

Working with Windows Operating System



Learning Objectives

After learning the concepts in this chapter, the students will be able

- To know the concepts of Operating System.
- To know the versions of the windows operating system.
- To know the concepts like desktop and the elements of window.
- To explore the document window.
- To compare the different types of icons.
- To explore the windows directory structure.
- To practice creating files and folders in specific drives.
- To manage the files and folders.
- To know the procedure to start and shutdown the computer.
- Memory Management
- Process Management
- Device Management
- File Management
- Security Management
- Control overall system performance



5.1. Introduction to Operating System

An Operating System (OS) is a system software (Figure 5.1) that enables the hardware to communicate and operate with other software. It also acts as an interface between the user and the hardware and controls the overall execution of the computer.

Following are some of the important functions of an Operating System as discussed in the previous chapter:

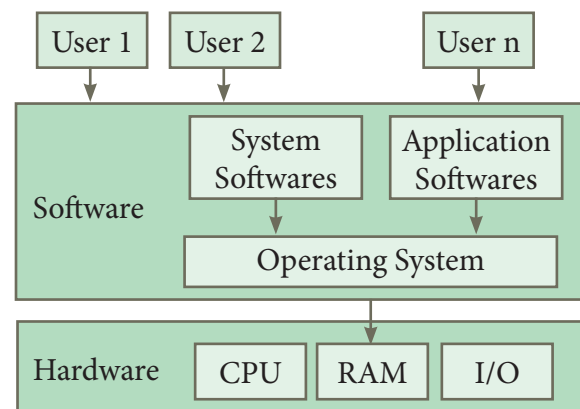


Figure 5.1. Overview of an Operating System

5.2. Introduction to Windows Operating System

Every computer needs an Operating System to function. Microsoft Windows is one of the most popular Graphical User Interface (GUI). Multiple applications can execute simultaneously in Windows, and this is known as “**Multitasking**”.

Windows Operating System uses both Keyboard and mouse as input devices. Mouse is used to interact with Windows by clicking its icons. Keyboard is used to enter alphabets, numerals and special characters.

Some of the functions of Windows Operating System are:

- Access applications (programs) on the computer (word processing, games, spread sheets, calculators and so on).
- Load any new program on the computer.
- Manage hardware such as printers, scanners, mouse, digital cameras etc.,
- File management activities (For example creating, modifying, saving, deleting files and folders).








- Change computer settings such as colour scheme, screen savers of your monitor, etc.

With reference to the Table 5.1, let us see the versions of Windows Operating System.

5.4. Handling the mouse

Before learning Window Operating System, you should know more about mouse and its actions.

5.3. Various versions of Windows

Versions	Logo	Year	Specific features
Windows 1.x		1985	<ul style="list-style-type: none"> • Introduction of GUI in 16 - bit. processor • Mouse was introduced as an input device.
Windows 2.x		1987	<ul style="list-style-type: none"> • Supports to minimize or maximize windows. • Control panel feature was introduced with various system settings and customising options.
Windows 3.x		1992	<ul style="list-style-type: none"> • Introduced the concept of multitasking. • Supported 256 colours which brought a more modern, colourful look to the interface.
Windows 95		1995	<ul style="list-style-type: none"> • Introduced Start button, the taskbar, Windows Explorer and Start menu. • Introduced 32 - bit processor and focused more on multitasking.
Windows 98		1998	<ul style="list-style-type: none"> • Integration of the Web browser (Internet Explorer) with the Operating System. • DOS gaming began to disappear as Windows based games improved. • Plug and play feature was introduced.
Windows NT			<ul style="list-style-type: none"> • Designed to act as servers in network.
Windows Me		2000	<ul style="list-style-type: none"> • It introduced automated system diagnostics and recovery tools.







Windows 2000		2000	<ul style="list-style-type: none"> Served as an Operating System for business desktop and laptop systems. Four versions of Windows 2000 were released: Professional (for business desktop and laptop systems), Server (both a Web server and an office server), Advanced Server (for line-of-business applications) and Data Centre Server (for high-traffic computer networks).
Windows XP		2001	<ul style="list-style-type: none"> Introduced 64-bit Processor. Improved Windows appearance with themes and offered a stable version.
Windows Vista		2006	<ul style="list-style-type: none"> Updated the look and feel of Windows.
Windows 7		2009	<ul style="list-style-type: none"> Booting time was improved, introduced new user interfaces like Aero Peek, pinning programs to taskbar, handwriting recognition etc. and Internet Explorer 8.
Windows 8		2012	<ul style="list-style-type: none"> Windows 8 is faster than previous versions of Windows. Start button was removed. Windows 8 takes better advantage of multi-core processing, solid state drives (SSD), touch screens and other alternate input methods. Served as common platform for mobile and computer.
Windows 10		2015	<ul style="list-style-type: none"> Start Button was added again. Multiple desktop. Central Notification Center for App notification and quick actions. Cortana voice activated personal assistant.

Table 5.1 Versions of Windows Operating System.

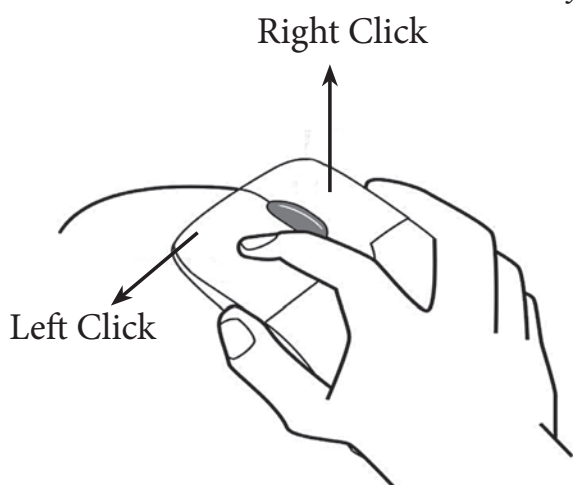


Figure 5.2. Mouse actions

The following are the mouse actions:

Action	Reaction
Point to an item	Move the mouse pointer over the item.
Click	Point to the item on the screen, press and release the left mouse button.
Right click	Point to the item on the screen, press and release the right mouse button. Clicking the right mouse button displays a pop up menu with various options.
Double-click	Point to the item on the screen, quickly press twice the left mouse button.

Drag and drop	Point to an item then hold the left mouse button as you move the pointer press and you have reached the desired position, release the mouse button.
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5.5. Windows Desktop

The opening screen of Windows is called “Desktop”.

The desktop of your computer may look different from what is seen in Figure 5.3.

This is because Windows allows you to change the appearance of the desktop.

In Figure 5.3, the desktop shows the Start button, Taskbar, Notification Area and date and time.

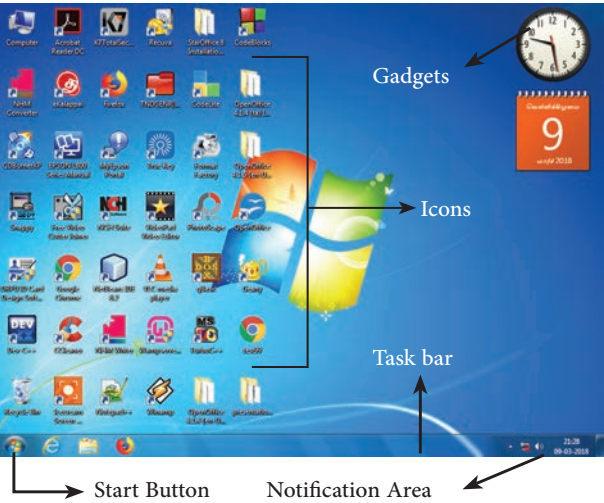


Figure 5.3. Microsoft Windows 7 Desktop

5.5.1. The Icons

Icon is a graphic symbol representing the window elements like

files, folders, shortcuts etc., Icons play a vital role in GUI based applications.

5.5.1.1.Standard Icons

The icons which are available on desktop by default while installing Windows OS are called standard icons. The standard icons available in all Windows OS are My Computer, Documents and Recycle Bin.

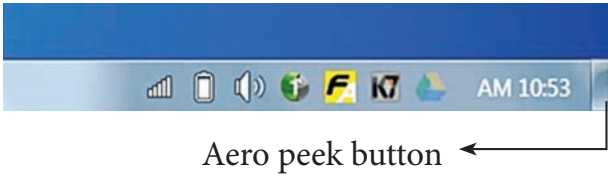


Figure 5.4. Aero peek button

5.5.1.2. Shortcut Icons:

Shortcut icons can be created for any application or file or folder. By double clicking the icon, the related application or file or folder will open.

