COMPUTER FUNDAMENTAL

INTRODUCTION TO COMPUTER

Abstract

Student get brief knowledge of Computer Generation, Hardware, Software and numbering System.

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Chapter 1 (Introduction of Computer)

What is Computer?

A computer is a programmable machine designed to perform arithmetic and logical operations on data using pre-defined instruction set given by humans and gives the desired output after processing.

Figure 1 – Computer System

कंप्यूटर एक प्रोग्राम करने योग्य मशीन है जिसे मानव द्वारा दिए गए पूर्व-निर्धारित निर्देश सेट का उपयोग करके डेटा पर अंकगणित और तार्किक संचालन करने के लिए डिज़ाइन किया गया है और प्रसंस्करण के बाद वांछित आउटपुट देता है।

Data – It is the combination of raw facts and figures.

डेटा - यह कच्चे तथ्यों और आंकड़ों का संयोजन है।

Processing – It is totally internal work of computer system in which computer does some arithmetic and logical operations on data.

प्रोसेसिंग - यह पूरी तरह से कंप्यूटर सिस्टम का आंतरिक कार्य है जिसमें कंप्यूटर डेटा पर कुछ अंकगणितीय और तार्किक संचालन करता है।

Information – After processing of data given output by the computer is an information.

सूचना - डाटा के प्रसंस्करण के बाद कंप्यूटर द्वारा दिया गया आउटपुट एक सूचना है।

Function of Computer

Characteristics of computers

The main characteristic of computer is speed, accuracy, diligence, versatility and it's storage capacity.

कंप्यूटर की मुख्य विशेषता गति, सटीकता, परिश्रम, बहुमुखी प्रतिभा और इसकी भंडारण क्षमता है।

Speed - Computers work at an incredible speed. A powerful computer is capable of performing about 3-4 million simple instructions per second.

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गति - कंप्यूटर अविश्वसनीय गति से काम करते हैं। एक शक्तिशाली कंप्यूटर प्रति सेकंड लगभग 3-4 मिलियन सरल निर्देश करने में सक्षम है।

Accuracy - In addition to being fast, computers are also accurate. Errors that may occur can almost always be attributed to human error (inaccurate data, poorly designed system or faulty instructions/programs written by the programmer)

शुद्धता - तेज होने के साथ-साथ कंप्यूटर सटीक भी होते हैं। जो त्रुटियां हो सकती हैं, उन्हें लगभग हमेशा मानवीय त्रुटि के लिए जिम्मेदार ठहराया जा सकता है (गलत डेटा, खराब डिज़ाइन की गई प्रणाली या प्रोग्रामर द्वारा लिखे गए दोषपूर्ण निर्देश/कार्यक्रम)

Diligence - Unlike human beings, computers are highly consistent. They do not suffer from human traits of boredom and tiredness resulting in lack of concentration. Computers, therefore, are better than human beings in performing voluminous and repetitive jobs.

परिश्रम - मनुष्य के विपरीत, कंप्यूटर अत्यधिक सुसंगत हैं। वे ऊब और थकान के मानवीय लक्षणों से ग्रस्त नहीं होते हैं जिसके परिणामस्वरूप एकाग्रता की कमी होती है। इसलिए, कंप्यूटर बड़े पैमाने पर और दोहराव वाले कार्यों को करने में इंसानों से बेहतर हैं।

Versatility - Computers are versatile machines and are capable of performing any task as long as it can be broken down into a series of logical steps. The presence of computers can be seen in almost every sphere – Railway/Air reservation, Banks, Hotels, Weather forecasting and many more.

बहुमुखी प्रतिभा - कंप्यूटर बहुमुखी मशीनें हैं और किसी भी कार्य को तब तक करने में सक्षम हैं जब तक इसे तार्किक चरणों की एक श्रृंखला में तोड़ा जा सकता है। कंप्यूटर की उपस्थिति लगभग हर क्षेत्र में देखी जा सकती है - रेलवे / हवाई आरक्षण, बैंक, होटल, मौसम पूर्वानुमान और कई अन्य।

Storage Capacity -Today's computers can store large volumes of data. A piece of information once recorded (or stored) in the computer, can never be forgotten and can be retrieved almost instantaneously.

भंडारण क्षमता - आज के कंप्यूटर बड़ी मात्रा में डेटा स्टोर कर सकते हैं। कंप्यूटर में एक बार दर्ज (या संग्रहीत) जानकारी का एक टुकड़ा, कभी नहीं भुलाया जा सकता है और लगभग तुरंत प्राप्त किया जा सकता है।

Limitations of computer

The main limitations of computer are no I.Q and Feelings.

कंप्यूटर की मुख्य सीमाएँ हैं - बुद्धि और भावना की कमी ।

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Uses of computers

Now these days' computers are used in every fields such as Education, Research and Development, Weather Forecasting, Publishing, Defence, Scientific works, entertainment and in the making of movies also.

आजकल कंप्यूटर का उपयोग हर क्षेत्र में किया जाता है, जैसे शिक्षा, अनुसंधान और विकास, मौसम पूर्वानुमान, प्रकाशन, रक्षा, वैज्ञानिक कार्य, मनोरंजन और फिल्में बनाने में भी।

Computer Systems Organization

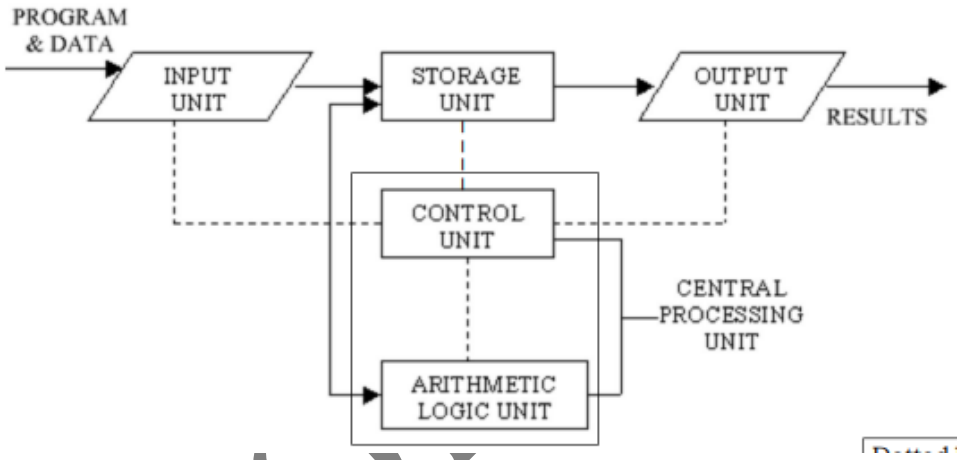

Figure 2 – Computer System

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Chapter 2 – History of Computer

Abacus - An abacus is a mechanical device used to aid an individual in performing mathematical calculations. It was invented in Babylonia in 2400 B.C. It used to perform basic arithmetic operations.

अबेकस - एक अबेकस एक यांत्रिक उपकरण है जिसका उपयोग किसी व्यक्ति को गणितीय गणना करने में सहायता करने के लिए किया जाता है। इसका आविष्कार बेबीलोनिया में 2400 ईसा पूर्व में हुआ था। यह बुनियादी अंकगणितीय संचालन करता था।

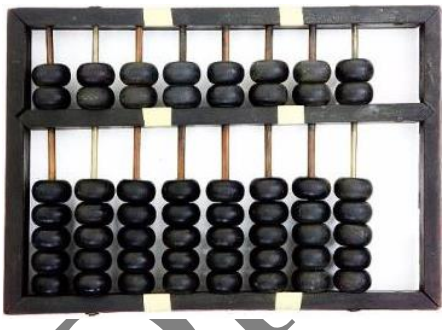

Figure 3 - Abacus

Figure 4 - **Napier's Bones**

Napier's Bones - Invented by John Napier in 1614. Allowed the operator to multiply, divide and calculate square and cube roots by moving the rods around and placing them in specially constructed boards.

1614 में जॉन नेपियर द्वारा खोजी गई। ऑपरेटर को छड़ों को चारों ओर घुमाकर और विशेष रूप से निर्मित बोर्डों में रखकर वर्ग और घनमूलों को गुणा, विभाजित और गणना करने की अनुमति दी।

Slide Rule - Invented by William Oughtred in 1622. It is based on Napier's ideas about logarithms. Used primarily for multiplication, division, roots, logarithms, Trigonometry. Not normally used for addition or subtraction.

1622 में विलियम ऑउट्रेड द्वारा आविष्कार किया गया। यह नेपियर के लघुगणक के विचारों पर आधारित है। मुख्य रूप से गुणन, विभाजन, मूल, लघुगणक, त्रिकोणमिति के लिए उपयोग किया जाता है। आमतौर पर जोड़ या घटाव के लिए उपयोग नहीं किया जाता है।

Figure 5 - **Slide Rule**

Pascaline - Invented by Blaise Pascal in 1642. It was its limitation to addition and subtraction. It was too expensive.

Figure 6 - Pascaline

1642 में ब्लेज़ पास्कल द्वारा आविष्कार किया गया। यह इसके जोड़ और घटाव की सीमा थी। यह बहुत महंगा था।

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Stepped Reckoner - Invented by Gottfried Wilhelm Leibniz in 1672. The machine that can add, subtract, multiply and divide automatically.

1672 में गॉटफ्राइड विल्हेम लाइबनिज द्वारा आविष्कार किया गया। वह मशीन जो स्वचालित रूप से जोड़, घटा, गुणा और विभाजित कर सकती है।

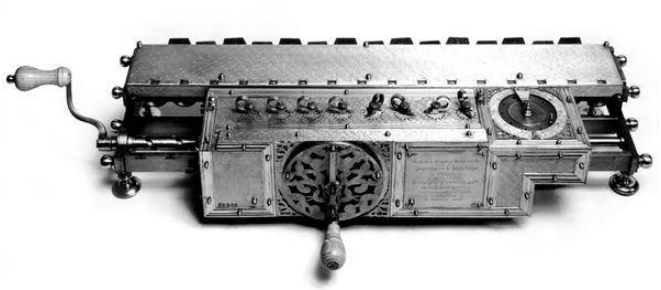

Figure 7 – Stepped Reckoner

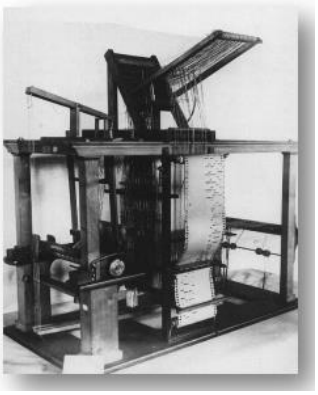

Figure 8 – Jacquard Loom

Jacquard Loom - The Jacquard loom is a mechanical loom, invented by Joseph-Marie Jacquard in 1881. It an automatic loom controlled by punched cards.

जैक्वार्ड लूम एक यांत्रिक करघा है, जिसका आविष्कार जोसेफ-मैरी जैक्वार्ड ने 1881 में किया था। यह एक स्वचालित करघा है जिसे पंच कार्ड द्वारा नियंत्रित किया जाता है।

Arithmometer - A mechanical calculator invented by Thomas de Colmar in 1820. The first reliable, useful and commercially successful calculating machine. The machine could perform the four basic mathematic functions. The first mass-produced calculating machine.

1820 में थॉमस डी कोलमार द्वारा आविष्कार किया गया एक यांत्रिक कैलकुलेटर। पहली विश्वसनीय, उपयोगी और व्यावसायिक रूप से सफल गणना मशीन। मशीन चार बुनियादी गणितीय कार्य कर सकती थी। पहली बड़े पैमाने पर उत्पादित गणना मशीन।

Figure 9 Arithmometer

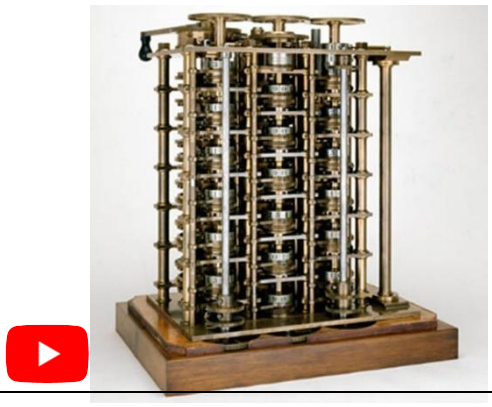

Figure 10 - Difference Engine

Difference Engine and Analytical Engine - It an automatic, mechanical calculator designed to tabulate polynomial functions. Invented by Charles Babbage in 1822 and 1834. It is the first mechanical computer.

