Introduction To Computer



Objectives

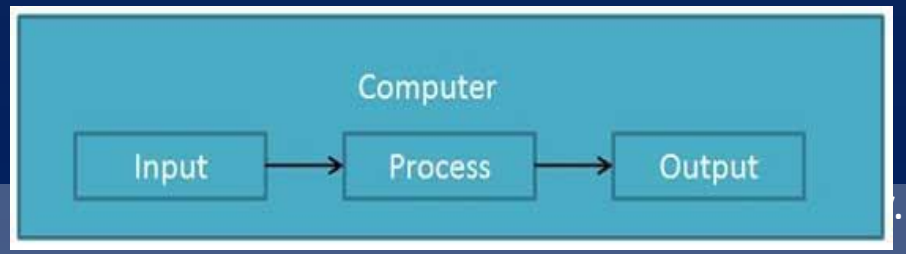
- Understand what is computer.
- About the construction and parts of the computer.
- Explore the input and output components of the computer system.
- Understand the concept of hardware and software.
- Understand the representation of data/information and concept of data processing.
- IECT (Information Electronics and Communication Technology) with reference to e-Governance.
- Know the application of IECT in multimedia and entertainment.

Introduction to Computer

- Computer is an advanced electronic device that takes raw data as input from the user and processes it under the control of set of instructions (called program), gives the result (output), and saves it for the future use.

Functionalities of a computer

- Takes data as input.
- Stores the data/instructions in its memory and use them when require
- Processes the data and converts it into useful information.
- Generates the output



Characteristics of Computer

1) Automatic
2) High Speed
3) Accuracy
4) Storage Capability
5) Diligence
6) Versatility
7) Reliability
8) Reduction in Paper Work

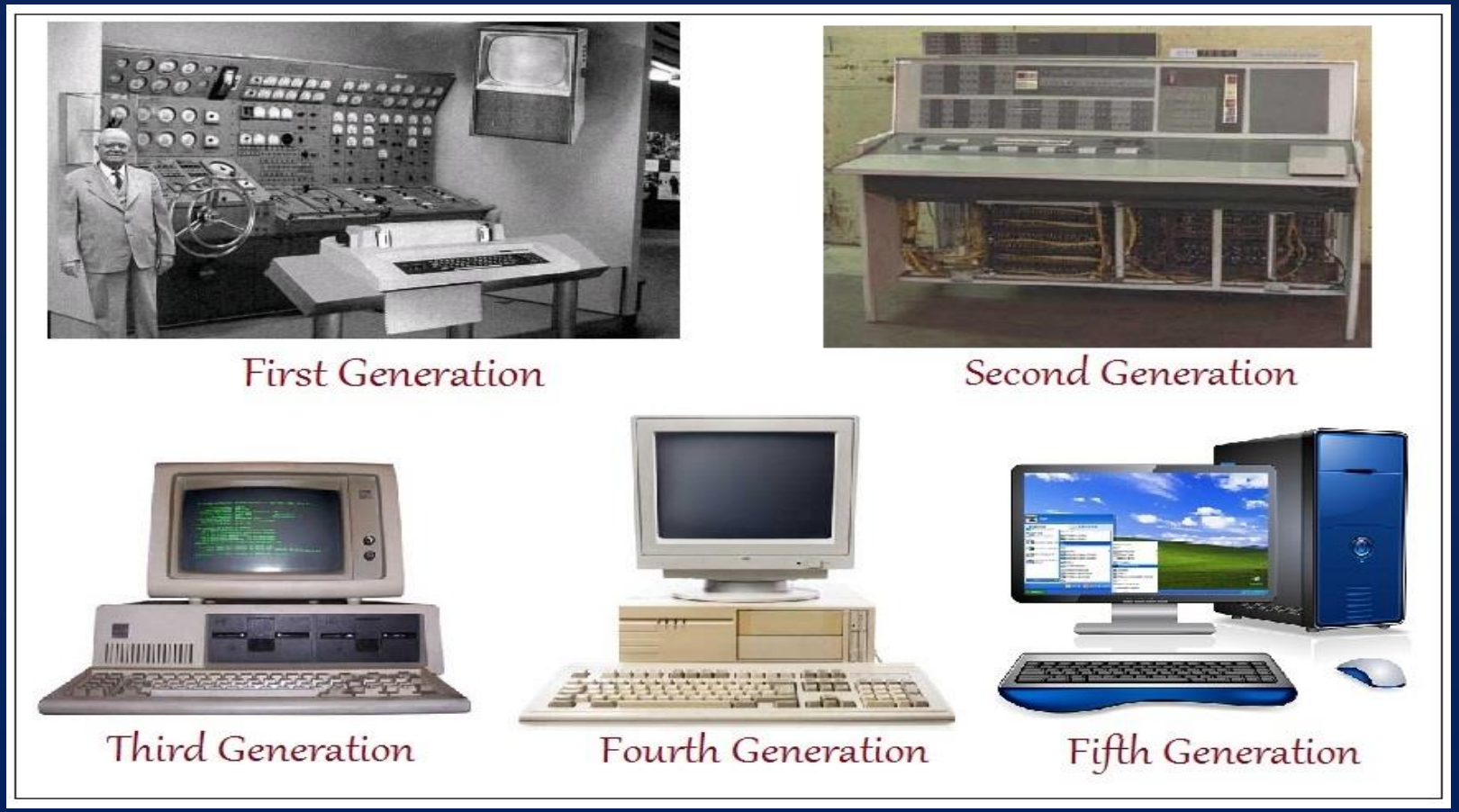
Application of Computer

- Business
- Banking
- Education
- Marketing
- Health Care (Medical)
- Military (Defence)
- Entrainment
- Railway

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Computer Generations

- Generation in computer terminology is a change in technology a computer is/was being used.



