10

INTRODUCTION TO OPERATING SYSTEM

In the previous lesson you have learnt about what is computer and how it works. This lesson introduces about operating system. An operating system is the most essential system software that enables a computer to run and execute programs. Without an operating system, you cannot get a computer to be of any practical use since the computer's hardware will not be able to communicate with any application software. Operating System is the main software that makes it possible for you to use the computer and have the tasks performed as per your need.

OBJECTIVES

After reading this lesson you will be able to:

● explain the concept of Operating System;

● identify various types of Operating Systems available;

● describe Operating System and its components.

10.1 OPERATING SYSTEM

An operating system or OS is a software that manages hardware resources and provide common services for computer programs. Without operating system, a computer and software programs would be useless. Application programs usually require an operating system to function.

As shown in figure below (Fig 10.1) the operating system manages the various hardware components, including the CPU, memory, storage devices and peripheral devices. It also coordinates with the various software applications that may be running.
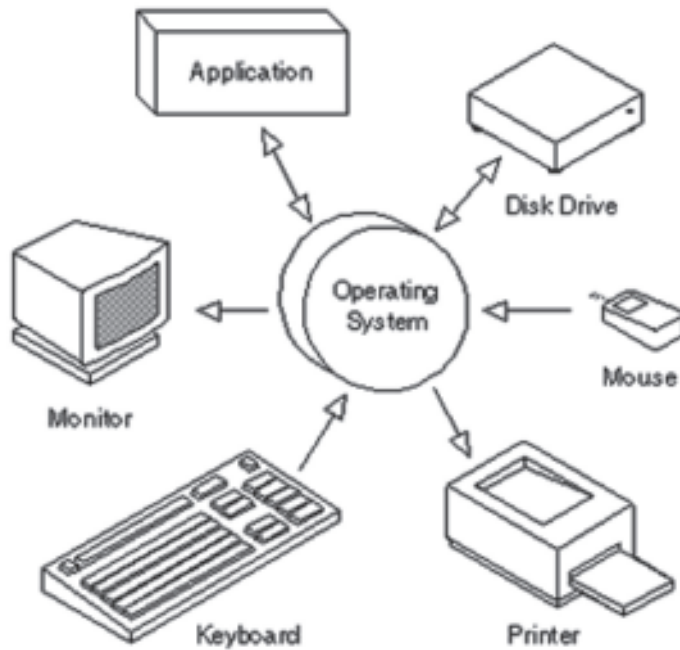
Fig 10.1 : Device Management by Operating System

10.2 MOST POPULAR OPERATING SYSTEMS

There are several popular operating systems available for home-computers. They include Microsoft Windows, Mac OS, and Linux.
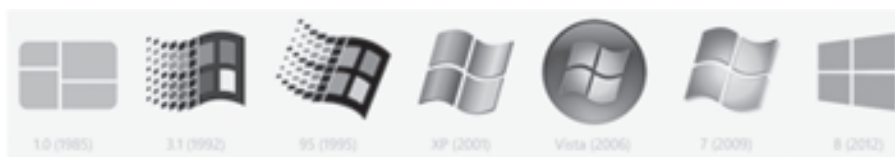
10.2.1 Microsoft Windows

Fig 10.2 : Windows Operating System

When referring to an operating system, **Windows** or **win** is an operating environment created by Microsoft that provides an interface, known as a Graphical User Interface (GUI), for computers.

Microsoft Windows was first introduced with version 1.0 on November 10, 1983. Since its release, there have been over a dozen versions of Windows. The most current version of Windows for end users is Windows 10. This is the most commonly used operating system found on most of today's desktops and notebooks.

Notes

10.2.2 Mac OS -

The Mac OS is an operating system that was designed for the Apple Macintosh computer. It was developed by Apple Inc., who also created Apple I, as well as a number of other more modern products including the iPod, iPhone, and iPad. The main competition to the Mac OS is the Windows operating system, the most popular OS by a large margin.

