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Unit-1: introduction to computers

Being a modern-day kid you must have used, seen, or read about computers. This is because they are an integral part of our everyday existence. Be it school, banks, shops, railway stations, hospital or your own home, computers are present everywhere, making our work easier and faster for us. As they are such integral parts of our lives, we must know what they are and how they function. Let us start with defining the term computer formally.

The literal meaning of computer is a device that can calculate. However, modern computers can do a lot more than calculate. **Computer** is an electronic device that receives input, stores or processes the input as per user instructions and provides output in desired format.

Input-Process-Output Model

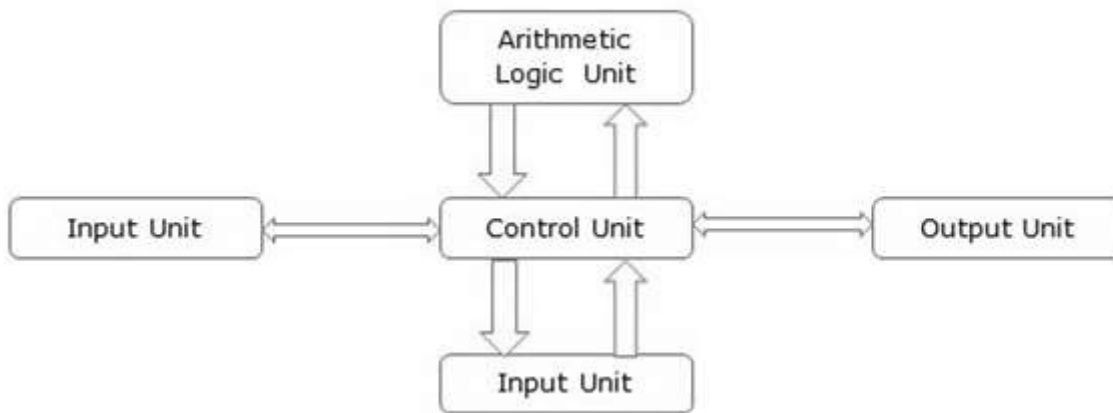
Computer input is called **data** and the output obtained after processing it, based on user's instructions is called **information**. Raw facts and figures which can be processed using arithmetic and logical operations to obtain information are called **data**.



The processes that can be applied to data are of two types –

- **Arithmetic operations** – Examples include calculations like addition, subtraction, differentials, square root, etc.
- **Logical operations** – Examples include comparison operations like greater than, less than, equal to, opposite, etc.

The corresponding figure for an actual computer looks something like this –



The basic parts of a computer are as follows –

- **Input Unit** – Devices like keyboard and mouse that are used to input data and instructions to the computer are called input unit.
- **Output Unit** – Devices like printer and visual display unit that are used to provide information to the user in desired format are called output unit.
- **Control Unit** – As the name suggests, this unit controls all the functions of the computer. All devices or parts of computer interact through the control unit.
- **Arithmetic Logic Unit** – This is the brain of the computer where all arithmetic operations and logical operations take place.
- **Memory** – All input data, instructions and data interim to the processes are stored in the memory. Memory is of two types – **primary memory** and **secondary memory**. Primary memory resides within the CPU whereas secondary memory is external to it.

Control unit, arithmetic logic unit and memory are together called the **central processing unit** or **CPU**. Computer devices like keyboard, mouse, printer, etc. that we can see and touch are the **hardware** components of a computer. The set of instructions or programs that make the computer function using these hardware parts are called **software**. We cannot see or touch software. Both hardware and software are necessary for working of a computer.

Characteristics of Computer

To understand why computers are such an important part of our lives, let us look at some of its characteristics –

- **Speed** – Typically, a computer can carry out 3-4 million instructions per second.
- **Accuracy** – Computers exhibit a very high degree of accuracy. Errors that may occur are usually due to inaccurate data, wrong instructions or bug in chips – all human errors.
- **Reliability** – Computers can carry out same type of work repeatedly without throwing up errors due to tiredness or boredom, which are very common among humans.
- **Versatility** – Computers can carry out a wide range of work from data entry and ticket booking to complex mathematical calculations and continuous astronomical observations. If you can input the necessary data with correct instructions, computer will do the processing.
- **Storage Capacity** – Computers can store a very large amount of data at a fraction of cost of traditional storage of files. Also, data is safe from normal wear and tear associated with paper.

Advantages of Using Computer

Now that we know the characteristics of computers, we can see the advantages that computers offer–

- Computers can do the same task repetitively with same accuracy.
- Computers do not get tired or bored.
- Computers can take up routine tasks while releasing human resource for more intelligent functions.

Disadvantages of Using Computer

Despite so many advantages, computers have some disadvantages of their own –

- Computers have no intelligence; they follow the instructions blindly without considering the outcome.
- Regular electric supply is necessary to make computers work, which could prove difficult everywhere especially in developing nations.

Booting

Starting a computer or a computer-embedded device is called **booting**. Booting takes place in two steps –

- Switching on power supply
- Loading operating system into computer's main memory
- Keeping all applications in a state of readiness in case needed by the user

The first program or set of instructions that run when the computer is switched on is called **BIOS** or **Basic Input Output System**. BIOS is a **firmware**, i.e. a piece of software permanently programmed into the hardware.

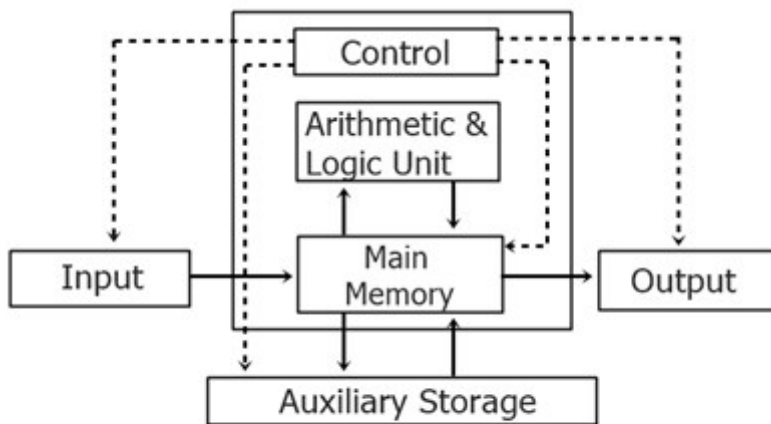
If a system is already running but needs to be restarted, it is called **rebooting**. Rebooting may be required if a software or hardware has been installed or system is unusually slow.