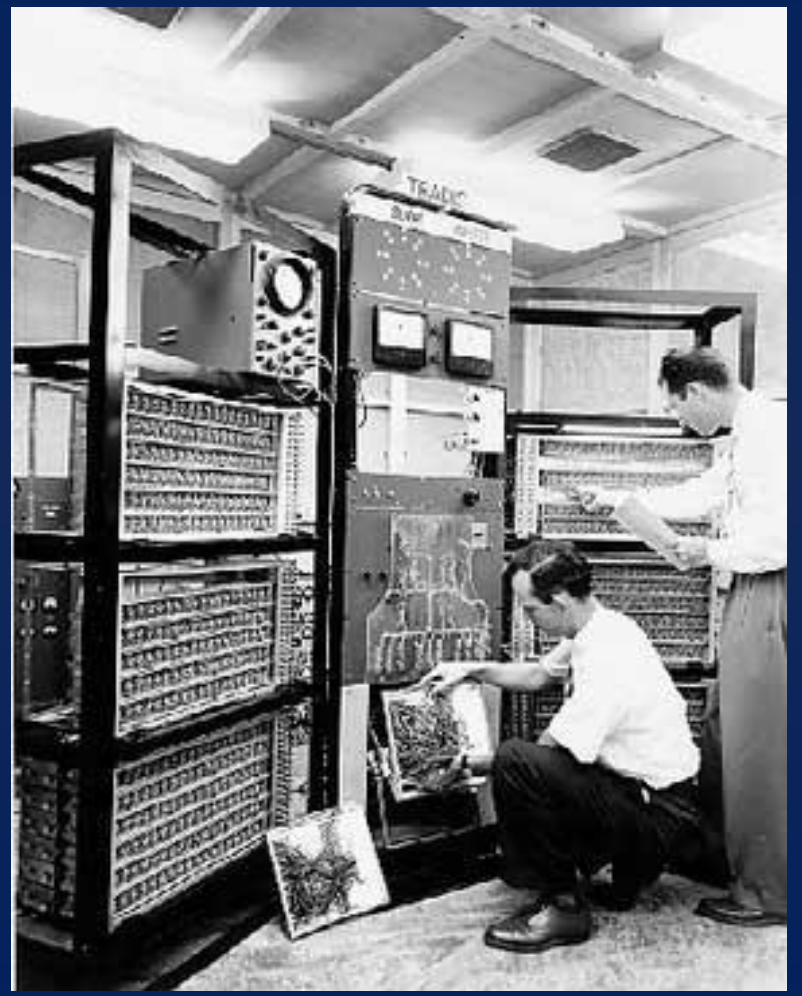
First Generation (1946-1959)

The main features of first generation are:

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

Some computers of this generation were:

- ENIAC IBM-701 EDVAC
- IBM-650 UNIVAC



Second Generation (1959-1965)

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
- Supported machine and assembly languages
- Still very costly

Example of 2 Gen. Computer are:

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



Third Generation (1965-1971)

The main features of third generation are:

- IC (Integrated circuits) used
- More reliable in comparison to previous two generations
- Smaller size
- Generated less heat
- Faster
- Lesser maintenance
- Still costly
- 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 (1971-1980)

The main features of fourth generation are:

- Very Large Scale Integrated (VLSI) circuits was used
- Very cheap
- Portable and reliable
- Use of PC's
- Very small size
- Pipeline processing
- Concept of internet was introduced
- Great developments in the fields of network
- Computers became easily available



Some computers of this generation were:

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

Fifth Generation (1980-Till now)

The main features of fifth generation are:

- ULSI (Ultra Large Scale Integration) technology
- Development of true artificial intelligence
- Development of Natural language processing
- Advancement in Parallel Processing
- Advancement in Superconductor technology
- More user friendly interfaces with multimedia features
- Availability of very powerful and compact computers at cheaper rates

Some computer types of this generation are:

- Desktop Laptop
- Notebook Ultra Book
- Chrome Book



Types of Computer

On the basis of working principle

Analog Computer : An analog computer is a form of computer that uses continuous physical phenomena such as electrical, mechanical, or hydraulic quantities to model the problem being solved.

Digital Computer : A computer that performs calculations and logical operations with quantities represented as digits, usually in the binary number system.

Hybrid Computer (Analog + Digital) : A combination of computers those are capable of inputting and outputting in both digital and analog signals. A hybrid computer system setup offers a cost effective method of performing complex simulations.

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Types of Computer - On the basis of Size

- **Super Computer**
- **Mainframe Computer**
- **Mini Computer**
- **Micro Computer**