The Mac OS only runs on Apple desktop and Laptop computers. The first version of the Mac OS, part of the "Classic" Mac OS series, was originally released in the mid-1980s. The most recent version is called **Mac OS X**. As you can see in Figure 10.3, the Mac OS appears similar to Windows, because it also uses a GUI.

Fig 10.3 : Mac OS

10.2.3 Linux -

Linux is a free and open-source operating system developed by Linus Torvalds and friends that was first announced August 25, 1991.

The system can be distributed, used, and expanded free of charge. In this way, developers have access to all the source codes, thus being able to integrate new functions or to find and eliminate programming bugs quickly. Presently, Linux is successfully being used by several millions of users worldwide. The composition of users varies from private users, training companies, universities, research centers, and companies.

Ubuntu

Ubuntu Linux(released on October 20, 2004) - A popular variant of Linux used with PC.

The Ubuntu project has a focus on providing a solid desktop (and server) experience, as shown in Fig. 10.4. Ubuntu is currently working on expanding the Ubuntu distribution to run on smartphones and tablets.

Fig 10.4 : Ubuntu Operating System

10.2.4 Android

Originally founded by Andy Rubin in October 2003 and later acquired by Google on August 17, 2005. Android is a Linux based platform and **free and open software** stack that has an operating system, middleware, and applications originally developed by Google and released in November 5, 2007 for **mobile platforms**.

Since its development there have been many different versions (more than 15 as in 2016) of Android. The latest is Android version 6.0 (Marshmallow) released October 5, 2015

10.2.5 iOS iOS

Originally known as the **iPhone OS**, iOS is the operating system that runs on **Apple iPhone**, **Apple iPad**, and **Apple iPad Touch** devices developed by Steve Jobs during the 2010. The iOS is one of the most used platforms for **mobile** devices, only slightly edged out by Android from Google

10.3 WINDOWS 10

Microsoft Windows 10 is the latest version of windows operating system, released on July 29, 2015.

Windows 10 system requirements

1GHz processor or faster 32-bit (x86) or 64-bit (x64)

1GB of RAM for 32-bit or 2GB of RAM for 64-bit

16GB of hard drive space for 32-bit or 20GB for 64-bit

DirectX 9 graphics device with WDDM 1.0 or higher.

10.3.1 Logging into Windows 10

The Windows 10 Start-up Screen (Fig. 10.5) after successful login to the system:
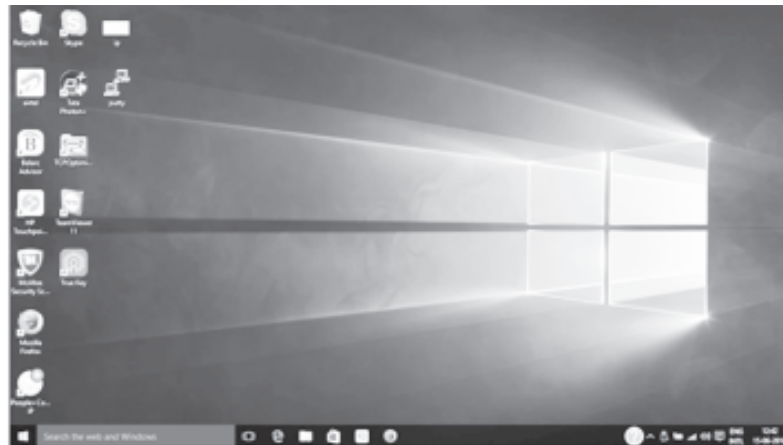

Fig 10.5 : Windows to startup screen

10.3.2 Windows 10 Start Menu

To open the Start menu, left-click the flag in the lower left corner of a Windows screen or use windows key in keyboard (Fig. 10.6).

Fig 10.6 : Windows 10 start menu

Notes

The menu is resizable and can be changed either up and down or right and left by placing the mouse pointer on the top or right edge. A double-headed arrow will appear. Hold down the mouse button and drag to expand or decrease the menu in the desired direction.