There are two types of booting –

- **Cold Booting** – When the system is started by switching on the power supply it is called cold booting. The next step in cold booting is loading of BIOS.
- **Warm Booting** – When the system is already running and needs to be restarted or rebooted, it is called warm booting. Warm booting is faster than cold booting because BIOS is not reloaded.

Block diagram of a computer gives you the pictorial representation of a computer that how it works inside. Or you can say that, in computer's block diagram, we will see how computer works from feeding the data to getting the result.

Here is the block diagram of a computer system:



Block Diagram of Computer

In the above diagram, both **control (control unit or CU)** and **arithmetic & logic unit (ALU)** combinely called as Central processing unit(CPU)

Let's describe about all the parts as included in the above diagram one by one.

The Processor Unit (CPU)

It is the brain of the computer system.

All major calculation and comparisons are made inside the CPU and it is also responsible for activation and controlling the operation of other unit.

This unit consists of two major components, that are arithmetic logic unit (ALU) and control unit (CU).

Arithmetic Logic Unit (ALU)

Here arithmetic logic unit performs all arithmetic operations such as addition, subtraction, multiplication and division. It also uses logic operation for comparison.

Control Unit (CU)

And the control unit of a CPU controls the entire operation of the computer. It also controls all devices such as memory, input/output devices connected to the CPU.

CU fetches instructions from memory, decodes the instruction, interprets the instruction to know what the task are to be performed and sends suitable control signals to the other components to perform for the necessary steps to executes the instruction.

Input/Output Unit

The input/output unit consists of devices used to transmit information between the external world and computer memory.

The information fed through the input unit is stored in computer's memory for processing and the final result stored in memory can be recorded or display on the output medium.

Memory Unit

Memory unit is an essential component of a digital computer. It is where all data intermediate and final results are stored.

The data read from the main storage or an input unit are transferred to the computer's memory where they are available for processing.

This memory unit is used to hold the instructions to be executed and data to be processed.

Disk Storage Unit

Data and instruction enters into a computer system through input device have to stored inside the computer before actual processing start.

Two types of storage unit are primary and secondary storage unit.

Primary Storage Unit

Primary memory has direct link with input unit and output unit. It stores the input data, calculation result.

Secondary Storage Unit

The primary storage is not able to store data permanently for future use. So some other types of storage technology is required to store the data permanently for long time, it is called secondary or auxiliary storage.

Computers can be broadly classified by their speed and computing power.

S.No.	Type	Specifications
1	PC (Personal Computer)	It is a single user computer system having moderately powerful microprocessor
2	Workstation	It is also a single user computer system, similar to personal computer however has a more powerful microprocessor
3	Mini Computer	It is a multi-user computer system, capable of supporting hundreds of users simultaneously
4	Main Frame	It is a multi-user computer system, capable of supporting hundreds of users simultaneously. Software technology is different from minicomputer
5	Supercomputer	It is an extremely fast computer, which can execute hundreds of millions of instructions per second.

PC (Personal Computer)



A PC can be defined as a small, relatively inexpensive computer designed for an individual user. PCs are based on the microprocessor technology that enables manufacturers to put an entire CPU on one chip. Businesses use personal computers for word processing, accounting, desktop publishing, and for running spreadsheet and database management applications. At home, the most popular use for personal computers is playing games and surfing the Internet.

Although personal computers are designed as single-user systems, these systems are normally linked together to form a network. In terms of power, now-a-days high-end models of the Macintosh and PC offer the same computing power and graphics capability as low-end workstations by Sun Microsystems, Hewlett-Packard, and Dell.

Workstation



Workstation is a computer used for engineering applications (CAD/CAM), desktop publishing, software development, and other such types of applications which require a moderate amount of computing power and relatively high quality graphics capabilities.

Workstations generally come with a large, high-resolution graphics screen, large amount of RAM, inbuilt network support, and a graphical user interface. Most workstations also have mass storage device such as a disk drive, but a special type of workstation, called diskless workstation, comes without a disk drive.

Common operating systems for workstations are UNIX and Windows NT. Like PC, workstations are also single-user computers like PC but are typically linked together to form a local-area network, although they can also be used as stand-alone systems.

Minicomputer

It is a midsize multi-processing system capable of supporting up to 250 users simultaneously.



Mainframe

Mainframe is very large in size and is an expensive computer capable of supporting hundreds or even thousands of users simultaneously. Mainframe executes many programs concurrently and supports many simultaneous execution of programs.



Supercomputer

Supercomputers are one of the fastest computers currently available. Supercomputers are very expensive and are employed for specialized applications that require immense amount of mathematical calculations (number crunching).



For example, weather forecasting, scientific simulations, (animated) graphics, fluid dynamic calculations, nuclear energy research, electronic design, and analysis of geological data (e.g. in petrochemical prospecting).

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Unit-2:Algorithm and Flowchart

Definition-

In programming, algorithm is a set of well defined instructions in sequence to solve the problem.

Qualities of a good algorithm

1. Input and output should be defined precisely.
2. Each steps in algorithm should be clear and unambiguous.
3. Algorithm should be most effective among many different ways to solve a problem.
4. An algorithm shouldn't have computer code. Instead, the algorithm should be written in such a way that, it can be used in similar programming languages.

Examples Of Algorithms In Programming

Write an algorithm to add two numbers entered by user. **Step 1:** Start **Step 2:** Declare variables num1, num2 and sum. **Step 3:** Read values num1 and num2. **Step 4:** Add num1 and num2 and assign the result to sum. $\text{sum} \leftarrow \text{num1} + \text{num2}$ **Step 5:** Display sum **Step 6:** Stop

Write an algorithm to find the largest among three different numbers entered by user. **Step 1:** Start **Step 2:** Declare variables a,b and c. **Step 3:** Read variables a,b and c. **Step 4:** If $a > b$ If $a > c$ Display a is the largest number. Else Display c is the largest number. Else If $b > c$ Display b is the largest number. Else Display c is the greatest number. **Step 5:** Stop

Advantages of algorithm

1. It is a step-wise representation of a solution to a given problem, which makes it easy to understand.
2. An algorithm uses a definite procedure.

