Unit 6

OPERATING SYSTEM

Written By: Chaudhary Muhammad Shahbaz Anjum
Reviewed By: Dr. Mohammad Daud Khattak

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OPERATING SYSTEM

6.1. Introduction

This unit covers the basic concept of an operating system and its functionality. This unit also covers basics of commonly used operating systems. It mainly deals with the "Microsoft Windows Practice".

6.2. Objectives:

After complete study of this unit, you will be in position to:

- Describe the basic concept of an operating system
- Identify the functions of an operating system
- Define system performance measures & process management tools
- Explain some popular operating systems
- Explore Microsoft Windows Practice.

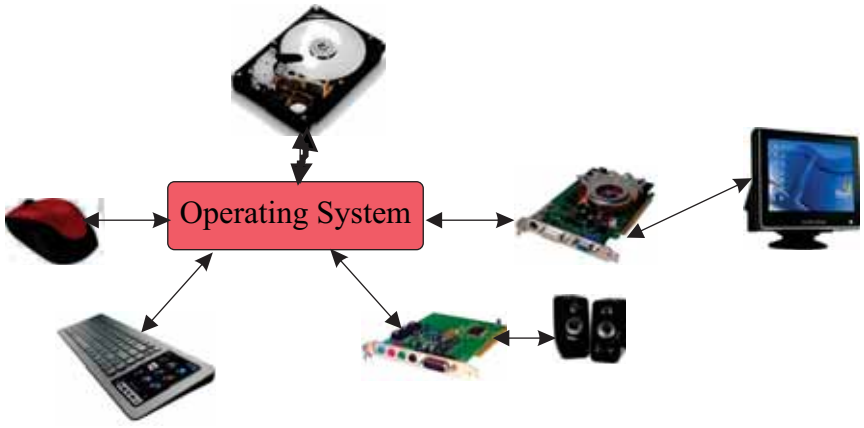
6.3. Introduction

An operating system is the most important and major program that runs on a system (computer). Every computer system must have an operating system in order to run different programs. The operating system is collection of softwares which manage various computer hardware resources. It additionally provides common services to different computer programs.

An operating system performs several tasks such as:

1. Recognize input from a keyboard
2. Send output to a display screen (monitor)
3. Keep track of files as well as directories on a disk
4. Control various peripheral devices like hard drive, printer, video or sound card etc.

A figure named as "Operating System & its Interfaces" shows the above basic concept in a clear way:



Firgure-6.1: "Operating System & its Interfaces"

An operating system generally acts as an " interaction" between computer user and computer hardware. The most observable feature of an operating-system is its interface. The operating system basically provides an environment where users can execute different programs.

As soon as a user turn-on or boot a computer, the operating system is loaded into memory automatically. The term booting basically refers to the complete process of loading any operating system into a computer's memory. This process is usually done through a program (commonly known as boot-strap loader) which is permanently stored in a computer's electronic circuitry (generally on a ROM-chip).

6.4. Types of Operating System

The operating systems are generally categorized into two major types depending on the basis of numerous features such as Graphical User Interface (GUI) Operating-System and Command Line Operating-System. The description of these both types of operating systems is given below:

6.4.1. Graphical User Interface (GUI) Operating-System

A GUI operating-system basically provides a graphical-user-interface to its users in order to communicate with system/computer. In this interface, the icons, menus or graphical objects are being used for issuing commands. The users of GUI operating systems don't need to memorize different commands while interacting with computer. The examples of GUI operating-system include:

- Windows (The windows (operating system) are very popular among all others which will be described in this unit in detail).
- Linux etc.

The best features of graphical-user-interface may include:

- Easy to learn (As it is described above that the users of GUI don't need to memorize different commands while interacting with computer)
- Simple to use (More User Friendly as compared to command line operating system)
- More interactive
- Efficient (It provides various shortcuts)
- Multi-tasking (It easily enables users to view, control as well as manipulate multiple tasks at a time).

The drawbacks of the graphical-user-interface (GUI) operating-system may include:

- It is not so faster as compared to command line operating-system.
- It doesn't provide a powerful and significant scripting facility as compared to command line operating-system (but it provides various shortcuts).
- It doesn't provide full/complete access to computer-resources (It basically provides very less control to the file system as well as operating system).
- In terms of use, it is slow as compared to command line operating-system.

6.4.2. Command Line Operating-System

A command line operating-system basically provides a command-prompt in order to type different commands.The users use these commands while their interaction with computer.The users of command line operating systems need to memorize different commands for performing various tasks.The examples of command line operating-system include:

- DOS
- Unix etc.

The features of command line operating-system may include:

- It is faster than GUI operating system.
- It provides a powerful and significant scripting facility.
- It provides full/complete access to computer-resources.

There are also some drawbacks of the command line operating-system such as:

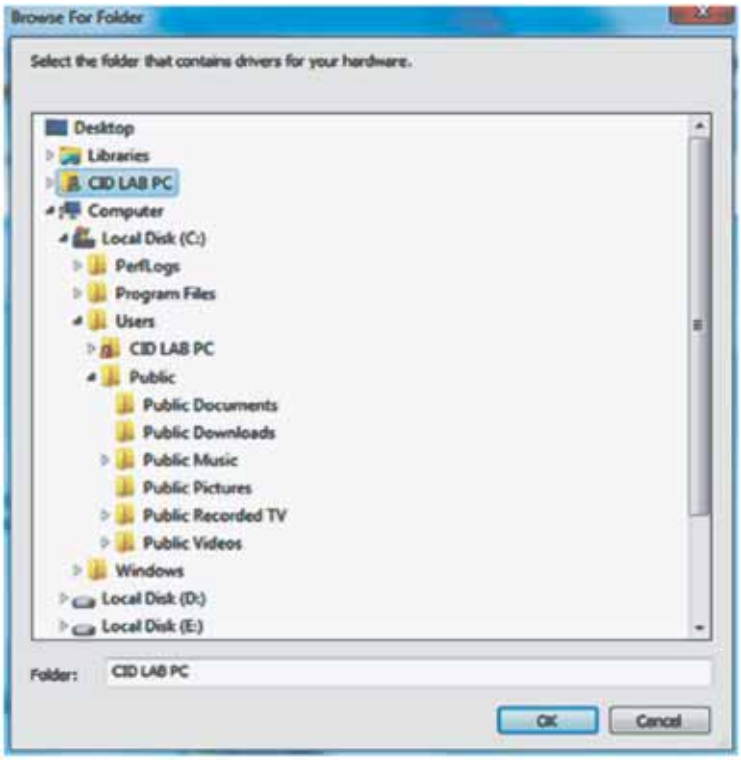
- Not very easy to learn
- Not very simple to use
- Few command line operating-systems provide the facility of multi-tasking (but it is very difficult to implement).

6.5. Functions of an Operating System

Following are the common functions of an operating system:

6.5.1. Manage Resources

One of the major functions of an operating system is to manage the different resources of a computer which include mouse, keyboard, monitor, printer, storage devices or memory etc. The operating system usually creates a file-structure on a hard drive. Once a file is stored, the operating system saves it, names it and also remembers it for future use. The way by which an operating system normally organizes information/data into file(s) is called a file system. The operating systems mostly use "Hierarchical File System" where the files are organized into directories (generally referred as folders) under a tree-structure. The screenshot of a tree structure while using Windows Explorer is shown below:



Firgure-6.2: A Screenshot of a Tree Structure

6.5.2. User Interface

The users basically interact with the application programs as well as the computer hardware by user-interface. Today, almost every operating system provides a "Graphical User Interface" (GUI) where the graphic-objects or icons are generally used to represent various features. The GUI is an efficient interface where the users issue different commands with the help of different pointing devices such as mouse in order to point or click on icons, menus, lists as well as buttons on a screen etc.

A screenshot of a Graphical User Interface (GUI) while using Windows 7 is shown below:

Firgure-6.3: A screenshot of a Graphical User Interface (GUI)

6.5.3. Run Applications

Most of the operating systems support "multi-tasking". The term multi-tasking means that an ability to run two or more applications/programs at a

time. As soon as a user sends a request for a program, an operating system suddenly locates that application & loads it into a RAM (Random Access Memory).

If more programs are being loaded then the operating-system must allocate various computer resources.

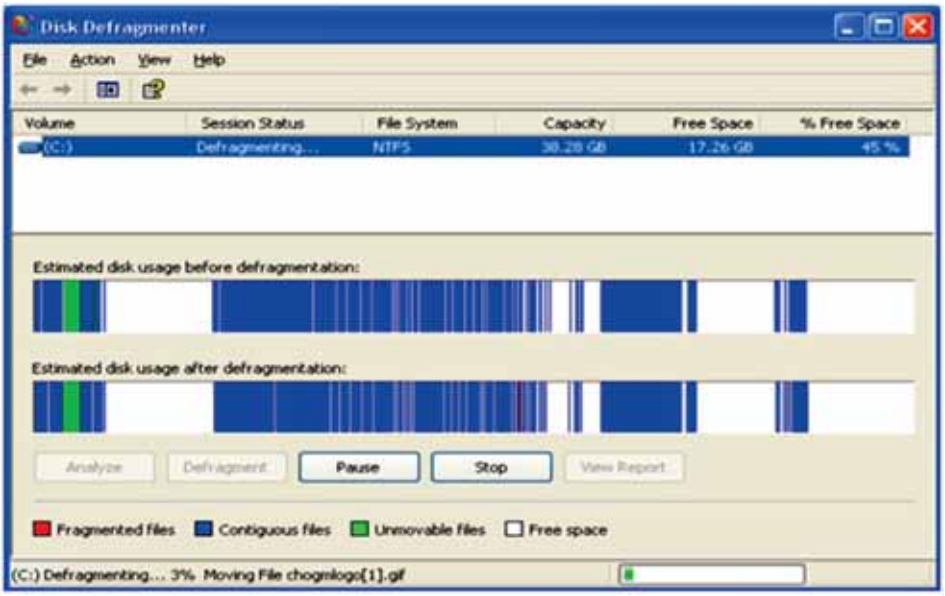
6.5.4. Support for Built-In Utility Programs

An operating system may use utility program for the purpose of repairing and maintenance. The utility programs are special programs which make the use of computer more easy. When unexpected things happen such as hard disk crash, virus attacks or slow operations etc. then function of the utility programs start. Many operating systems like "windows" have built-in utility programs for common purposes. These utility programs are commonly known as "System Tools". In order to find these tools, follow the following steps: Click on Start / Programs / Accessories/System Tools. The main examples of these utility tools may include:

1) Format
2) Scan Disk
3) Disk Cleanup
4) Disk Defragmenter and
5) Anti-Virus etc.

The following image shows a progress of "Disk Defragmenter" which is basically found in:

Programs > Accessories > System Tools.



Firgure-6.4: Disk Defragmention

The utility programs may help in identifying different problems such as locate lost files, repair damaged files and backup data etc.

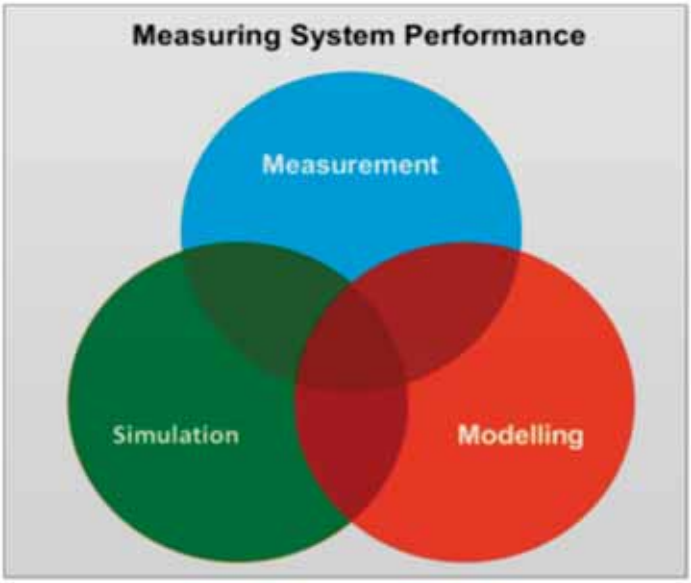
6.5.5. Control Computer Hardware

The operating system lies between the two main things which are defined as Programs and BIOS (Basic Input Output System). The BIOS mainly controls the computer hardware(s). Every program that needs hardware resources in order to run must go through an operating system. Finally it depends on the operating system either it access these hardware resources through BIOS or device drivers.

6.6. System Performance Measures

Measuring operating system's performance is such an important task which sets out the major and fundamental techniques which are used in analyzing as well as understanding its performance.