10.3.3 Structure of Windows 10 Start Menu

Start menu is divided into separate left and right sections. The left section has various useful links for you while the right section contains **tiles**.

Left side of the Windows 10 Start Menu

Looking at the left section of the menu, there are six different areas or sub-sections.

1. The top area contains a **logged in user account** link.- This gives complete information of logged your user details(name, picture) with the facility of changing the account settings, lock your system, Sign out from the logged user account.

2. The next section down is a list of the **most used program**- The menu contains the programmes that are mostly used with an extension facility, pin the programme to start(to be displayed in tile area at start), uninstall the program, don't show in the list. The programs in this section vary based on which programs are most frequently used.

3. The third section is referred as **File Explorer** - When File Explorer opens, you will land in Quick access. Your frequently used folders such as Downloads, Desktop and Documents are listed there, so you do not have to dig through a series of folders to find them. You can also pin your favourite folders to Quick access to keep them easily accessible.

4. The fourth link in the start menu is **Settings** (Fig. 10.7) – To manage your peripheral devices, accounts, display settings, network, updates and security, time & language etc.

Fig 10.7 : Windows 10 setting screen

5. The fifth link is the **Power** – to Sleep, Shutdown and Restart your computer system.

6.   The bottom section is that a way to easily access installed programs. It is called "All apps". When you click this link, the left side of the Start menu becomes a scrollable alphabetical list of programs and apps. This is shown below. (Fig. 10.8)

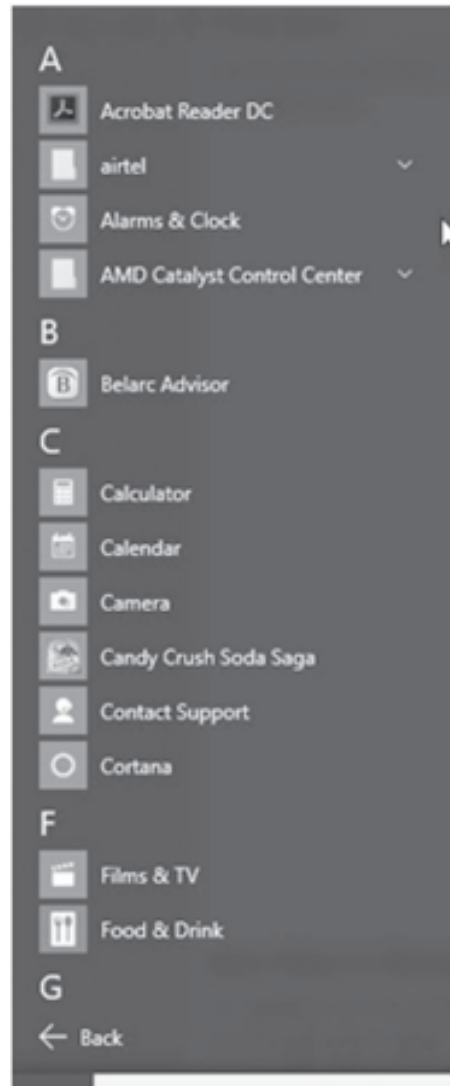**Fig 10.8 : Scrollalle alphabetical list of programs**

Right side of the Windows 10 Start Menu

This right side of Windows 10 contains a collection of tiles. The default group of tiles consists of various standard Windows apps such as Calendar, Mail, People, News, Weather and others of the type that used to be called "Windows store apps". Some of these are "live tiles". In other words, they are connected to the Internet and periodically update.
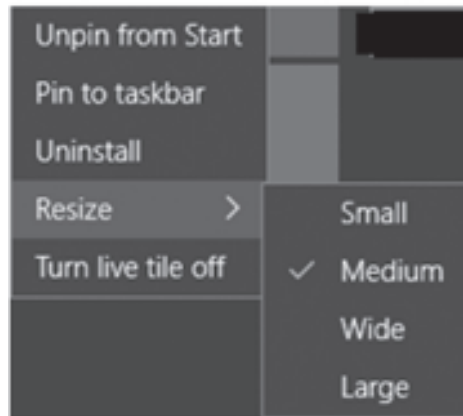
Notes

Fig 10.9 : Right slide of Windows 10 start menu

Although Windows initially populates this area with default tiles, the right side of the Start menu is highly configurable. All the default tiles can be removed and you can pin your own selection of applications and folders here as tiles. Tiles can be customized in several ways by right-clicking and using the context menu. An example of a tile context menu is shown in fig. 10.9.