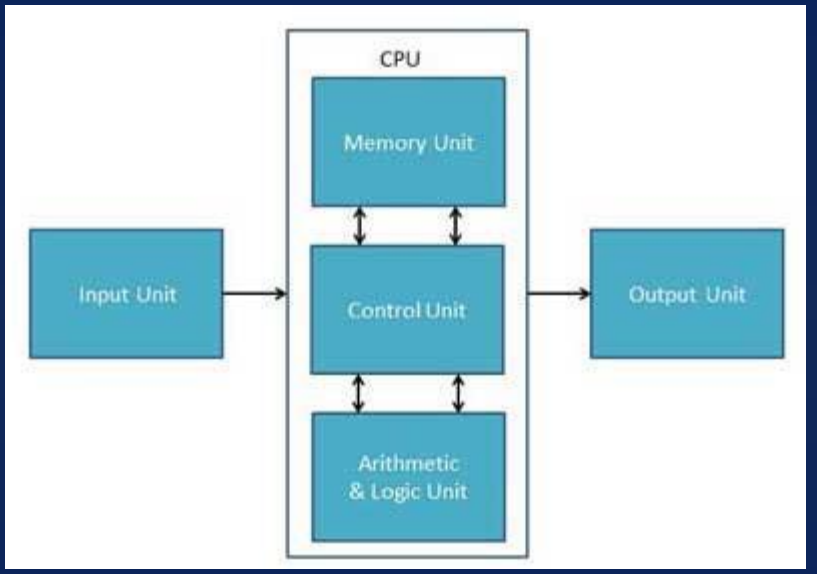
Logical Architecture of Computer

Input Unit

This unit contains devices with the help of which we enter data into computer. This unit makes link between user and computer. The input devices translate the information into the form understandable by computer.

Output Unit:

This unit consists of devices with the help of which we get the information from computer. This unit is a link between computer and users. Output devices translate the computer's output into the form understandable by users.



List of some input device

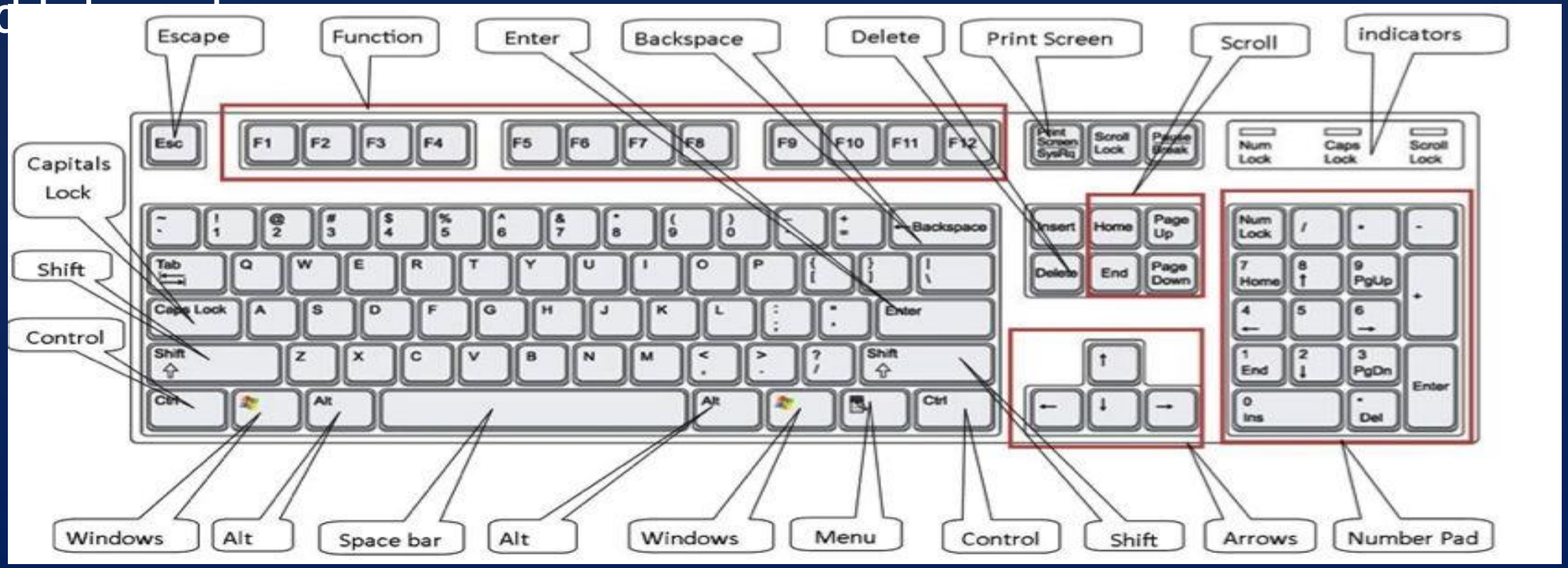
- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Camera or WebCam

- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)
- Touch Screen
- Digitizer

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Keyboard

- Keyboard is the most common and very popular input device which helps in inputting data to the computer
- Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and



Mouse

- Mouse is most popular pointing device to make selection on screen.
- Generally it has two buttons called left and right button and a wheel is present between the buttons. Mouse can be used to control the position of cursor on screen, but it cannot be used to enter text into the computer.



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Joystick

- Joystick is also a pointing device which is used to move cursor position on a monitor screen.
- The function of joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing(CAD) and playing computer games.



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Light Pen

- Light pen is a pointing device which is similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen.



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Track Ball

- Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse.



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Scanner

- Scanner is an input device which works more like a photocopy machine. It is used when some information is available on a paper and it is to be transferred to the hard disc of the computer for further manipulation.

Types of Scanner:

- Flatbed Scanners
- Sheet-Fed Scann
- Handheld
- Drum scanners



Digitizer

- Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.



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Microphone

- Microphone is an input device to input sound that is then stored in digital form. The microphone is used for various applications like adding sound to a multimedia presentation or for mixing music.



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Magnetic Ink Card Reader(MICR)

- MICR input device is generally used in banks because of a large number of cheques to be processed every day.
- The bank's code number and cheque number are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.
- This reading process is called Magnetic Ink Character Recognition (MICR).



Optical Character Reader(OCR)

- OCR is an input device used to read a printed text. OCR scans text optically character by character, converts them into a machine readable code and stores the text on the system memory.