(Figure5.5)



Figure 5.5.The types of Icons

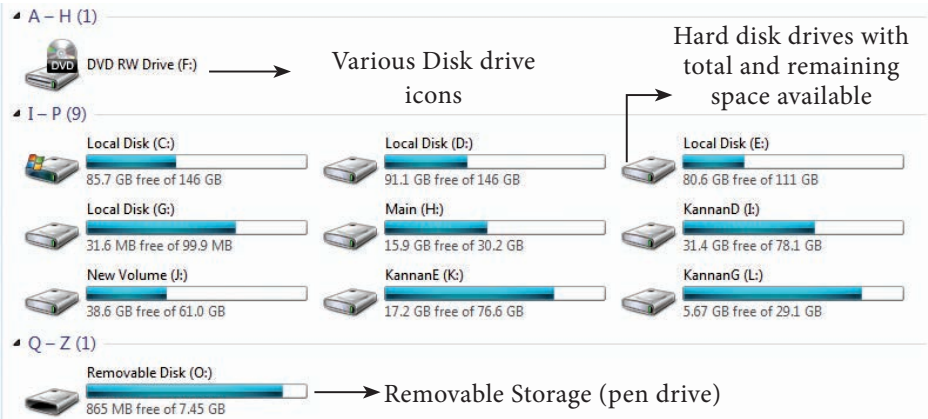


Figure 5.6.Disk drive Icons

5.5.1.3. Disk drive icons:

The disk drive icons graphically represent five disk drive options. (i) Hard disk (ii) CD-ROM/DVD Drive (iii) Pen drive (iv) Other removable storage such as mobile, smart phone, tablet etc., (v) Network drives if your system is connected with other system.

DO YOU KNOW? You can move to the Desktop any time by pressing the Winkey + D or using Aero Peek while working in any application. You can see Figure 5.4 to know where Aero peek lies in the Taskbar.

Note

When you open any application, such as OpenOffice Writer, OpenOffice Impress or OpenOffice Calc etc., you will find two Windows on the screen. The larger Window is called the Application Window. This Window helps the user to communicate with the Application program. The smaller window, which is inside the Application Window, is called the Document window. This Window is used for typing, editing, drawing, and formatting the text and graphics.

5.6. The Window

Window is a typical rectangular area in an application or a document. It is an area on the screen that displays information for a specific program.

5.7. Application Window

It is an area on a computer screen with defined boundaries, and within which information is displayed. Such windows can be resized, maximised, minimised, placed side by side, overlap, and so on.

An Application Window contains an open application i.e. current application such as Word or Paint. When two or more windows are opened, only one of them is active and the rest are inactive. Figures 5.6 and 5.7 display the Application Window of OpenOffice Writer and the appearance of the Multiple Windows opened (overlapped) in the Desktop.

5.8. Document Window

A document window is a section of the screen used to display the contents of a document. Figure 5.8 is an example of a document window.

Title bar with title of the document

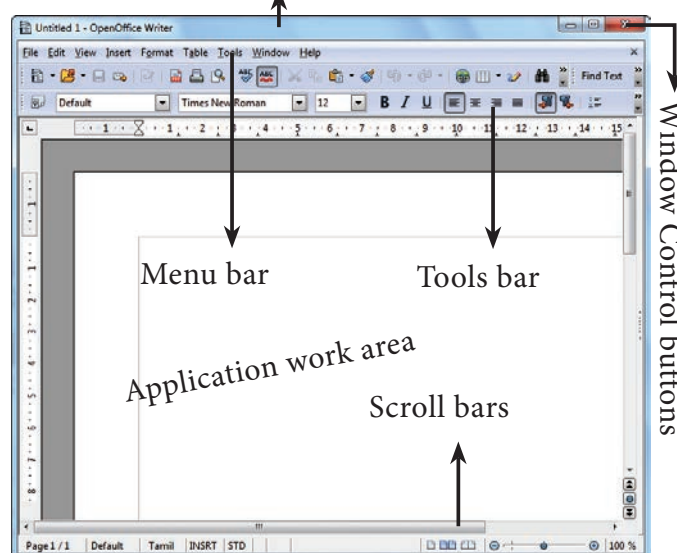


Figure 5.6. Application Window

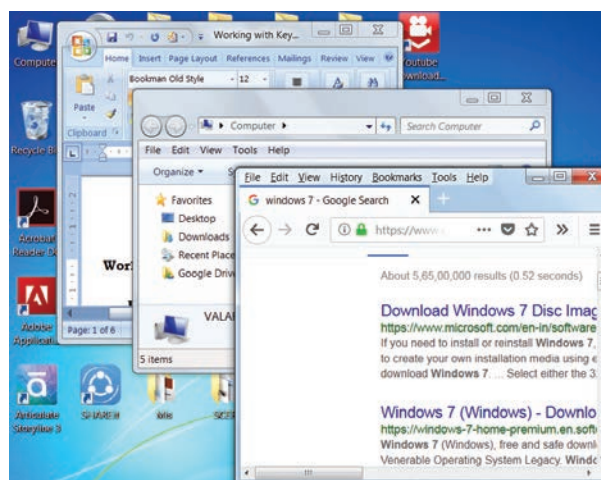


Figure 5.7. Multiple Windows opened in Desktop

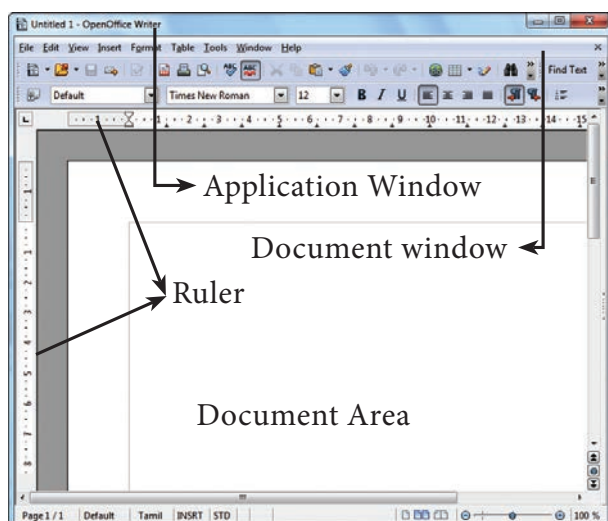


Figure 5.8.Document Window

5.9. Elements of a window

Figure 5.9 helps to understand the elements of a window.

5.9.1. Title Bar – The title bar will display the name of the application and the name of the document opened. It will also contain minimize, maximize and close button.

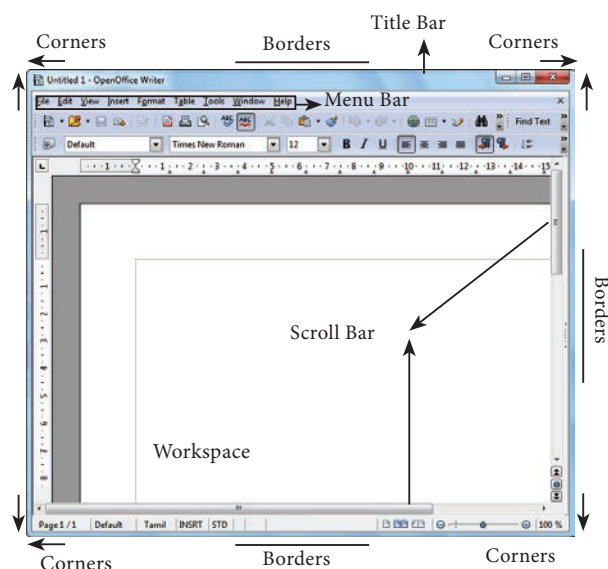


Figure 5.9 The elements of a window.

5.9.2 Menu Bar

The menu bar is seen under the title bar. Menus in the menu bar can be accessed by pressing Alt key and the letter that appears underlined in the menu title. Additionally, pressing Alt or F10 brings the focus on the first menu of the menu bar.

In Windows 7, in the absence of the menu bar, click **Organise** and from the drop down menu, click the **Layout** option and select the desired item from that list.