There are different methods which are being used for describing and measuring the operating system's performance such as measurement, simulation and modelling as shown below:



Firgure-6.5: Measuring System Performance

These methods are described below in detail:

6.6.1. Measurement

Measurement means to carry out some real experiment along with a real IP (Internet Protocol) system which is being operated in real time (with real

users). A monitoring feature basically records all necessary and primary data during this experiment. After that the performance values can be easily computed from that recorded data.

6.6.2. Simulation

Mostly a "simplified functional model" of an IP system & its users is generally developed for simulation. Then a computer-program is written which runs that model. This computer-program may run in one of the three different modes which include slow motion, time lapse mode or in real time. Any one of these modes can be used easily (it doesn't create any problem). All necessary and fundamental information during the above simulated run can be simply recorded with the help of a software monitor. After that the performance values can be easily computed from that recorded data.

6.6.3. Modelling

A "very simplified functional model" of an IP system & its users is generally developed for modelling. From this model, another mathematical model is basically derived by using "queuing theory". This mathematical model is then analyzed with the help of so-called state equations (merely numerically). But sometimes the explicit formulae (of interesting performance-terms) may be found. Then the performance values may be computed with the help of those formulae.

Overall, the brief summary is that the simulation and modelling are those methods which use only "models of the system" under test. These two methods basically deliver performance-values of the models. These are estimated values which can't be considered as measured values. So it can be said that simulation and modelling only deliver predictions of performance-values. On the other hand, the measurement is that method where the real IP-system is analyzed, investigated and tested (which can be a considered a suitable approach for measuring system performance).

6.7. Process Management

A program doesn't do anything unless the instructions related to it are executed or carried out by a Central Processing Unit (CPU). The term "process" can be defined in many different ways such as:

- A program in execution-mode (as mentioned above) is called a process.
- A compiler (time-shared user program) can also be referred as a process.
- A word-processing program which is being run through an individual user (on a PC) is also known as a process.

So, it can be said that a process can be considered like a job/time-shared program.

Basically a program (by itself) is not a "process". A program is usually a passive entity; say for example a file's contents which are stored on a disk, while a process

is generally referred as an active entity. In a system, a process is basically a unit of work. Such system contains a broad collection of processes. Some of these processes are referred as operating system processes (those that execute system-code) and some of these processes are referred as user processes (those that execute user-code).

All these processes may potentially execute concurrently by means of multiplexing the CPU. For example, the operating-system may be responsible for those activities (which are listed below) in connection with process-management:

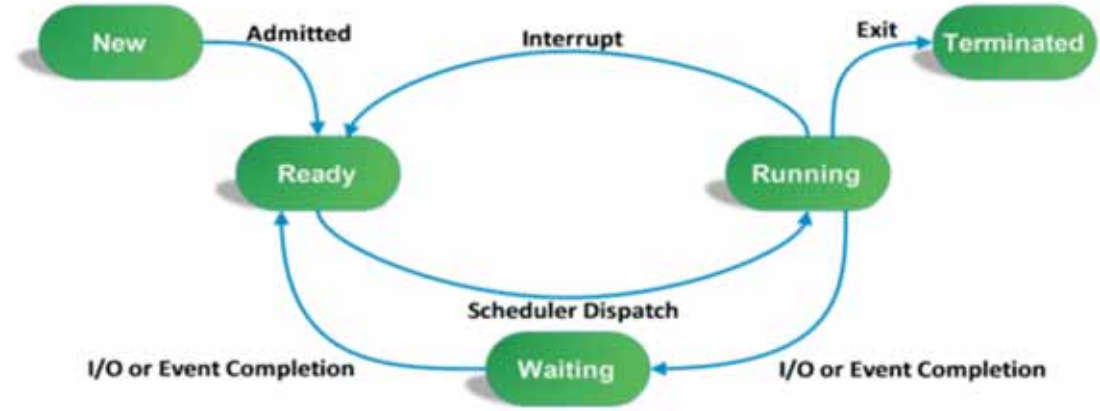
- Create & delete both users as well as system processes.
- Suspending & resuming processes.
- Provide mechanisms for the process synchronization.
- Provide mechanisms for the process communication.
- Provide mechanisms for the deadlock handling.

As a process carries-out/executes, it changes its state. The state of any process can be easily defined in part through current activity (action) of that process. Every process can be existed in anyone of the following mentioned states such as:

- **New:** A process is being produced / created.
- **Ready:** The process is now waiting to be allotted or assigned to some processor.
- **Running:** The instructions are being carried-out / executed.
- **Waiting:** The process is basically waiting for some result / event to occur (like an I/O completion / reception of a sign (signal)).

- **Terminated:** The process has completely finished execution.

The following figure "Process States" shows the relationship of all the above states of a process clearly:



Firgure-6.6: Process States

6.8. Commonly Used Operating Systems

The computer operating systems usually categorize by their different characteristics such as technology, working state, ownership, licensing as well as usage etc. There are number of operating systems which have become very famous at the time of their releases such as DOS (Disk Operating System), Windows 95, Windows NT (New Technology), UNIX, Linux, Macintosh Operating System, Windows 98, Windows 2000 Professional, Windows Me, Windows XP, Windows Vista and Windows 7, etc.

The use of these operating systems depends upon user's choice. Different users may use different types of computers with different operating systems. Main characteristics of commonly used operating systems may include:

1) System Reliability (It includes different functions such as windows error reporting, automated system recovery and improved system restore etc.)

2) Faster Start-Up

3) User Friendly Interface

4) Hardware support improvements (This support can be related to USB, Firewall, Windows image acquisition or Media transfer protocol etc.)

5) Remote Desktop Features (Those features which can allow users to connect with a system across a network and access their different applications like files or printers etc.)

6) Various improvements to "System Administration Tools" like Windows installer, Windows task manager, Disk defragmenter or Windows script host etc.)

7) Network Features (such as Windows firewall and Internet connection sharing)

8) Important Security Features (such as Encrypting file system improvement, Credential manager, Software restriction policies etc.)

The Windows XP, Windows Vista and Windows 7 have emerged as one of the popular operating systems.

A figure named as “Popular Operating Systems” shows the above concept in a clear way:

Figure-6.7: Popular Operating Systems

The above mentioned operating systems are still very popular among the users of all ages which are described below in detail:

6.8.1. Windows XP

Windows XP is a famous and highly compatible operating system. It was produced by “Microsoft”. It is one of the most famous versions of Windows. The name XP is mainly abbreviated as “eXPerience”. It was released worldwide both in “home” and “professional” versions in 2001. The following image shows the Windows XP interface:

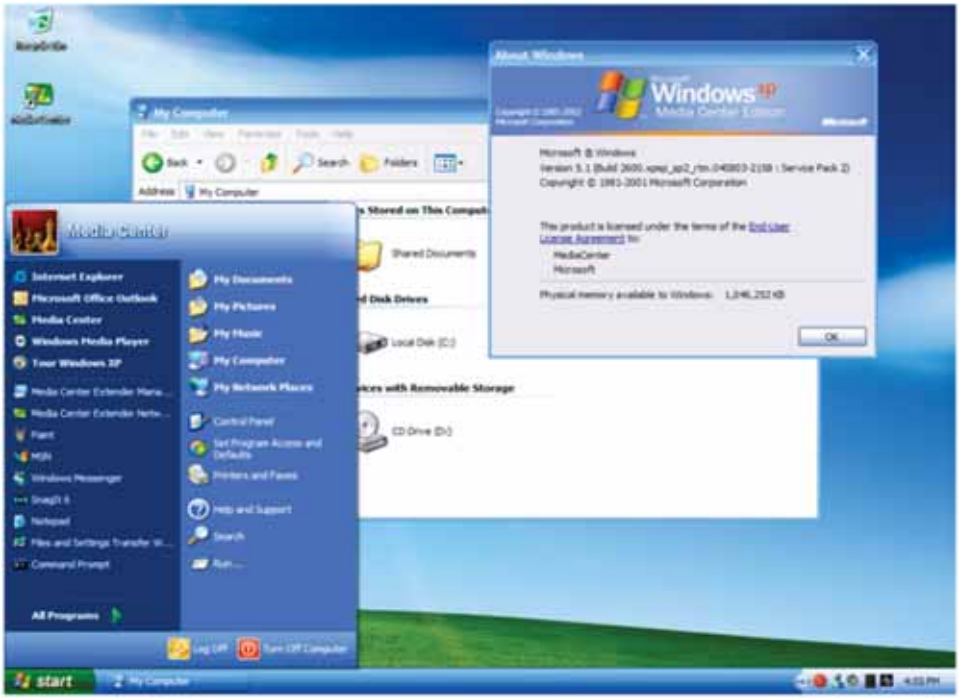


Figure-6.8: Microsoft Windows XP

The Windows XP (a successor to "Windows-2000" and "Windows-Me") was basically a first consumer-oriented operating-system. This operating system is highly used and very well accepted by users. There are a number of characteristics of this popular operating system such as:

a) New Task Based GUI (Graphical User Interface)
b) Updated Start-menu and Taskbar
c) System Reliability
d) Faster Start-Up
e) User Friendly Interface
f) Hardware Support Improvements
g) Remote Desktop Features
h) Various improvements to "System Administration Tools"

i) Network Features

j) Important Security Features.

6.8.2. Windows Vista

The windows vista was also produced by Microsoft. It was released in 2007. This operating system is basically a successor to a very popular operating system "Windows XP". It can be used for personal commuters like home & business desktops, tablet PCs, laptops or media center PCs etc. It is also one of the efficient operating systems. The following image shows the Windows Vista interface:

Figure-6.9: Microsoft Windows Vista

As compared to windows XP, it has contained a lot of changes as well as new features such as:

a) Updated Graphical User Interface

b) New Visual Style

c) Updated Search Function

d) Important Multimedia Tools which also include windows DVD maker.

e) A redesigned Networking Feature

f) Audio, Print & Display sub-systems

g) User Friendly Interface

This version of windows included the feature of ".Net Framework" which allows software-developers to write complex applications without "traditional windows APIs (Application Programming Interfaces)". This version was succeeded to improve the security features of windows XP which is considered as one of its best features.

6.8.3. Windows 7

The Windows-7 was also produced by Microsoft. It was released in 2009. This operating system is basically a successor to another popular operating system "Windows Vista". It can also be used for personal computers like home & business desktops, tablet PCs, laptops or media center PCs etc. It is also very famous and highly compatible operating system.

The following image shows the Windows-7 interface:

Figure-6.10: Microsoft Windows-7

There are a number of characteristics such as:

i). Updated Graphical User Interface

ii). Multi-touch Support

iii). A redesigned "Windows shell" with a new taskbar

iv). Improved Multimedia Features

v). Faster Start-Up

vi). Hardware Support Improvements

vii). New Version of "Windows Media Center"

viii). Remote Desktop Features

ix). Important Security Features

x). Improved Performance on "Multi-core" Processors

xi). New Visual Style

xii). Networking Features

xiii). User Friendly Interface.

All these features of windows-7 have made this version of windows very popular and significant. Due to these features, it is considered as highly stable and efficient operating system.

After this efficient operating system, the Microsoft has released "Windows 8" (a successor to Windows-7) in 2012. It can also be used for personal computers like home & business desktops, tablet PCs, laptops or media center PCs etc.

The following image shows the Windows-8 interface:

Figure-6.11: Microsoft Windows-8 Startup

Hopefully, it can be believed that this newly released operating system will become very popular among the users of all ages.

6.9. Microsoft Windows Practice

Microsoft windows practice includes different tasks such as how to "start & shutdown a system", "create & open the icons" as well as "open, close & sizing the windows" etc. All the above tasks are briefly explained below:

6.9.1. How to Start a System

In order to start the system, simply follow the following steps:

1. Start the system by powering on "computer" as shown in the following figure as well as its peripheral devices such as monitor, printer or scanner etc.

Figure-6.12: Computer Start-Up Process

1. Then click your "user-account" icon in order to log on simply *without a password*. Or one can also click a "user-account" icon in order to log on *with the password*.
2. Then press enter to "log on".

After that your desktop will be appeared.

6.9.2. How to Shutdown a System

Let us consider an example of Windows-7. In order to shutdown the system, simply follow these steps:

1. Click the Start-Button (which shows on desktop's left-corner (below))
2. Then simply click "Shut down" icon (as shown below in the following figure)

Figure-6.13: Shut-down a System/Computer

After that the system will be safely shutdown (closed).