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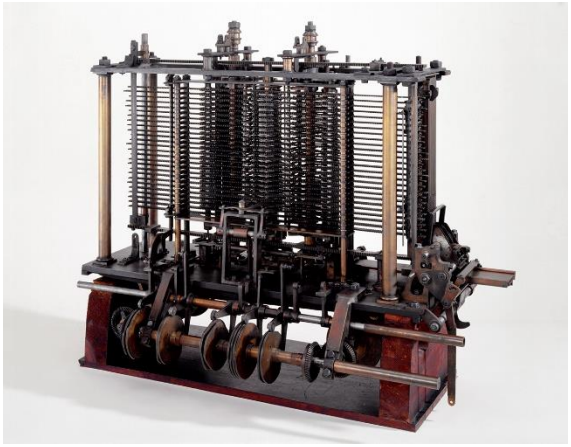

Figure 11 Analytical Engine

First Computer Programmer - In 1840, Augusta Ada Byron suggests to Babbage that he use the binary system. She writes programs for the Analytical Engine.

यह एक स्वचालित, यांत्रिक कैलकुलेटर है जिसे बहुपद कार्यों को सारणीबद्ध करने के लिए डिज़ाइन किया गया है। 1822 और 1834 में चार्ल्स बैबेज द्वारा आविष्कार किया गया। यह पहला यांत्रिक कंप्यूटर है।

Tabulating Machine - Invented by Herman Hollerith in 1890. To assist in summarizing information and accounting.

1890 में हरमन होलेरिथ द्वारा आविष्कार किया गया। सूचना और लेखांकन को सारांशित करने में सहायता करने के लिए।

Figure 12 Tabulating Machine

Figure 13 - Havard Mark 1

Havard Mark 1 - Also known as IBM Automatic Sequence Controlled Calculator (ASCC). Invented by Howard H. Aiken in 1943. The first electro-mechanical computer.

आईबीएम स्वचालित अनुक्रम नियंत्रित कैलकुलेटर (एएससीसी) के रूप में भी जाना जाता है। 1943 में हॉवर्ड एच। ऐकेन द्वारा आविष्कार किया गया। पहला इलेक्ट्रो-मैकेनिकल कंप्यूटर।

ENIAC - ENIAC stands for Electronic Numerical Integrator and Computer. It was the first electronic general-purpose computer. Completed in 1946. Developed by John Presper Eckert and John W. Mauchly.

ENIAC का मतलब इलेक्ट्रॉनिक न्यूमेरिकल इंटीग्रेटर और कंप्यूटर है। यह पहला इलेक्ट्रॉनिक सामान्य प्रयोजन वाला कंप्यूटर था। 1946 में पूरा हुआ। जॉन प्रेस्पर एकर्ट और जॉन डब्ल्यू। मौचल द्वारा विकसित।

Figure 14 ENIAC

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UNIVAC 1 - The UNIVAC I (UNIVersal Automatic Computer 1) was the first commercial computer. • Designed by J. Presper Eckert and John Mauchly.

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Chapter 3 (Generation of Computers And Types of Computer)

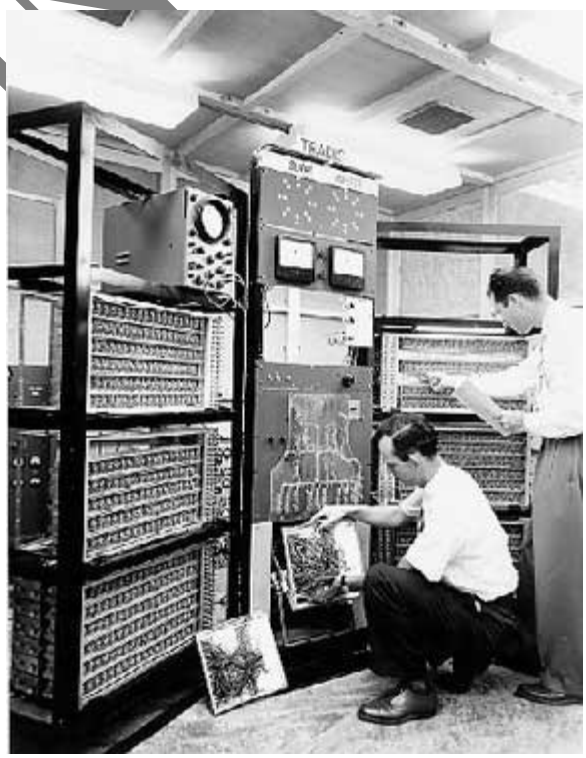
Generation in computer terminology is a change in technology a computer is/was being used. There are five generations of computer. They are

- First Generation : 1945 – 55
- Second Generation : 1955 – 65
- Third Generation : 1965 – 75
- Fourth Generation : 1975 To Present
- Fifth Generation : Yet To Come

First Generation Computers

The period of first generation was from 1946-1959. The computers of first generation used vacuum tubes as the basic components for memory and circuitry for CPU (Central Processing Unit). These tubes, like electric bulbs, produced a lot of heat and the installations used to fuse frequently. Therefore, they were very expensive and only large organizations were able to afford it.

In this generation, mainly batch processing operating system was used. Punch cards, paper tape, and magnetic tape was used as input and output devices. The computers in this generation used machine code as the programming language.



The main features of the first generation are −

- Vacuum tube technology
- Unreliable
- Supported machine language only
- Very costly
- Generated a lot of heat
- Slow input and output devices
- Huge size
- Need of AC
- Non-portable
- Consumed a lot of electricity

Some computers of this generation were −

- ENIAC
- EDVAC
- UNIVAC
- IBM-701
- IBM-650

Vacuum Tube -

Second Generation Computers

The period of second generation was from 1959-1965. In this generation, transistors were used that were cheaper, consumed less power, more compact in size, more reliable and faster than the first

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generation machines made of vacuum tubes. In this generation, magnetic cores were used as the primary memory and magnetic tape and magnetic disks as secondary storage devices.

In this generation, assembly language and high-level programming languages like FORTRAN, COBOL were used. The computers used batch processing and multiprogramming operating system.

The main features of second generation are −

- Use of transistors
- Reliable in comparison to first generation computers
- Smaller size as compared to first generation computers
- Generated less heat as compared to first generation computers
- Consumed less electricity as compared to first generation computers
- Faster than first generation computers
- Still very costly
- AC required
- Supported machine and assembly languages

Some computers of this generation were −

- IBM 1620
- IBM 7094
- CDC 1604
- CDC 3600
- UNIVAC 1108

Third Generation Computers

The period of third generation was from 1965-1971. The computers of third generation used Integrated Circuits (ICs) in place of transistors. A single IC has many transistors, resistors, and capacitors along with the associated circuitry.

The IC was invented by Jack Kilby. This development made computers smaller in size, reliable, and efficient. In this generation remote processing, time-sharing, multiprogramming operating system were used. High-level languages (FORTRAN-II TO IV, COBOL, PASCAL PL/1, BASIC, ALGOL-68 etc.) were used during this generation.

The main features of third generation are −

- IC used
- More reliable in comparison to previous two generations
- Smaller size
- Generated less heat
- Faster
- Lesser maintenance

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- Costly
- AC required
- Consumed lesser electricity
- Supported high-level language

Some computers of this generation were −

- IBM-360 series
- Honeywell-6000 series
- PDP (Personal Data Processor)
- IBM-370/168
- TDC-316

Fourth Generation Computers

The period of fourth generation was from 1971-1980. Computers of fourth generation used Very Large Scale Integrated (VLSI) circuits. VLSI circuits having about 5000 transistors and other circuit elements with their associated circuits on a single chip made it possible to have microcomputers of fourth generation.

Fourth generation computers became more powerful, compact, reliable, and affordable. As a result, it gave rise to Personal Computer (PC) revolution. In this generation, time sharing, real time networks, distributed operating system were used. All the high-level languages like C, C++, DBASE etc., were used in this generation.

The main features of fourth generation are −

- VLSI technology used
- Very cheap
- Portable and reliable
- Use of PCs
- Very small size
- Pipeline processing
- No AC required
- Concept of internet was introduced
- Great developments in the fields of networks
- Computers became easily available

Some computers of this generation were −

- DEC 10
- STAR 1000
- PDP 11
- CRAY-1(Super Computer)
- CRAY-X-MP(Super Computer)

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Fifth Generation Computers

Those computers have ability to reason and decision making will be known as fifth generation computers.

TYPES OF COMPUTERS

Present day computers can be categorized as below:

Super Computer - Supercomputers are fastest computers and are very expensive. These are employed for specialized applications that require immense amounts of mathematical calculations. For example, weather forecasting requires a supercomputer. Other uses of supercomputers include animated graphics, fluid dynamic calculations, nuclear energy research, and petroleum exploration.

Mainframe Computer **-** It is a very large and expensive computer and is capable of supporting hundreds, or even thousands of users simultaneously. In the hierarchy that starts with a simple microprocessor (in watches, for example) at the bottom and moves to supercomputers at the top, mainframes are just below supercomputers. In some ways, mainframes are more powerful than supercomputers because they support simultaneous programs. But, supercomputers can execute a single program faster than a mainframe. The chief difference between a supercomputer and a mainframe is that a supercomputer channels all its power into executing a few programs as fast as possible, whereas a mainframe uses its power to execute many programs concurrently.

Mini Computer - It is a mid sized computer in size and power. It lies between workstations and mainframes. In the past decade, the distinction between large minicomputers and small mainframes has blurred. In general, a minicomputer is a multiprocessing system capable of supporting from 4 to about 200 users simultaneously.

Micro Computer

- Desktop Computer: a personal or micro-mini computer sufficient to fit on a desk.
- Laptop Computer: a portable computer complete with an integrated screen and keyboard. It is generally smaller in size than a desktop computer and larger than a notebook computer.
- Palmtop Computer/Digital Diary /Notebook /PDAs (Personal Digital Assistant): a hand-sized computer, Palmtop, does not have keyboard, but its screen serves both as an input and output device.

Workstations - It is a terminal or desktop computer in a network. In this context, workstation is just a generic term for a user's machine (client machine) in contrast to a "server" or "mainframe."

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Chapter 4 – Parts of Computer

Computer system made of two major component hardware and software.

Hardware

All the tangible part of computers. That can be seen or touched.

There are two parts of Hardware-

- CPU
- Peripheral Devices

CPU: - CPU stands for Central Processing Unit. It is the brain of computer. All the arithmetic and logical work being done here. There are three parts of CPU –

- CU (Control Unit)
- ALU (Arithmetic Logical Unit)
- MU (Memory Unit)

***CU (Control Unit)* –** CU responsible for controlling all activity happened in computer system. It's control the flow of data through all the part of computer.

***ALU (Arithmetic Logic Unit)* –** All the arithmetic and logical calculation done here.

***MU (Memory Unit)* –** At the time ALU performs calculation, the data and instructions are stored here. MU also known as registers and it is fastest memory.

***Peripherals* –** All the devices attached to the CPU are known as Peripherals. There are three parts of peripherals.

- Input Devices
- Output Devices
- Memory Devices

***Input Devices* –** All the devices which are used for feeding data into the computer are known as Input Devices. Such as Keyboard, Mouse, Joystick, Touch Screen, OMR , MICR, Microphone, Barcode Reader, QR Reader, Scanner, Iris Scanner, Fingerprint Scanner.

***Output Devices* –** All the devices which are used show results after processing are known as output devices. Such as Monitor, Plotter, Speaker, Printer, Projector etc.

***Memory Devices* –** All the devices which are used to store data are known as memory devices. Such as Hard Disc, Floppy Disc, CD, DVD, Pen drive, Ram, Rom, Magnetic Tap etc.

There are two types of Memory Devices-

- Primary Memory
- Secondary Memory

Primary Memory – All the memory which are directly used by CPU are known as Primary memory. Generally Primary memories are volatile in nature, made of semiconductors and internal memory. These are Expensive memories and used less in amount. There are two parts of primary memory.