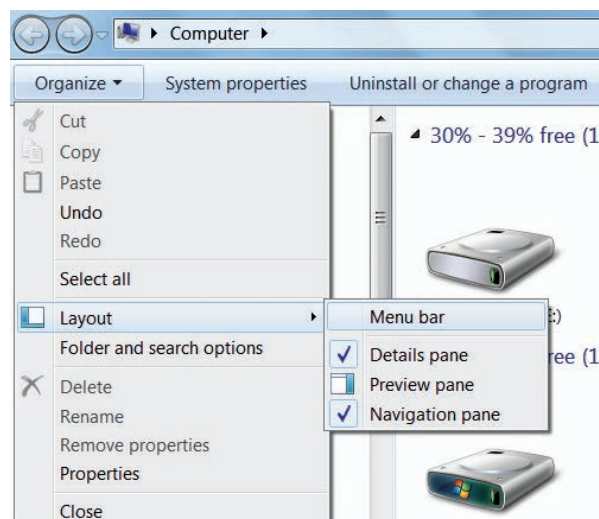


Figure 5.10. To display Menu Bar

Figure 5.10 helps to understand how to make menu bar visible in its absence.

5.9.3. The Workspace

The workspace is the area in the document window to enter or type the text of your document. Figure 5.10 Shows the workspace area in the document window.

5.9.4. Scroll bars - The scroll bars are used to scroll the workspace horizontally or vertically. Figure 5.9 shows the Scroll bars.

5.9.5. Corners and borders

The corners and borders of the window helps to drag and resize the windows. The mouse pointer changes to a double headed arrow when positioned over a border or a corner. Drag the border or corner in the direction indicated by the double headed arrow to the desired size as shown in Figure 5.9. The window can be resized by dragging the corners diagonally across the screen.

5.10.1. Start Menu

In the lower left-hand corner of the windows screen is the Start button. When you click on the button, the Start menu will appear. Using the start menu, you can start any application.

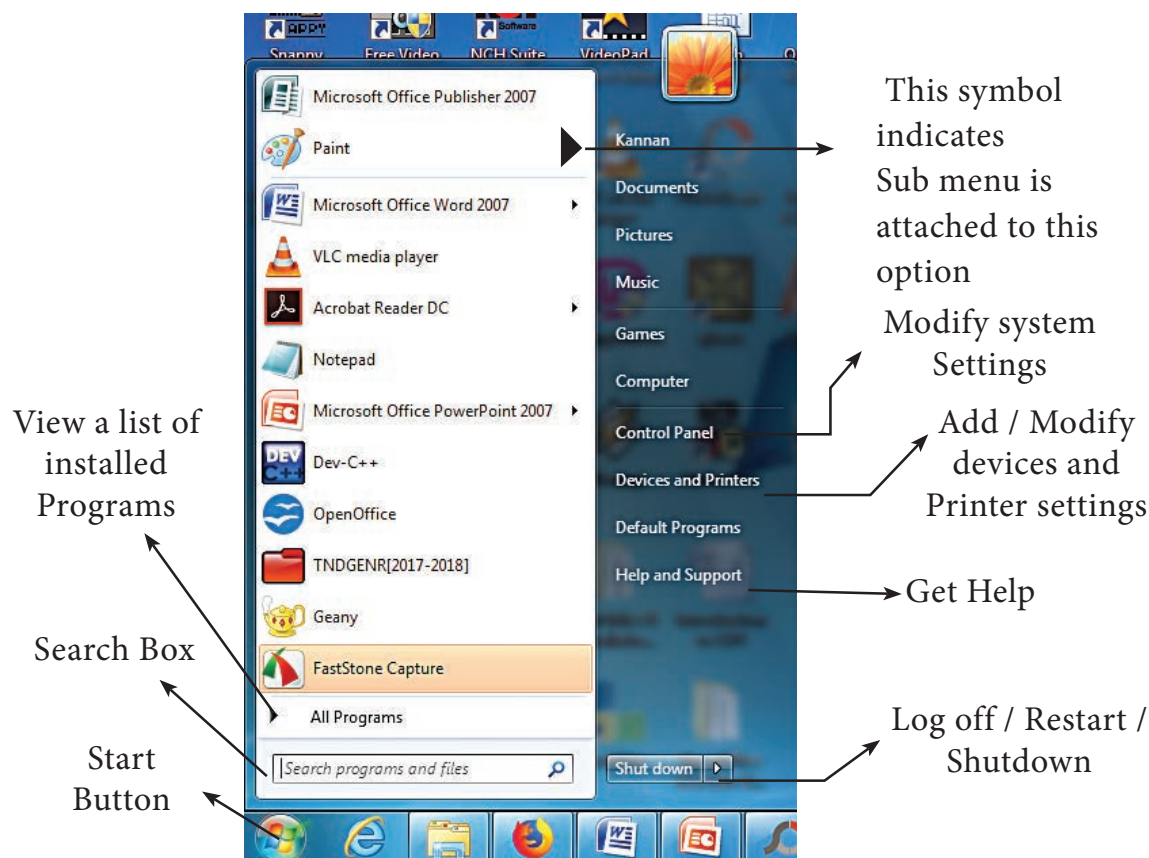


Figure 5.11 - Start Menu

Taskbar

At the bottom of the screen is a horizontal bar called the taskbar. This bar contains (from left to right) the Start button, shortcuts to various programs, minimised programs and in the extreme right corner you can see the system tray which consist of volume control, network, date and time etc. Next to the Start button is the quick Launch Toolbar which contains task for frequently used applications.

5.10.2. Computer Icon

By clicking this icon, the user can see the disk drivers mounted in the system. In windows XP, Vista, this icon is called "My computer" in Windows 8 and 10, it is called "This PC". The functionality of computer icon remains the same in all versions of windows as shown in Figure 5.13.

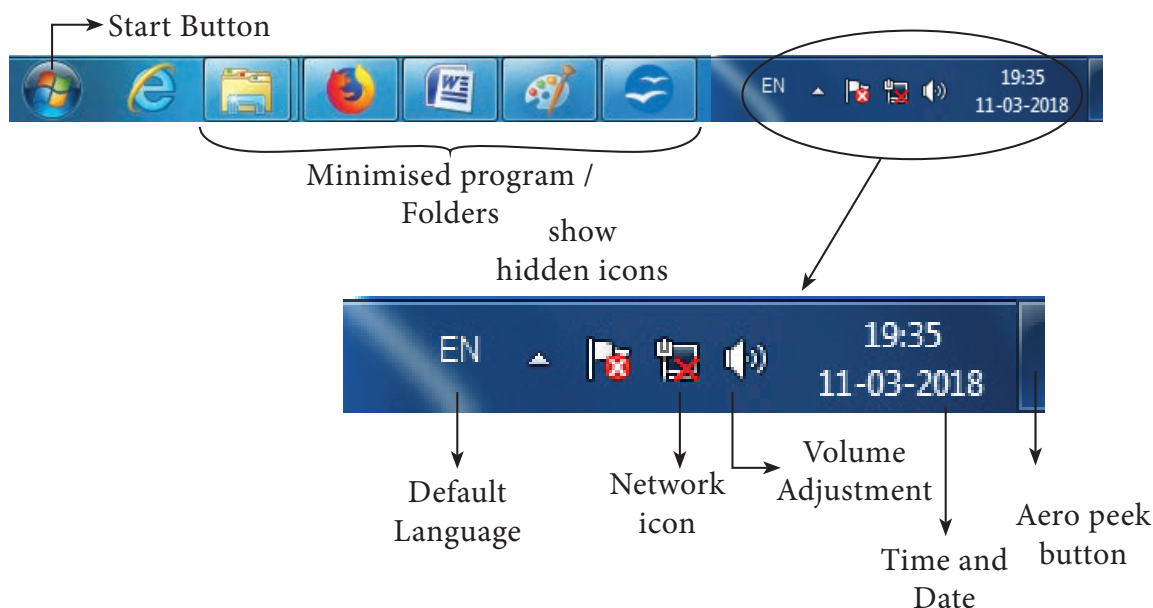


Figure 5.12. Taskbar

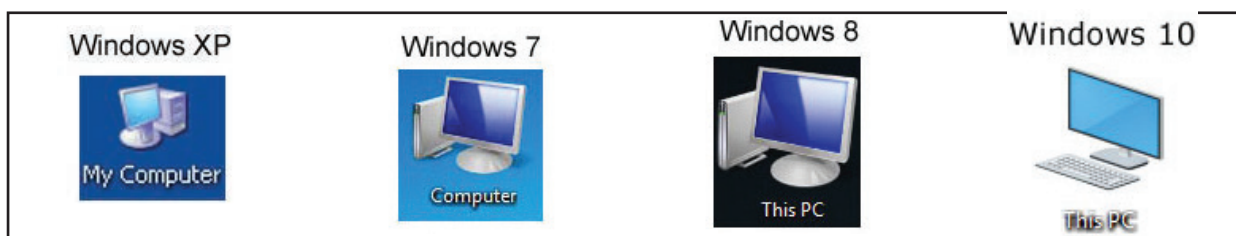


Figure 5.13. Computer icon in versions of Windows OS

5.10.3. Starting and Closing Applications

Most of the applications installed on your computer are available through the start menu. Depending on the system setup, the applications in the Start menu varies. To start an application:

1. Click the Start button and then point to All Programs. The Program menu appears. (Figure 5.14)
2. Point to the group that contains the application you want to start, and then click the application name.

