Computer :

A computer can, not only store and process data, but also retrieve data, i.e. Gather data from its memory or storage as and when required. Thus, A computer in general term that refer to an electronic data processing machine used for wide range of activities.

The word 'Computer' originated from the word **compute** which means to calculate. A computer is defined as, "*an electronic device that can accept, store, and process data under the control of a set of instructions.*" **Developed by Charles Babbage**

Characteristics of computer

1. **Speed (measured in MIPS million of instruction per second)**
2. Accuracy
3. Diligence
4. Storage Capacity
5. Versatility
6. Automation
7. Reliability

Limitation of computer

1. No intelligence

Computers do not have the power to think and understand. Computers cannot think the way humans can because computers do not have a brain like humans.

Type of Computer:-

Types of Computer Based on Data Handling

- Analog Computer
- Digital Computer
- Hybrid Computer

Types of Computer Based on Purpose

- General Purpose Computer
- Special Purpose Computer

Types of Computer Based on Size

- Micro Computer

Analog computer:-

Analog computers handle or process information which is of a physical nature as example. Temperature, pressure etc.

Digital computer:-

Digital computers process information which is essentially in a binary or two state form, namely zero and one, when talking about computers , we mostly refer to the digital type of electronic machine.

Hybrid Computer:-

These computers are combination of Analog and Digital computers. These are sued in such fields where we have to show digital form of analog data. This is used there where it needs to calculate both the digital and analog data for e.g. in Hospitals.

Types of Computer Based on Size

i. Micro computer:-

The processor is very small so that called Micro processor and device is called Micro Computer. Micro Computer is single user device. They are also known as PC. Example- Desktop, laptop, Palmtop, Notebook, PDA, Tablet PC

ii. Mini computer:-

The processor of Mini Computer is small but larger than Micro processor. Mini Computer is multi user device generally used in designing company for commercial use.

iii. Mainframe computer:-

These are computers with high processing capability and speed. These are large, powerful, and expensive computers.

It has larger processor and multiuser device. Number of users is more than Mini Computer.

iv. Super computer:-

These are most powerful computers in terms of speed and accuracy and are useful in problems that require complex mathematical calculations.

The processor is biggest that other computer and processing capacity is highest than other devices. It is Multi user fasted calculating device, generally used in nuclear science for calculation purpose.

Note:- Cray-I is the first super computer. India's first super computer is Param-10000.

v. Work Station

वर्कस्टेशन कंप्यूटर एक विशेष प्रकार का कंप्यूटर होता है जिसमें सामान्य कंप्यूटर की तुलना में अधिक प्रोसेसिंग पावर होती है। आप वर्कस्टेशन में एक सामान्य कंप्यूटर से ज्यादा काम कर सकते हैं। वर्कस्टेशन में एक तेज माइक्रोप्रोसेसर होता है, जिसमें बड़ी मात्रा में रैम और हाई स्पीड ग्राफिक एडॉप्टर होता है जो कार्य करने की स्पीड बढ़ाता है।एक वर्कस्टेशन वीडियो एडिटिंग, हाई ग्राफिक्स में गेम खेलना, और 3D एनीमेशन जैसे कठिन काम कर सकता है।

Types of Computer Based on Purpose

General Purpose Computer

General purpose computer ऐसे computer है जिन्हें सामान्य उद्देश्य के लिए तैयार किया गया है इन computer में अनेक प्रकार के कार्य करने की क्षमता होती है इन computer का प्रयोग सामान्य कार्य जैसे- letter बनाना, document प्रिंट करना, फोटो बनाना, स्प्रेडशीट तैयार करना आदि शामिल है।

Special Purpose Computer

Special purpose computer ऐसे कम्प्यूटर है जिन्हें किसी विशेष कार्य के लिए तैयार किया जाता है इनके सीपीयू की क्षमता उस कार्य के अनुरूप होती है जिसके लिए इन्हे तैयार किया जाता है। जैसे- मौसम विज्ञान, कृषि विज्ञान, चिकित्सा, अन्तरिक्ष विज्ञान आदि।

Generation of Computer:-

1. First Generation:- (1946-1954)

© Vacuum Tube used (1906 – John Ambrose fleming)