  - RAM (Random Access Memory)
  - ROM (Read Only Memory)

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Secondary memory – These are permanent memories and not directly used by processors. These are less expensive then primary memory and also known are auxiliary memories. Such as hard disc, floppy disc, cd, DVD, pen drive, memory cards.

Software

Software is simply a computer program or a set of instructions. Software guides the computer at every step indicating where to start and stop during a particular job.

There are two types of software –

- System Software
- Application software

System software **-** System Software are general purpose programs designed to perform tasks such as controlling all operations required to move data into and out of the computer. It communicates with keyboard, printer, card reader, disk, tapes, etc. It also monitors the use of various hardwares like memory, CPU, etc. System software acts as an interface between hardware and application software. Remember that it is not possible to run application software without system software. Some of the system software's are Disc Operating System(DOS), Windows, Unix/Linux, MAC/OS X etc.

Application software **-** It is a set of programs, which are written to perform specific tasks of the users of computer. These softwares are developed in high level languages to help the user to get the computer to perform various tasks. Some of the application software are MS Office, Macromedia (Dreamweaver, Flash, Freehand), Adobe (PageMaker, PhotoShop), LIBSYS, SOUL, WINISIS, KOHA, etc.

- **Presentation software:** They allow the easy visual presentation of data with the help of various tools. Information can be presented easily in the form of slides. Ex – Ms- Powerpoint, LibreOffice Impress.
- **Spreadsheet software:** Representation of data in tabular form is possible through spreadsheet software. They allow easy calculations through formulas and functions. Ex – Ms- Excel, LibreOffice Calc, Google Sheet.
- **Graphic software:** Graphics software allows easy editing of visual data. It makes room for picture editing and illustration.
- **Word processors:** Word processor software allows formulation, beautification, and manipulation of text. They allow a wide variety of features to make room for effective text consolidation and editing. Ms – Word, LibreOffice Writer
- **Database software:** Known popularly as database management software, this software helps with effective data management. This software allows easy organization of data and effortless access to it. Ex – Ms – Access, Libreoffice Base, Dbase etc.
- **Multimedia software:** Such software allows easy creation of audio, video, or pictorial files. They deal with all basic multimedia creation and sharing. They come with a wide variety of tools to facilitate the same.
- **Web browsers:** As a software application, web browsers facilitate easy surfing of the internet. You can make use of these to quickly locate information across the web.

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Utility Software

The Utility Software is system software that helps to maintain the proper and smooth functioning of a Computer System. It assists the Operating System to manage, organize, maintain, and optimize the functioning of the computer system. Ex- Backup and Restore software, Antivirus Software.

Virus - A virus is **a fragment of code embedded in a legitimate program**. Viruses are self-replicating and are designed to infect other programs. They can wreak havoc in a system by modifying or destroying files causing system crashes and program malfunctions.

- **Worms -** Worms is also a computer program like virus but it does not modify the program. It replicate itself more and more to cause slow down the computer system. Worms can be controlled by remote.
- **Trojan Horse -** Trojan Horse does not replicate itself like virus and worms. It is a hidden piece of code which steal the important information of user. For example, Trojan horse software observe the e-mail ID and password while entering in web browser for logging.

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Chapter 5 (Operating System)

An Operating System is a system software that acts as an interface between a user and hardware of a computer. Modern operating systems usually feature a graphical user interface which uses a pointing device such as mouse or keyboard for input. Operating Systems are viewed as resource managers that manage the resources of a computer. The main resource is the computer hardware which is in the form of processors, storage, input/output devices, communication devices, and data. A good operating system should be efficient, reliable, take short time in execution of programs, occupy small memory as small as possible.

The main Operating Systems are:

1. Network Operating System –

- WINDOWS 2000
- Unix
- Linux

2. Desktop Operating System –

- WINDOWS
- DOS (Disc Operating System)
- Mac OS

3. Mobile Operating System –

- Android
- Palm OS
- Pocket PC
- IOS

Some of the operating system are presented in the following table along with their main characteristics:

DOS	Mac OS	MS Windows	Linux	UNIX	Palm OS/ Pocket PC
1. Single-User, Single tasking	1. Single-User Multitasking	1. Single-User Multitasking	1. Multiuser, multitasking	1. Multiuser, multitasking	1. Single-User Multitasking
2. Command-line user interface	2. Graphic User Interface	2. Graphic User Interface	2. Command-line user interface	2. Command-line user interface	2. Graphic User Interface
3. Disc Operating System (DOS) has been replaced by MS windows OS	3. Mac has easy- to- use Graphic User Interface (GUI)	3. The first true MS Windows OS is Windows 95.	3. LINUX is open source software	3. Unix has several versions but they lack interoper-ability	3. They are specifically designed for PDA
4. Desktop OS	4. Desktop OS	4. Desktop OS	4. Network OS	4. Network OS	4. Mobile OS

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Chapter 5 (Number System)

The technique to represent and work with numbers is called **number system**. **Decimal number system** is the most common number system. Other popular number systems include **binary number system, octal number system, hexadecimal number system,** etc.

Decimal Number System

Decimal number system is a **base 10** number system having 10 digits from 0 to 9. This means that any numerical quantity can be represented using these 10 digits. Decimal number system is also a **positional value system**. This means that the value of digits will depend on its position. Let us take an example to understand this.

Say we have three numbers – 734, 971 and 207. The value of 7 in all three numbers is different−

- In 734, value of 7 is 7 hundreds or 700 or 7×100 or 7×10^2
- In 971, value of 7 is 7 tens or 70 or 7×10 or 7×10^1
- In 207, value 0f 7 is 7 units or 7 or 7×1 or 7×10^0

The weightage of each position can be represented as follows −

10^5	10^4	10^3	10^2	10^1	10^0

In digital systems, instructions are given through electric signals; variation is done by varying the voltage of the signal. Having 10 different voltages to implement decimal number system in digital equipment is difficult. So, many number systems that are easier to implement digitally have been developed. Let's look at them in detail.

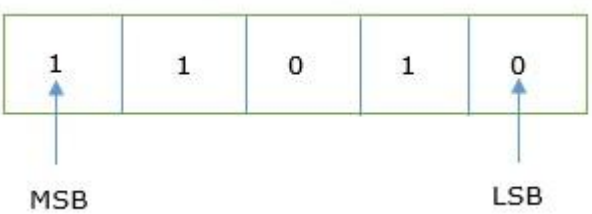
Binary Number System

The easiest way to vary instructions through electric signals is two-state system – on and off. On is represented as 1 and off as 0, though 0 is not actually no signal but signal at a lower voltage. The number system having just these two digits – 0 and 1 – is called **binary number system**.

Each binary digit is also called a **bit**. Binary number system is also positional value system, where each digit has a value expressed in powers of 2, as displayed here.

2^5	2^4	2^3	2^2	2^1	2^0

In any binary number, the rightmost digit is called **least significant bit (LSB)** and leftmost digit is called **most significant bit (MSB)**.



And decimal equivalent of this number is sum of product of each digit with its positional value.

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$11010_2 = 1\times2^4 + 1\times2^3 + 0\times2^2 + 1\times2^1 + 0\times2^0$

$= 16 + 8 + 0 + 2 + 0$

$= 26_{10}$

Computer memory is measured in terms of how many bits it can store. Here is a chart for memory capacity conversion.

- 1 byte (B) = 8 bits
- 1 Kilobytes (KB) = 1024 bytes
- 1 Megabyte (MB) = 1024 KB
- 1 Gigabyte (GB) = 1024 MB
- 1 Terabyte (TB) = 1024 GB
- 1 Exabyte (EB) = 1024 PB
- 1 Zettabyte = 1024 EB
- 1 Yottabyte (YB) = 1024 ZB

Octal Number System

Octal number system has eight digits – 0, 1, 2, 3, 4, 5, 6 and 7. Octal number system is also a positional value system with where each digit has its value expressed in powers of 8, as shown here –

8^5	8^4	8^3	8^2	8^1	8^0

Decimal equivalent of any octal number is sum of product of each digit with its positional value.

$726_8 = 7\times8^2 + 2\times8^1 + 6\times8^0$

$= 448 + 16 + 6$

$= 470_{10}$

Hexadecimal Number System

Octal number system has 16 symbols – 0 to 9 and A to F where A is equal to 10, B is equal to 11 and so on till F. Hexadecimal number system is also a positional value system with where each digit has its value expressed in powers of 16, as shown here –

16^5	16^4	16^3	16^2	16^1	16^0

Decimal equivalent of any hexadecimal number is sum of product of each digit with its positional value.

$27FB_{16} = 2\times16^3 + 7\times16^2 + 15\times16^1 + 10\times16^0$

$= 8192 + 1792 + 240 + 10$

$= 10234_{10}$

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Number System Relationship

The following table depicts the relationship between decimal, binary, octal and hexadecimal number systems.

HEXADECIMAL	DECIMAL	OCTAL	BINARY
0	0	0	0000
1	1	1	0001
2	2	2	0010
3	3	3	0011
4	4	4	0100
5	5	5	0101
6	6	6	0110
7	7	7	0111
8	8	10	1000
9	9	11	1001
A	10	12	1010
B	11	13	1011
C	12	14	1100
D	13	15	1101

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E	14	16	1110
F	15	17	1111

ASCII

Besides numerical data, computer must be able to handle alphabets, punctuation marks, mathematical operators, special symbols, etc. that form the complete character set of English language. The complete set of characters or symbols are called alphanumeric codes. The complete alphanumeric code typically includes −

- 26 upper case letters
- 26 lower case letters
- 10 digits
- 7 punctuation marks
- 20 to 40 special characters

Now a computer understands only numeric values, whatever the number system used. So all characters must have a numeric equivalent called the alphanumeric code. The most widely used alphanumeric code is American Standard Code for Information Interchange (ASCII). ASCII is a 7-bit code that has 128 (27) possible codes.

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ASCII Code - Character to Binary

0	0011 0000	I	0100 1001	b	0110 0010	v	0111 0110
1	0011 0001	J	0100 1010	c	0110 0011	w	0111 0111
2	0011 0010	K	0100 1011	d	0110 0100	x	0111 1000
3	0011 0011	L	0100 1100	e	0110 0101	y	0111 1001
4	0011 0100	M	0100 1101	f	0110 0110	z	0111 1010
5	0011 0101	N	0100 1110	g	0110 0110		
6	0011 0110	O	0100 1111	h	0110 1000	:	0011 1010
7	0011 0110	P	0101 0000	i	0110 1001	;	0011 1011
8	0011 1000	Q	0101 0001	j	0110 1010	?	0011 1111
9	0011 1001	R	0101 0010	k	0110 1011	·	0010 1110
		S	0101 0011	l	0110 1100	‘	0010 1111
		T	0101 0100	m	0110 1101	!	0010 0001
A	0100 0001	U	0101 0101	n	0110 1110	‘	0010 1100
B	0100 0010	V	0101 0110	o	0110 1111	“	0010 0010
C	0100 0011	W	0101 0111	p	0111 0000	(	0010 1000
D	0100 0100	X	0101 1000	q	0111 0001	)	0010 1001
E	0100 0101	Y	0101 1001	r	0111 0010	space	0010 0000
F	0100 0110	Z	0101 1010	s	0111 0011		
G	0100 0111			t	0111 0100		
H	0100 1000	a	0110 0001	u	0111 0101		

IISCII

IISCII stands for **Indian Script Code for Information Interchange**. IISCII was developed to support Indian languages on computer. Language supported by IISCI include Devanagari, Tamil, Bangla, Gujarati, Gurmukhi, Tamil, Telugu, etc. IISCI is mostly used by government departments and before it could catch on, a new universal encoding standard called **Unicode** was introduced.

Unicode

Unicode is an international coding system designed to be used with different language scripts. Each character or symbol is assigned a unique numeric value, largely within the framework of ASCII. Earlier, each script had its own encoding system, which could conflict with each other.

In contrast, this is what Unicode officially aims to do − *Unicode provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language*.

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Chapter – 7 (Network and Internet)

A Group of connected computers which communicate each other by sharing the resources form on to another is called as computer network.

Type of networks –

PAN (Personal Area Network) - A personal area network is a computer network for interconnecting electronic devices within an individual person's workspace.

LAN (Local Area Network) -A local area network is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university campus or office building.

MAN (Metropolitan Area Network) -A metropolitan area network is a computer network that interconnects users with computer resources in a geographic region of the size of a metropolitan area OR a city.