Bar Code Readers

- Bar Code Reader is a device used for reading bar coded data (data in form of light and dark lines). Bar coded data is generally used in labelling goods, numbering the books etc.



Optical Mark Reader(OMR)

- OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked. It is specially used for checking the answer sheets of examinations having multiple choice questions.



List of Some Output devices

- Monitors
- Plotter
- Printer
- Speaker
- Projector

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Monitors

- Monitors, commonly called as Visual Display Unit (VDU), are the main output device of a computer.

There are two kinds of viewing screen used for monitors.

- Cathode-Ray Tube (CRT)
- Flat- Panel Display
  - LED(Light-Emitting Diodes)
  - LCD(Liquid-Crystal Device)



Cathode Ray Tube (CRT):

- CRT or Cathode Ray Tube Monitor is the typical monitor that you see on a desktop computer. It looks a lot like a television screen, and works the same way. This type uses a large vacuum tube, called cathode ray tube (CRT).

  - Large in Size
  - High power consumption



Liquid Crystal Displays (LCD)

- This type of monitors are also known as flat panel monitor. Most of these employ liquid crystal displays (LCDs) to render images. These days LCD monitor are very popular.



Printers

- Printer is an output device, which is used to print information on paper.

There are two types of printers

- Impact Printers
- Non-Impact Printers



Impact Printers

- The impact printers print the characters by striking them on the ribbon which is then pressed on the paper.

Characteristics of Impact Printer

- Very low consumable costs
- Very noisy
- Useful for bulk printing due to low cost
- There is physical contact with the paper to produce an image

These printers are of two types

- Character printers (Dot Matrix Printer(DMP) ,Daisy Wheel)
- Line printers (Drum Printer, Chain Printer)

Dot Matrix Printer

- In the market one of the most popular printers is Dot Matrix Printer. These printers are popular because of their ease of printing and economical price. Each character printed is in form of pattern of dots and head consists of a Matrix of Pins of size (5*7, 7*9, 9*7 or 9*9) which come out to form a character that is why it is called Dot Matrix Printer.

- Advantages
  - Inexpensive
  - Widely Used
  - Other language characters can be printed
- Disadvantages
  - Slow Speed
  - Poor Quality



Line Printer

- A line printer is generally used with large computer systems to produce text based data processing reports.
- Line printers are high-speed printers with speeds ranging anywhere from 100 to about 3800 lines per minute.
- In the past, print quality on line printers was not high.
- Developments in technology are improving the print quality on line printers. These are in the cost range of lacs of Rupees.



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Non-impact Printers

- Non-impact printers print the characters without using ribbon. These printers print a complete page at a time so they are also called as Page Printers.

Characteristics of Non-impact Printers

- Faster than impact printers.
- They are not noisy.
- High quality.
- Support many fonts and different character size.

These printers are of two types

- Laser Printers
- Inkjet Printers

Laser Printer:

- A laser printer produces high quality print that one normally finds in publishing. It is extremely fast and quiet.
- Moreover, the operation of a laser printer is easy with automatic paper loading and no smudging or messing up of ink ribbons.
- The fastest laser printer can print up to 200 pages per minute in monochrome (black and white) and up to 1 pages per minute in colour.



Ink-Jet Printer:

An ink-jet printer creates an image directly on paper by spraying ink through as many as 64 tiny nozzles. Although the image it produces is not generally quite as sharp as the output of a laser printer, the quality of ink-jet images is still high.



Plotter

- A plotter is a special kind of output device that, like a printer, produces images on paper, but does so in a different way.
- Plotters are designed to produce large drawings or images, such as construction plans for buildings or blueprints for mechanical objects.
- A plotter can be connected to the port normally used by a printer.



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Speaker

Speakers are another type of output device, which allow you to listen to voice like music, and conversation with people.



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Projector

A projector is a device that uses light and lenses to take an image and project a magnified image onto a larger screen or wall. Projectors can magnify still or moving images depending on how they are built. The image must be shone through a sealed tube or frame when passing through the lenses to maintain focus.



CPU –Central Processing Unit

- CPU is considered as the brain of the computer.
- CPU performs all types of data processing operations.
- It stores data, intermediate results and instructions(program).
- It controls the operation of all parts of computer.

CPU itself has following three compon

- Memory or Storage Unit:
- Control Unit
- ALU(Arithmetic Logic Unit)



Memory or Storage Unit:

This unit can store instructions, data and intermediate results. This unit supplies information to the other units of the computer when needed.

Memory is primarily of three types

- Cache Memory
- Primary Memory/Main Memory
- Secondary Memory

Cache Memory

Cache memory is a very high speed semiconductor memory which can speed up CPU. It acts as a buffer between the CPU and main memory. It is used to hold those parts of data and program which are most frequently used by CPU

Advantages

- Cache memory is faster than main memory.
- It consumes less access time as compared to main memory.
- It stores the program that can be executed within a short period of time.
- It stores data for temporary use.

Primary Memory (Main Memory)

- Primary memory holds only those data and instructions on which computer is currently working. It has limited capacity and data is lost when power is switched off. It is generally made up of semiconductor device.
- It is divided into two subcategories RAM and ROM.

Characteristics of Main Memory

- These are **semiconductor** memories.
- It is known as **main memory**.
- Usually **volatile memory**.
- Data is lost in case power is switched off.
- It is working memory of the computer.
- Faster than secondary memories.
- A computer cannot run without primary memory.