© Machine Language used

i. ENIAC (Electronic Numerical Integrator And Calculator) – 1946, By John Mauchly and J. Presper Eckert

ii. EDVAC(Electronic Discrete Variable Automatic Computer) – 1950

iii. Mark I – 1944

iv. EDSAC(Electronic Delay Storage Automatic Computer) – 1949, By M.V. Wilkes

v. UNIVAC 1 (Universal Automatic Computer) – 1951, By John Mauchly and Presper Eckert

vi. IBM-650

vii. IBM-701

2. Second Generation:- (1955-1964)

©Transistors (1947 – John Bardeen, Walter Brattain, William Shockely)

© Language – Assembly language, COBOL, Fortran

© Batch Processing, Multi programming OS

i. IBM-1620

ii. IBM-7094

iii. IBM-1401 (mainframe computer)

iv. UNIAC-1108

v. CDC-3600 (Control Data)

3. Third Generation:- (1964-1977)

© IC (Integrated Circuit) (1959- Robert Noyce, JS Kilby)

© * High level language (Basic, COBOL, Pascal, Algol)

© Remote processing, time sharing, real time, multi programming, OS

i. IBM-360

ii. VAX-750

iii. IBM-370

iv. ICL-1900

v. TDC-316

vi. HoneyWell-6000

vii. PDP (Personal Data Processor)

4. Fourth Generation:-(1977-1991)

© Micro Processor, VLSI

© Language- C, C++, DBASE

© Time sharing, real time network, distributed OS

i. DEC-10

ii. STAR-1000

iii. PDP-11

iv. Apple-Macintosh

v. CRAY-1

vi. CRAY-X-MP

5. Fifth Generation :- (1991-Continue)

© AI (John McCarthy), ULSI (Ultra Large Scale Integration)

© Language- C, C++, Java, Net used

i. Desktop

ii. Laptop

iii. Note book

iv. Ultra book

v. Chrome book

Hardware:-

The physical component of a computer are known as hardware. Such physical components may be electronic, electrical, magnetic, and mechanical . some such parts are microprocessor, hard disk, CD Rom, floppy disk, keyboard, printer, mouse, monitor, Motherboard etc.

Software:-

The set of computer programs, procedures and associated documentation related to the effective operation of a computer system are termed as software. A sequence of instructions given to a computer to perform a particular task is called software or a program.

Parts of a computer that we cannot touch but only feel are called software. Without software, a computer will remain just a metal. With software, a computer does all the work.

Example: ms office , libre office, anti virus ,notepad, wordpad etc

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Types of Software:-

वैसे तो सॉफ्टवेर कई प्रकार के होते है लेकिंन मुख्य रूप से **3** केटेगरी में डिवाइड किया गया है जो निम्नलिखित हैं-

- **System software**
- **Application software**

1. System software:-

System software or system packages, are sets of one or more programs that are basically designed to control the operation of the computer system. System software, thus make the operation of the computer system more effective and efficient.

There are some system software:-

Operating System

Compiler

Interpreter

Assemblers

Linkers

Loaders

Device Driver

Operating System:

Operating system is the first software of the computer that is loaded after the computer starts. It is an important software for booting the computer. It is necessary not only for booting the computer but also for running other applications and utility software in the computer. Is.

उदाहरण:

IOS,
MACOS,
Linux
Unix,
Android,

Device Driver :

To communicate the hardware parts with the computer, a special type of software is required which we call device driver which works together with the operating system like if we connect the keyboard to the computer then the keyboard can function properly. The computer already has a keyboard driver for this.

उदाहरण:

USB Drivers,
Printer Drivers,
Motherboard Driver,
Network Adapter Drivers,
ROM Drivers
VGA Drivers

a. Compiler:-

A program which translates a high-level language program into a machine language program is known as a compiler. It checks all kinds of limits, ranges, errors etc.

b. Interpreter:-

An interpreter is a program which translates one statement of a high- level language program into machine codes and executes it.

In this way it proceeds further till all the statement of the program are translated and executed.

Note: Compiler execute all code it once and interpreter execute all code line by line

c. Assemblers:-

An assembler is a type of computer program that interprets software programs written in assembly language into machine language, code and instructions that can be executed by a computer.

Example: Photoshop, PageMaker whatsapp, PowerPoint, telegram, ms word, ms excel

3. Utility Software:-

A utility program is a type of system software that is used to perform a specific task it is normally used to solve the common problems of software and hardware.

Utility software example

- **disk cleanup**
- **Disk deframenter**
- **antivirus**
- Microsoft defender

  Norton 360

  - McAfee Total protection
  - WinZip
  - WinRAR
  - Backup tool
- Compression tool
- Fie management tool

4. Open Source Software:-

Open source software refers to the software which uses the code freely available on the Internet it means Open source software is free and openly available to everyone. The code can be copied, modified or deleted by other users and organizations.