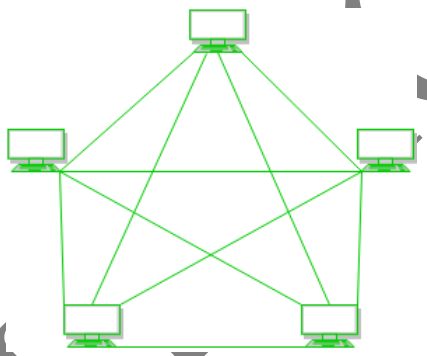
WAN (Wide Area Network) - A wide area network is a telecommunications network that extends over a large geographic area. Wide area networks are often established with leased telecommunication circuits

Types of Network Topology

The arrangement of a network that comprises nodes and connecting lines via sender and receiver is referred to as network topology. The various network topologies are:

a) Mesh Topology:

In a mesh topology, every device is connected to another device via a particular channel.



Advantages of this topology:

It is robust.

The fault is diagnosed easily. Data is reliable because data is transferred among the devices through dedicated channels or links.

Provides security and privacy.

Problems with this topology :

Installation and configuration are difficult.

The cost of cables is high as bulk wiring is required, hence suitable for less number of devices.

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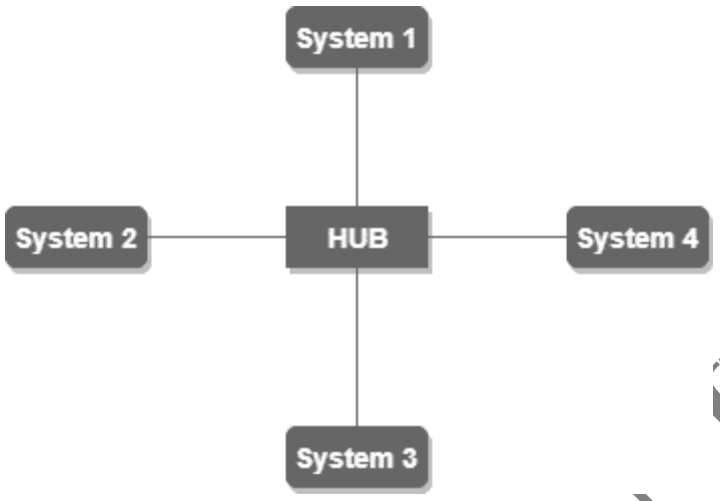
The cost of maintenance is high.

Star Topology :

In star topology, all the devices are connected to a single hub through a cable. This hub is the central node and all other nodes are connected to the central node. The hub can be passive in nature i.e., not an intelligent hub such as broadcasting devices, at the same time the hub can be intelligent known as an active hub. Active hubs have repeaters in them.



Advantages of this topology :

If N devices are connected to each other in a star topology, then the number of cables required to connect them is N. So, it is easy to set up.

Each device requires only 1 port i.e. to connect to the hub, therefore the total number of ports required is N.

Problems with this topology :

If the concentrator (hub) on which the whole topology relies fails, the whole system will crash down.

The cost of installation is high.

Performance is based on the single concentrator i.e. hub.

c) Bus Topology :

Bus topology is a network type in which every computer and network device is connected to a single cable. It transmits the data from one end to another in a single direction. No bi-directional feature is in bus topology. It is a multi-point connection and a non-robust topology because if the backbone fails the topology crashes.

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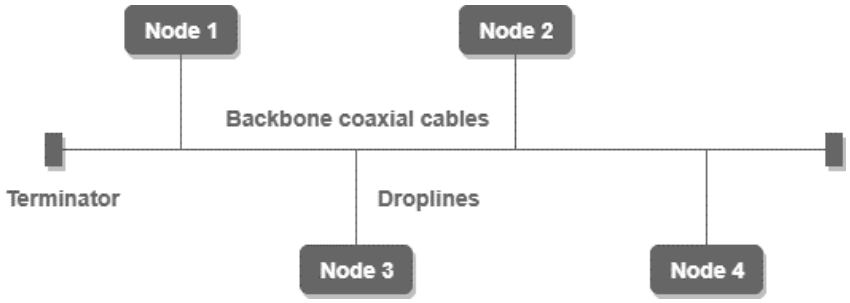


Advantages of this topology :

If N devices are connected to each other in a bus topology, then the number of cables required to connect them is 1, which is known as backbone cable, and N drop lines are required.

The cost of the cable is less as compared to other topologies, but it is used to build small networks.

Problems with this topology :

If the common cable fails, then the whole system will crash down.

If the network traffic is heavy, it increases collisions in the network. To avoid this, various protocols are used in the MAC layer known as Pure Aloha, Slotted Aloha, CSMA/CD, etc.

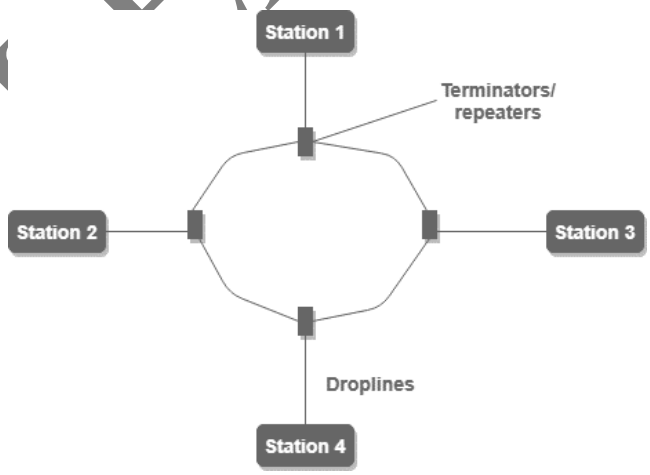
Security is very low.

d) Ring Topology :

In this topology, it forms a ring connecting devices with its exactly two neighboring devices.

A number of repeaters are used for Ring topology with a large number of nodes, because if someone wants to send some data to the last node in the ring topology with 100 nodes, then the data will have to pass through 99 nodes to reach the 100th node. Hence to prevent data loss repeaters are used in the network.

The transmission is unidirectional, but it can be made bidirectional by having 2 connections between each Network Node, it is called Dual Ring Topology.



Advantages of this topology:

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The possibility of collision is minimum in this type of topology.

Cheap to install and expand.

Problems with this topology:

Troubleshooting is difficult in this topology.

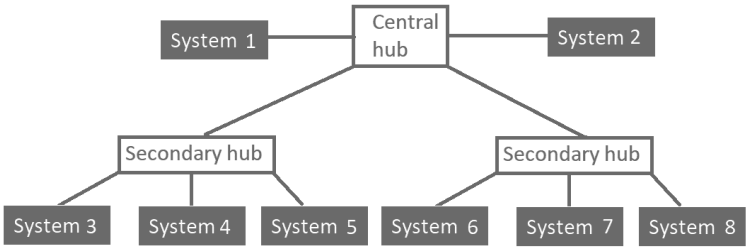
The addition of stations in between or removal of stations can disturb the whole topology.

Less secure.

Tree Topology :

This topology is the variation of Star topology. This topology has a hierarchical flow of data.

Advantages of this topology :



It allows more devices to be attached to a single central hub thus it decreases the distance that is traveled by the signal to come to the devices.

It allows the network to get isolate and also prioritize from different computers.

Problems with this topology :

If the central hub gets fails the entire system fails.

The cost is high because of cabling.

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MS-DOS (MICROSOFT DISK OPERATING SYSTEM)

MS-DOS is a cui (character user interface) operating system developed by Microsoft corporation.

How to load ms-dos?

CLICK ON START BUTTON -> ALL PROGRAMS->ACCESSORIES->COMMAND PROMPT

or

CLICK ON START BUTTON -> RUN ->TYPE CMD/COMMAND->OK

Working on Ms- Dos

To see or change the Date

Date

C:\>Date

The current date is: Sun 12/23/2012

Enter the new date: (mm-dd-yy)

To see or change the Time

Time

C:\>Time

The current time is: 18:55:21.05

Enter the new time:

To clear the screen

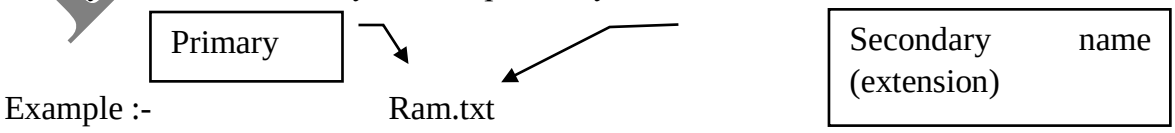
Cls

C:\>Cls

File

Collection of Information is called file.

File Name- Every computer file having a uniqe name. File name have to parts Primary name and secondary name. Primary name contains 1-8 characters. Secondary name contains 0-3 characters. Primary name and secondry name seprated by Dot "." .



Note :- the caracters you cannot use in filename are

. / \ ( ) < > + = ; : , ? *

To create a file

Copy Con <File Name>

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C:\>Copy con lexicon.in

What is Ms-Dos?

Ans- Ms-Dos is a CUI Operating System

Of Microsoft Carporation.

To Save the file press F6 or Ctrl+z

^Z

1 file(s) copied.

C:\>

To see the list of file in the disk

Dir

C:\>dir

Volume in drive C has no label.

Volume Serial Number is 5833-366F

Directory of C:\

10/18/2012 10:15 PM <DIR> Kpcms

10/18/2012 08:56 AM <DIR> lexicon india

12/23/2012 07:01 PM 122 lexicon.in

08/29/2012 07:27 PM <DIR> lg

07/14/2009 08:07 AM <DIR> PerfLogs

12/23/2012 02:18 PM <DIR> Program Files

12/23/2012 03:40 PM 118 Sandeep.txt

12/23/2012 03:37 PM 115 sanjay.txt

10/30/2012 03:46 PM <DIR> sidhu

5 File(s) 389 bytes

12 Dir(s) 2,009,395,200 bytes free

C:\>

To See the Contains of a file

Type <file Name>

C:\>type lexicon.in

What is Ms-Dos?

Ans- Ms-Dos is a CUI Operating System

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Of Microsoft Corporation.

To Save the file press F6 or Ctrl+z

C:\>

To change the name of any file

Ren <Old file name> <New file name>

C:\>Ren lexicon.in lexicon.bhk

C:\>

To make Duplicate copy of any file

Copy <source file name > <destination file name>

C:\>Copy lexicon.bhk lexicon.lap

C:\>

To erase any file from disk

Del<file name>

C:\>del lexicon.lap

Directory

To store files in the disk in an organized way, we create places are called directory that places are called directory.

To make a directory

Md <dir name>

C:\>Md Ranchi

C:\>

To change directory

Cd <dir name>

C:\>Cd Ranchi

C:\Ranchi>

Note-

. current directory

.. parrent directory

\ Root Directory (C:, D:, E: etc. are called root directory or drives)

To go to parent directory

Cd..

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C:\Ranchi>cd..

C:\>

To remove directory

Rd

C:\>rd Ranchi

Rules: -

- Directory must be empty.
- Given from it parents directory

To make a file hidden or read only

Attrib ±code <file name>

+ = to set attrib

-=to remove attrib

Code: h(hidden), r(read only)

C:\>attrib +r sanjay.txt

C:\>attrib -h sanjay.txt

C:\>attrib +r sanjay.txt

C:\>attrib -r sanjay.txt

To the list of hidden or read only files

C:\>dir/ah (To see hidden files)

C:\>dir/ar (To see read only files)

To change the drives

Drive_letter :

C:\>D:

D:\

To transfer a file from one location to another.

Move <source file path> <destination file path>

Path refers to full name of a file. Such as C:\lexicon\lexicon.in

C:\>Move c:\lexicon.bhk d:\sandeep.txt

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Global characters or wild card characters.

Wild cards are used to perform an ms-dos operation on more than one file at a time. It is also used to search files in the disk. There are two wildcards are available:-

1. ? – A question marks in file name means, it occupy maximum one character/letter/number at that position.
2. * - An asterisk in a file name means, it occupy many character/letter/number at that position.

C:\>Dir a*.*

Display all the directory and files in the page wise.

Dir/p

Display all the directory and files in width wise.