6.9.3. How to Create/Operate Icons

Let us consider an example of Windows-7. In order to create/operate desktop icons, simply follow the following steps:

1. Write click on desktop, a smarter window will be open with different options. Simply choose an option "Personalize".

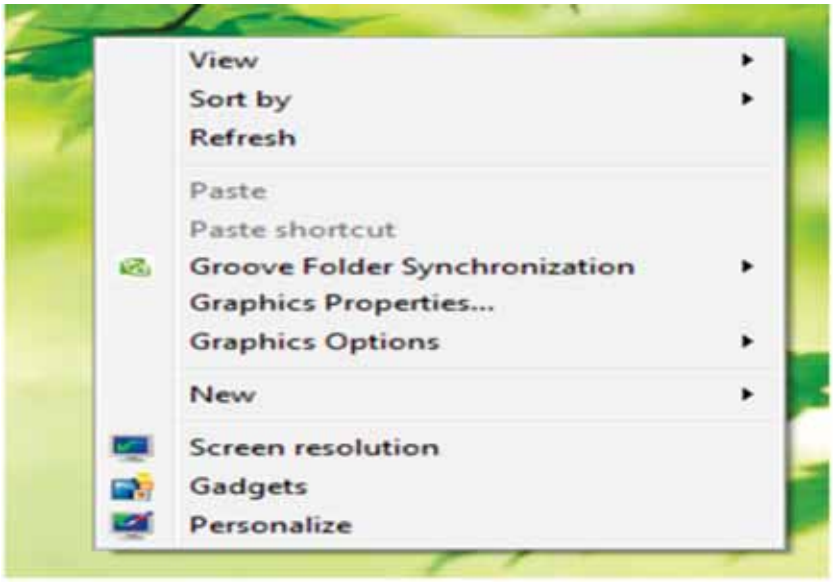


Figure-6.14: Creating Icons

2. After clicking this option, another window will be open where one can see an option "Change desktop icons" on left upper corner. Simply choose this option.

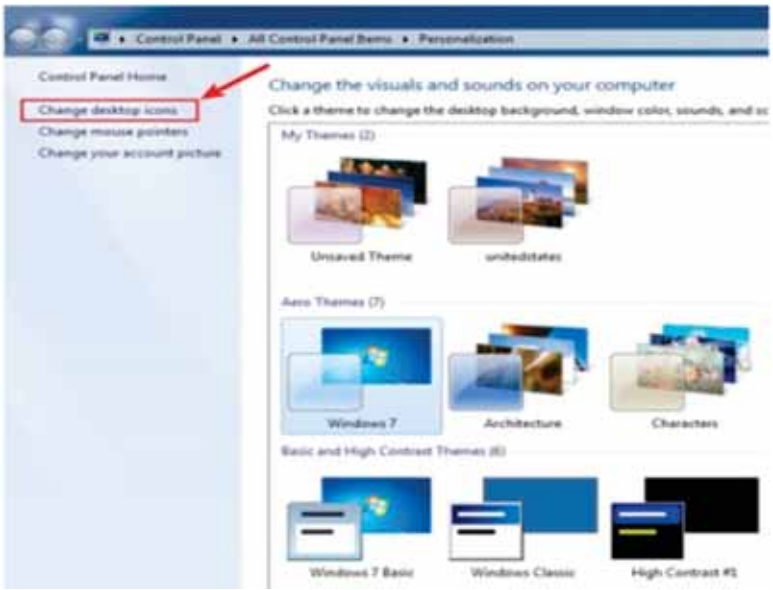


Figure-6.15: Change desktop icons

3. After clicking this option, another smarter window will be open which is named as “Desktop Icon Settings”. Here one can see the different icons along with their default images and names such as Computer, Network or Recycle Bin etc.

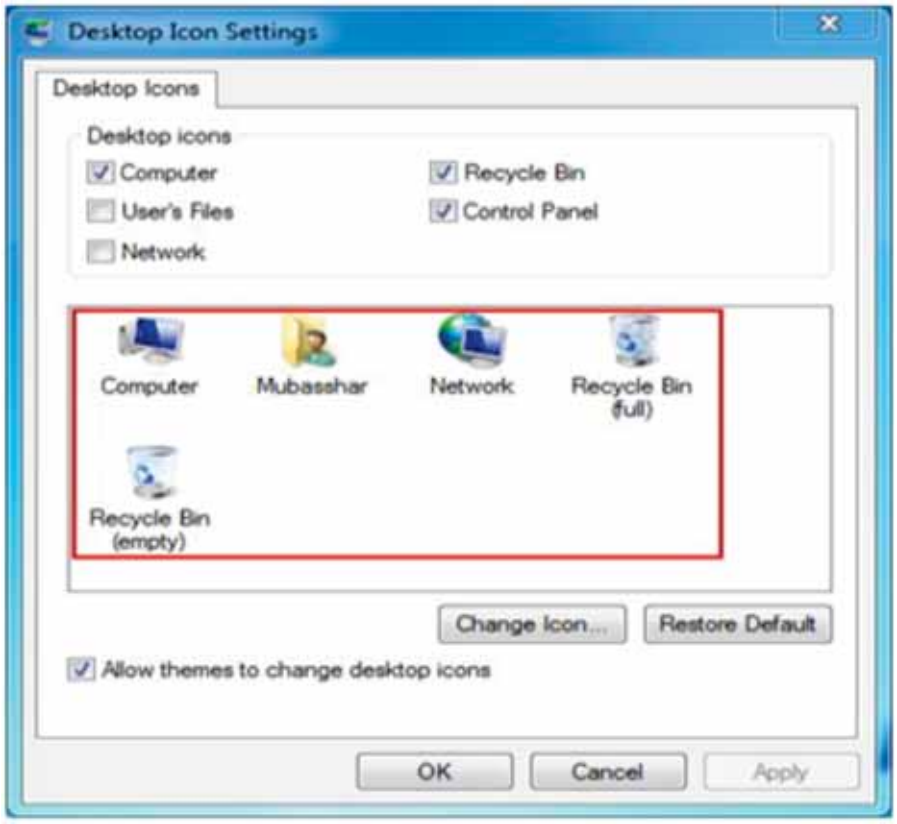


Figure-6.16: Desktop Icon Settings

4. After that select any icon (which a user wants to change), then press “Change Icon…” button. Another smarter window will be open with a lot of images. Select an image of your choice and press “OK” button.

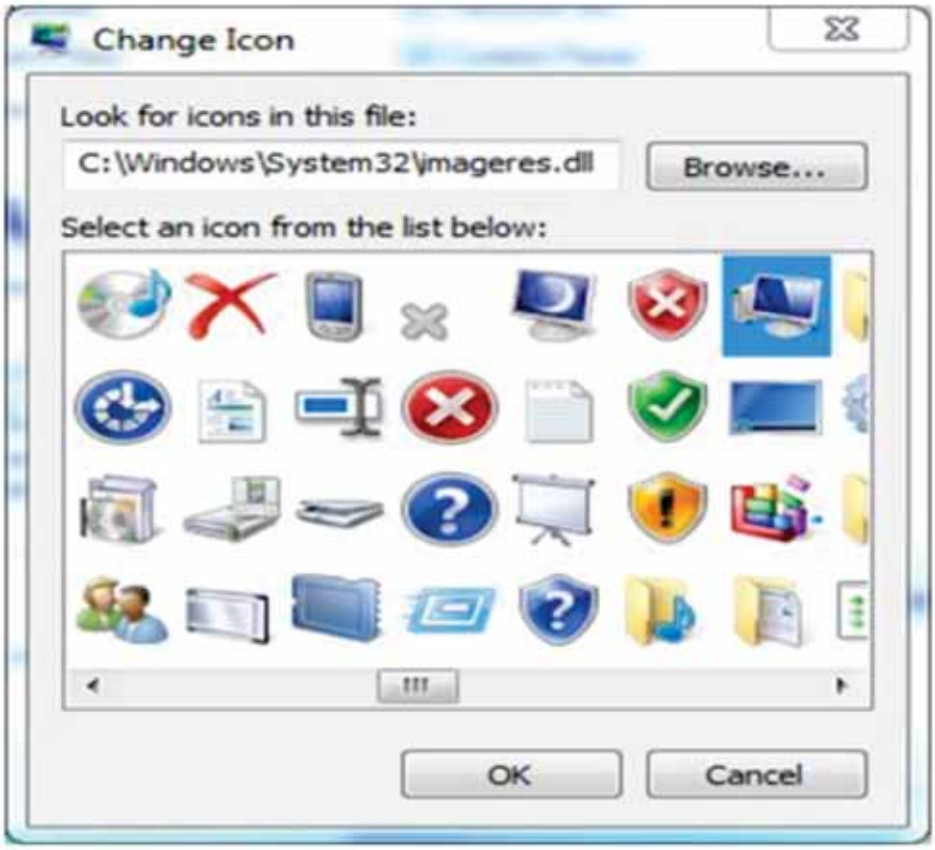


Figure-6.17: Change Icon

5. Then one can see that selected icon with the new image on the same smarter window "Desktop Icon Settings" (which is already appeared according to step 3).

6. If you are satisfied then press "Apply" button and then press "OK" button.

After that process, the selected icon with the new image can be easily seen on the desktop. In this way, the icons can be easily created as well as operated by user's choice.

6.9.4. How to Open the Windows (Operating System)

One computer can have more than one operating systems installed on it but it should be noted that only one operating system can be used at a time.

For example, if Windows XP and Windows-7 have been installed on a computer then only one operating system can be used at a time (it depends upon a user's choice).

In order to open the windows-7, just follow the following steps:

Figure-6.18: Starting Computer

1. Simply power on “computer” (as mentioned above in section “How to start a System”).
2. All installed operating systems will be seen clearly. Now it depends upon a user. Just click on any one operating system which you want to use. It will simply start to open. Go to next step simply.
3. Note: if there is only one operating system installed then leave the above step and just go to the next step.
4. Click your “user-account” icon in order to log on. Note: If you have a password then give it and press “Enter”, the windows will simply start to open. Otherwise (if you have no password) then simply click the “user-account” icon.

Figure-6.19: User-Account

After this your desktop will be appeared.

6.9.5. How to Close the Windows (Operating System)

Let us consider an example of Windows-7. In order to close the windows, simply follow the following steps:

1. Click the Start-Button (which shows on desktop's below left-corner)
2. Then simply click “Shut-down” icon (as shown below in the following image).

Figure-6.20: Shut-down Operating System

After that the windows will be safely closed.

6.10. Using Elementary Job Commands

It includes different job commands which are explained below:

6.10.1. Create a File

Each file is basically given a file-name (i.e. some common file-name) and extension such as:

- doc: Word Document
- txt: Text File
- xls: Excel Spreadsheet
- htm or html: HTML File
- ppt: Power Point Presentation etc.

As the MS Word is an application package used to create official/personal documents. So let us see the procedure of creating a file in MS-Word:

Note: Microsoft Office should be installed in order to take a start.

1. First of all, click start menu (start button) then a list of different options will be opened. Choose an option "All Programs".

Figure-6.21: Choose an option "All Programs"

2. Then another list of different options will be opened. Choose an option "Microsoft Office".

Figure-6.22: Choose an option "Microsoft Office"

3. By clicking this option "Microsoft Office", different sub-options will be opened immediately. Then simply click "Microsoft Office Word", a document will be opened which is basically known as a word file.

Figure-6.23: Click "Microsoft Office Word"

4. Simple write/type something on this file. Then after completion, the file is needed to be saved. Just follow the next step below.

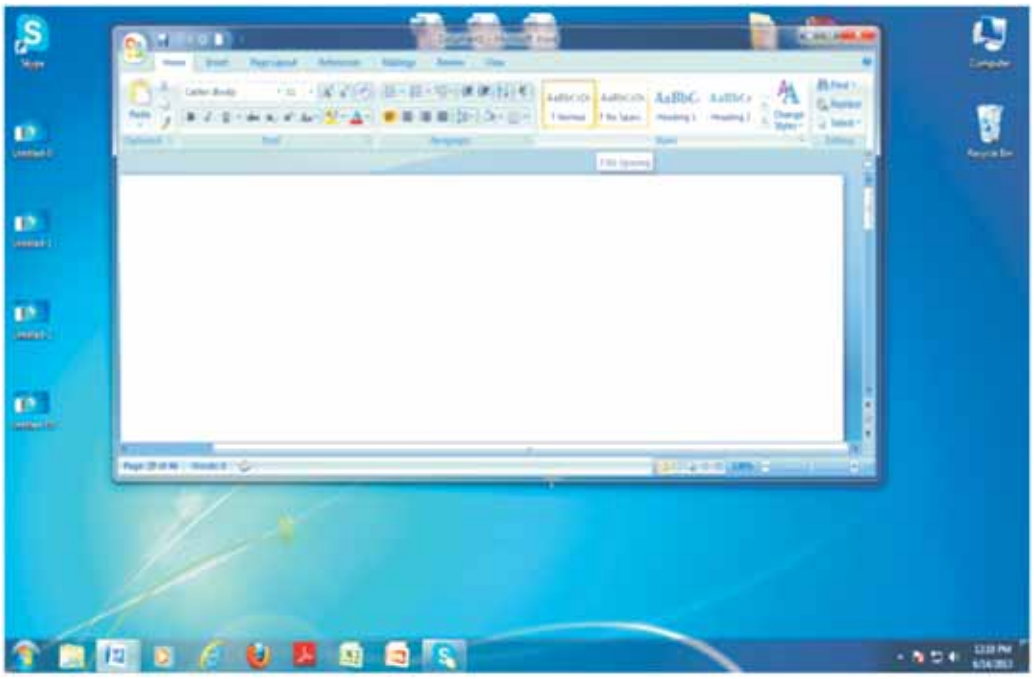


Figure-6.24: A Word File

6.10.2. Save a File

The following is the basic procedure of saving a file in the MS-Word:

1. Just click a button (Office Button) on the upper left corner of the file. Then click an option "Save", by clicking this option, a dialog box will be opened where you will give a path to save this file.