To remove a tile, right-click it and select "Unpin from Start" in the context menu. There are four possible sizes for tiles and these can also be set in a tile's right-click context menu. If you do not want the live tiles to be updating, click "Turn live tile off".

To pin an application file or a folder, right-click it and use the context menu entry "Pin to Start". For example, you could pin programs and folders here that you regularly use. Tiles can be dragged around the right-hand side of the Start Menu to rearrange them in groups or however you prefer.

10.3.4 Windows 10 Taskbar

Fig 10.10 : Windows to Task bar

A bar located at the bottom of the screen called taskbar, is used to locate and launch programs, view any program that is currently open, to check the date and time, settings speaker volume etc.

If you take a closer look, you can see the following components.

First, we have the **Windows icon** – to launch Windows Start menu.

Next we have the preliminary **Cortana box** where you can type a query or use the microphone icon to indicate that you will be using your voice to ask Cortana something. Cortana is explained later in the lesson.

Next, we have the **Task View** icon that allow you to add multiple desktops.

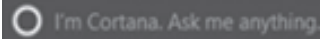The next icon on the bar is the Microsoft Edge – this opens up Microsoft's famous internet browser – Edge.

Next, there is an icon for **File Explorer** which allows you to get a view of your files.

Next, there is an icon for the **Windows Store**. This opens up the store in a window that can be resized, maximized and closed back down. Windows store contains apps that can be downloaded and stored for use.

Finally the **Sytem Tray** or Shell notification area is in the extreme right hand side of the task bar.

Some of the common program icons displayed in the Notification Area include:Sound (Speakers),Power Options, Network connection, Antivirus program, Action Centre/ Windows update notification, Date and Time Settings

Notes

10.3.5 Cortana in Windows 10   ◯ I'm Cortana. Ask me anything.

Cortana (fig. 10.11) is an intelligent voice-activated personal assistant. You can use it to get weather forecasts, set reminders, tell you jokes, send email, find files, search the Internet and so on.
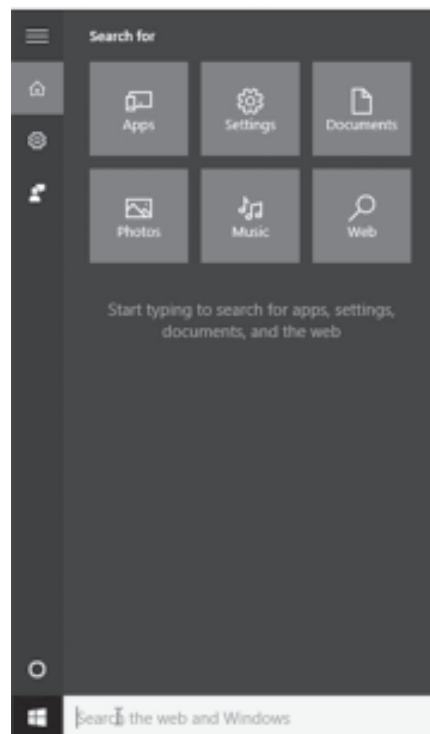

Fig 10.11 : Cortana in Windows 10

To get started, type a question in the search box on the taskbar. Or select the microphone icon and talk to Cortana.

Notes

10.3.6 File Explorer

The File Explorer program, formerly known as Windows Explorer (Fig. 10.12), has been a core element of the operating system for decades. It helps you to work with files and folders on your OneDrive, PC, and network.