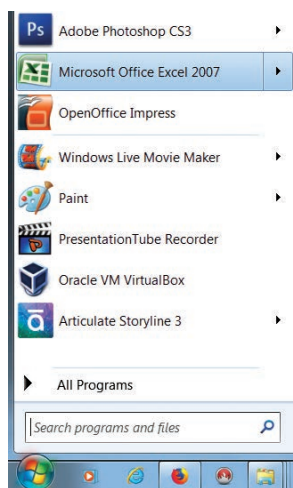


Figure 5.14. Starting a application using Start menu

3. You can also open an application by clicking Run on the Start menu, and the name of the application. (Figure 5.15)

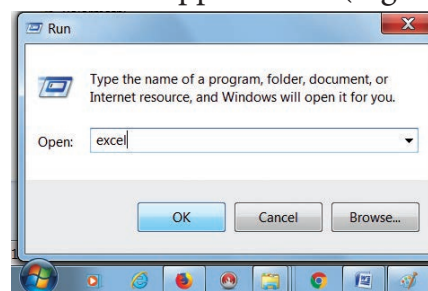


Figure 5.15. Starting a program using Run option

4. To quit an application, click the Close button in the upper right corner of the application window. (Figure 5.16)

Workshop

1. ♦ Start the application Wordpad using Start menu and Run option.
♦ Close the Wordpad application using File menu.

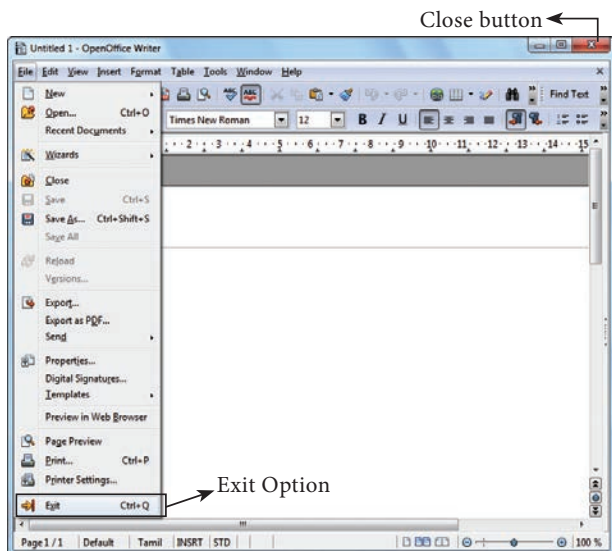


Figure 5.16. Closing the application using Close button and Exit option

5. You can also quit an application by clicking on File → Exit and File → Close option in Windows 7. (Figure 5.16)

5.11. Managing Files and Folders

In Windows 7, you can Organise your documents and programs in the form of files and folders. You can move, copy, rename, delete and search the files and folders.

5.11.1. Creating files and Folders

5.11.1.1 Creating Folders

You can store your files in many locations – on the hard disk or in other devices. To better organise your files, you can store them in folders.

There are two ways in which you can create a new folder:

Method I:

Step 1: Open **Computer** Icon.

Step 2: Open any drive where you want to create a new folder. (For example select D:)

Step 3: Click on File → New → Folder.

Step 4: A new folder is created with the default name “New folder”. (Figure 5.19)

Step 5: Type in the folder name and press Enter key. (Figure 5.20 shows the newly created Folder named “Test Folder”).

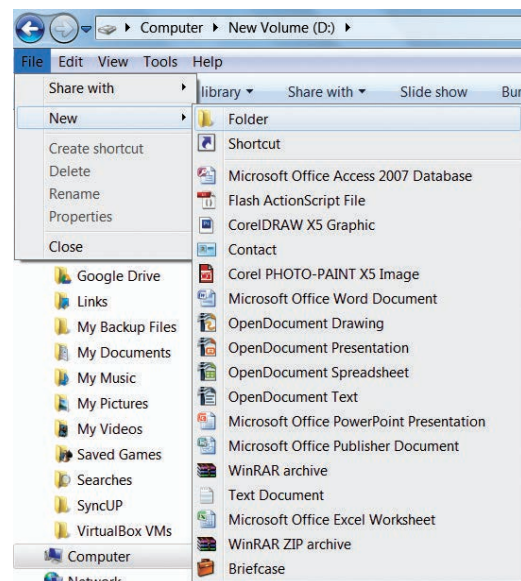


Figure 5.17. Creating a Folder using File menu

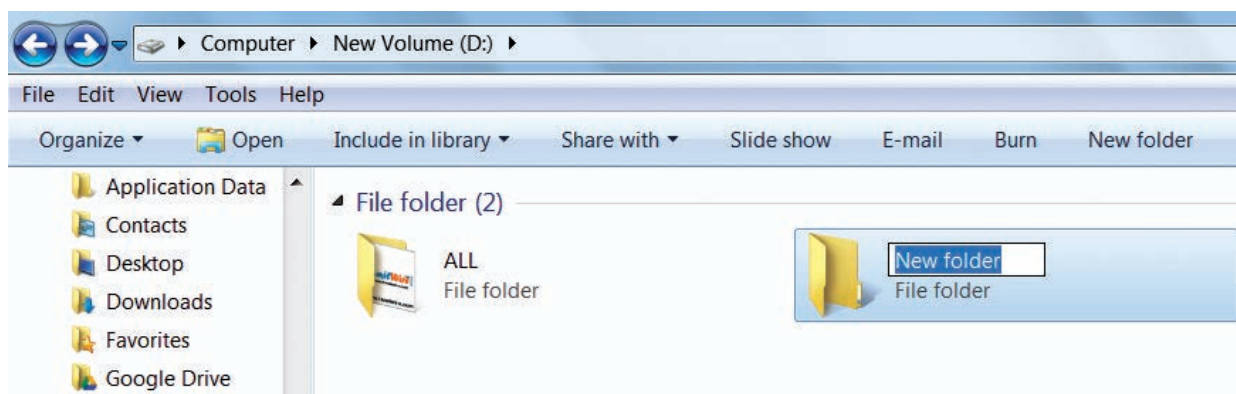


Figure 5.18. New Folder created with the default name

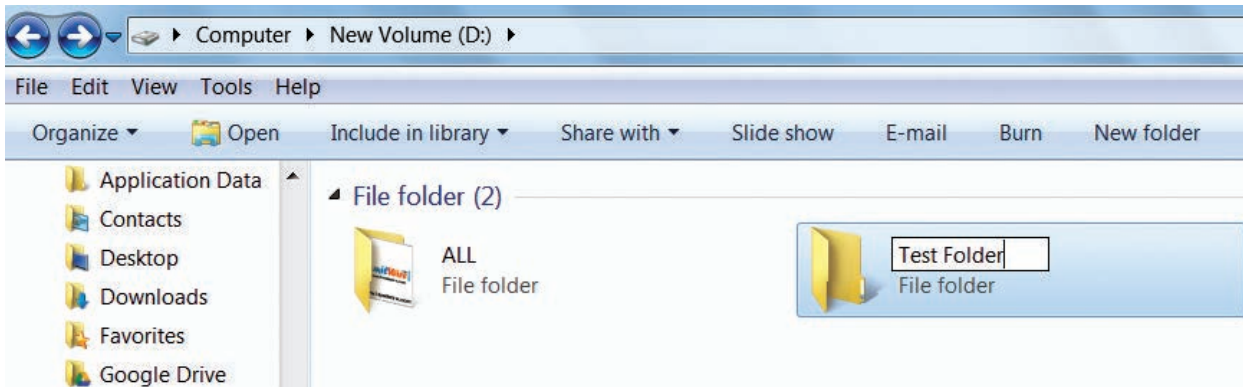


Figure 5.19. Renaming the new Folder

Method II:

In order to create a folder in the desktop:

Step 1: In the Desktop, right click → New → Folder. (Figure 5.20 Shown the procedure)

Step 2: A Folder appears with the default name “New folder” and it will be highlighted as shown in the Figure 5.22.