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Random Access Memory

RAM(Random Access Memory) is the internal memory of the CPU for storing data, program and program result. It is read/write memory which stores data until the machine is working. As soon as the machine is switched off, data is erased.



RAM is of two types

- Static RAM (SRAM)
- Dynamic RAM (DRAM)

Static Random Access Memory (SRAM):

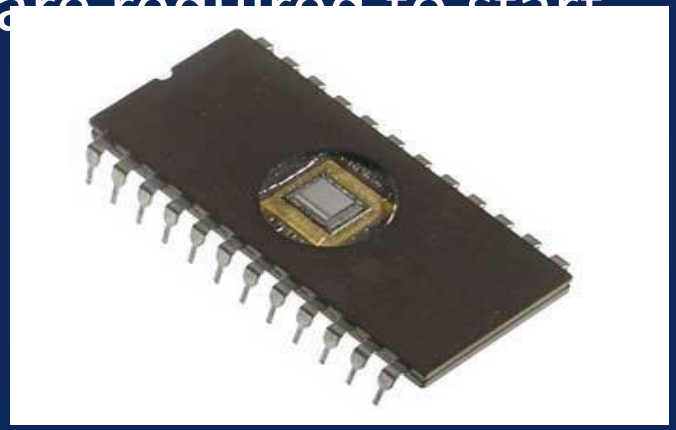
- Data is stored in transistors and requires a constant power flow.
- Because of the continuous power, SRAM doesn't need to be refreshed to remember the data being stored.
- SRAM is called static as no change or action i.e. refreshing is not needed to keep the data intact. It is used in cache memories.
- **Advantage**: Low power consumption and faster access speeds.
- **Disadvantage**: Fewer memory capacities and high costs of manufacturing.

Dynamic Random Access Memory (DRAM):

- Data is stored in capacitors. Capacitors that store data in DRAM gradually discharge energy, no energy means the data has been lost. So, a periodic refresh of power is required in order to function.
- DRAM is called dynamic as constant change or action(change is continuously happening) i.e. refreshing is needed to keep the data intact.
- It is used to implement main memory.
- **Advantage:** *Low costs of manufacturing and greater memory capacities.*
- **Disadvantage:** *Slow access speed and high power consumption.*

Read Only Memory

ROM stands for Read Only Memory. The memory from which we can only read but cannot write on it. This type of memory is non-volatile. The information is stored permanently in such memories during manufacture. A ROM, stores such instructions that are required to start a computer.



- **Types of ROM**
  - PROM (Programmable Read only Memory)
  - EPROM(Erasable and Programmable Read Only Memory)
  - EEPROM(Electrically Erasable and Programmable Read Only Memory)

Secondary Memory

This type of memory is also known as external memory or non-volatile. It is slower than main memory. These are used for storing data/Information permanently

Characteristic of Secondary Memory

- These are magnetic and optical memories.
- It is known as backup memory.
- It is **non-volatile** memory.
- Data is permanently stored even if power is switc
- It is used for storage of data in a computer.
- Computer may run without secondary memory.
- Slower than primary memories.



Some Secondary Memory devices are:

- Hard Disk (Local Disk) , Magnetic Tape

Memory storage Units:

Unit	Description
Bit (Binary Digit)	A binary digit is logical 0 and 1 representing a passive or an active state of a component in an electric circuit.
Nibble	1 Nibble=4 Bits
Byte	1Byte=8 Bits
Kilobyte (KB)	1 KB = 1024 Bytes
Megabyte (MB)	1 MB = 1024 KB
Gigabyte (GB)	1 GB = 1024 MB
Terabyte (TB)	1 TB = 1024 GB
Petabyte (PB)	1 PB = 1024 TB

Control Unit

This unit controls the operations of all parts of computer but does not carry out any actual data processing operations.

Functions of this unit are:

- It is responsible for controlling the transfer of data and instructions among other units of a computer.
- It manages and coordinates all the units of the computer.
- It obtains the instructions from the memory, interprets them, and directs the operation of the computer.
- It communicates with Input/Output devices for transfer of data or results from storage.
- It does not process or store data.

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ALU(Arithmetic Logic Unit)

This unit consists of two subsections namely

- Arithmetic section
- Logic Section

Arithmetic Section

Function of arithmetic section is to perform arithmetic operations like addition, subtraction, multiplication and division. All complex operations are done by making repetitive use of above operations.

Logic Section

Function of logic section is to perform logic operations such as comparing, selecting, matching and merging of data.

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Relationship between Hardware and Software

- Hardware and software are mutually dependent on each other. Both of them must work together to make a computer produce a useful output.
- Software cannot be utilized without supporting hardware.
- Hardware without set of programs to operate upon cannot be utilized and is useless.
- To get a particular job done on the computer, relevant software should be loaded into the hardware
- A software acts as an interface between the user and the hardware.
- If hardware is the 'heart' of a computer system, then software is its 'soul'. Both are complimentary to each other.