Dir/w

To change prompt

Prompt <text> or Prompt <$character>

C:\> Prompt LEXICON

LEXICON Prompt pg

$Q = (equal sign)

$$ $ (dollar sign)

$T Current time

$D Current date

$P Current drive and path

$V DOS version number

$N Current drive

$G > (greater-than sign)

$L < (less-than sign)

$B | (pipe)

$H Backspace (erases previous character)

$E Escape code (ASCII code 27)

$_ Carriage return and linefeed

CHKDSK

Checks a disk and displays a status report.

EXIT

Quits the CMD.EXE program (command interpreter).

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FORMAT

FORMAT command is used to divide a disk into tracks and sectors.

To Use help command

Help

C:\>help

C:\>help color

To change the color

Color [Attr]

Sets the default console foreground and background colors.

attr - Specifies color attribute of console output

Color attributes are specified by TWO hex digits -- the first Corresponds to the background; the second the foreground. Each digit can be any of the following values:

0 = Black	8 = Gray
1 = Blue	9 = Light Blue
2 = Green	A = Light Green
3 = Aqua	B = Light Aqua
4 = Red	C = Light Red
5 = Purple	D = Light Purple
6 = Yellow	E = Light Yellow
7 = White	F = Bright White

C:\>color 70

C:\>

Batch File

To avoid retyping of commands we create a file with .BAT as it's secondary name and type all the commands in that file and save it.

Whenever we need those commands to be executed we simply type the file name and press Enter.

All the commands in that file gets executed one by one automatically.

Batch file commands

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Echo on/off- to suppress command displaying on the monitor.

Echo - to print massage during processing.

Pause- to stop processing temporarily.

C:\>Copy con lexicon.bat

Echo off

Cls

Echo ****welcome****

Pause

Cls

Date

Cls

Time

Cls

Dir/w

Pause

Cls

Edit

Dir/w

Pause

Cls

Echo ****The End****

Pause

cls

F6

1 file(s) copied

C:\>

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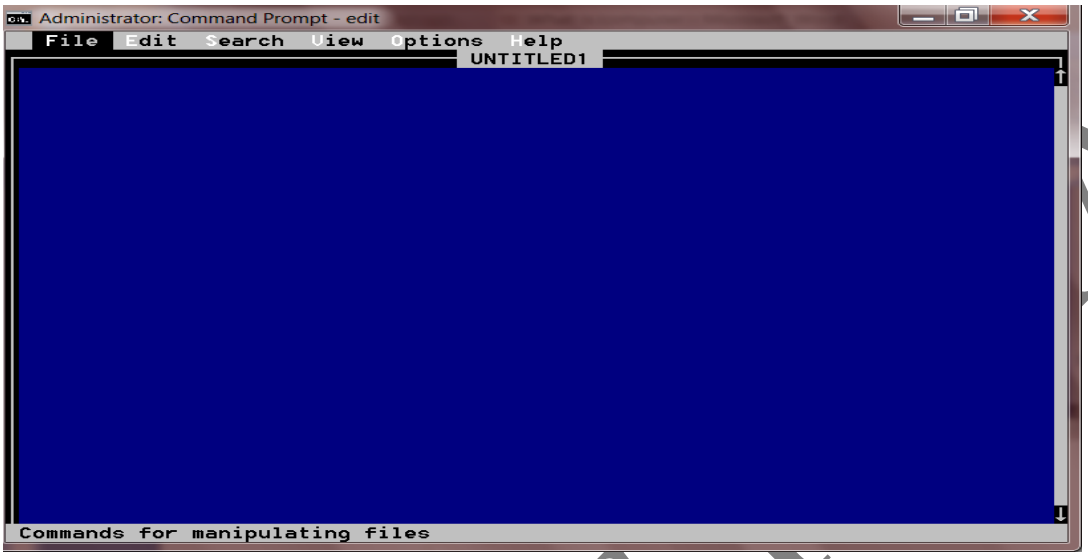
EDIT

Edit is a text editor program of Ms-Dos.

To loading Edit:-

C:\>Edit



To Activate Menu

Press ALT+F/E/S/V/O/H

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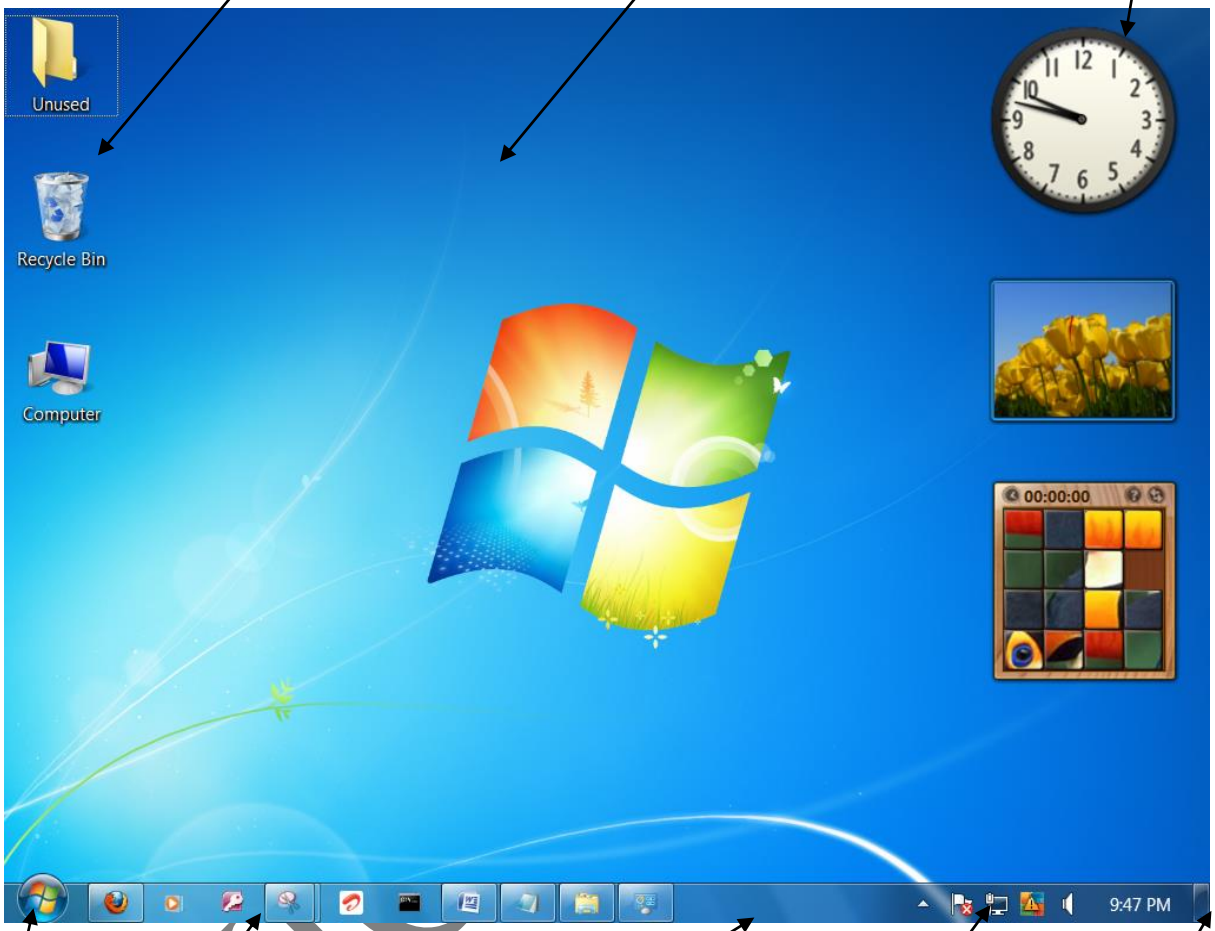
Ms- Windows Screen Parts



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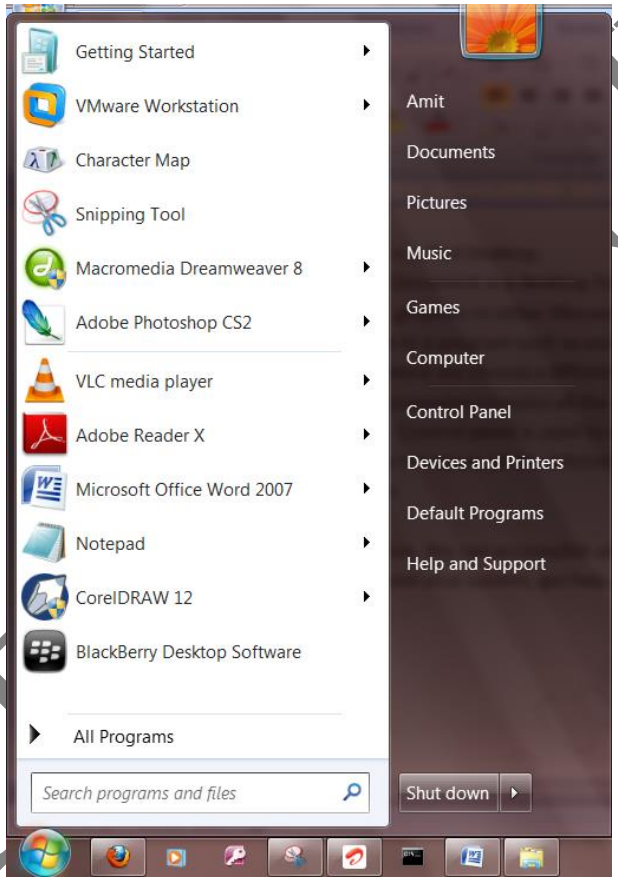
Ms-Windows is multitasking GUI (Graphical User Interface) operation system software.

Ms-Windows screen parts-

1. Desktop
   First screen of windows is called Desktop.
   1.1. My Document- My Document is a desktop folder that provides us with a convenient place to sore documents, graphics or other files we want to access quikly.
   When we save a file in a program such as word pad or paint, the file is automatically saved in my documents unless we choose a different location.
   1.2. My Computer- My computer contains all the drives and control panels.
   1.2.1. Control panel- Control panel is used to alter the hardware and software settings.
   1.3. Recycle Bin-Recycle bin stores all the deleted files and folders.
2. Start Button and Taskbar
   2.1. Start Button
   Using the start button, We can accomplish almost any task, we can start program, open documents, customize your system, get help, search for items on your computer and more.
   Start Menu Items



   2.2. Taskbar
   This is a bar that is usually found at the bottom of our screen. It contains list all open programs.
3. Windows
   A window is typical rectangular area pertaining to an application or a document or a dialog.

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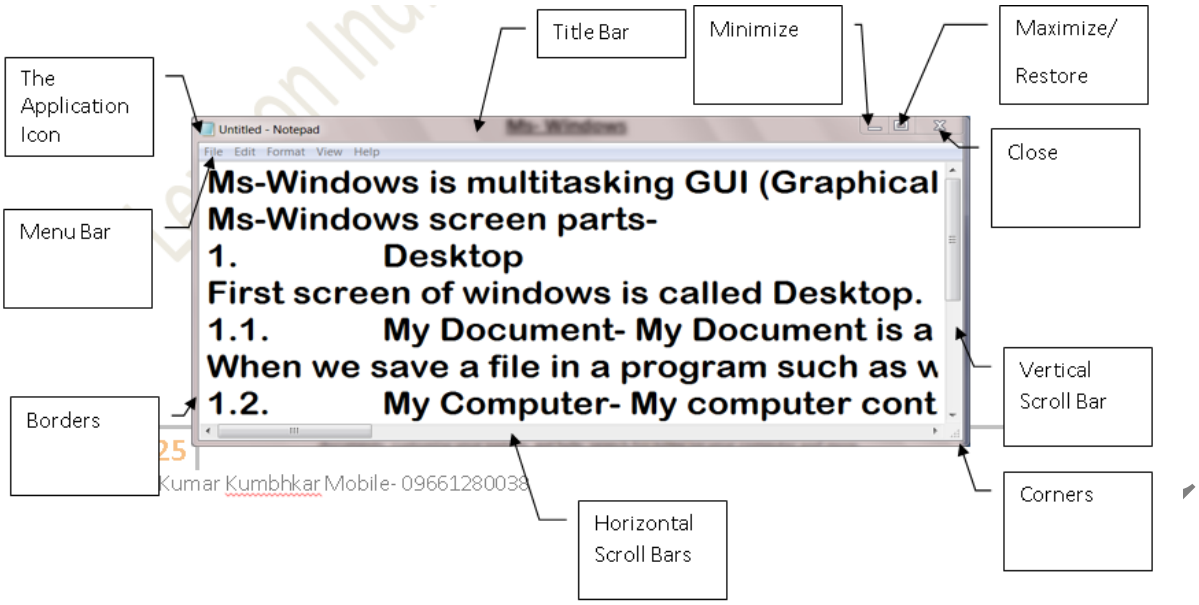


The title Bar-It is the topmost horizontal bar of each application window and it contains the title of the open window

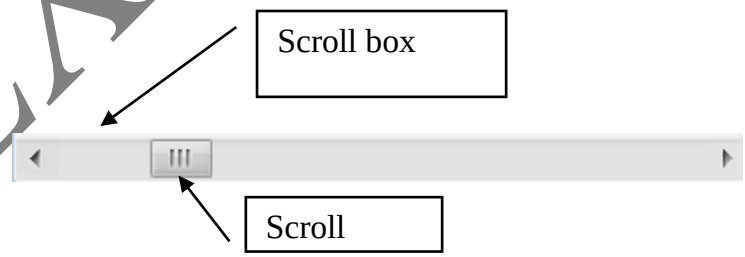
- The Application Icon -It is the icon representing the open application.
- Maximize/Restore-This button is used to restore an enlarged window to its previous size or vice versa
- Minimize-This button shrinks the active windows to a button in the taskbar.
- Close-It is used to close the windows.