Step 3: Type the name you want and press Enter Key.

Step 4: The name of the folder will change.

Workshop

2. Create a Folder in My Documents with your name using any one of the methods discussed.

5.11.1.2 Creating Files (Wordpad)

Wordpad is an in-built word processor application in Windows OS to create and manipulate text documents.

In order to create files in wordpad you need to follow the steps given below.

1. Click Start → All Programs → Accessories → Wordpad or Run → type Wordpad, click OK. Wordpad window will be opened as shown in Figure 5.22.

2. Type the contents in the workspace and save the file using File → Save or Ctrl + S.
3. Save As dialog box will be opened.
4. In the dialog box, select the location where you want to save the file by using **look in** drop down list box.
5. Type the name of the file in the **file name** text box.
6. Click save button.

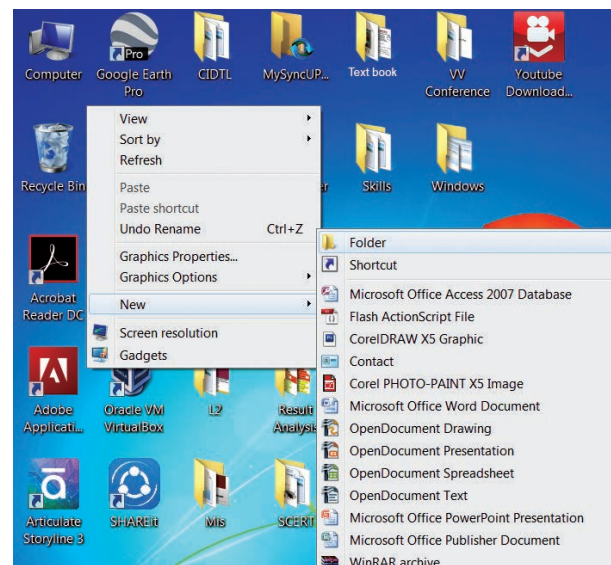


Figure 5.20. Creating a folder in the desktop

Workshop

3. Open the Wordpad application and save it under a folder created with your name in My Documents.

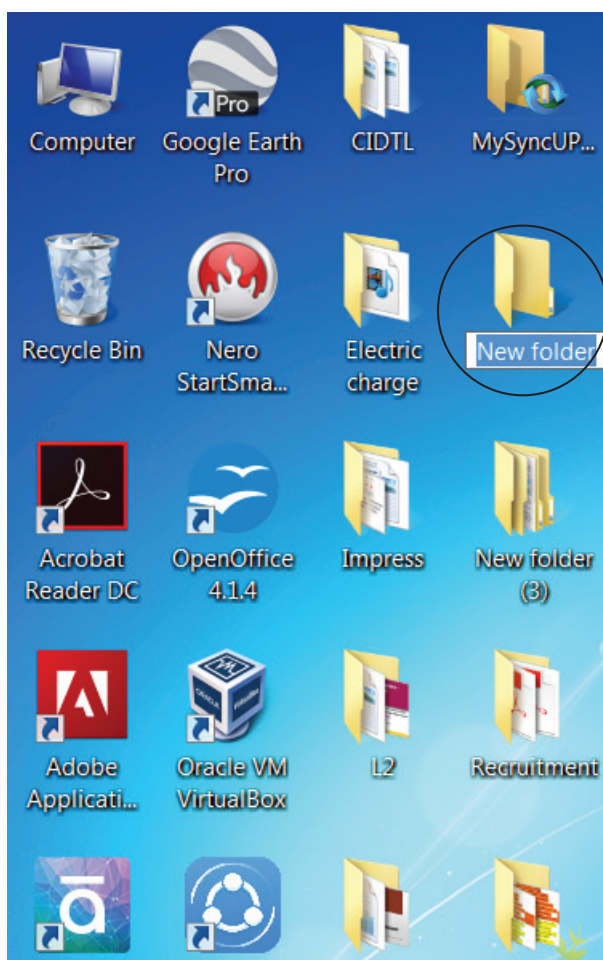


Figure 5.21 New folder icon on the desktop

5.11.2. Finding Files and Folders

You can use the **search** box on the **Start** menu to quickly search a particular folder or file in the computer or in a specific drive.

To find a file or folder:

1. Click the **Start** button, the **search** box appears at the bottom of the start menu.
2. Type the name of the file or the folder you want to search. Even if you give the part of the file or folder name, it will display the list of files or folders starting with the specified name. (Figure 5.23)
3. The files or the folders with the specified names will appear, if you

click that file, it will directly open that file or the folder.

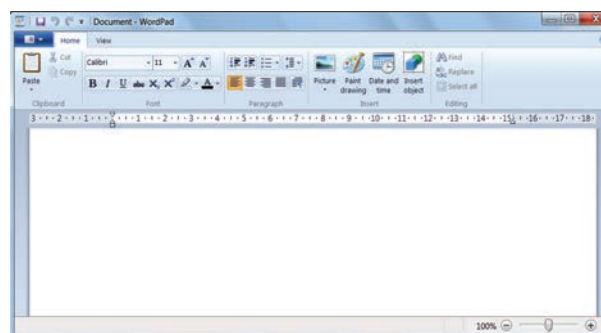


Figure 5.22. Wordpad - Word Processor application

4. There is another option called “**See more results**” which appears above the **search** box.
5. If you click it, it will lead you to a **Search Results** dialog box where you can click and open that file or the folder.

Searching Files or folders using Computer icon

1. Click **Computer Icon** from desktop or from **Start menu**.
2. The Computer disk drive screen will appear and at the top right corner of that screen, there is a **search** box option. (Figure 5.24)
3. Type the name of the file or the folder you want to search. Even if you give the part of the file or folder name, it will display the list of files or folders starting with the specified name.

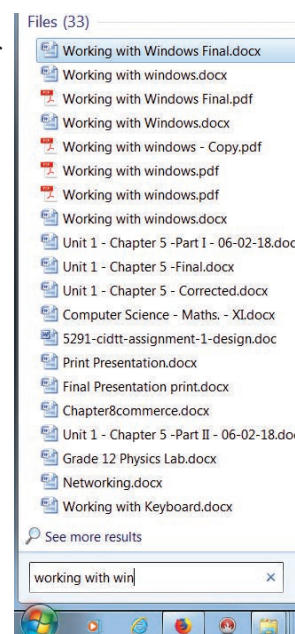


Figure 5.23. Finding a File/Folder using Start button

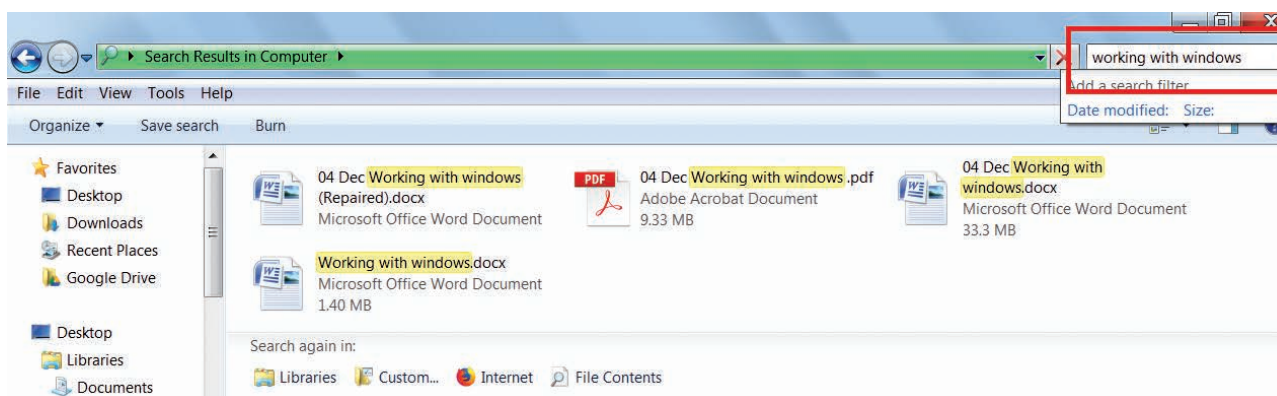


Figure 5.24. Finding a File/Folder in the Computer icon screen

4. Just click and open that file or the folder.

Workshop

4. Find the file created in Workshop-3 using the above procedure

5.11.3. Opening existing Files or Folders

The most common way of opening a file or a Folder is to double click on it.

5.11.4. Renaming Files or Folders

There are number of ways to rename files

or folders. You can rename using the File menu, left mouse button or right mouse button.