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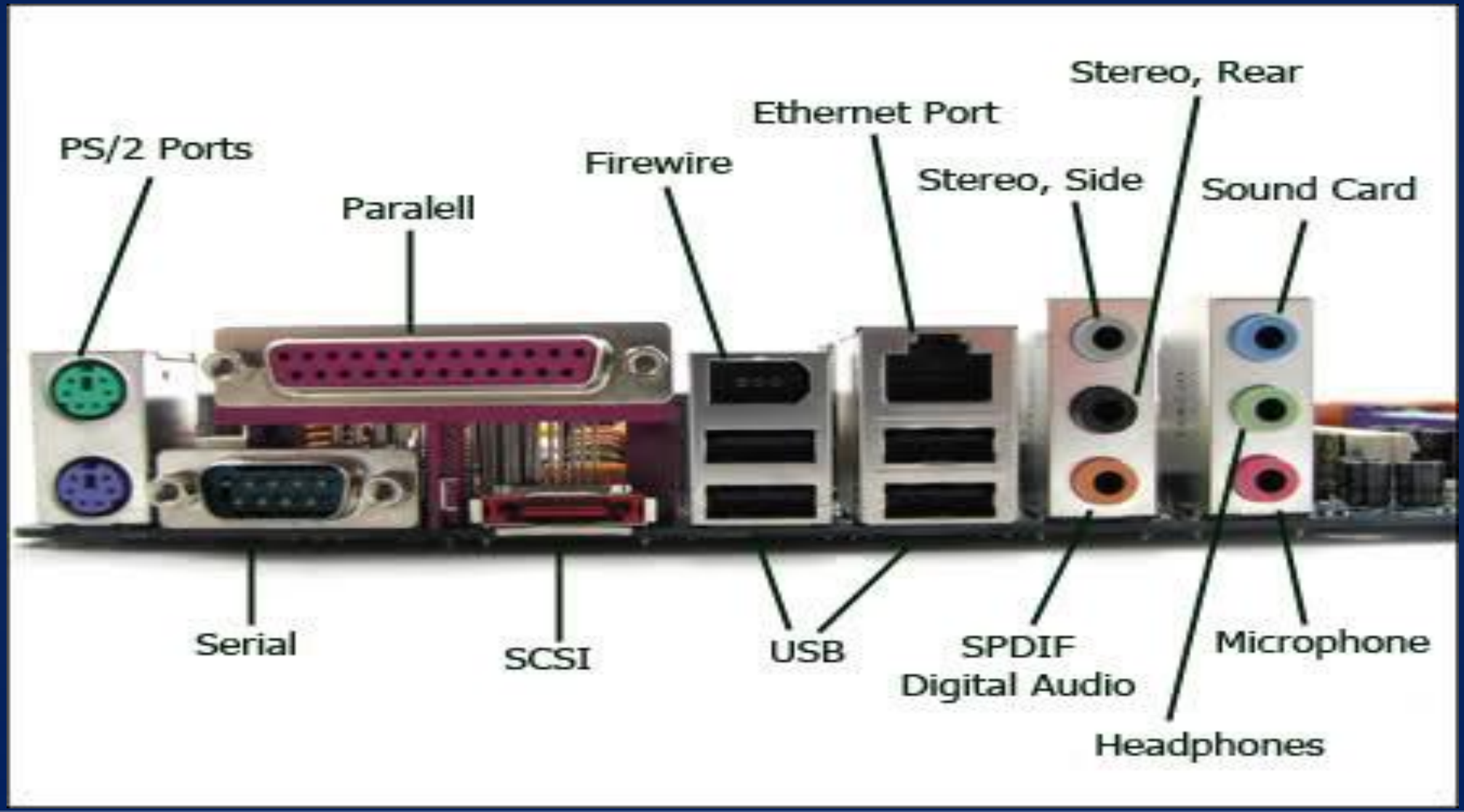
Hardware

Hardware represents the physical and tangible components of a computer i.e. the components that can be seen and touched.

Example of hardware

- Input devices -- keyboard, mouse etc.
- Output devices -- printer, monitor etc.
- Secondary storage devices -- Hard disk, CD, DVD etc.
- Internal components -- CPU, motherboard, RAM etc.