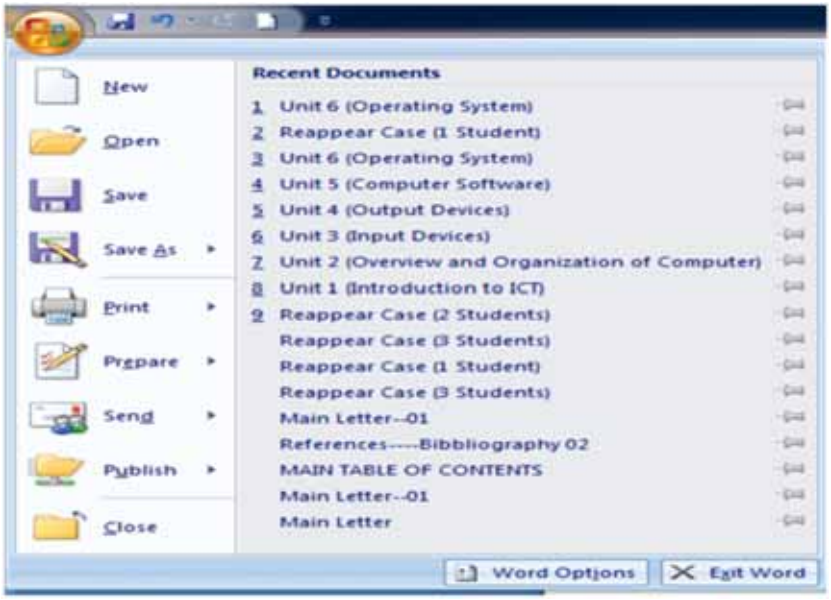


Figure-6.25: Click an Option "Save"

2. Any path can be chosen e.g. desktop. (On the left hand side of this dialog box, a scrolling vertical bar will be seen. One can scroll this bar by choosing any other path for saving this file).

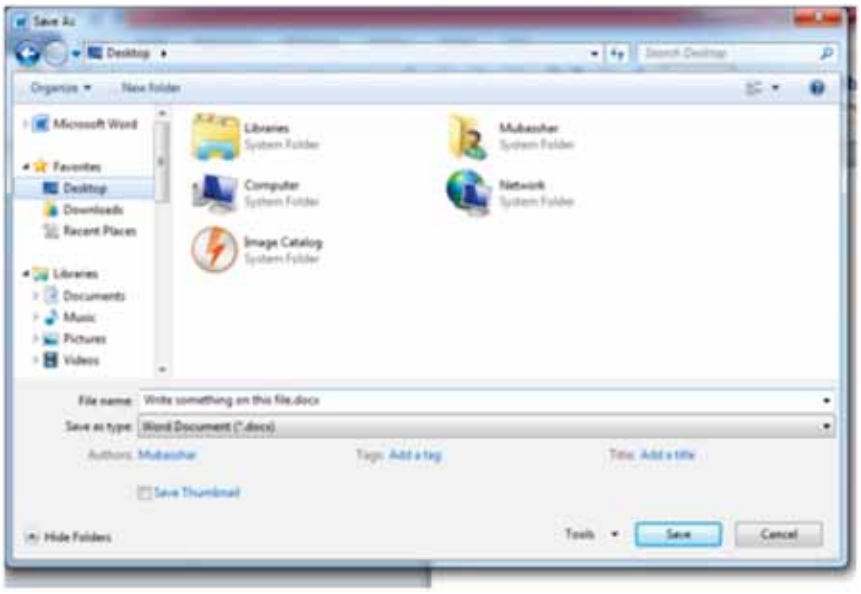


Figure-6.26: How to give a Path

3. Then just give a file name e.g. My Document

4. Press "Save" button (then this word file will automatically be saved on desktop). After that, the user can modify this file at any time. For this purpose, just go to the next step below.

6.10.3. Modify a File

Modify means to do changes in the document. The following is the basic procedure of modifying an MS-Word file:

1. Simply locate the file to be changed where you have saved it. Double click on this file then the file will be opened.

Figure-6.27: Modifying an MS-Word File

2. Then do changes according to your requirements. After that the file again needs to be saved then there are two options to save this file such as:

- Just click on the save button (which shows on the upper left

Corner of the file (just along with office button). Then simply close this file. The file will be saved safely.

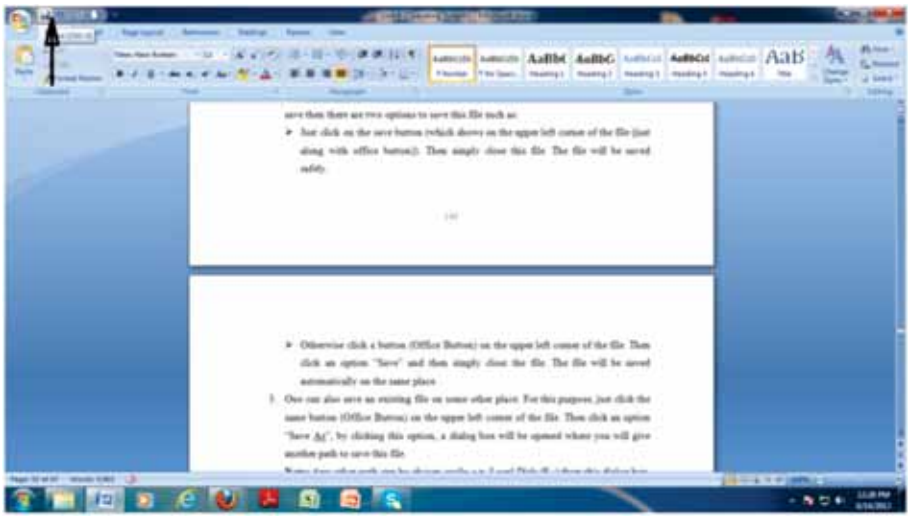


Figure-6.28: Click on the Save Button

- Otherwise click a button (Office Button) on the upper left corner of the file. Then click an option "Save" and then simply close the file. The file will be saved automatically on the same place.

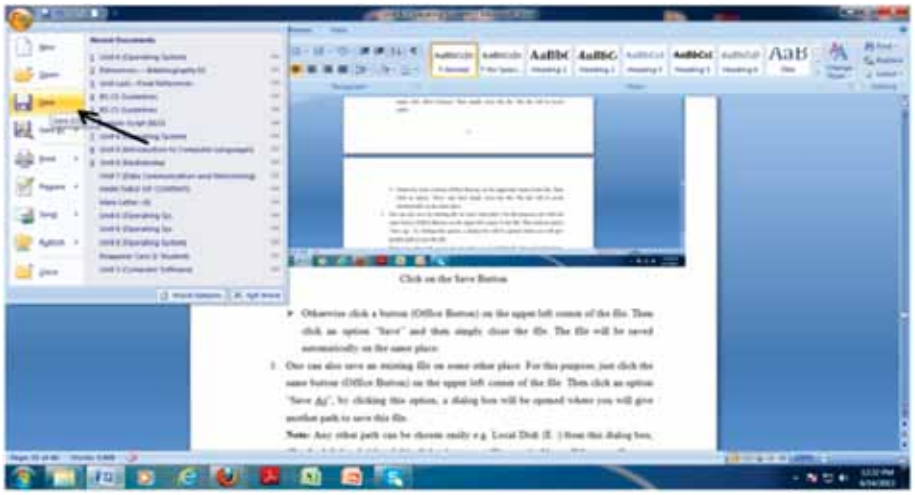


Figure-6.29: Click an option "Save"

3. One can also save an existing file on some other place. For this purpose, just click the same button (Office Button) on the upper left corner of the file. Then click an option "Save As", by clicking this option, a dialog box will be opened where you will give another path to save this file.

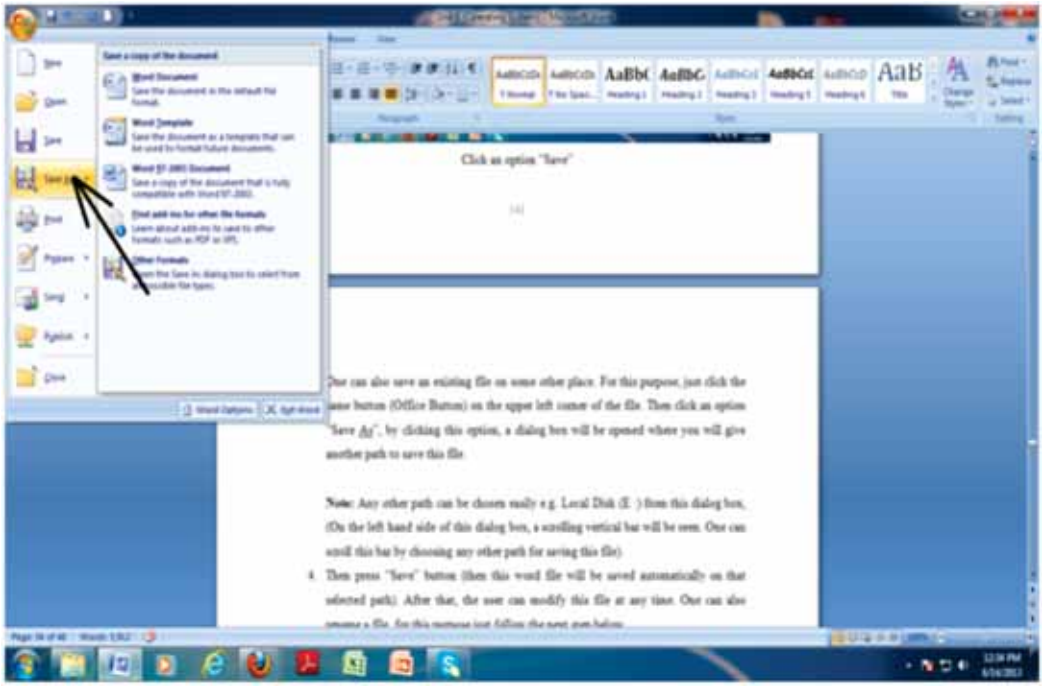


Figure-6.30: Click an option "Save As"

Note: Any other path can be chosen easily e.g. Local Disk (E :) from this dialog box, (On the left hand side of this dialog box, a scrolling vertical bar will be seen. One can scroll this bar by choosing any other path for saving this file).

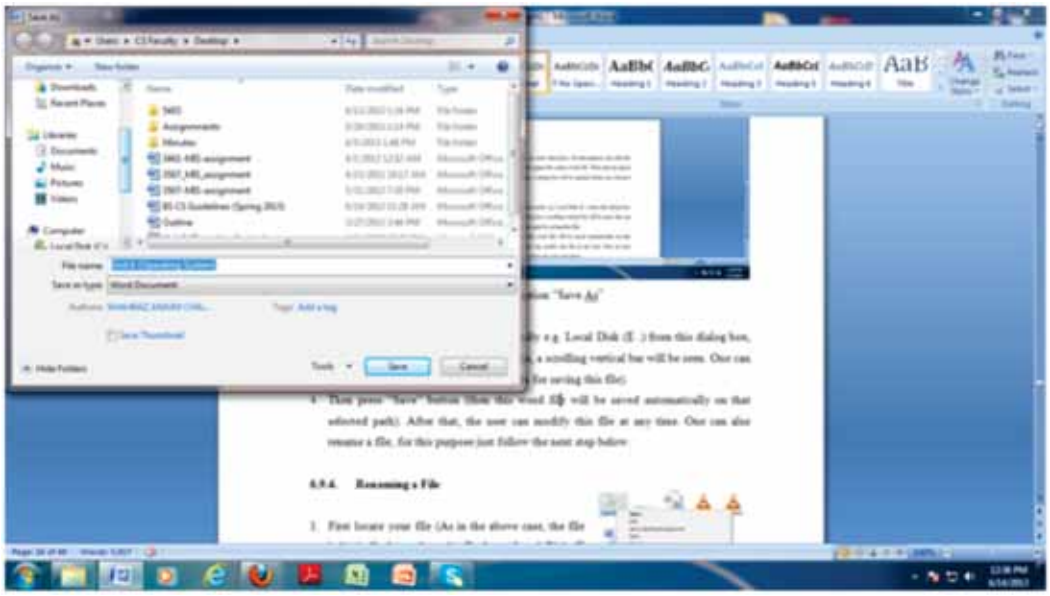


Figure-6.31: Choose a path

4. Then press "Save" button (then this word file will be saved automatically on that selected path). After that, the user can modify this file at any time. One can also rename a file, for this purpose just follow the next step below.