Method 1

Using the FILE Menu

1. Select the File or Folder you wish to Rename.
2. Click File→ Rename.
3. Type in the new name.
4. To finalise the renaming operation, press Enter as in Figure 5.25.

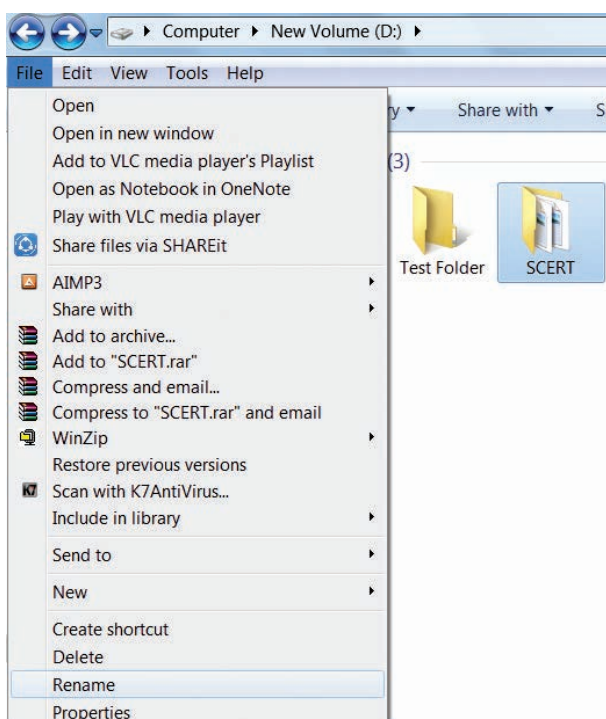


Figure 5.25. Renaming File/Folders using the File menu

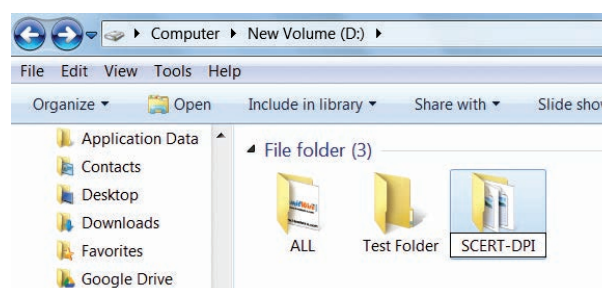


Figure 5.26. Folder renamed

Figure 5.26, you can see that the folder is renamed as SCERT-DPI from SCERT.

Method 2

Using the Right Mouse Button

1. Select the file or folder you wish to rename.
2. Click the right mouse button over the file or folder. (Figure 5.27)
3. Select Rename from the pop-up menu.

4. Type in the new name.
5. To finalise the renaming operation, press Enter.
6. Figure 5.29. Shows that the folder "New Folder" is renamed as C++.

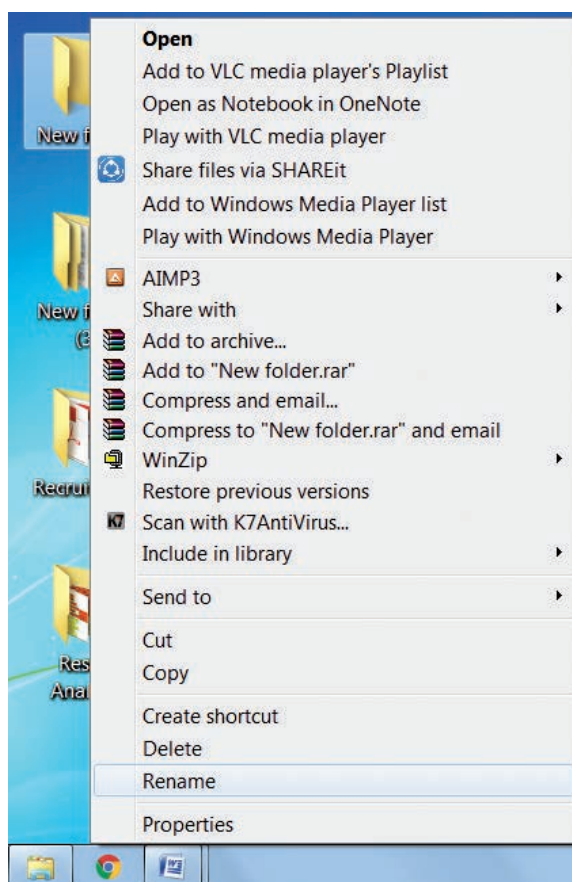


Figure 5.27. Renaming File/Folders using the Right Mouse Button

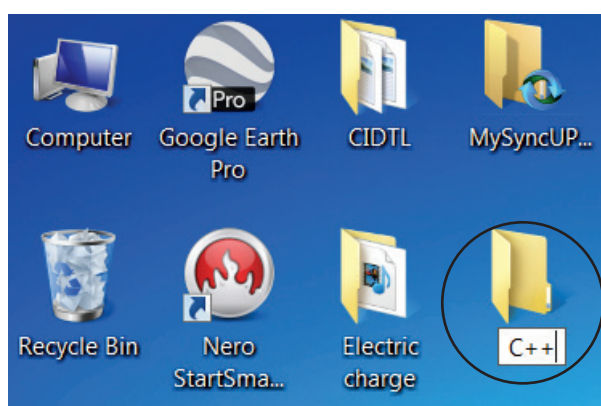


Figure 5.28. New Folder is renamed as C++

Method 3

Using the Left Mouse Button

1. Select the file or folder you wish to rename.

2. Press F2 or click over the file or folder. A surrounding rectangle will appear around the name.
3. Type in the new name.
4. To finalise the renaming operation, press Enter.

Workshop

5. Rename the file created by you using the File menu, left mouse button or right mouse button.

5.11.5. Moving/Copying Files and Folders

You can move your files or folders to other areas using variety of methods.

Moving Files and Folders

Method I-CUT and PASTE

To move a file or folder, first select the file or folder and then choose one of the following:

- Click on the **Edit** → **Cut** or **Ctrl + X** Or right **click** → **cut** from the pop-up menu.
- To move the file(s) or folder(s) in the new location, navigate to the new location and paste it using Click **Edit** → **Paste** from edit menu or **Ctrl + V** using keyboard.
- Or Right **click** → **Paste** from the pop-up menu. The file will be pasted in the new location.

Method II – Drag and Drop

In the disk drive window, we have two panes called left and right panes. In the left pane, the files or folders are displayed like a tree structure. In the right pane, the files inside the specific folders in the left pane are displayed with various options.

- In the right pane of the Disk drive window, select the file or folder you want to move.
- Click and drag the selected file or folder from the right pane, to the folder list on the left pane.
- Release the mouse button when the target folder is highlighted (active).
- Your file or folder will now appear in the new area. Figure 5.29 shows how to move files or folders using drag and drop method.

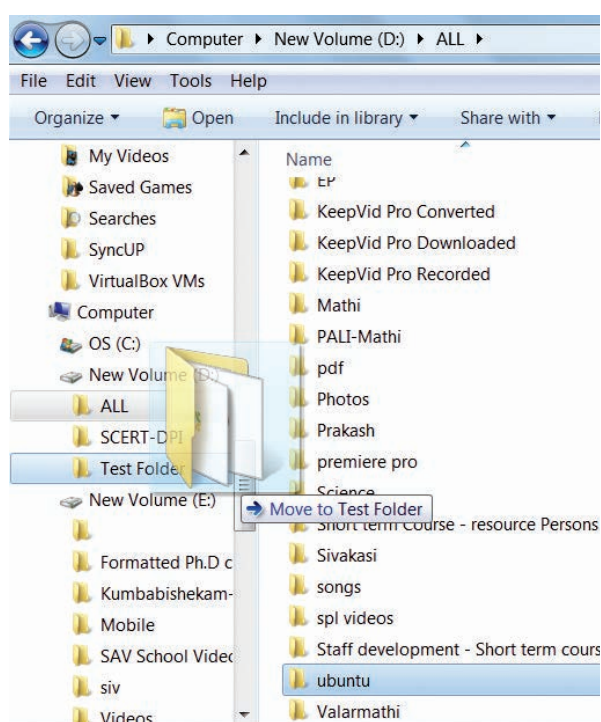


Figure 5.29. Moving the File/
Folder using drag and drop

Copying Files and Folders

There are variety of ways to copy files and folders:

Method I - COPY and PASTE

To copy a file or folder, first select the file or folder and then choose one of the following:

- Click **Edit** → **Copy** or **Ctrl + C** or **right click** → **Copy** from the pop-up menu.

