot chart is a graphical representation of a data summary, displayed in a pivot table. A pivot chart is always based on a pivot table. Although Excel lets you create a pivot table and a pivot chart at the same time, you can't create a pivot chart without a pivot table. All Excel charting features are available in a pivot chart.

Pivot charts are available under Insert tab » PivotTable dropdown » PivotChart.

Pivot Chart Example

Now, let us see Pivot table with the help of an example. Suppose you have huge data of voters and you want to see the summarized view of the data of voter Information per party in the form of charts, then you can use the Pivot chart for it. Choose Insert tab » Pivot Chart to insert the pivot table.



MS Excel selects the data of the table. You can select the pivot chart location as an existing sheet or a new sheet. Pivot chart depends on automatically created pivot table by the MS Excel. You can generate the pivot chart in the below screen-shot.