6.10.4. Renaming a File

1. First locate your file (Let us consider, the file is located on the Desktop).
2. Right-click the file.
3. Choose an option "Rename".
4. The file name will be highlighted in blue then ready to be retyped.

Figure-6.32: Renaming a File

5. Type a new file name and then press Enter.
6. The file is “renamed”.

One can also delete a file, for this purpose just follow the next step below.

6.10.5. Delete a File

1. First locate your file (As in the above case, the file is basically located on the Desktop).

2. Right-click the file icon.

3. Choose an option “Delete”.

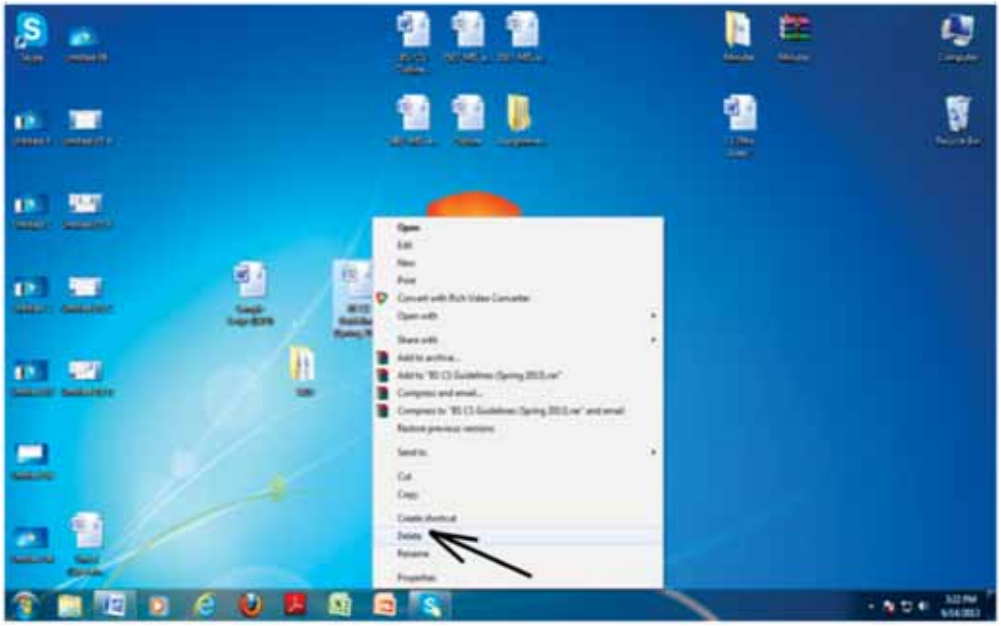


Figure-6.33: Delete a File

4. A "Delete File" dialog box will be appeared in order to ask you "Are you sure you want to move this file to the Recycle Bin?".

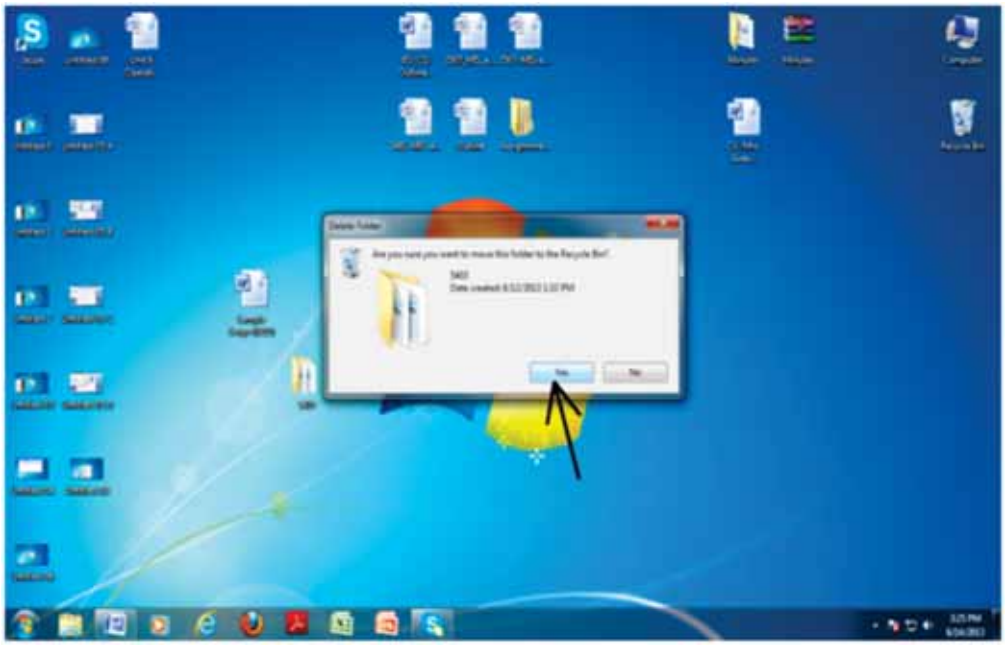


Figure-6.34: A "Delete File" Dialog Box

5. Choose Yes, if you want to delete this file.
6. Then the file will be moved to the Recycle Bin (Till now the file has been deleted from the original path but still existed in Recycle Bin).

Note: If you want to delete this file permanently from a system then go to Recycle Bin and delete the same file. In order to delete the file from Recylcle Bin, just follow the following steps which are similar to the above steps except those changes which are highlighted below:

- Right-click the file icon.
- Choose an option "Delete".
- A "Delete File" dialog box will be appeared in order to ask you "**Are you sure you want to permanently delete this file?**".
- Choose Yes, if you want to **permanently**delete this file.

Then the file will be deleted permanently from the system.

6.10.6. Find a File

In order to find a file in a system, follow the following steps:

1. Double click an icon "Computer" on desktop. A window will be opened.
2. On the upper right corner of this window, an option "Search Computer" is seen.
3. Just click that option then the line will seem to be blinked.

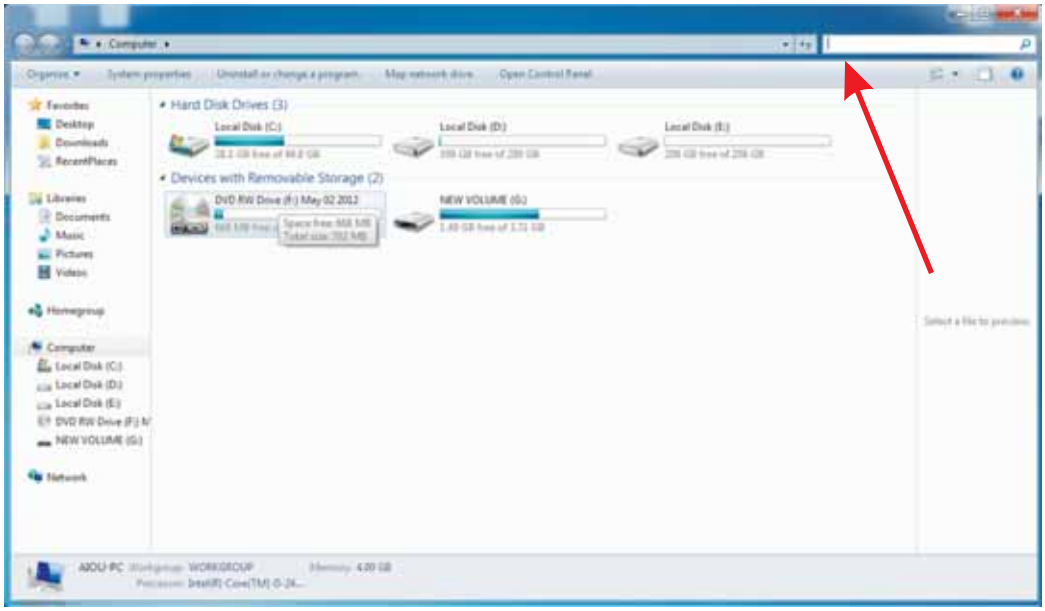


Figure-6.35: Find a File

4. Just write a name of file which you want to search.
5. After that the system will start finding that file. Within a short time-period, different files related to that name will be shown on this window.
6. One can easily find the exact file from there.

6.10.7. Create and Operate a Folder

Create/operate a folder is a very easy task. For this purpose, just follow these following steps:

1. Right click on desktop (or open any hard drive and do right click) wherever you want to make a folder.
2. Then a dialog box will be opened. Choose an option "New".
3. After clicking this option, a new connected dialog box will be

opened. Choose an option "Folder".

4. By clicking this, a folder will be made and highlighted in blue color with the default name "New folder" then ready to be retyped.

5. Type a new folder name and then press Enter.

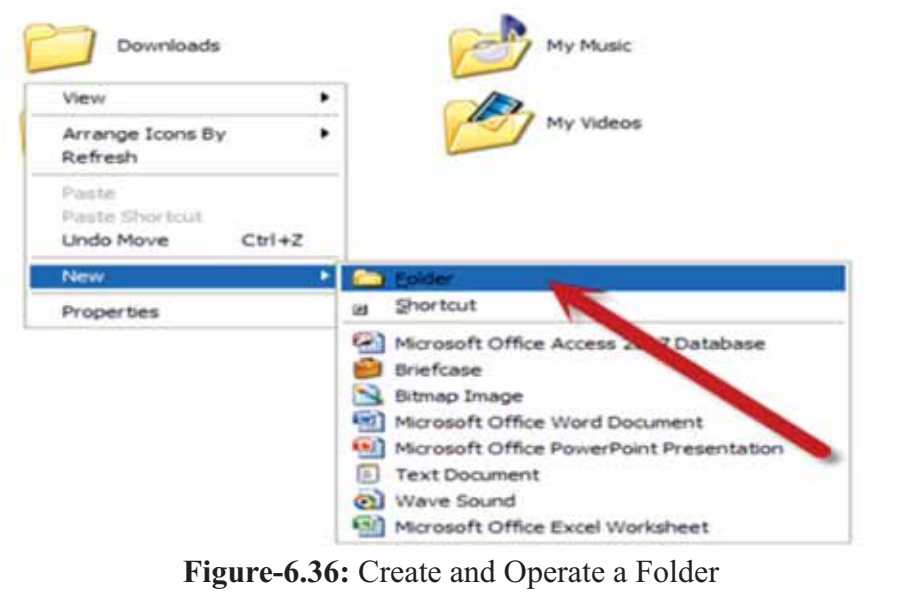


Figure-6.36: Create and Operate a Folder

6. The folder is created and ready to use/operate.

In order to operate a folder generally, just go to that location where folder is created and then double click this folder. It will be opened quickly. One can use this folder according to the requirements. Different files can be easily saved or made inside a folder.

It may be noted that one can creates a new folder within a folder by following the above steps.

6.10.8. Change Setting like Date, Time &Desktop-Colour

In order to change date and time, just follow the following steps below:

1. On the lower right corner of the desktop, the date and time is shown on every system. In order to change the date and time of a system, just click once on this "date and time icon". A dialog box will be opened which shows a complete calendar and a clock.
2. Below this, one can see easily "Change date and time settings…" option. Just click this option, another window will be opened. There is an option "Change date and time", just click this.