The menu Bar

The menu bar for an application window is a horizontal bar just below the title bar. The menu bar lists the menus available for the application.

The scroll bars

Depending on the size of a window, the entire application may not be visible when this happens, the window is out filled with vertical and / or horizontal scroll bars.



4. Icons-icon is a graphic symbol representing a window element

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Working in windows

Managing file and folder

A file is a collection of information. Everything stored in a computer is the form of file.

A folder is a location in which you can store file and other folders

Creating folder

1. Right click on the blank screen
2. Click on new ,and then click on folder
3. Type the name press enter

Creating a text file

1. Right click on the blank screen
2. Click on new, and then click on New text document
3. Type the name press enter

Opening files and folders

1. Right click on file or folder
2. Click on open

Renaming files and folders

1. Right click on file or folder
2. Click on rename
3. Type name and press enter

To move and copy files and folders

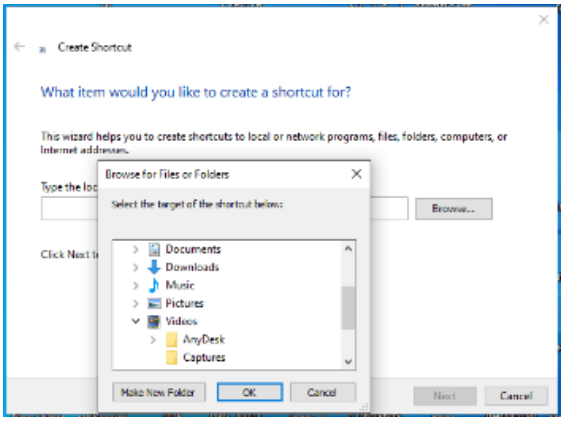
1. Right click on files and folders
2. Click on Cut/Copy
3. Go to appropriate location
4. Right click on blank space and then click Paste

To Delete files and folders

1. Right click on files and folders
2. Click on delete

To Create a short cut of a File/folder/application

1. Right click on desktop
2. Click on new
3. Click on Shortcut
4. Browse the file/folder/application
5. Select the file/folder/application
6. Name the shortcut
7. Click on ok



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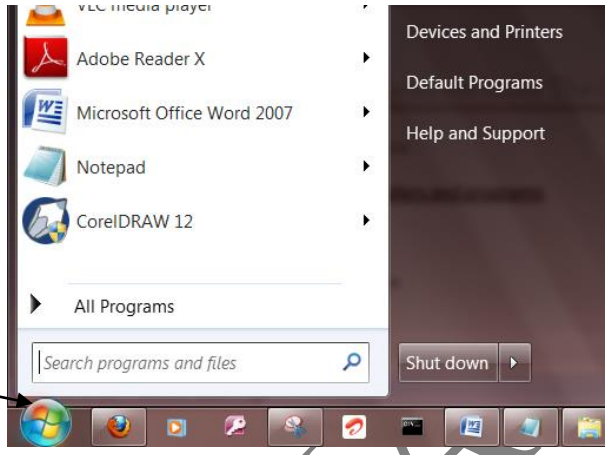
To restore files and folders

1. Right click on Recycle Bin
2. Go to file or folder and Right click on it
3. Click on Restore

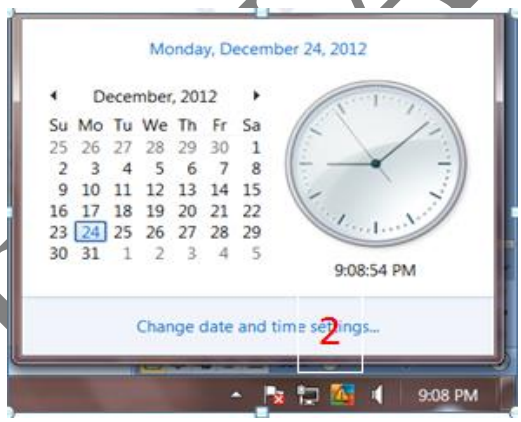
To search files and folders and programs

1. Click on start button
2. Type text in search box



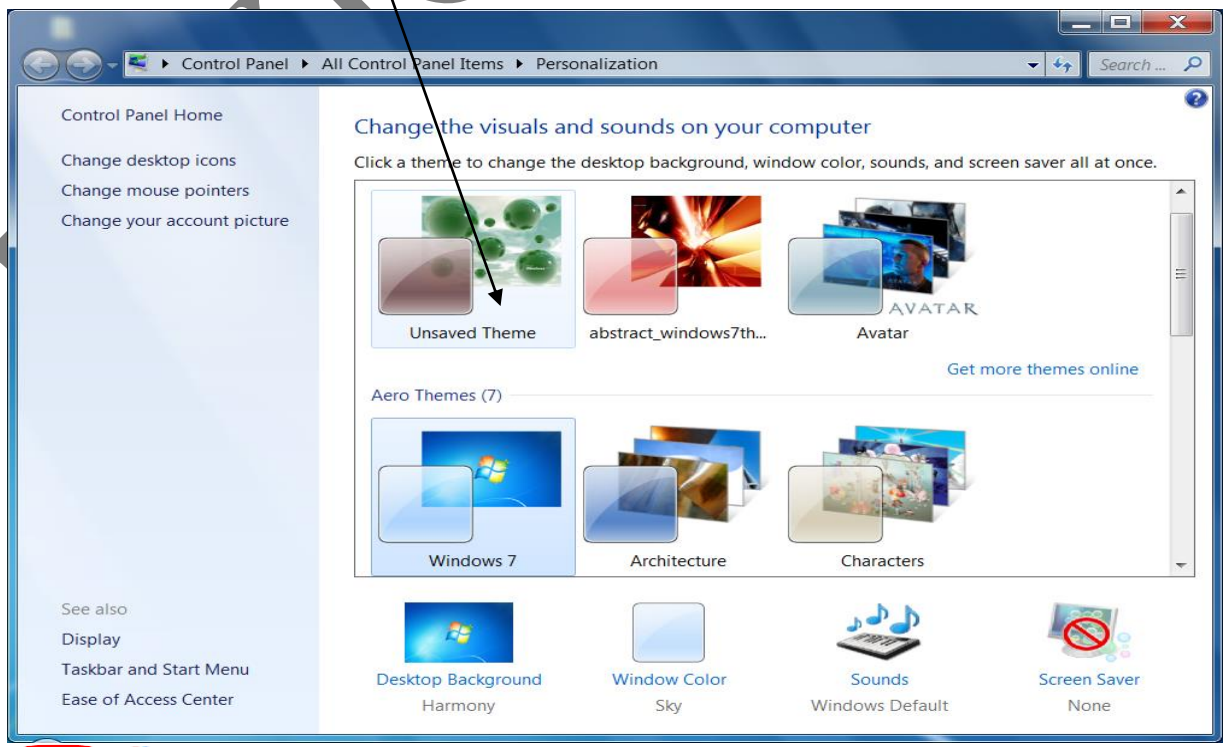
To change date and time

1. Click on time in system tray
2. Click on date and time setting
3. Click on change date and time
4. Set date and time
5. And click ok



To change wallpaper/screen sever/theme

1. Right click on blank desktop
2. Click on personalize
3. Click on desktop background/Screen sever
4. Set background/Screen sever



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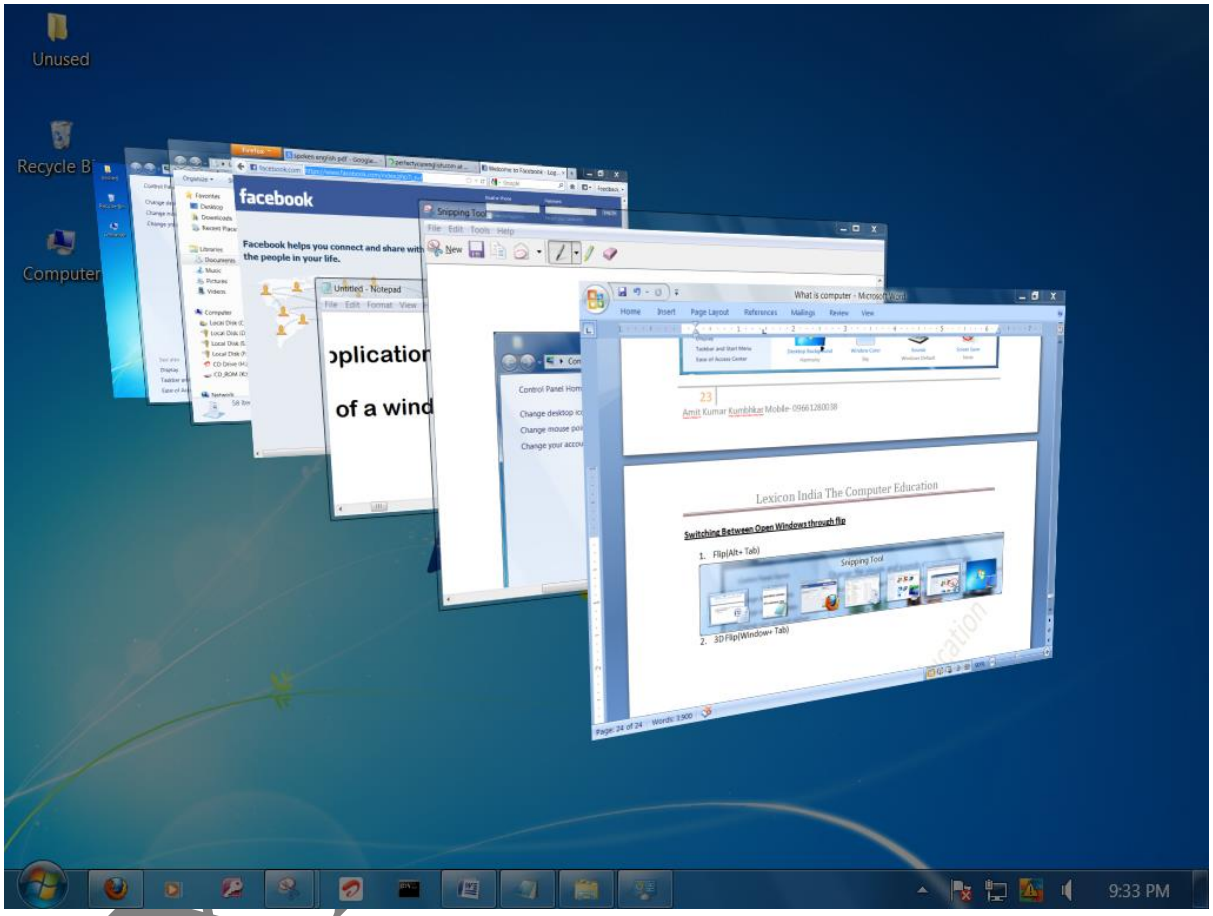
Switching Between Open Windows through Windows flip

1. Flip(Alt+ Tab)

2. 3D Flip(Window+ Tab)



Using Control panel

Control panel is used to alter the hardware and software setting of your computer. Windows offer two ways to view and use control panel.