3. It is not dependent on any programming language, so it is easy to understand for anyone even without programming knowledge.
4. Every step in an algorithm has its own logical sequence so it is easy to debug.
5. By using algorithm, the problem is broken down into smaller pieces or steps hence, it is easier for programmer to convert it into an actual program

Disadvantages of algorithm.

1. Writing algorithm takes a long time.
2. An Algorithm is not a computer program, it is rather a concept of how a program should be.

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Flowchart -> A **flowchart** is a type of diagram that represents an algorithm, workflow or process. The **flowchart** shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows. ... **Flowcharts** are used in analyzing, designing, documenting or managing a process or program in various fields.

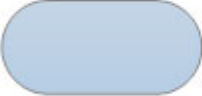

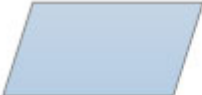


Symbol of Flowchart->

Flowchart Symbols

Flowcharts use special shapes to represent different types of actions or steps in a process. Lines and arrows show the sequence of the steps, and the relationships among them. These are known as flowchart symbols.

Common Flowchart Symbols

- **Rectangle Shape** – Represents a process
- **Oval or Pill Shape** – Represents the start or end
- **Diamond Shape** – Represents a decision
- **Parallelogram** – Represents input/output

Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

Advantages of flowchart:

1. The Flowchart is an excellent way of communicating the logic of a program.
2. It is easy and efficient to analyze problem using flowchart.
3. During program development cycle, the flowchart plays the role of a guide or a blueprint. Which makes program development process easier.
4. After successful development of a program, it needs continuous timely maintenance during the course of its operation. The flowchart makes program or system maintenance easier.
5. It helps the programmer to write the program code.
6. It is easy to convert the flowchart into any programming language code as it does not use any specific programming language concept.

Disadvantage of flowchart

1. The flowchart can be complex when the logic of a program is quite complicated.
2. Drawing flowchart is a time-consuming task.
3. Difficult to alter the flowchart. Sometimes, the designer needs to redraw the complete flowchart to change the logic of the flowchart or to alter the flowchart.
4. Since it uses special sets of symbols for every action, it is quite a tedious task to develop a flowchart as it requires special tools to draw the necessary symbols.
5. In the case of a complex flowchart, other programmers might have a difficult time understanding the logic and process of the flowchart.
6. It is just a visualization of a program, it cannot function like an actual program

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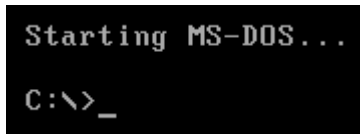
Unit -3: Operating system and services in O. S.

Dos History->

MS-DOS acronym for **Microsoft Disk Operating System**) is an operating system for x86-based personal computers mostly developed by Microsoft. Collectively, MS-DOS, its rebranding as IBM PC DOS, and some operating systems attempting to be compatible with MS-DOS, are sometimes referred to as “DOS” (which is also the generic acronym for disk operating system). MS-DOS was the main operating system for IBM PC compatible personal computers during the 1980s and the early 1990s, when it was gradually superseded by operating systems offering a graphical user interface (GUI), in various generations of the graphical Microsoft Windows operating system. MS-DOS



(<https://en.m.wikipedia.org/wiki/File:Msdos-icon.png>)



(<https://en.m.wikipedia.org/wiki/File:StartingMsdos.png>)

Files and directories

In a computers data is stored in files. When you run a program, MS-DOS processes the data stored in the file and passes it to the system.

In MS-DOS a file can be any size, however the file name is more restricted, it can only have a maximum length of 8 characters plus 3 for the extension.

Furthermore, the files can only contain the following characters:

letters A to Z

numbers 0 to 9

the following special characters: \$~! # % & - { } () @ ' _ ^

Thus filenames must not contain:

spaces

commas
backslash
dot (apart from the dot that separates the name and the extension)

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Directories

A **directory** is a location for storing files on your computer. Directories are found in a hierarchical file system, such as Linux, MS-DOS, OS/2, and Unix.

In the picture to the right is an example of the tree command output that shows all the local and subdirectories (e.g., the “big” directory in the cdn directory). When looking at this overview, the C: drive is considered the current directory and root directory because there is nothing beneath it and you can’t go back any further. If you are using an operating system with multiple user accounts, the directory may also be referred to as a home directory.

Internal and External command->

1.Internal commands: The internal commands are those commands that are automatically loaded in the memory. Some commonly used DOS internal commands are

- | | | | | | |
|---------|--------|----------|---------|--------|------------|
| 1. Cls | 2. Dir | 3. Date | 4. Time | 5. Ver | 6. Copycon |
| 7. Type | 8. Ren | 9. Del | 10. MD | 11. CD | |
| | 12. RD | 13. Copy | | | |

1) Cls :- The purpose of this command is to clear the display screen and redisplay the Dos prompt at the top left corner of the screen.

Syntax:- C : / > Cls

2) Dir:- It displays the list of directories and files on the screen.

Syntax:- C : / > dir. **a.** C : / > dir/p – It displays the list of directories or files page wise **b.** C : / > dir/w- It displays the list of directories or files width wise **c.** C : / > dir/d: –It display list of directories or files in drive D **d.** C : / > dir filename . extension – It displays the information of specified file. **e.** C : / > dir file name with wild cards.

Wild cards: – It is the set of special characters wild are used with some commonly used DOS commands there are two types of wild cards.

1. Asterisk (*) 2. Question mark (?)

1. Asterisk:- (*) The wild word will match all characters. 1. C : / > dir *.* – will display list of all files and directories. 2. C : / > dir R*.* – will display all files stored with first character R.

2. Question mark: – This wild card represents a single character that a group or files have in common.

1) C : / > dir ac.* ~- will display all files having any first character and remaining name has given in command.

2) C : / > dir ??? R . doc- will display all files having extension doc and having any first three letters and fourth letter is R.

3) Date: – It displays the current system date. User can also change the current date with new date by using this command.

Syntax: – C : /> dateCurrent date is: sat 3-25-2015Enter of new date (mm-dd-yy):-

4. Time : – It displays the current systems time user can also change existing time with new time by using this command.

Syntax : – C : /> timeCurrent time is 12 : 39 – 48 : 36 pEnter new time : –

5. VER : It displays the version of DOS being used currently.

Syntax : – C : /> VerMS – Dos version 6 : 20Copy card .