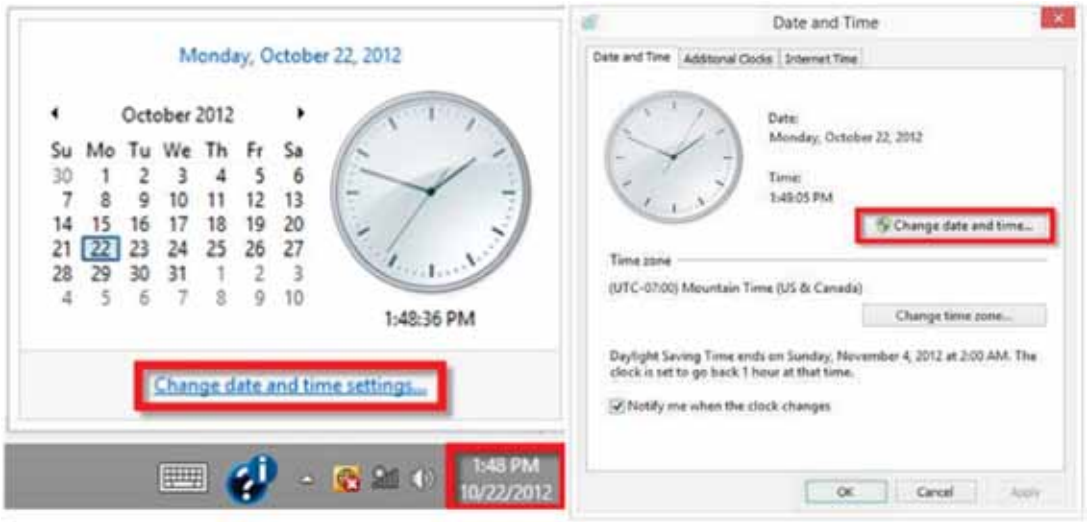


Figure-6.37: Change Date and Time

3. By clicking this, another window will be opened, here one can easily adjust date and time. Then press Ok button (Two times).

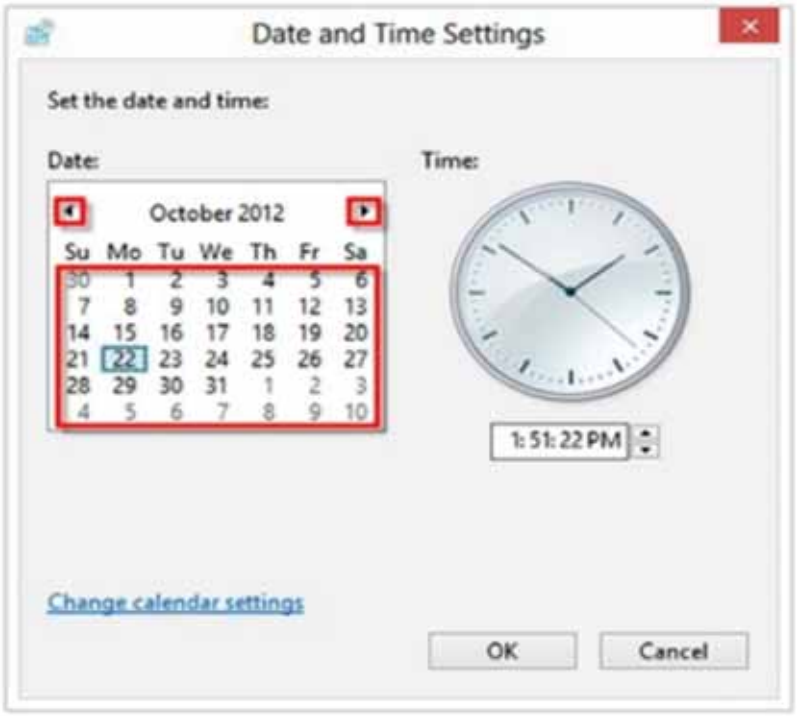


Figure-6.38: Adjust Date and Time

4. The date and time will be changed quickly as shown on desktop's lower right corner.

There are different ways of changing the color of desktop in Windows-7. An easy way is being described below in order to change the desktop background color:

1. First of all, click start menu (start button) then a list of different options will be opened.

2. Choose an option “Control Panel” then another window with different options will be opened.

Figure-6.39: Change the Color of Desktop

3. One can see here an option "Appearance and Personalization". There are different sub-options which will be seen easily. In these sub-options, just click an option "Change Desktop Background". Then another window will be opened.

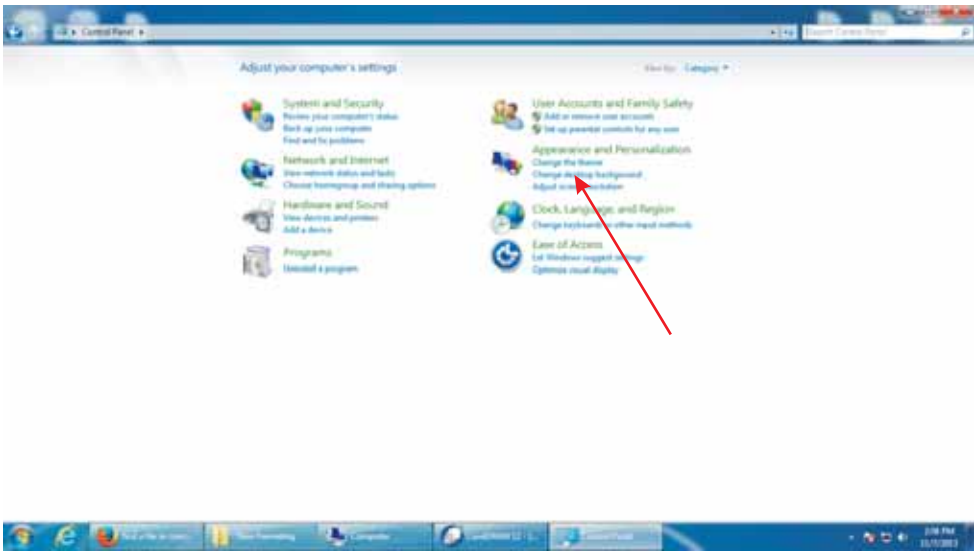


Figure-6.40: Change Desktop Background

4. In this window, just click “Picture Location” icon. Then some options will be seen, just click an option “Solid Colors”.

Figure-6.41: Picture Location

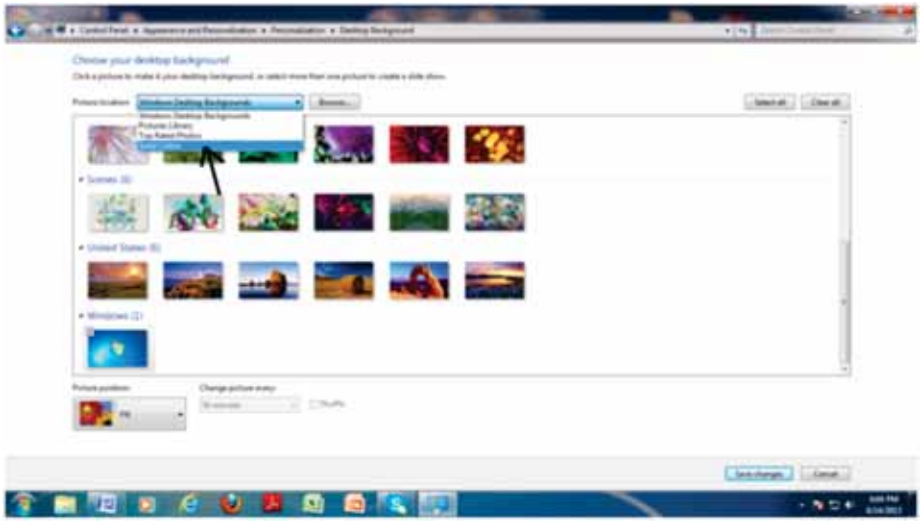


Figure-6.42 : Solid Colors

5. Many different color-icons will be shown here. You can choose the color of your choice. Just click once on any color and press "Save changes" button.

6. Then the desktop color will be changed.

6.10.9. Using Short-Cuts

The term short-cut means to do something within a short time period. There are a lot of keys (which are generally referred as short-cut keys) can be used in order to do different tasks. Some of the commonly used short-cut keys for Windows-7 are described below:

Sr. No.	Short-Cut Keys	Explanation
1.	ALT+F4	Close the active item/Quit the active program
2.	**CTRL+A**	Select all
3.	**CTRL+ESC**	Display the Start menu
4.	**CTRL+V**	Paste
5.	**F1**	Display Help in a dialog box
6.	**F10**	Activate the menu bar in the active program
7.	**CTRL+X**	Cut
8.	**CTRL+Z**	Undo
9.	**SHIFT+F10**	Display the shortcut menu for the selected item
10.	**ALT+SPACEBAR**	Opens the shortcut menu for the active window

6.10.10. Control Panel and its Usage

Control panel is basically a part of Microsoft-Windows which allows computer-users to view, manipulate and control system settings such as "System and Security", "Network and Internet", "Hardware and Sound", "Appearance and Personalization" as well as "Users Accounts" etc.

In order to use control panel, just follow the following steps:

1. First of all, click start menu (start button) then a list of different options will be opened. Choose an option "Control Panel".

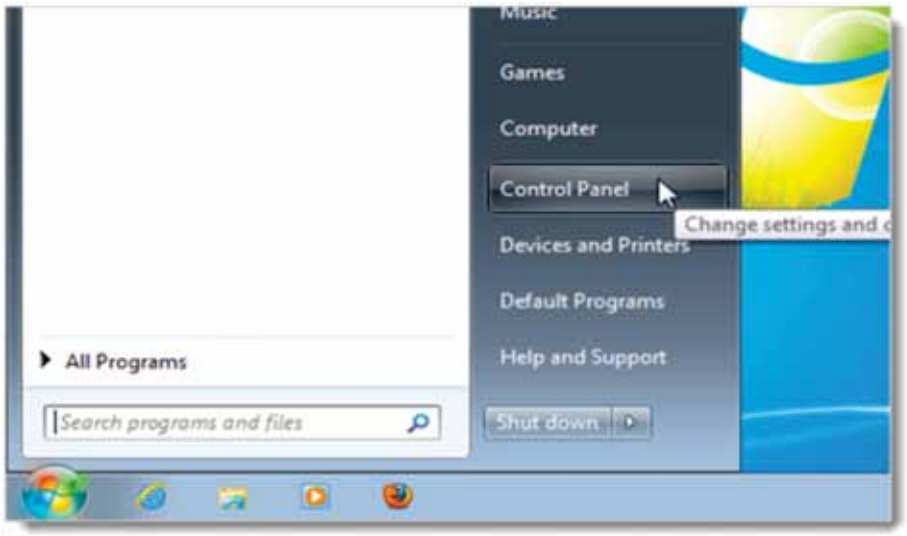


Figure-6.43: Control Panel

2. Then another window with different options will be opened. One can easily view, manipulate and control the system settings from there.

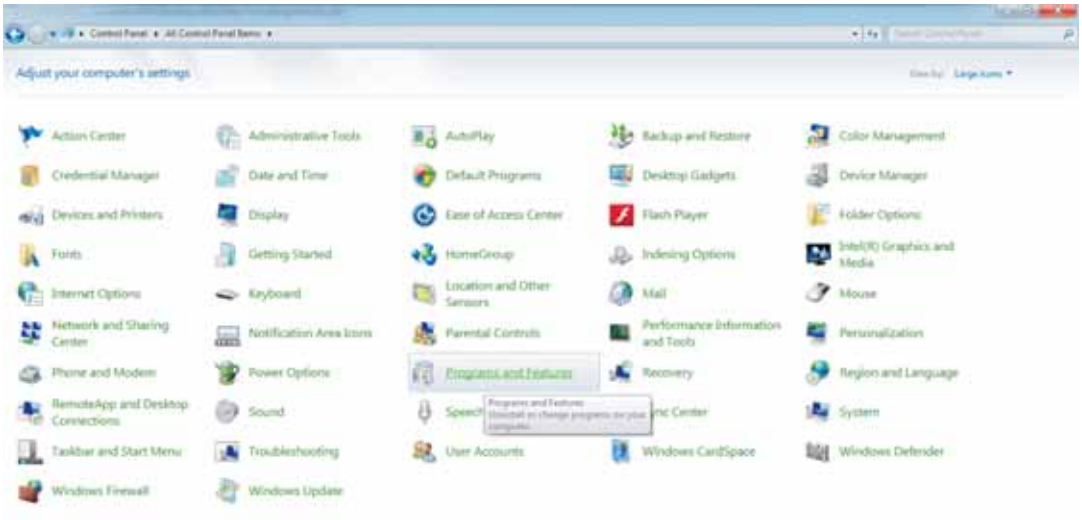


Figure-6.44: Control the System Settings

3. In order to use these options, just click any option of your choice e.g. choose an option "Programs and Features" as shown in the above figure.

4. Just click it; another window with some other options will be opened. One can view and understand this easily.

The above steps of "changing the color of desktop" are a good practice of control panel's usage.

Overall, the use of control panel depends upon the user's choice. Because the Microsoft-Windows provides an easy way to view, manipulate and control the system settings through control panel.