- To paste the file(s) or folder(s) in the new location, navigate to the target location then do one of the following:
- Click **Edit** → **Paste** or **Ctrl + V**.
- Or **Right click** → **Paste** from the pop-up menu.

Method II – Drag and Drop

- In the RIGHT pane, select the file or folder you want to copy.
- Click and drag the selected file and/or folder to the folder list on the left, and drop it where you want to copy the file and/or folder.
- Your file(s) and folder(s) will now appear in the new area.

Note

If you want to select multiple files or folders, use **Ctrl + Click**.

5.11.6. Copying Files and Folders to removable disk

There are several methods of transferring files to or from a removable disk.

- Copy and Paste
- Send To

METHOD I - Copy and Paste

- Plug the USB flash drive directly into an available USB port.
- If the USB flash drive or external drive folder does NOT open automatically, follow these steps:
- Click Start → Computer. (Figure 5.31)



Figure 5.30. Selecting Computer option from Start menu

- Double-click on the Removable Disk associated with the USB flash drive. (Figure 5.31)

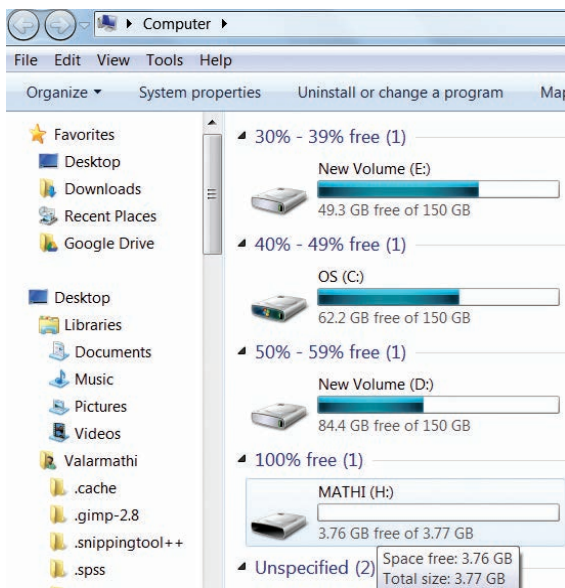


Figure 5.31. Double Clicking Removable Disk

- Navigate to the folders in your computer containing files you want to transfer.

Right-click on the file you want to copy, then select **Copy**. (Figure 5.32)

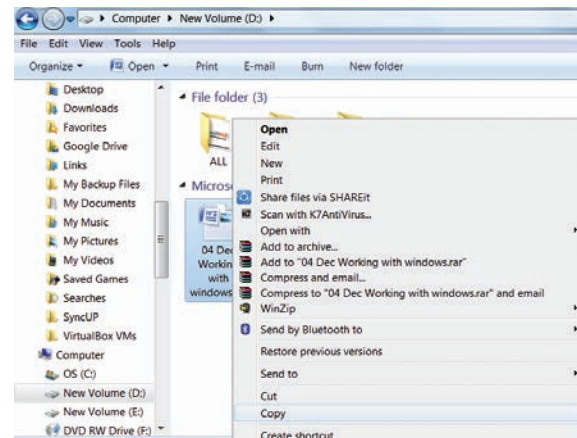


Figure 5.32. Copying File using right click

- Return to the Removable Disk window, right-click within the window, then select **Paste**. (Figure 5.33)

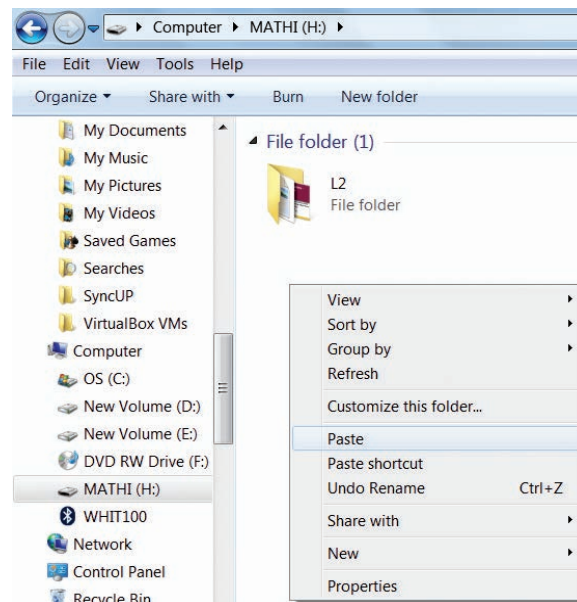


Figure 5.33. Pasting File using right click

METHOD II - Send To

- Plug the USB flash drive directly into an available USB port.
- Navigate to the folders in your computer containing files you want to transfer.
- Right-click on the file you want to transfer to your removable disk.
- Click **Send To** and select the Removable Disk associated with the USB flash drive. (Figure 5.34)



Workshop

6. ♦ Move the file created by you in My Documents to Drive D.

♦ Copy the file created by you from drive D: to a removable disk.

Workshop

7. Delete the file created by you after duplicating the same under My Documents.

Note

To permanently delete a file or folder (i.e. to avoid sending a file or folder to the Recycle Bin), hold down the SHIFT key, and press **delete** on the keyboard.

5.11.7. Deleting Files and Folders

- When you delete a file or folder, it will move into the Recycle Bin.

To delete a file or folder:

Select the file or folder you wish to delete.

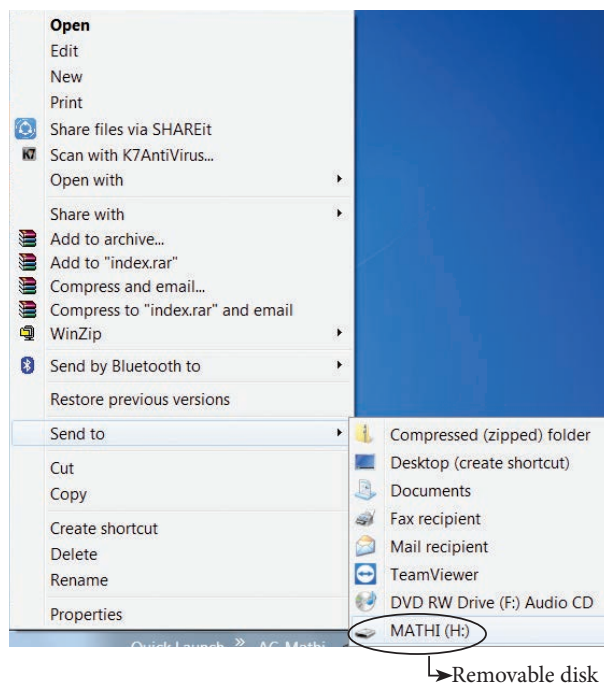


Figure 5.34. Copying File using Send to option

1. Right- click the file or folder, select **Delete** option from the po-pup menu or Click **File** → **Delete** or press **Delete** key from the keyboard.
2. The file will be deleted and moved to the Recycle bin.

Recycle Bin

Recycle bin is a special folder to keep the files or folders deleted by the user, which means you still have an opportunity to recover them. The user cannot access the files or folders available in the Recycle bin without restoring it. To restore file or folder from the Recycle Bin

- *Open Recycle bin.*
- Right click on a file or folder to be restored and select **Restore** option from the pop-up menu.
- To restore multiple files or folders, select **Restore all items.**
- To delete all files in the Recycle bin, select **Empty the Recycle Bin.**

5.12. Creating Shortcuts on the Desktop

Shortcuts to your most often used folders and files may be created and placed on the Desktop to help automate your work.

- Select the file or folder that you wish to have as a shortcut on the Desktop.
- Right click on the file or folder.
- Select **Send to** from the shortcut menu, then select **Desktop (create shortcut)** from the sub-menu.
- A shortcut for the file or folder will now appear on your desktop and you can open it from the desktop in the same way as any other icon. Figure 5.36.