6. copycon : – The purpose of this command is to create a file.

Syntax : – C : /> copy con filename . extension

Saves the contents of file by pressing ctrl +z key combination at the last time of the file. File name should not be greater than 11 characters out of which 8 characters are for the name and 3 characters are for the extension.

Extension is optional :**Eg :** C : /> copy con ramI am a good boy1. File is copied.C : />

7. TYPE:- Allows the user to see the contents of a file.

Syntax :- C >Type pathEg: C:/> Type D:/> ramu

8. REN : – The purpose of this command is to rename the old file name with new file name.

Syntax : – C : /> ren oldfilename newfilenameC : /> ren ramu somu

9. DEL:- The purpose of this command is to delete file. The user can also delete multiple files by using this command and long with while cards.

Syntax : – C : /> Del file name . extension C : /> Del ramu C : Del x . prg.

10. MD:- The purpose of this command is to create a new directly or sub directly i.e sub ordinate to the currently logged directly.

Syntax : – C : /> MD directoryC : /> MD sub directory

Ex : C : /> MD collegeNow user wants to create a sub directory first year in college directory thenC : /> cd collegeC : /> college > Md first year

11. CD : – The purpose of this command is to change from one director to another directory or sub – directory.

Syntax : – C : /> CD directory name

Ex : C : /> cd collegeC : /> college > CD first yearC : /> college > first year >If the user wants to move to the parents directory then use CD command asC : /> college > first year > cdC : /> college >

12 . RD: – The purpose of this command is to remove a directory or sub directory. If the user wants to remove a directory or sub – directory then first delete all the files in the sub – directory and then remove sub directory and remove empty main directory.

13. COPY: The purpose of this command is to copy one or more specified files to another disk with same file name or with different file name.

Syntax : – C : /> copy source path target pathC : /> copy A :/> ~ *. * ~ C : /> chinni

2. External commands: – This commands are not permanent part of the memory. To execute or run this commands an external file is required.

Example : [.] Dot exe, bat.Some commonly used DOS external commands are .

1. CHKDSK:- The command CHSDK returns the configuration status of the selected disk. It returns the information about the volume, serial number, total disk space, space in directories, space in each allocation unit, total memory and free memory.

Syntax : – C : /> CHKDSK drive name**Eg:-** C : /> CHKDSK e :If drive name is not mentioned by default current drive is considered.

2. Diskcopy : – Disk copy command is used to make duplicate copy of the disk like Xerox copy. It first formats the target disk and then copies the files by collection. From the source disk and copied to the target disk.

Syntax : – C : / > disk copy < source path > < destination path > **Ex:** – c : / > diskcopy A : B :

NOTE: – This command is used after diskcopy command to ensure that disk is copied successfully.

3. Format : – Format is used to erase information off of a computer diskette or fixed drive.

Syntax : – C : / > format drive name **Ex :** C : / > format A:

4. Label : This command is used to see volume label and to change volume label.

Syntax : C : / > label drive name **Ex :** C : / > label A:

5.Scandisk : – This utility is used to repair and check various disk errors. It also defects various physical disk errors and surface errors.**Syntax :** – C : / > scandisk < drive names > C : / > Scandisk A :

6. Move : The purpose of move is move to files from one place to another place.

Syntax: C : / > Move < source path > < target path >

7. Print : This command allowed users to print a text file to a line printer.**Syntax :** C : / > Print < files name > C : / > print ramu

8. Tree : This command displays the list of directories and files on specified path using graphical display. It displays directories of files like a tree.

Syntax:- C : / > tree > path C : / > tree A:

9. Deltree: This command is used to delete files a directories same as by the del and RD commands. This command is more useful than del and RD commands because it completely removes specified directories ie., disk will all it files and sub – directories at a time.

Syntax:- C : / > deltree (path)

C : / > deltree A:/>ramu

Batch Files->

A batch file is a text file that contains a sequence of commands for a computer operating system. It's called a batch file because it batches (bundles or packages) into a single file a set of commands that would otherwise have to be presented to the system interactively from a keyboard one at a time. A batch file is usually created for command sequences for which a user has a repeated need. Commonly needed batch files are often delivered as part of an operating system. You initiate the sequence of commands in the batch file by simply entering the name of the batch file on a command line.

In the Disk Operating System (DOS), a batch file has the file name extension “.BAT”. (The best known DOS batch file is the AUTOEXEC.BAT file that initializes DOS when you start the system.) In UNIX-based operating systems, a batch file is called a shell script. In IBM's mainframe VM operating systems, it's called an EXEC.

Types of Operating Systems

An Operating System performs all the basic tasks like managing file, process, and memory. Thus operating system acts as manager of all the resources, i.e. **resource manager**. Thus operating system becomes an interface between user and machine.

Types of Operating Systems: Some of the widely used operating systems are as follows-

1. Batch Operating System –

This type of operating system does not interact with the computer directly. There is an operator which takes similar jobs having same requirement and group them into batches. It is the responsibility of operator to sort the jobs with similar needs.

Advantages of Batch Operating System:

- It is very difficult to guess or know the time required by any job to complete. Processors of the batch systems know how long the job would be when it is in queue
- Multiple users can share the batch systems
- The idle time for batch system is very less
- It is easy to manage large work repeatedly in batch systems

Disadvantages of Batch Operating System:

- The computer operators should be well known with batch systems
- Batch systems are hard to debug
- It is sometime costly
- The other jobs will have to wait for an unknown time if any job fails

Examples of Batch based Operating System: Payroll System, Bank Statements etc.

2. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.

Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

3. Distributed Operating System –

These types of operating system is a recent advancement in the world of computer technology and are being widely accepted all-over the world and, that too, with a great pace. Various autonomous interconnected computers communicate each other using a shared communication network. Independent systems possess their own memory unit and CPU. These are referred as **loosely coupled systems** or distributed systems. These system's processors differ in size and function. The major benefit of working with these types of operating system is that it is always

possible that one user can access the files or software which are not actually present on his system but on some other system connected within this network i.e., remote access is enabled within the devices connected in that network.