6.10.11. Concept of Task Manager

The Windows task manager mainly provides information about all those processes or programs which are currently running on a system. The users can also access it by pressing (Ctrl + Alt + Delete). It displays the currently running services as well as all those services which have stopped due to any reason.

In order to view the task manager, just follow these following steps:

1. Write click on the task bar, a window will be opened. Just go to "Start Task Manger" option.

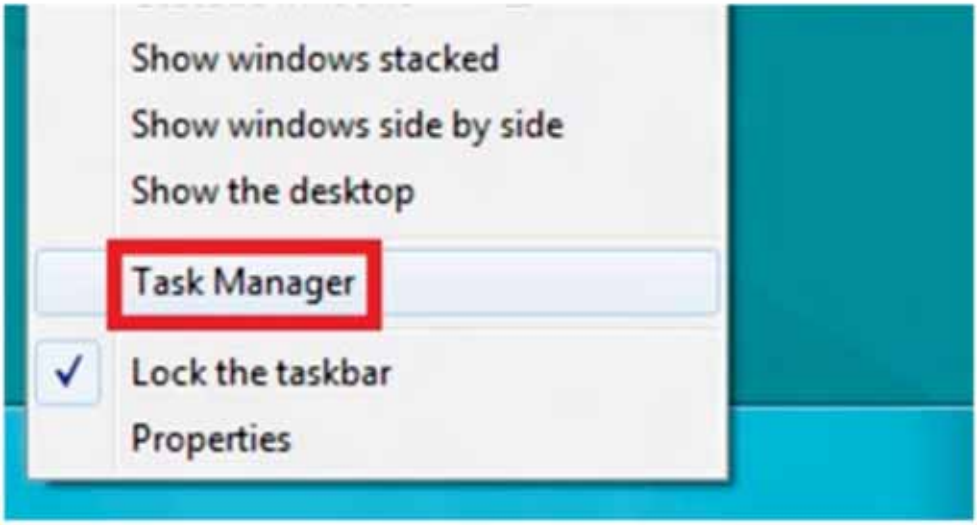


Figure-6.45: Start Task Manger

2. By clicking this, another window will be opened whose name is "Windows Task Manger"

3. Here one can get the information about different things such as:
   - Applications
   - Processes
   - Services
   - Performance
   - Networking
   - Users

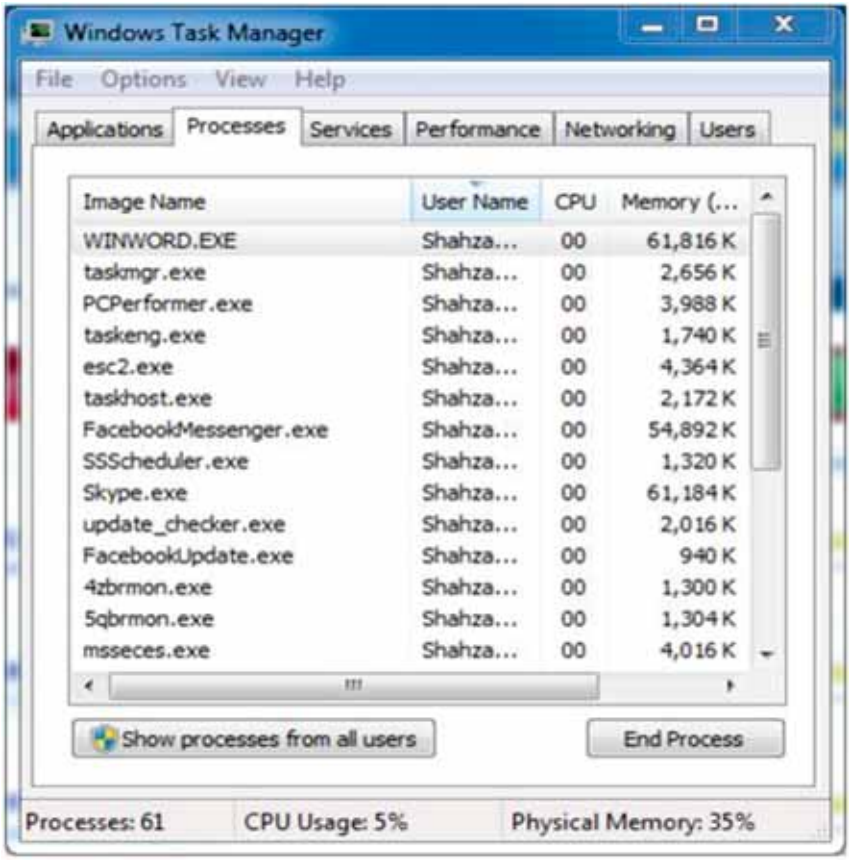


Figure-6.46: Windows Task Manger

It also provides information about general status of a system. It is basically used to terminate a process or a program.

6.10.12. Setting Up Network Connection

The purpose of setting up network connection is to use internet. To setup a "Network Connection" using "Network and Sharing Center" in Windows 7, follow the following steps:

1. Click "Start button" to view the "Start Menu" and then choose an option "Control Panel" as shown in the following image.

Figure-6.47: Start Menu

2. The"Control Panel" window opens up. Then click an option "Network and Internet".

Figure-6.48: Network and Internet

3. Then click another option "Network and Sharing Center".

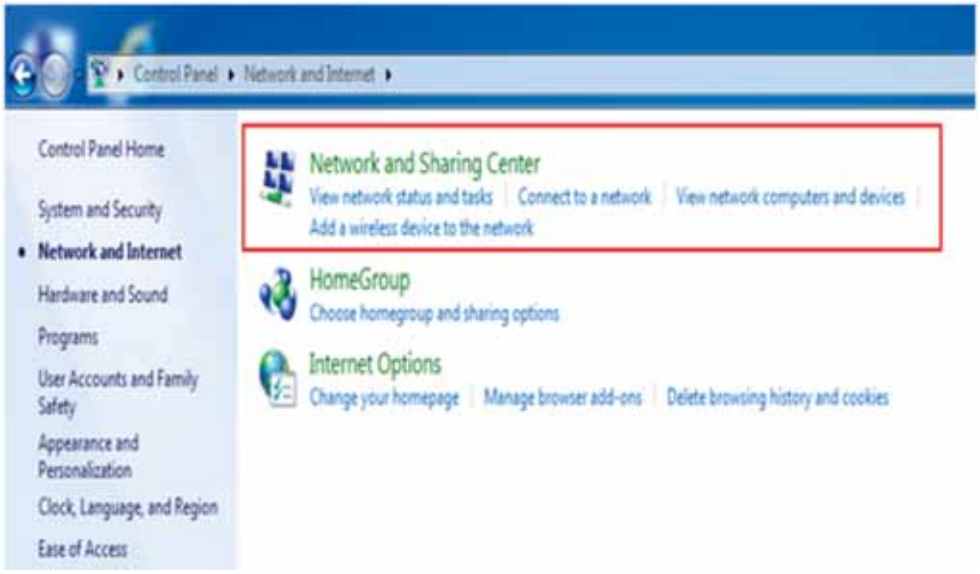


Figure-6.49: Network and Sharing Center

4. After that just click "Set up a new connection or network".

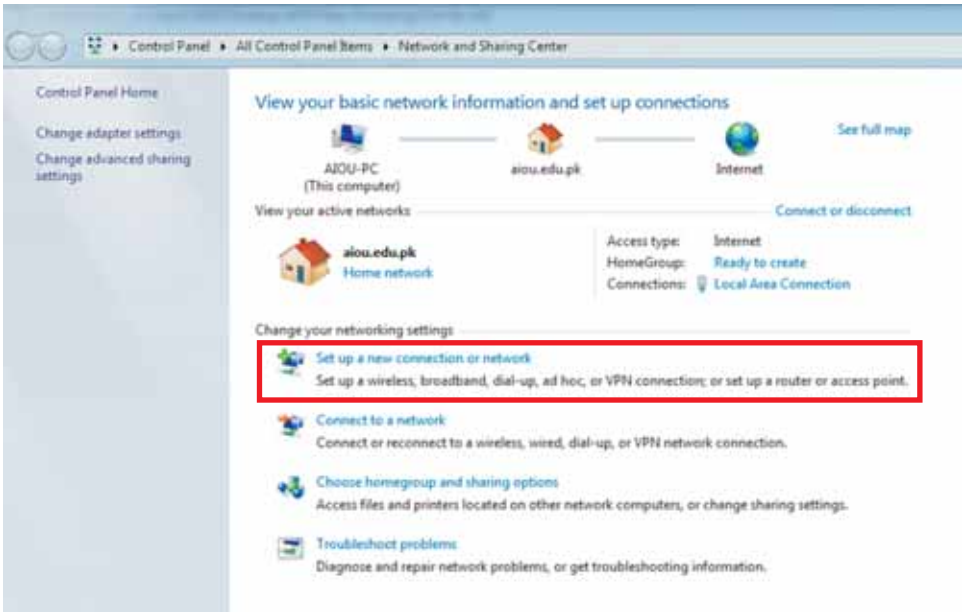


Figure-6.50: Set up a New Connection or Network

5. Another window will be opened then click "Connect to the Internet". Then press "Next".

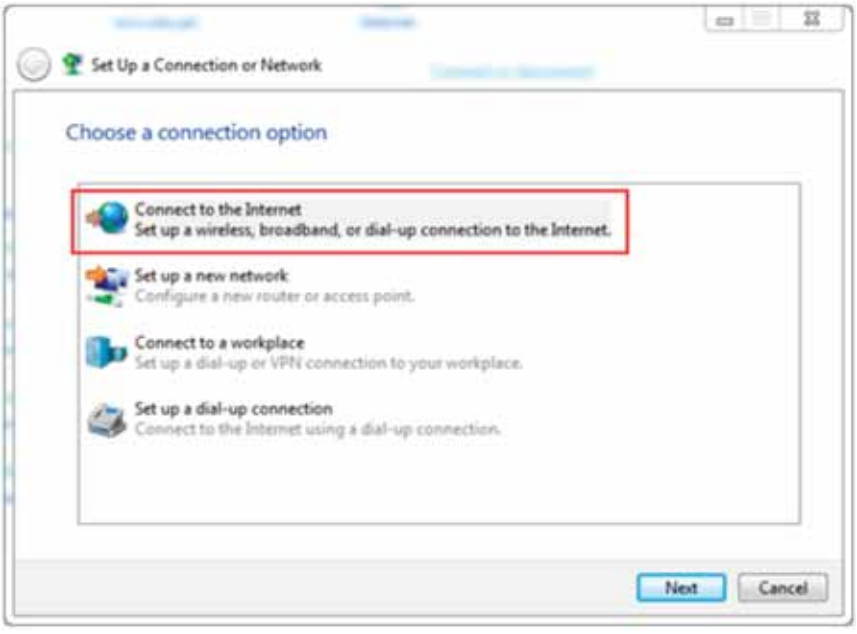


Figure-6.51: Connect to the Internet

Note: After the above step, if internet is working on your system then you will find a message

"You are already connected to the internet".

It is simply meant that you can go to your internet browser and use internet. Otherwise follow the next step below:

6. If internet facility is not available on your system then after step 5 you will find a window with this message "How do you want to connect?" Here one can find different options such as Wireless or Broadband etc.

7. Select any one option like Broadband.

8. After selecting this option, you will enter a user name and password (which you will get from "Internet Service Provider (ISP)").