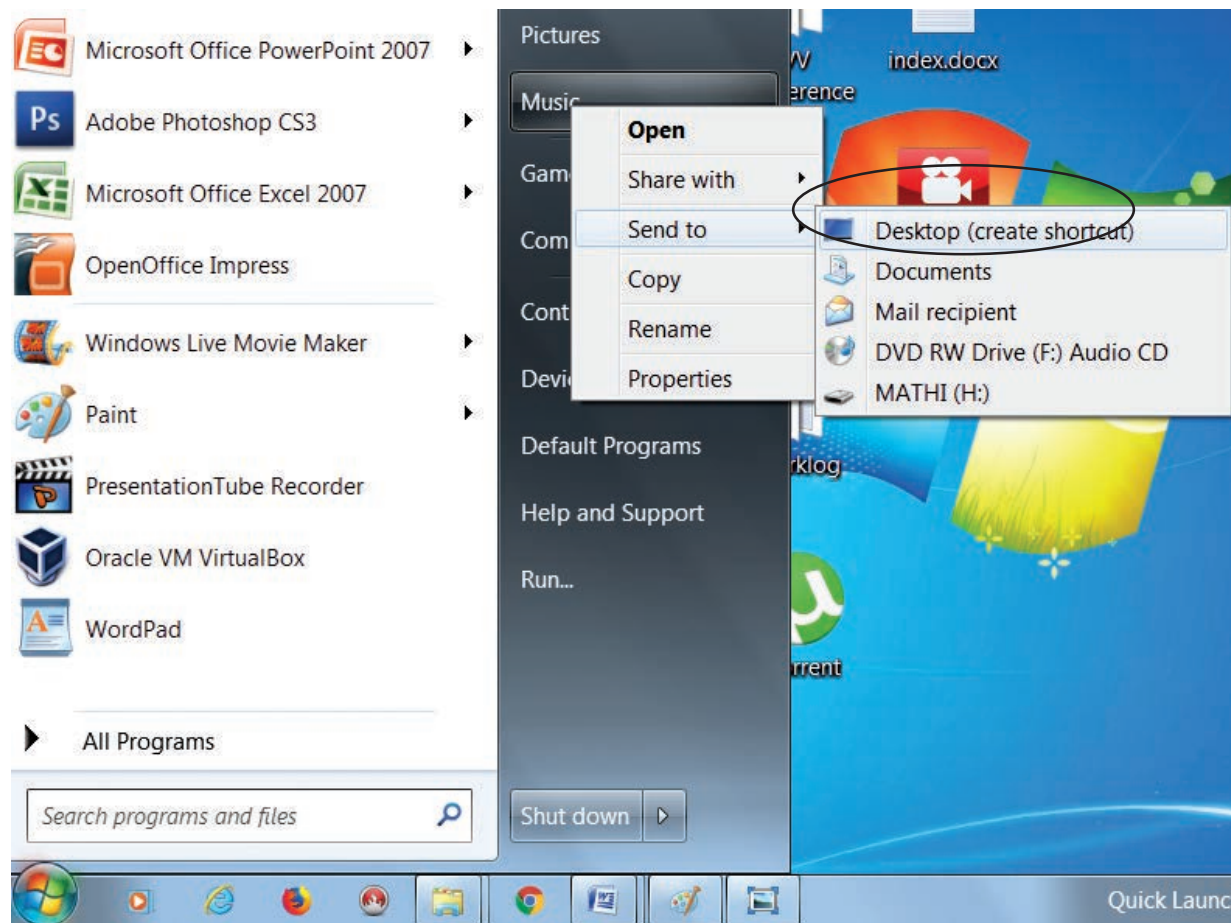


Figure 5.35 Creating Shortcut

5.13. Shutting down or Logging off a Computer

Once you have closed all open applications, you can either log off your computer or shut down the computer.

Log Off

To Log off/Shut down the computer:

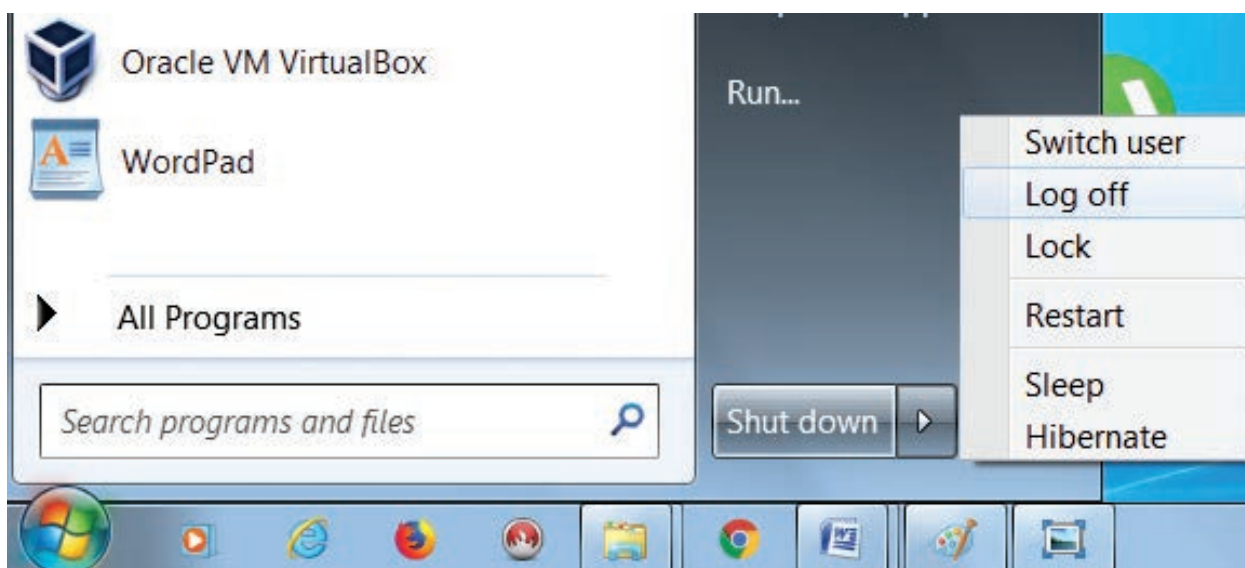


Figure 5.36. Log off option



- Click **start** → **log off** (click the arrow next to Shut down) or **Start** → **Shutdown** (Figure 5.37)
- If you have any open programs, then you will be asked to close them or windows will Force shut down, you will lose any un-saved information if you do this.
- **Switch User:** Switch to another user account on the computer without closing your open programs and Windows processes.
- **Log Off:** Switch to another user account on the computer after closing all your open programs and Windows processes.
- **Lock:** Lock the computer while you're away from it.
- **Restart:** Reboot the computer. (This option is often required as part of installing new software or Windows update.)
- **Sleep:** Puts the computer into a low-power mode that retains all running programs and open Windows in computer memory for a super-quick restart.
- **Hibernate** (found only on laptop computers): Puts the computer into a low-power mode after saving all running programs and open Wwindows on the machine's hard drive for a quick restart.

Activity



Student Activity


1. Create files and folders using Windows and Ubuntu and compare them.
2. Create a File/Folder in Windows 7, Windows 8 and Windows 10. Prepare a report on the differences you face while creating the same.

Evaluation



Part – I

Choose the correct answer

1. From the options given below, choose the operations managed by the operating system.
 - a. Memory
 - b. Processes
 - c. Disks and I/O devices
 - d. all of the above
2. Which is the default folder for many Windows Applications to save your file?
 - a. My Document
 - b. My Pictures
 - c. Documents and Settings
 - d. My Computer
3. Under which of the following OS, the option Shift + Delete – permanently deletes a file or folder?
 - a. Windows 7
 - b. MS-DOS
 - c. Linux
 - d. Android OS
4. What is the meaning of "Hibernate" in Windows XP/Windows 7?
 - a. Restart the Computer in safe mode
 - b. Restart the Computer in hibernate mode
 - c. Shutdown the Computer terminating all the running applications
 - d. Shutdown the Computer without closing the running applications
5. The shortcut key used to rename a file in windows
 - a. F2
 - b. F4
 - c. F5
 - d. F6



Part – II

Very Short Answers

1. What is known as Multitasking?
2. What are called standard icons
3. Differentiate Files and Folders.
4. Differentiate Save and save As option.
5. How will you Rename a File?

Part-III

Short Answers

1. What are the functions of Windows Operating system.

2. Write a note on Recycle bin.
3. Write a note on the elements of a window.
4. Write the two ways to create a new folder.
5. Differentiate copy and move

Part-IV

Explain in Detail

1. Explain the versions of Windows Operating System.
2. Explain the different ways of finding a file or Folder
3. Write the procedure to create shortcut in Windows OS.



Operating System (OS)	System software that enables the hardware to communicate and operate with other software.
Mouse	Handheld hardware input device that controls a cursor in a GUI and can move and select text, icons, files, and folders.
Windows	Familiar operating system developed by Microsoft Corp.
Desktop	Opening screen of Windows operating system.
Icon	Tiny image representing a command.
Folder	Container of files
Linux	An operating system.