The **Quick Access** area, which by default is the first section of the Navigation Pane in the left-hand column, is essentially a "Bookmarks" bar for File Explorer. It shows both your most recently-accessed folders and "pinned" folders, folders that you manually assign to this area. You can do this with any folder in Windows: just right-click or long-press any folder on any screen, then click "Pin to Quick access."
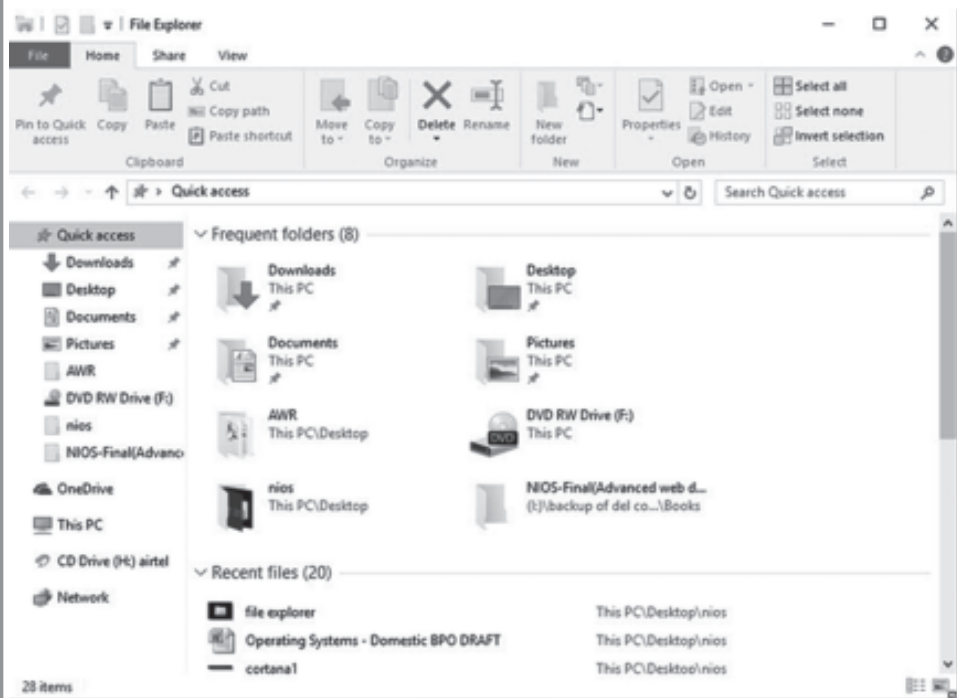

Fig 10.12 : File Explorer

OneDrive, Microsoft's cloud storage service, gets a dedicated folder beneath the Quick Access area. Other folders on your computer are available in a tree view below OneDrive.

File Explorer has a search bar, just like most modern Internet browsers. It's an integrated part of Windows, but when you use the Search function in File Explorer itself, your search will be limited to the folder you currently have open (plus any files contained in folders inside that folder).