9. Then click "Connect". When it is connected successfully then the window looks like the below image:

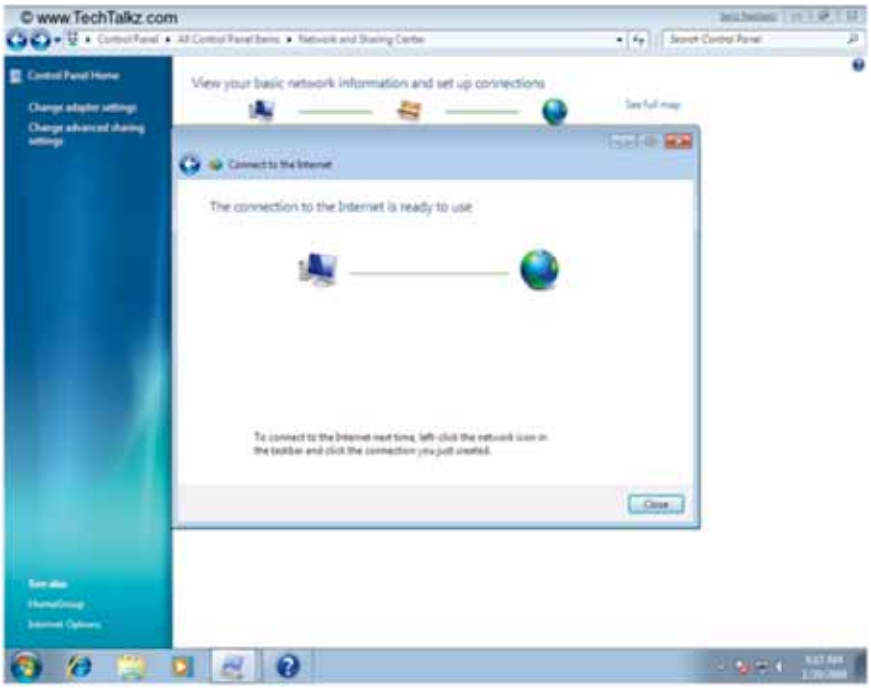


Figure-6.52: Connecting Internet

10. After that you can close the above window and simply go to your internet browser and use internet easily.

6.10.13. IP-Setting

An IP address (Internet Protocol address) is a numerical label. It is basically assigned to each computer which is being participated in a computer-network (that uses the "Internet Protocol" for communication). In order to assign an IP-address to a system (with an operating system "Windows-7"), just follow the following steps:

1. Click "Start button" to view the "Start Menu" and then choose an option "Control Panel".

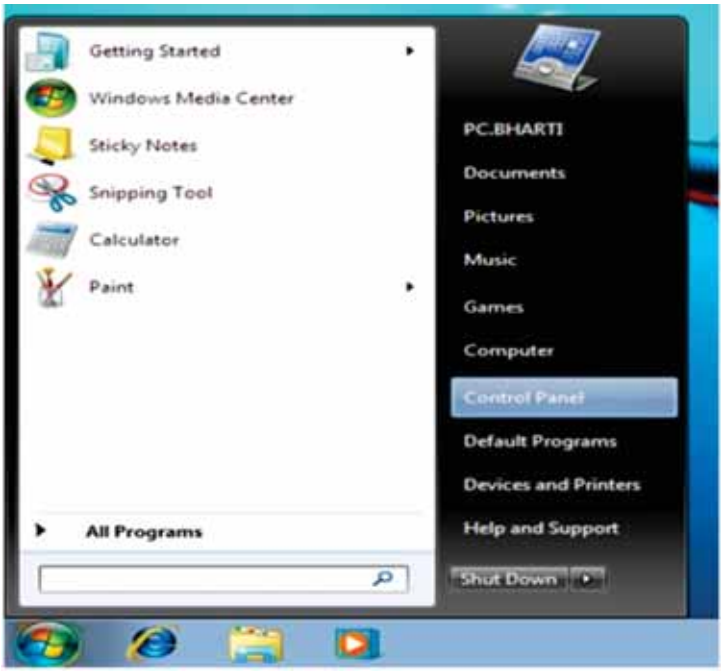


Figure-6.53: Control Panel

2. The"Control Panel" window opens up. Then click an option "Network and Internet".

Figure-6.54: Network and Internet

3. Then click another option "Network and Sharing Center".

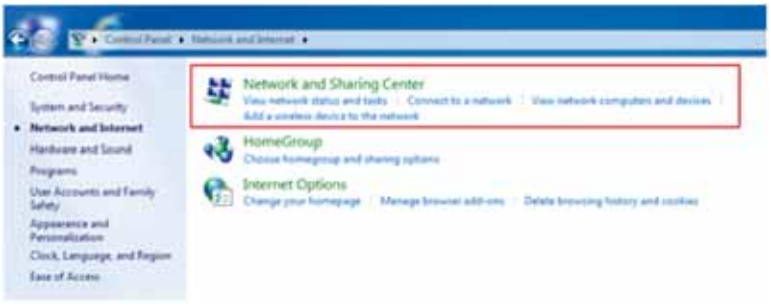


Figure-6.55: Network and Sharing Center

4. Then click an option "Local Area Connection".

Figure-6.56: Local Area Connection

5. A window will be opened then press a button "Properties".

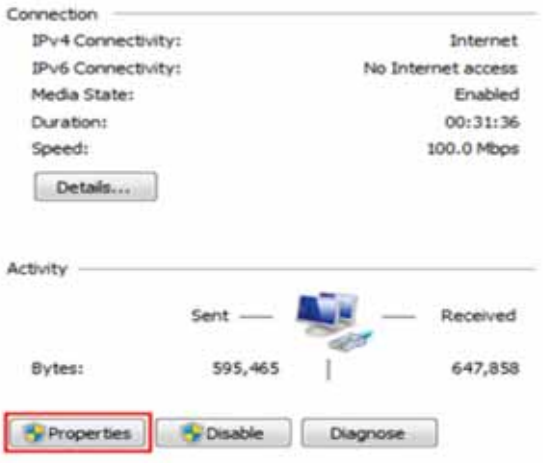


Figure-6.57: Properties

6. Another window will be opened then select an option “Internet Protocol Version 4 (TCP/IPv4)” and press button “Properties”. After that another window will be opened immediately.

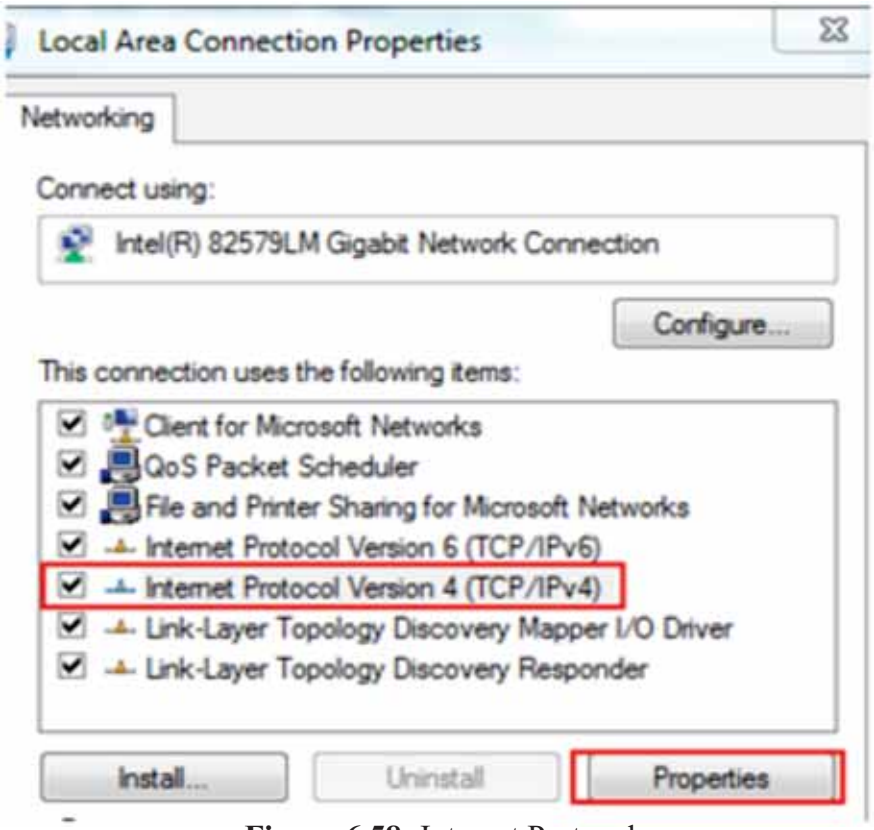


Figure-6.58: Internet Protocol

7. Here you will find two options which are described below:

- “Obtain an IP address automatically”. Select this option and then press button “OK”. Your system will automatically get an IP address and you will be able to use internet.

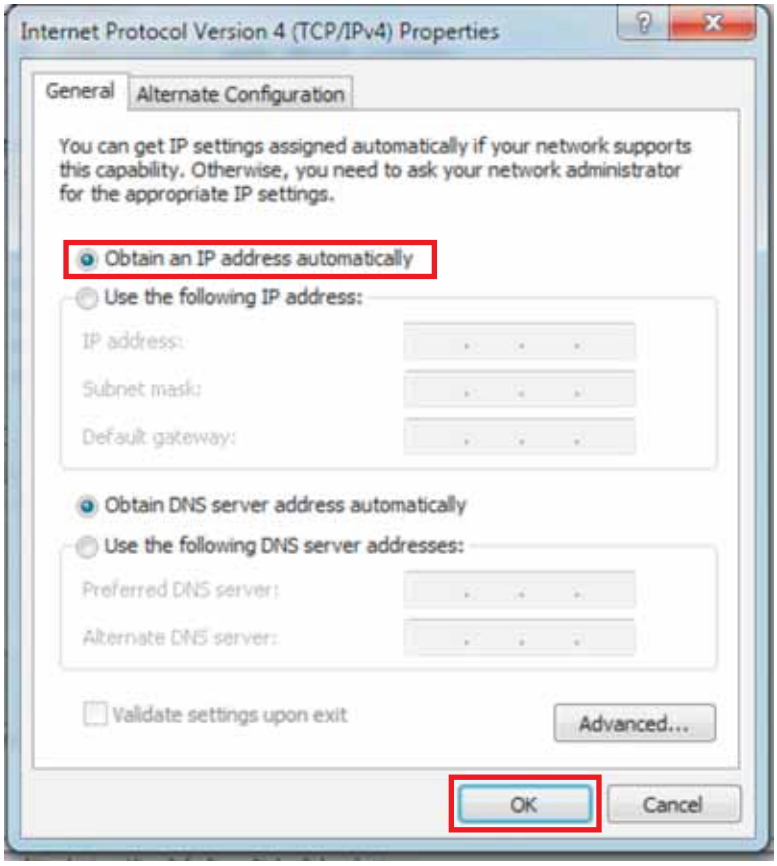


Figure-6.59: Obtain an IP Address Automatically

- On the other hand if you will select the second option "Use the following IP address". Then you will give the following information (which you will get from "Internet Service Provider (ISP)"):
- IP address
- Subnet mask
- Default gateway
- Preferred DNS server
- Alternate DNS server

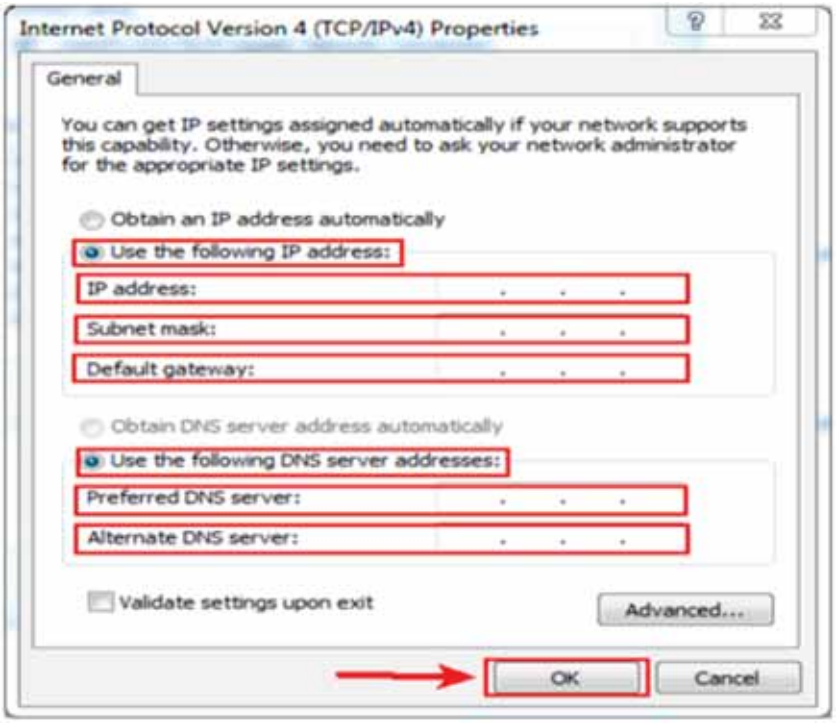


Figure-6.60: Use the following IP Address

After giving this information, just press "OK" and close all other windows. Now you will be able to use internet.

6.11. Self-Assessment Questions

Q.No.1. What is meant by operating system? Define it in detail with the help of different examples.

Q.No.2. Explain the different functions of an operating system.

Q.No.3. Write a note on the following topics:

- Process Management
- Simulation and Modeling

- Popular Operating Systems
- System Performance Measures
- Network Connection and IP-Setting

Q.No.4. Define system performance measures & process management tools.

6.12. Self-Assessment Activities

1. Identify the most common functionality of windows XP.
2. Compare features of a windows operating system installed on your computer, with at least two other operating systems which you have studied in this unit.
3. The major and positive influences of computer can be seen in many different fields/areas such as education, business, training and health etc. Explain it in detail with the help of different examples?
4. Explain the "Microsoft Windows Practice" in detail.