- Classic View.
- Category view.

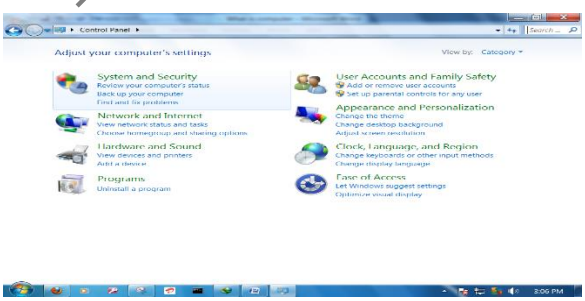


Figure 8 : Category View.

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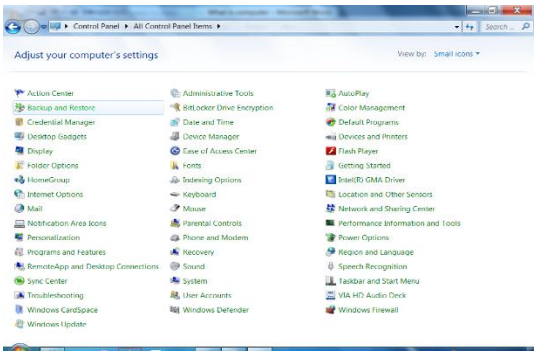
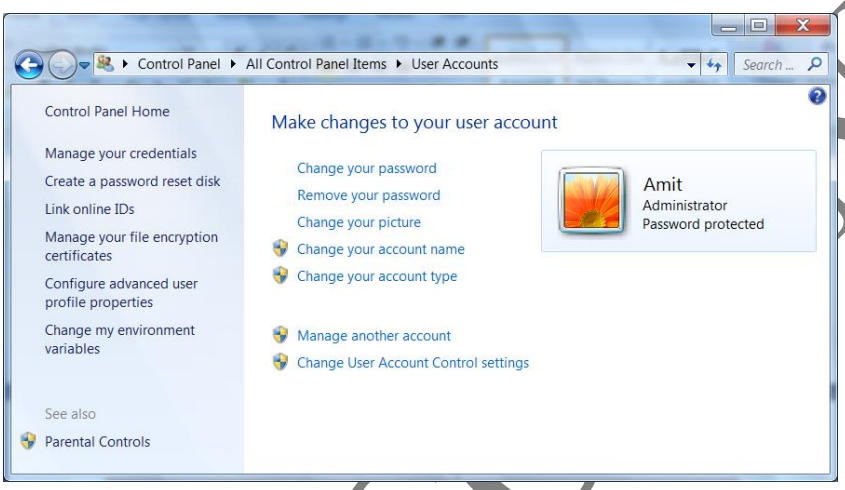


Figure 15 Classic View

User Account

A user account defines the actions a user can perform in Windows. User Accounts lets you create or change the password for local user accounts, which is useful when creating a new user account or if a user forgets a password.



Program And Feature

You can uninstall a program from your computer if you no longer use it or if you want to free up space on your hard disk. You can use Programs and Features to uninstall programs or to change the program's configuration by adding or removing certain options.

1. Open Programs and Features by clicking the Start button, clicking Control Panel, clicking Programs, and then clicking Programs and Features.
2. Select a program, and then click Uninstall. Some programs include the option to change or repair the program in addition to uninstalling it. but many simply offer the option to uninstall. To change a program, click Change or Repair. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

Mouse

You can customize your mouse in a variety of ways. For instance, you can swap the functions of your mouse buttons, make the mouse pointer more visible, and alter the scroll speed of the mouse wheel.

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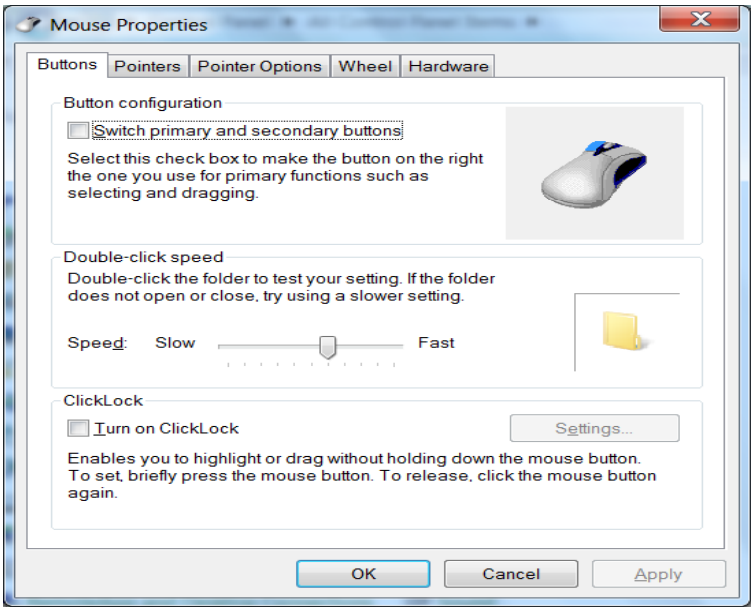
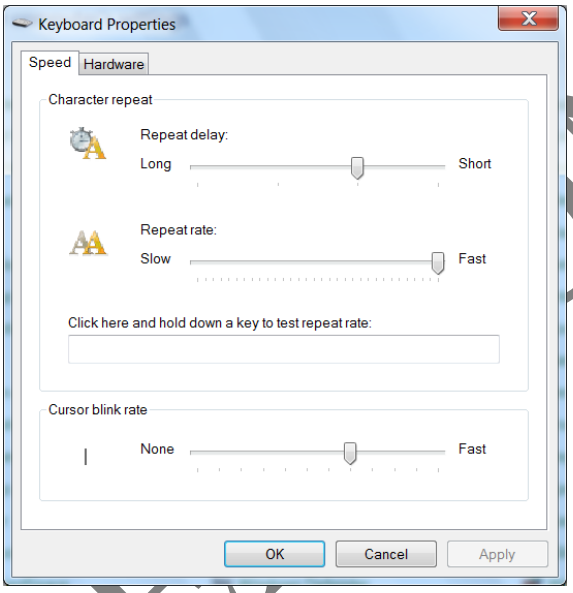


Key board

Customizing your keyboard settings helps you work better and more efficiently. By customizing the settings, you can determine how long you must press a key before the keyboard character starts repeating, the speed at which keyboard characters repeat, and the rate at which the cursor blinks.



date and time

this panel is used to change the system date and time.

Display

You can make the text and other items, such as icons, on your screen easier to see by making them larger. You can do this without changing the screen resolution of your monitor or laptop screen. This allows you to increase or decrease the size of text and other items on your screen while keeping your monitor or laptop set to its optimal resolution.

Folder Option

You can change the way files and folders function and how items are displayed on your computer by using Folder Options in Control Panel.

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Open Folder Options by clicking the Start button, clicking Control Panel, clicking Appearance and Personalization, and then clicking Folder Options.

Personalization

You can change theme, desktop background and screen saver using this option.

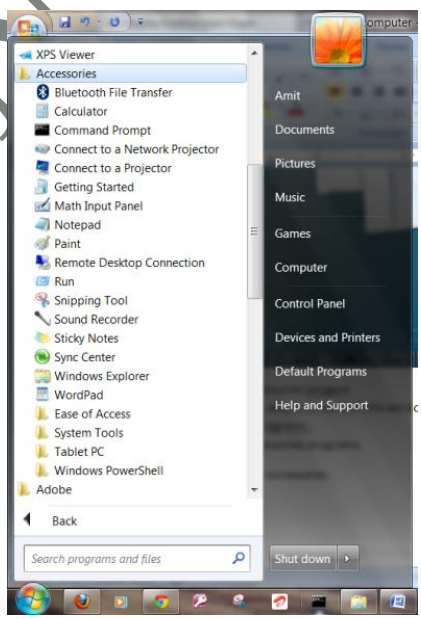
Theme- A theme is a combination of pictures, colors, and sounds on your computer. It includes a desktop background, a screen saver, a window border color, and a sound scheme. Some themes might also include desktop icons and mouse pointers.

Desktop Background- This collection of desktop backgrounds—wallpaper—makes it easy to keep your PC in tune with your mood. Choose a category and check out a wide selection of free images. Pick one you like, and download it. From breathtaking natural wonders, to dazzling works of art—find an image that moves you and make it yours.

Screen Saver - A screensaver is a type of computer program initially designed to prevent phosphor burn-in on CRT and plasma computer monitors by blanking the screen or filling it with moving images or patterns when the computer is not in use.

Windows accessories program

The programs which comes with the windows operating system are called windows accessories programs.



To access accessories programs

Start -> all programs->accessories

- Calculator
- Command prompt
- Notepad
- Paint
- Run
- Sniping Tools
- Windows Explorer
- WordPad
- Character Map

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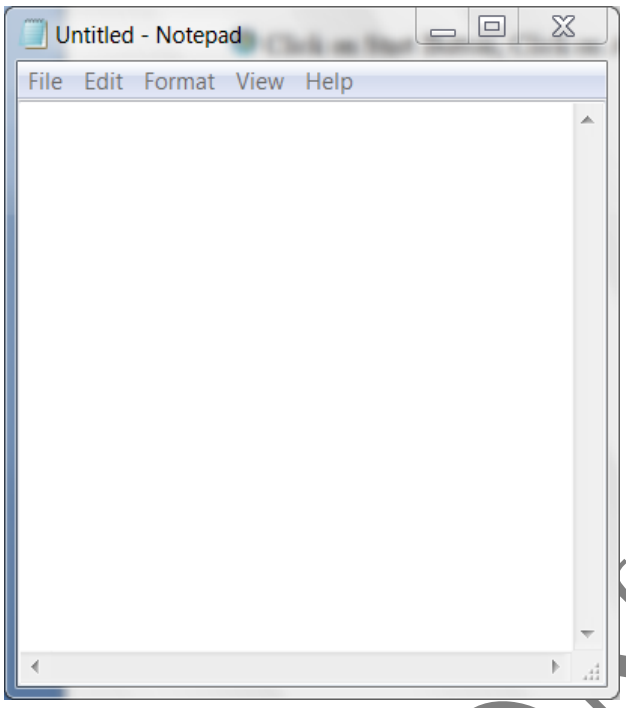
Notepad

Notepad is a basic text-editing program and it's most commonly used to view or edit text files. A text file is a file type typically identified by the .txt file name extension

Click on Start Button, Click on All programs, Click on Accessories, click on Notepad



Creating a txt file

1) Click on File Menu(Alt+f)
2) Click on New(clrl+N)

Open an Existing file

1) Click on File Menu(alt+f)
2) Click on Open
3) Go to appropriate location
4) Select File and Click on Open

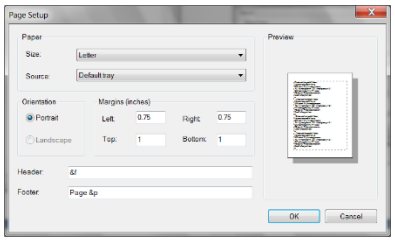
To save a file In Notepad

1) Click on File Menu(alt+f)
2) Click on Save Button(clrl+s)
3) Go to appropriate location where you want save your file
4) Type a Name Of File[1] on File name box.
5) And click on Save

To save a duplicate file of current file

1) Click on File Menu(alt+f)
2) Click on Save As Button
3) Go to appropriate location where you want save your file
4) Type a Name Of File on File name box.
5) And click on Save

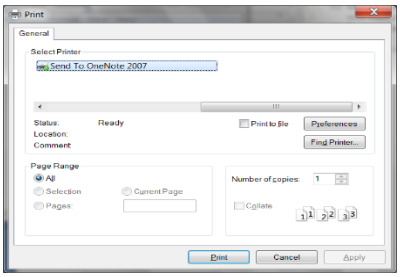
To Setup a page for printing



1) Click on File Menu(alt+f)
2) Click on Page Setup Button

Print a File

1) Click on File Menu(alt+f)
2) Click on Print Button (Ctrl + p)



[1] The file name can be up to 255 characters And it does not contains following characters \ / : * ? < > |

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EDIT MENU (ALT+E)

To cut, copy, paste or delete text

1) To cut text so that we can move it to Another location, select the text, and then On the Edit menu, click cut.
2) To find text so that we can paste it in another location, select the text, and then on the Edit menu, click Copy.
3) To paste text we have cut or copied, place the insertion point where we want to paste the text, and then on the Edit menu, click paste.
4) To delete text, select it, and then on the Edit menu click Delete.