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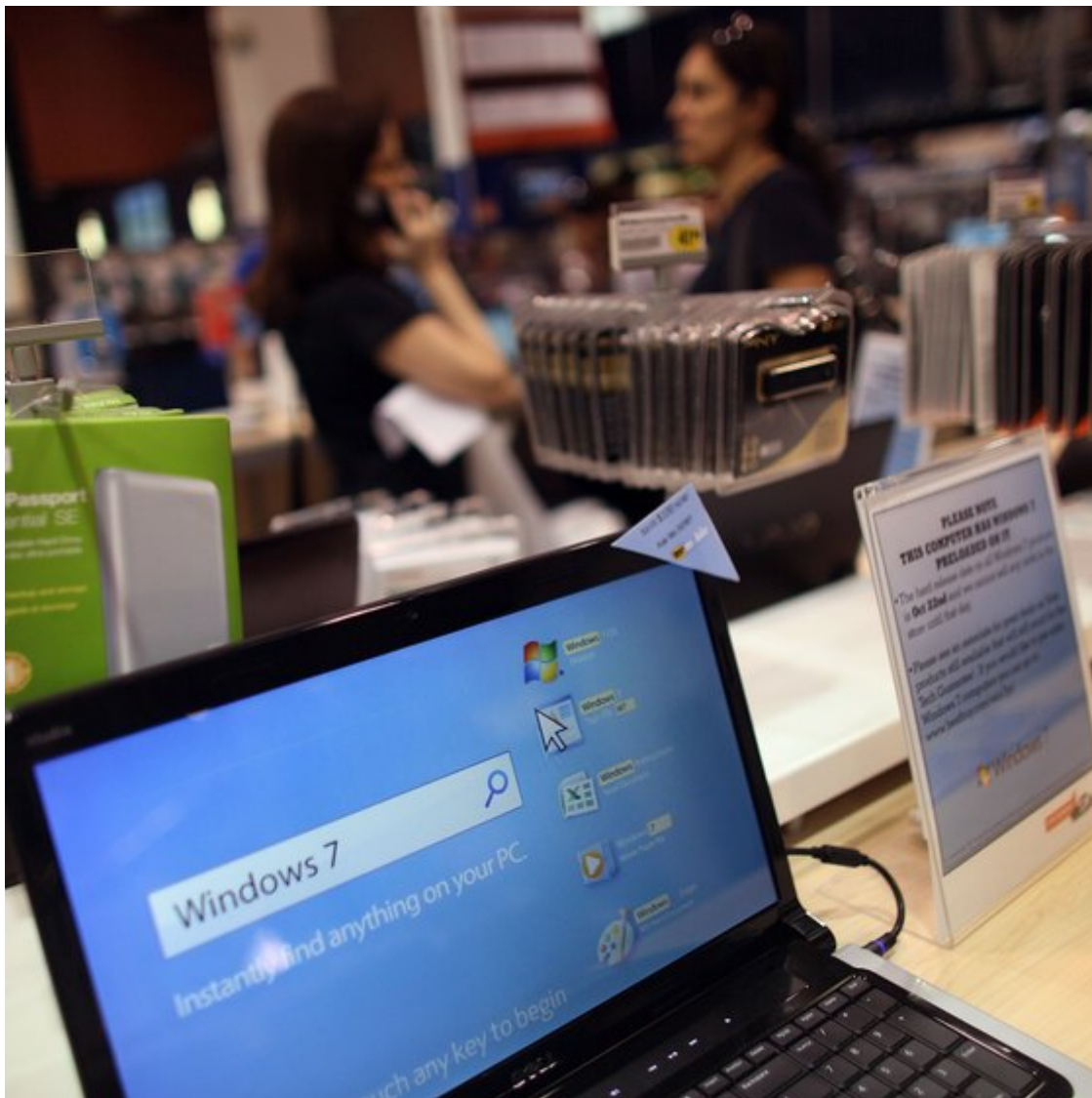
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Unit 4 – Windows operating environment