Different type of Port in Computer



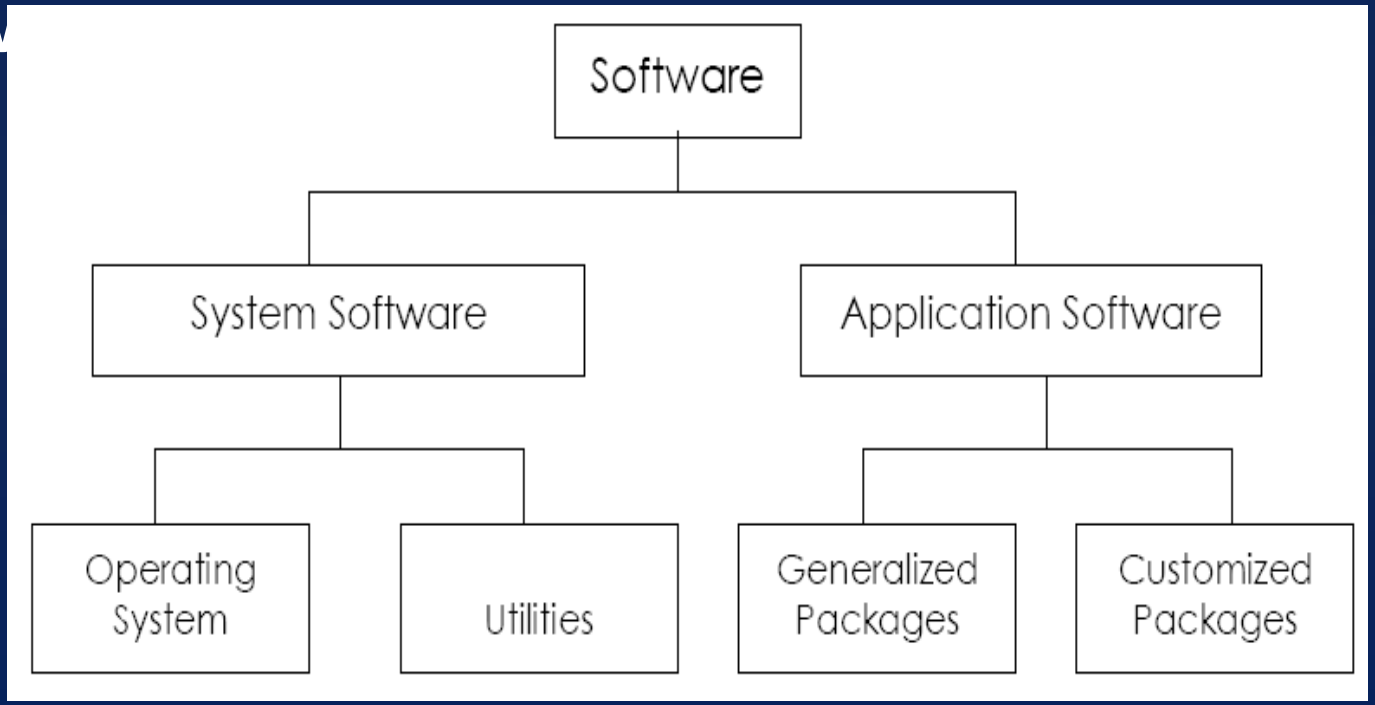
Software

Software is a set of programs, which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.

There are two types of softw

- System Software
- Application Software

Classification of Software



System Software/ Application Software

System Software :

The system software is collection of programs designed to operate, control, and extend the processing capabilities of the computer itself. System software serves as the interface between hardware and the end users.

Application Software

Application software products are designed to satisfy a particular need of a particular environment. All software applications prepared in the computer lab can come under the category of Application soft





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COMPUTER LANGUAGES

Languages are a means of communication. Normally people interact with each other through a language. On the same pattern, communication with computers is carried out through a language. This language is understood both by user and the machine. Just as every language like English, Hindi has its grammatical rules; every computer language is bound by rules known as SYNTAX of that language. The user is bound by that syntax while communicating with the computer system.

Types of Computer language

- Low Level Language
  - Machine Language
  - Assembly Language
- High Level Language

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Low Level Language

The term low level means closeness to the way in which machine understand. The low level languages are:

- **Machine Language:** This is the language (in the form of 0's and 1's, called binary numbers) understood directly by the computer. It is machine dependent. It is difficult to learn and even more difficult to write programs.

- **Assembly Language:** This is the language where the machine codes comprising of 0's and 1's are substituted by symbolic codes (called mnemonics) to improve their understanding. It is the first step to improve programming structure.

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High Level Language

To overcome the limitation of Low Level language, high level language has been evolved which uses normal English like, easy to understand statements to solve any problem. Higher level languages are computer independent and programming becomes quite easy and simple

Various high level languages are given below:

- BASIC (Beginners All Purpose Symbolic Instruction Code)
- COBOL (Common Business Oriented language)
- FORTRAN (Formula Translation)
- C, C++, Java, etc.

Number System

When we type some letters or words, the computer translates them in numbers as computers can understand only numbers.

Types of Number System

- Binary Number System (0-1)
- Decimal Number System(0-9)
- Octal Number System (0-7)
- Hexadecimal Number System (0-9 A-F)

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ASCII Number

Short for American Standard Code for Information Interexchange, ASCII is an standard that assigns letters, numbers, and other characters within the 256 slots available in the 8-bit code.

- A-Z (65-90)
- a-z (97-122)
- 0-9 (48-57)
- Space (32)

Common .exe files

Application Name	.exe Name	Extension
MS Paint	pbrush.exe	.bmp
Notepad	notepad.exe	.txt
WordPad	Wordpad.exe	.rtf
MS Word	winword.exe	.doc,.docx
MS Excel	excel.exe	.xls, .xlsx
MS Power Point	powerpnt.exe	.ppt, .pptx
LibreOffice Writer	swriter.exe	.odt
LibreOffice Calc	scalc.exe	.ods
LibreOffice Impress	simpress.exe	.odp

File extension

.RTF	Rich Text Format File
.TXT	Plain Text File
.MID	MIDI File
.MP3	MP3 Audio File
.WAV	WAVE Audio File
.WMA	Windows Media Audio File
.AVI	Audio Video Interleave File
.FLV	Animate Video File
.MP4	MPEG-4 Video File

.MPG	MPEG Video File
.WMV	Windows Media Video File
.BMP	Bitmap Image File
.GIF	Graphical Interchange Format File
.JPG	JPEG Image
.PNG	Portable Network Graphic
.PSD	Adobe Photoshop Document
.HTML	Hypertext Markup Language File
.PDF	Portable Document Format File

File extension in Libre Office

.odt	LibreOffice Writer Document
.ott	LibreOffice Writer Document Template
.ods	LibreOffice Calc Spreadsheet
.ots	LibreOffice Calc Spreadsheet Template
.odp	LibreOffice Impress Presentation
.otp	LibreOffice Impress Presentation Template

File extension in Microsoft Office

.doc	Microsoft Word Document
.docx	Microsoft Word Open XML Document
.xls	Excel Spreadsheet
.xlsx	Microsoft Excel Open XML Spreadsheet
.ppt	Microsoft Power Point Presentation
.pptx	Microsoft Power Point XML Presentation

Invention and Inventor

Invention	Inventor	Time	Characteristic
Abacus	China	16th century	First mechanical calculation device. Used for addition & subtraction operation.
Napier's Bones	John Napier (Scotland)	1617	Perform multiplication on numbers (0 to 9). Technology used for calculation called Rabdologia.
Sliderule	William Oughtred (Germany)	1622	It is also known as slipstick. It is used for primarily for multiplication & division.
Pascaline	Blaise Pascal (France)	1642	First mechanical adding machine.(8 digit)
Leibniz's calculating machine	Gottfried Leibnitz (Germany)	1671	It is also called Reckoning machine. The machine was capable of doing addition, subtraction, multiplication & division. It is now being used in speedometers of cars and bike.