With Windows 10 **Share** feature (as shown in fig. 10.13), users have the opportunity to share their content with local accounts and the world at large, all from the same place.
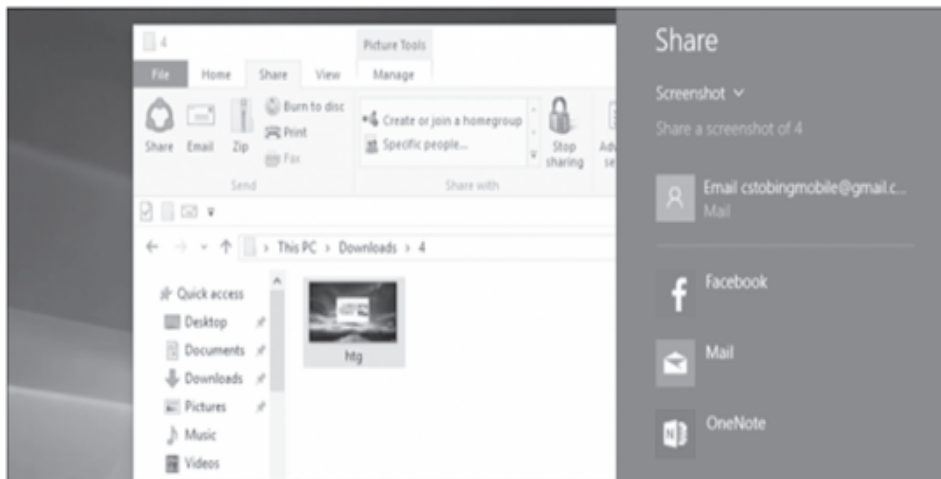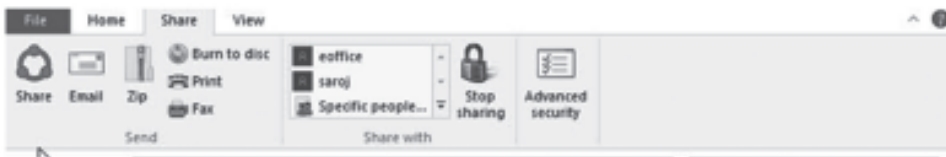

Fig 10.13: Windows 10 Share feature

Also windows explorer has the option to email pictures, documents, and files to anyone on your contact list in an instant.

10.3.7 Microsoft Edge -

Microsoft Edge, the new browser in Windows 10, is designed to deliver a better web experience. It's fast, compatible, and built for the modern web—designed to work the way you do and help you get things done through easy sharing, reading, discovery, and more.

10.3.8 Windows Defender

Windows Defender is the anti-virus software in Windows 10. The moment Windows 10 is installed, Windows Defender comes along with it. By default your system is being protected, so there's no need to download and install another anti-virus software right away. Windows Defender uses real-time protection to scan everything you download or run on your PC.

Notes

INTEXT QUESTIONS 10.1

I.   Fill in the blanks.

1.   _____ enables hardware and application software to perform together.

2.   Windows 10 provides _____ as the default antivirus program.

II.   Choose the best option.

3.   Which operating system is used by Apple manufactured computers?

   (a)   Windows 10

   (b)   Mac OS

   (c)   Linux

   (d)   Android

4.   'Settings' item in the start menu can be used to _____.

   (a)   Power down the system

   (b)   Change logged on user

   (c)   Select a file

   (d)   To change the language

5.   'Power' item in the Start menu can be used to _____.

   (a)   Power up the system

   (b)   Change the logged on user

   (c)   Select a file

   (d)   To restart the computer

6.   Logged in user can be changed from which item from the start menu?

   (a)   Power

   (b)   Logged in user account

   (c)   Settings

   (d)   File Explorer

7.   Where is the Cortana Box located?

   (a)   In the file explorer

   (b)   In the files section

   (c)   In the most used list

   (d)   In the task bar

8. Recently opened files be immediately accessed through_____.

    (a) Settings

    (b) Most used Programs

    (c) Quick access

    (d) Logged in user account

WHAT YOU HAVE LEARNT

In this lesson you have learnt what is an operating system and most popular operating systems available in the market such as Mac OS, Linux, Android, iOS and Windows 10. Also You have learnt about, the Windows 10 Operating System and its various components like start menu, taskbar, cortana, file explorer, one drive, Microsoft edge, Windows defender.

TERMINAL EXERCISE

1. Define Operating System.

2. Explain the most popular Operating Systems available in the market.

3. Write short notes on:

    A. Cortana in Windows 10

    B. File Explorer

    C. Task Bar

    D. Structure of Windows 10 Start Menu

ANSWERS TO INTEXT QUESTIONS

10.1

I. 1. Operating System

    2. Windows Defender

II. 3. b. Mac OS

    4. d. Change the language

    5. d. to restart the computer

    6. b. logged in user account

    7. d. in the task bar

    8. c. Quick Access