Microsoft Windows Features

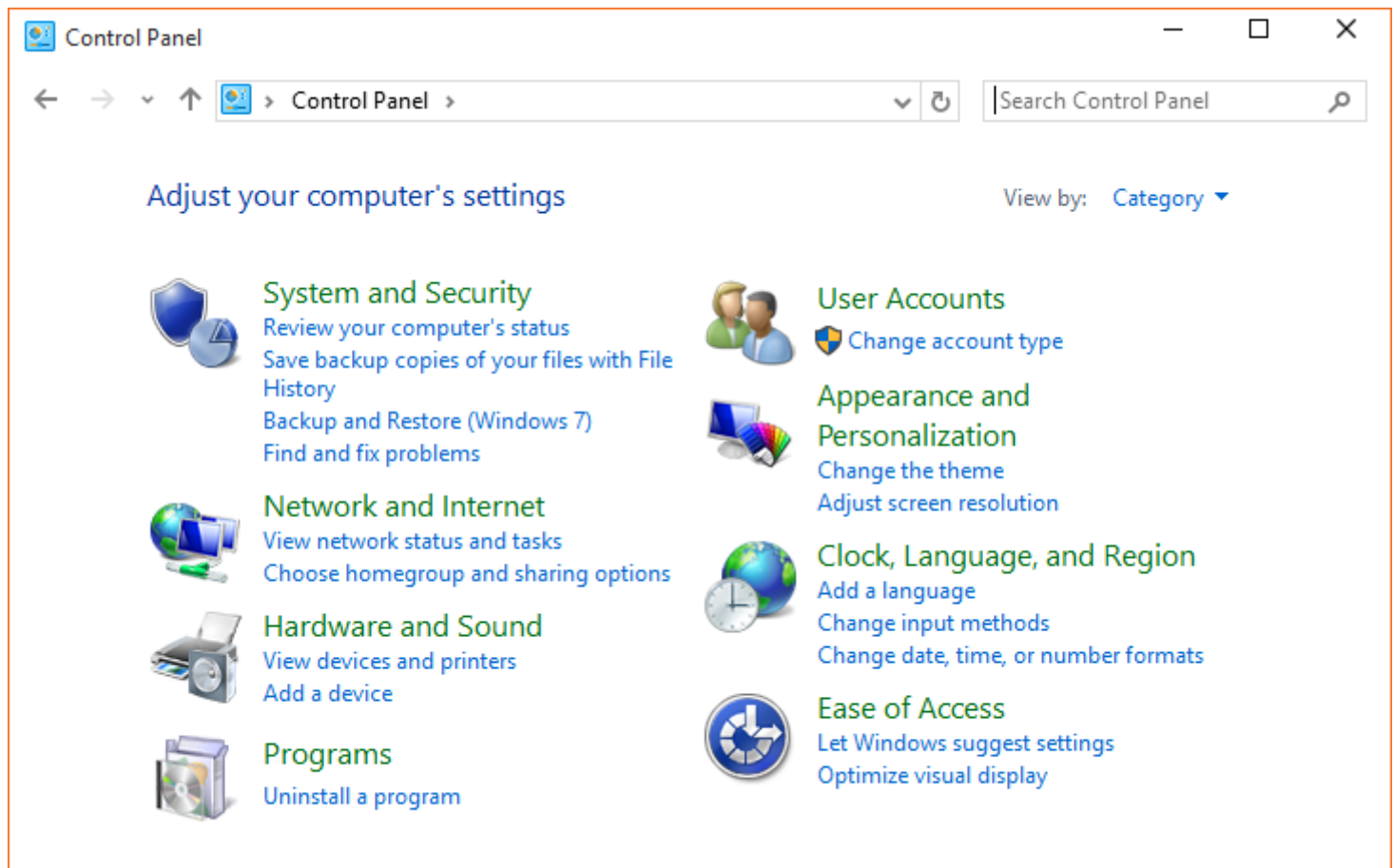


Microsoft Windows is an operating system created by Microsoft for PC computers. An operating system is the software utilized to run and manage programs and functions on the computer. Windows updates and adds to its features with each release, however some of the features it is known for are Windows Live, Windows Search, Windows Updates and Windows Taskbar.

Control Panel

The **Control Panel** is a section of Microsoft Windows that enables a user to change various computer hardware and software features. Settings for the mouse, display, sound, network, and keyboard represent a few examples of what may be modified in the Control Panel. Below are some examples of how the Control Panel appeared in Windows.

The evolution of the Windows Control Panel

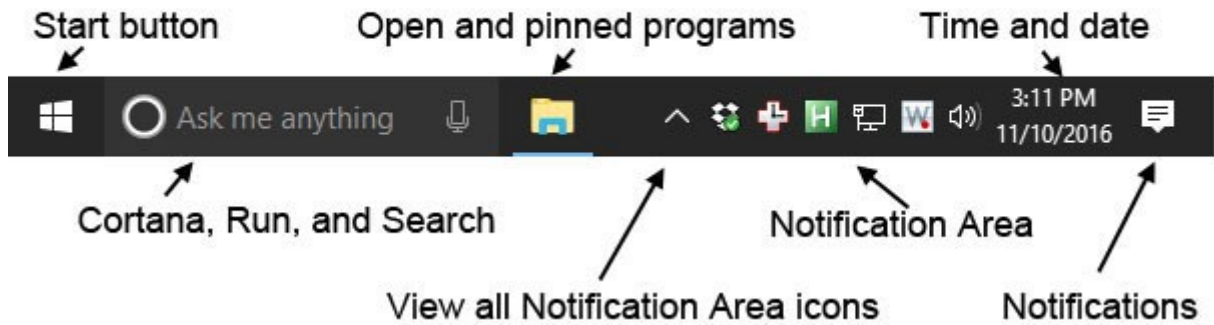


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Taskbar

The **taskbar** is an element of an operating system located at the bottom of the screen. It allows you to locate and launch programs through Start and the Start menu, or view any program that is currently open. The taskbar first introduced with Microsoft Windows 95 and can be found in all subsequent versions of Windows. It also allows them to check the date and time, items running in the background through the Notification Area, and with early versions of Windows access to the Quick Launch.

Windows 10 Taskbar Overview



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Desktop

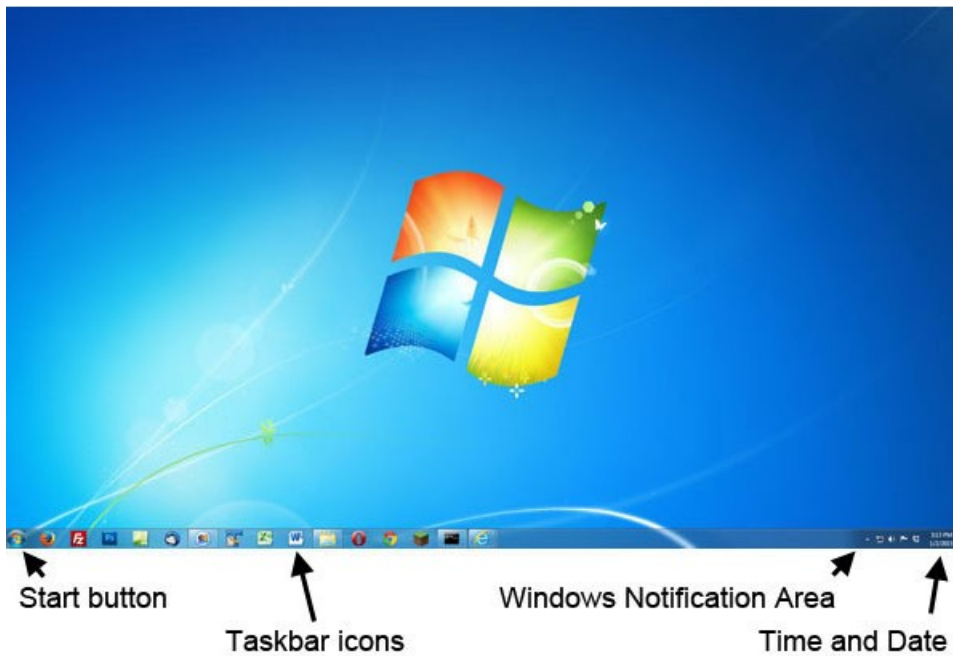
A **desktop** may refer to any of the following:

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1. A **desktop** is a term commonly used to describe a desktop computer or system unit.
2. When referring to an operating system or GUI (graphical user interface), the **desktop** is a system of organization of icons on a screen. The Microsoft Windows desktop was first introduced with Microsoft Windows 95 and included with every version of Windows since then. The image below is an example of the Microsoft Window

Windows 7 Desktop



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Windows Application

Windows Application is a user build an application that can run on a Windows platform. The windows application has a graphical user interface that is provided by Windows Forms. Windows forms provide a variety of controls including Button, TextBox, Radio Button, CheckBox, and other data and connection controls. You can easily design a web application using an IDE Microsoft Visual Studio using a variety of languages including C#, Visual Basic, C++, J# and many more

Icon

Windows XP



Windows 7



Windows 8



Windows 10



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An **icon** is a small graphical representation of a program or file. When you double-click an icon, the associated file or program will be opened. For example, if you were to double-click on the My Computer icon, it would open Windows Explorer. Icons are a component of GUI operating systems, including Apple macOS X and Microsoft Windows. Icons help users quickly identify the type of file represented by the icon. The image to the right is an example of “My Computer” icons in different versions of Microsoft Windows.