Invention and Inventor (Cont..)

Difference Engine	Charles Babbage (England)	1822	This machine is capable of calculating various algebraic functions accurately near 20 places after decimal.
Analytical Engine	Charles Babbage (England)	1834-71	First general purpose computer. It was a decimal machine used sign and magnitude for representation of number.
Tabulating Machine	Harman Hollerith (America)	1880	It was the first electromechanical machine, which was designed to process the data for census in 1890.
Mark-1	Howard Aiken (America)	1944	Main used in the war effort during world war-II

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Invention and Inventor (Conti..)

ENIAC (Electronic Numerical Integrator And Calculator)	JP Eckert and JW Mauchly (America)	1950	First electronic digital computer used for weather prediction and other scientific used.
EDSAC (Electronic Delay Storage Automatic Calculator)	John Von Neumann (America)	1946-52	It was first computer which provided internal storage capacity. First computer program was run on machine.
EDVAC (Electronic Discrete Variable Automatic computer)	John Von Neumann (America)	1950	This computer had almost 6000 vacuum tubes and 12000 diodes and consumed 56 kw of power. It was a binary computer and capable of storing programs.
UNIVAC (Universal Automatic computer)	JP Eckert and JW Mauchly (America)	1951	First general purpose electronic computer with large amount of input & output.

Computer Abbreviations

ASCII—American Standard Code for Information Interchange
ATM—Asynchronous Transfer Mode
BASIC—Beginner's All-Purpose Symbolic Instruction Code
BIOS—Basic Input Output System
bps—bits per second
BCD—Binary Coded Decimal
BMP—Basic Multilingual Plane
CAD—Computer-Aided Design
CPU—Central Processing Unit
CRT—Cathode Ray Tube
CLI—Command Line Interface
CDMA—Code Division Multiple Access
CMOS—Complementary Metal-Oxide Semiconductor
CSI—Common System Interface
CD- Compact Disk
CD-ROM—CD Read-Only Memory
CD-RW—CD-Rewritable
CMOS—Complementary Metal-Oxide Semiconductor
CSV—Comma-Separated Values
COBOL—Common Business-Oriented Language
DHTML—Dynamic Hypertext Markup Language
DAT—Digital Audio Tape
DB—Database
DVD—Digital Video Disc
DOS—Disk Operating System
DDR—Double Data Rate
DNS—Domain Name System
EEPROM—Electronically Erasable Programmable Read-Only Memory
ENIAC—Electronic Numerical Integrator And Computer
EBCDIC—Extended Binary Coded Decimal Interchange Code
EPROM—Erasable Programmable Read-Only Memory
FAT—File Allocation Table
FDD—Floppy Disk Drive
FS—File System
Gb—Gigabit / GB—Gigabyte
GIF—Graphics Interchange Format

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Computer Abbreviations

GPRS—General Packet Radio Service
HD—High Density
HDD—Hard Disk Drive
HTML—Hypertext Markup Language
HTTP—Hypertext Transfer Protocol
IBM—International Business Machines
IC—Integrated Circuit
ICT—Information and Communication Technology
IDE—Integrated Development Environment
IE—Internet Explorer
I/O—Input/Output
IT—Information Technology
JPEG—Joint Photographic Experts Group
KB—Kilobyte Kb—Kilobit
kHz—Kilohertz
LED—Light-Emitting Diode
Mb—Megabit ,MB—Megabyte
MDI—Multiple Document Interface
MHz—Megahertz
MIDI—Musical Instrument Digital Interface
MPEG—Motion Pictures Experts Group
MS—Microsoft
NIC—Network Interface Controller
NTFS—NT Filesystem
OS—Open Source /Operating System
P2P—Peer-To-Peer
PATA—Parallel Advanced Technology Attachment
PC—Personal Computer
PCB—Printed Circuit Board
PCI—Peripheral Component Interconnect
PSU—Power Supply Unit
RAM—Random Access Memory
RGB—Red, Green, Blue (RGBA—Red, Green, Blue, Alpha)
ROM—Read Only Memory
SATA—Serial Advanced Technology Attachment
SDRAM—Synchronous Dynamic Random Access Memory
SVG—Scalable Vector Graphics
TB—Tera Byte
UPS—Uninterruptible Power Supply
USB—Universal Serial Bus
UTF—Unicode Transformation Format

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Latest IT Gadgets

- **Google Home** voice controller is one of the most popular IoT devices out there today. It provides voice-enabled services like alarms, lights, thermostats, volume control and lots more.
- **Amazon Echo Plus** voice controller is another popular and reliable IoT device on the market. It provides voice-enabled services like answering phone calls, setting timers and alarms, checking the weather, and lots more.
- **August Doorbell Cam** is an IoT device that allows you to answer your door from any remote location. It constantly captures motion changes and suspicious activity in your doorstep.
- **August Smart Lock** is a proven and reliable security IoT device that helps users to manage their doors from any remote location. It helps keep thieves away and provides an extra layer of security for your home.
- **Foobot** is an IoT device that can accurately measure indoor pollution. It helps to improve the air quality in houses, cafes, workplaces, and other indoor public spaces.

Thank You

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