To wrap text to window size

On the edit menu, click word wrap. Wrappimg text nakes all the text visible on the screen, but it doesn't affect the way text appears when it is printed.

Adding time and date components

Move the insertion point to where we want to add the tine and date. On the Edit Menu, click Time/Date. (F5)

Go to specific line(it work without wrap text)

1) Click on Edit menu
2) Click on Go To(Ctrl + G)
3) Enter specific line where you want to go.
4) Click on Go To button

Change font Style

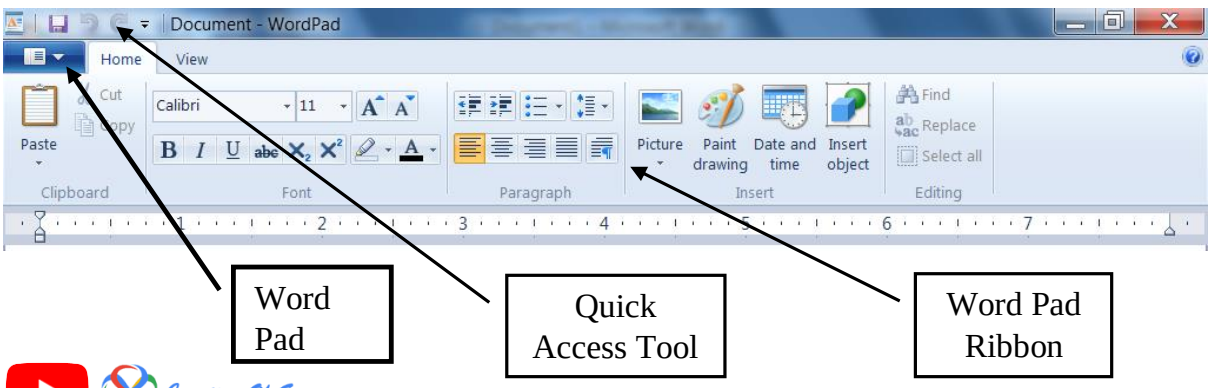
1) Click on Formant menu
2) Click on Font
3) Set font style and press ok

Word Pad

WordPad is a text-editing program you can use to create and edit documents. Unlike Notepad, WordPad documents can include rich formatting and graphics, and you can link to or embed objects, such as pictures or other documents.

To load Word pad

- Click on Start Button, Click on All programs, Click on accessories, click on WordPad.



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Creating a file

1) Click on WordPad Button 
2) Click on New(CLRL+N)

Open an Existing file

1) Click on WordPad Button 
2) Click on Open
3) Go to appropriate location
4) Select File and Click on Open

To save a file

1) Click on WordPad button 
2) Click on Save Button(Clrl+S)
3) Go to appropriate location where you want save your file
4) Type a Name Of File[2] on File name box.
5) And click on Save

To save a duplicate file of current file

1) Click on WordPad button 
2) Click on Save As Button
3) Go to appropriate location where you want save your file
4) Type a Name Of File on File name box.
5) And click on Save

To Setup a page for printing

1) Click on WordPad button 
2) Click on Page Setup Button

Print a File

1) Click on WordPad button 
2) Click on Print Button(Ctrl + p)

Home Tab

1) Change how text looks in your document

   Select the text that you want to change, and then use the buttons on the Home tab in the Font group.
2) Change how text is aligned in your document

[2] The file name can be up to 255 characters And it does not contains following characters \ / : * ? < > |

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Select the text that you want to change, and then use the buttons on the Home tab in the Paragraph group.

3) Insert the current date
    1) On the Home tab, in the Insert group, click Date and time.
    2) Click the format you want, and then click OK.
4) Insert a picture
    1) On the Home tab, in the Insert group, click Picture.
    2) Locate the picture that you want to insert, and then click Open.
5) Insert a drawing
    1) On the Home tab, in the Insert group, click Paint drawing.
    2) Create the drawing that you want to insert and then close Paint.

View Tab

1) Increase or decrease the zoom level

   On the View tab, in the Zoom group, click Zoom in or Zoom out.

2) View the document at its actual size

   On the View tab, in the Zoom group, click 100%.

3) Display the ruler

   On the View tab, in the Show or hide group, select the Ruler check box.

4) Display the status bar

   On the View tab, in the Show or hide group, select the Status bar check box.

5) Change the word wrap settings

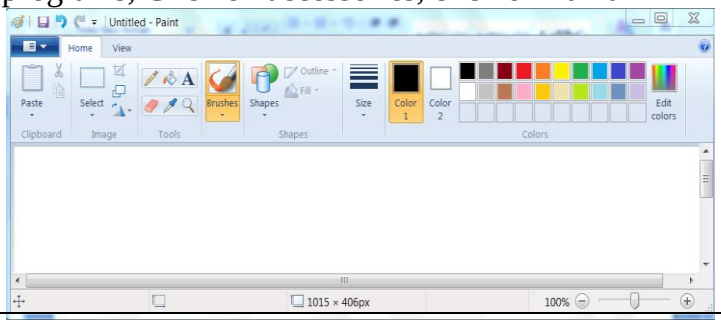
   On the View tab, in the Settings group, click Word wrap, and then click the setting that you want.

Paint

Microsoft Paint is a simple raster graphics editor that has been included with all versions of Microsoft Windows. The program opens and saves files in Windows bitmap, JPEG, GIF, PNG, and single-page TIFF formats. The program can be in color mode or two-color black-and-white, but there is no grayscale mode.

To load Paint

- Click on Start Button, Click on All programs, Click on accessories, click on Paint



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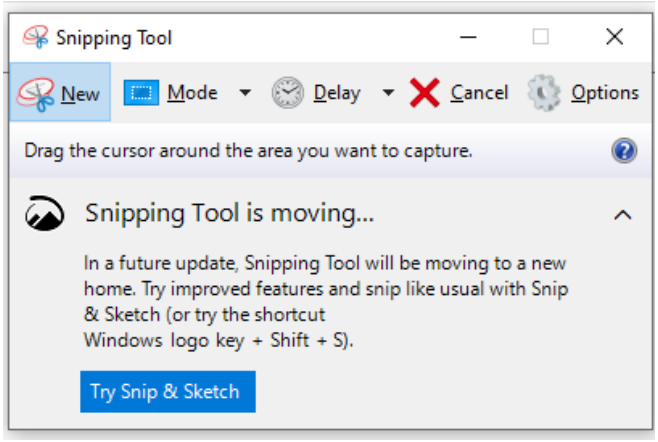
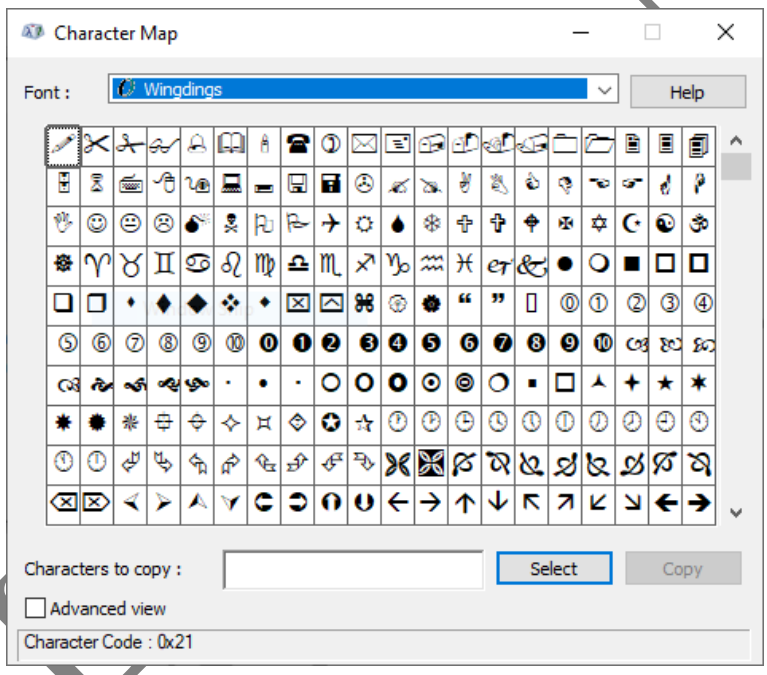
SNIPPING TOOL

Snipping Tool is a Microsoft Windows screenshot utility included in Windows Vista and later. It can take still screenshots of an open window, rectangular areas, a free-form area, or the entire screen. Snips can then be annotated using a mouse or a tablet, stored as an image file or an MHTML file, or e-mailed.



Character Map

Character Map is a utility included with Microsoft Windows operating systems and is used to view the characters in any installed font, to check what keyboard input is used to enter those characters, and to copy characters to the clipboard in lieu of typing them.



Keystroke – Alt + 0169 = ©

Alt + 0174 = ®

Windows Explorer

Windows Explorer is a file manager application that is included with releases of the Microsoft Windows operating system from Windows 95 onwards. It provides a graphical user interface for accessing the file systems.

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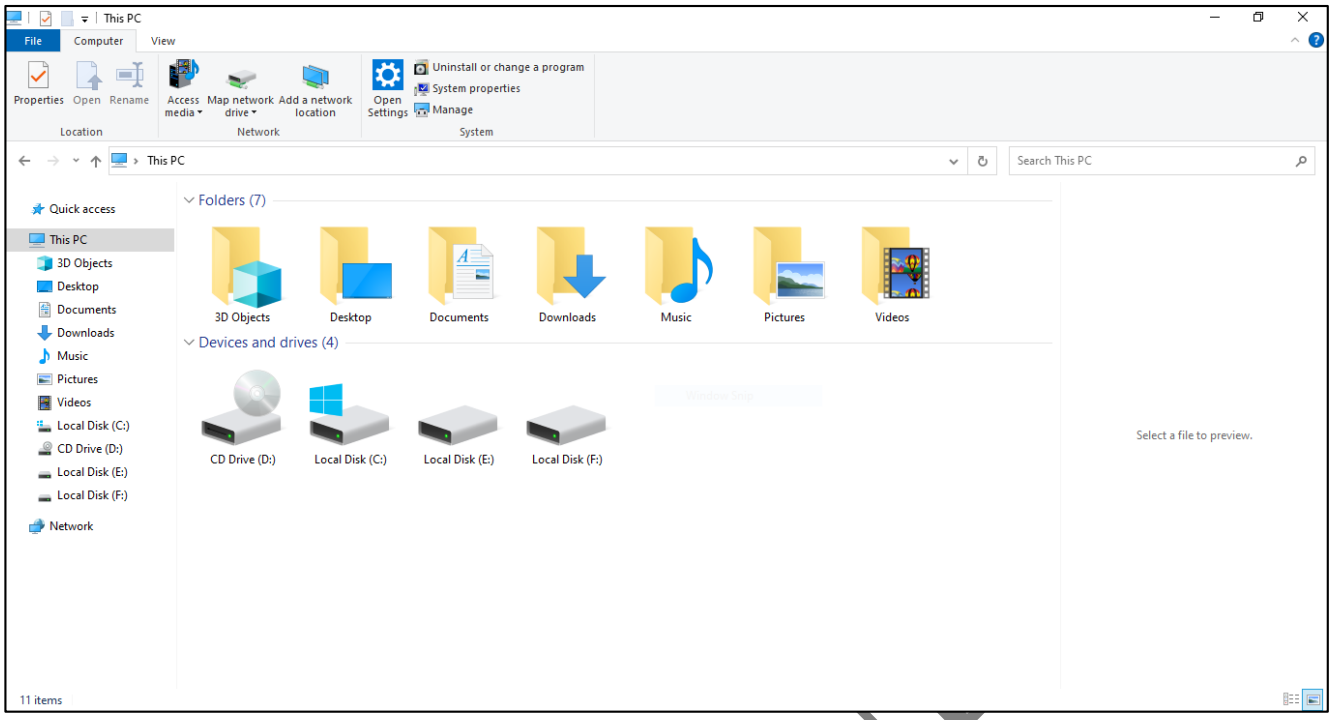

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