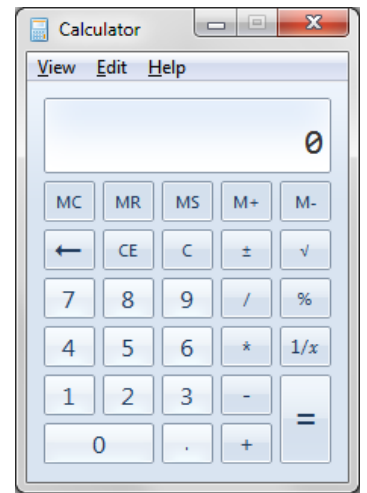
Windows Accessories – Operating Systems

Windows operating system ships with some handy applications known as Windows accessories. Calculator, Notepad, Paint, Explorer, WordPad are some of the most frequently used accessories.

Apart from above mentioned applications, Windows has a few tools for Ease of Access and some System Tools. We'll be briefly talking about them here.

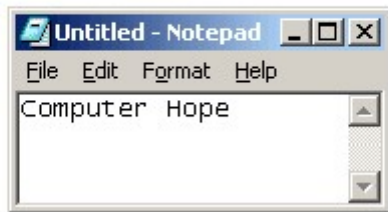
Calculator

Calculator is a calculating application included in all the versions of Windows. It can be used to perform simple calculation, scientific calculation and Programming calculation.



Notepad

Microsoft Notepad text editor



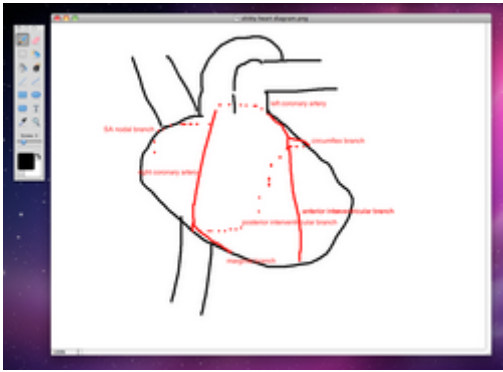
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Notepad is a generic text editor included with all versions of Microsoft Windows that allows you to create, open, and read plaintext files. If the file contains special formatting or is not a plaintext file, it will not be able to be read in Microsoft Notepad. The image to the right is a small example of what the Microsoft Notepad may look like while running.

Paintbrush is a raster image editor for Mac OS X. It aims to replace MacPaint, an image editor for the classic Mac OS last released in 1988. It also is an alternative to MS Paint. It has basic raster image editing capabilities and a simple interface designed for ease of use. It exports as PNG, JPG, BMP, GIF, and TIFF. The application also is often used for pixel art because of its grid option, and is not made for large scale images or GIMP or Photoshop-like editing on pictures or photographs. Paintbrush



https://en.m.wikipedia.org/wiki/File:Paintbrush_Icon.png



https://en.m.wikipedia.org/wiki/File:Paintbrush_screenshot.png

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UNIT-5: EDITORS AND WORD PROCESSORS

Basic concept

There are many different circumstances under which one will have to work with text. As such, it is important to recognize the uses for which different text-based pieces of software are intended. These programs generally fall under two categories: Word processors and text editors. We will explore the differences between, and the uses of these types of software below. When working with text-based data, especially in the digital humanities, text editors are often a much better option. They create nonproprietary files which can be transferred between operating systems without the need for intermediary software. Additionally, both the files created by text editors and text editors themselves take up an extremely amount of memory compared to word processors. Finally, concerning data, many programs will allow text editor files to be used as input, which is certainly not the case with word processor files, with their formatting which generally renders them unreadable to other programs.

Text Editors

A text editor is a tool for working with plain text. Technically speaking, the only data that a file produced by a text editor contains are the values representing the individual characters, which are displayed as the characters themselves by the program. The text editor is a standard feature on all operating systems; Windows users will likely be most familiar with Notepad, though alternatives exist, such as the open-source text editor, Notepad++, which allows for features such as programming language syntax highlighting, that is, a visual markup applied to commands of a specific programming language. A text editor may not be ideal if you intend to include any kind of formatting in your text, such as alignment; font face or size; text features such as bolding or italicizing; or the incorporation of any non-text elements, such as images. However, it is possible to format such a document by using various markup languages, such as XML.

Word Processors

In contrast to a text editor, a word processor is any program through which text (and, often, other types of media) can be formatted and prepared for printing, whether physical or electronic. These give the user extensive control over the visual qualities of the document. Files of this type, while preferable for human readers, are generally **not** suitable for files which need to be processed by a computer, such as a piece of code, or a list of values to be read by a program.

Microsoft Word



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Sometimes called **Winword**, **MS Word**, or **Word**, **Microsoft Word** is a word processor published by Microsoft. It is one of the office productivity applications included in Microsoft Office. Originally developed by Charles Simonyi and Richard Brodie, it was first released in 1983.

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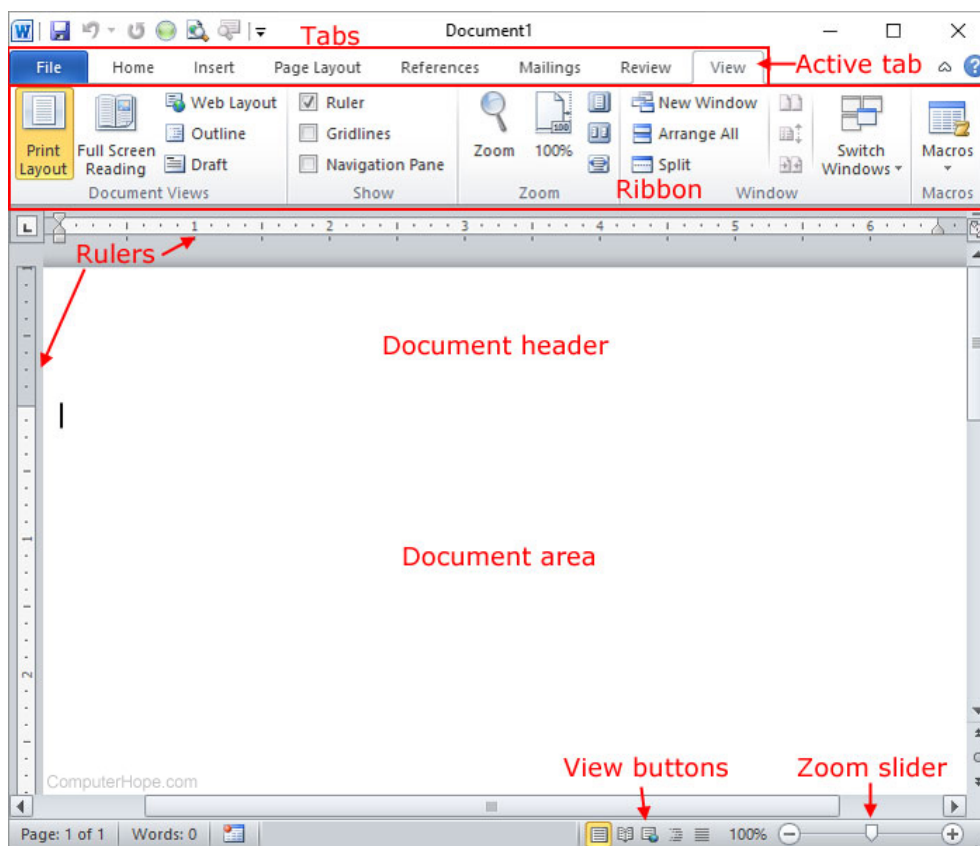
Microsoft Word is available for the Microsoft Windows, Apple macOS, Android, and Apple iOS. It could also be run on the Linux operating system using WINE.

What is Microsoft Word used for?

Microsoft Word allows you to create professional-quality documents, reports, letters, and résumés. Unlike a plain text editor, Microsoft Word has features including spell check, grammar check, text and font formatting, HTML support, image support, advanced page layout, and more.

What does the Microsoft Word editor look like?

Below is an overview of a Microsoft Word 2010 document.



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How many lines are there on a page in Microsoft Word?

By default, there are 25 lines on one page in Microsoft Word.

What type of files can Microsoft Word create and use?

Early versions of Microsoft Word primarily created and used the **.doc** file extension, while newer versions of Word create and use the **.docx** file extension.

More recent versions of Microsoft Word can create and open the following types of files:

- **.doc, .docm, .docx**
- **.dot, .dotm, .dotx**
- **.htm, .html**
- **.mht, .mhtml**
- **.odt**
- **.pdf**
- **.rtf**
- **.txt**
- **.wps**
- **.xps**
- **.xml**

Desktop Publishing (DTP) is the creation of electronic forms of information such as documents, presentations, brochures, books, or even website content using computer programs. DTP has evolved to be an important component of creating and disseminating information as it allows an amalgamation of various tasks that are generally performed independently at printing presses such as layouts, typesetting, graphic design, etc.

Evolution of DTP Software

Earlier, DTP was specifically meant to cater to printed matter but modern DTP allows for even more forms of electronic content. A modern DTP software can be your word processor, graphic design tool and publishing tool, all rolled into one package. With the explosive growth of smartphones and mobile PCs, the way people consume information has changed dramatically over the last decade. Modern DTP software enables content output that caters dynamically to all screen sizes, without the need to republish the same for each device or form factor.

Types of DTP Content

The content created by DTP software can be broadly classified into two categories –

- Electronic Pages
- Virtual Pages

Electronic pages commonly refer to websites, manuals, eBooks, digital archives, presentations, etc. which are normally not printed but are shared digitally. This tutorial is an example of an electronic page which can be opened in a browser.

Virtual pages on the other hand are electronic pages created in the DTP software which are eventually published as printed pages. Virtual pages allow the author to visualize exactly how the printed page will look and can help in easy editing. The process is called **WYSIWYG** which stands for, '**What You See Is What You Get**'. This means all the changes and formatting that are made will be exactly replicated in print.

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Unit- 6: Spreadsheets and Database package

Purpose-Spreadsheets are an essential business and accounting tool. They can vary in complexity and can be used for various reasons, but their primary purpose is to organize and categorize data into a logical format. Once this data is entered into the spreadsheet, you can use it to help organize and grow your business.

The **purpose of a database** is to store and retrieve information in a way that is accurate and effective. The **purpose** for a **database** management system is to provide a system to manage the different **databases** it contains

What is MS Excel

Microsoft Excel is a spreadsheet program included in the Microsoft Office suite of applications. Spreadsheets will provide you with the values arranged in rows and columns that can be changed mathematically using both basic and complex arithmetic operations. In addition to the standard spreadsheet features, Excel offers programming support via Microsoft's Visual Basic for Applications (VBA), the ability to access data from external sources via Microsoft's Dynamic Data Exchange (DDE). Microsoft Excel is an Electronic Spreadsheet Computer Program.

Microsoft Excel was first released for Macintosh systems in the year 1985, followed by the first Windows version in 1987. Check the list to know about the Excel releases for Windows:

- Excel 2.0 (1987)
- Excel 3.0 (1990)
- Excel 4.0 (1992) – Included in Microsoft Office 3.0
- Excel 5.0 (1993) – Included in Microsoft Office 4.0
- Excel 95 (1995) – Included in Microsoft Office 95
- Excel 97 (1997) – Included in Microsoft Office 97
- Excel 2000 (2000) – Included in Microsoft Office 2000
- Excel 2002 (2002) – Included in Microsoft Office XP
- Excel 2003 (2003) – Included in Microsoft Office 2003
- Excel 2007 (2007) – Included in Microsoft Office 2007
- Excel 2010 (2010) – Included in Microsoft Office 2010
- Excel 2013 (2013) – Included in Microsoft Office 2013

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