Example:-Linux, Libre Office or Open Office, VLC media player,

5. Proprietary Software:-

Proprietary software also known as "closed-source software" is non-free computer software for which the software's publisher or another person retains intellectual property rights- usually copyright of the source code, but sometimes patent rights.

Proprietary software means the company that developed the software owns the software and no one may duplicate it or distribute it without that company's permission. Users have to pay to the software company if they want to use the proprietary software.

Example: macOS, Adobe Suite, Microsoft Windows, ms office, और photoshop आदि हैं।

Firmware software

Firmware is a type of software that is stored on the memory chip of the hardware. Firmware controls this hardware and helps it to communicate with other hardware. Nowadays, firmware is present in every electronic device such as – TV, computer, mobile phone, and washing machine etc. because without it no electronic device can function. It is not possible to control.

Memory:-

The memory is an essential component of a computer system. It is required by the computer system to store instruction and data. Memory can be divided into following two types.

1. Primary or main memory, which is directly connected to CPU or part of CPU in some pc's
2. Secondary memory or auxiliary memory

Types of Memory

कंप्यूटर मेमोरी के निम्नलिखित प्रकार होते हैं

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

1. RAM (Random Access Memory):-

RAM is a read/write memory. Information can be written into and read from a RAM. It is a volatile memory which means, that it retains the stored information as long as the computer is connected to a power Supply source. When power supply is switched off or interrupted, the stored information in the RAM is lost.

There are two types of RAM-

Static RAM Dynamic RAM

SRAM

SRAM का पूरा नाम static random access memory (स्टैटिक रैंडम एक्सेस मैमोरी) है. इसे कार्य करने के लिए एक निरंतर (constant) power की जरूरत होती है. निरंतर power मिलते रहने के कारण इसे refresh करने की आवश्यकता नहीं होती है SRAM प्रत्येक memory cell के लिए बहुत सारें transistors का प्रयोग करता है परन्तु इसमें प्रत्येक cell के लिए capacitor नहीं होता है.

DRAM

DRAM का पूरा नाम dynamic random access memory (डायनामिक एक्सेस मैमोरी) है. इसे कार्य करने के लिए एक refresh power की जरूरत होती है. तथा इसके पास memory cell के लिए transistor तथा capacitor होते है.

2.ROM (Read Only Memory)-

ROM is a permanent type memory. Its contents are not lost when power supply is switched off. The user cannot write into a ROM. Its contents are written into at manufacturing time. ROM's store permanent programs and other types of Data which are needed by the computer to execute user programs.

There are many types of ROM-

i. PROM ii. EPROM iii. EEPROM

PROMS(programmable ROM's)

Programmable ROM's called PROM's are also available. Further different types of PROM's such as erasable PROM called EPROM, electrically erasable PROM called E^2PROM are also available.

EPROM(erasable PROM)

EPROM (erasable PROM) is an erasable PROM. The stored data in EPROM's can be erased by exposing them to high intensity short wave ultra-violet light for about 20 minutes. When an EPROM is exposed to ultra-violet light the entire data is erased. EPROM's are cheap. Reliable and hence they are widely used. EPROM's are used to store programs which are permanent but need updating.

EEPROM :-

EEPROM (electrically erasable programmable read-only memory) is user- modifiable read-only memory (ROM) that can be erased and reprogrammed (written to) repeatedly through the application of higher than normal electrical voltage.

Secondary memory or auxiliary memory

Secondary memory or secondary storage devices are permanent storage units used to store program and data. They use principle of magnetization for storing 0 and 1. Therefore the also called as magnetic memory. They are non- volatile. Contents are not lost when power is switch off.

There are three type of secondary memory.

1. Optical Memory
2. Magnetic Memory
3. Flash Memory (Mass Storage)

Optical Disk/Memory:-

optical disk are two types, namely compact disk (CDs) or CD-ROMs and WORM(write once and read many)

CD-ROM

It is an optical read only memory (ROM). The disk is made up of a resin , such as polycarbonate. It is coated with a material which will change its reflecting property. When a high intensity laser beam is focused on it. The coating material is highly reflective usually aluminum. **CD-ROM can store about 700 MB of data.**

Worm Disks

Worm disk stands for write once read many warm disks allows users to create their own CD's by using a CD-R(CD-Recordable) drive. Worm disks are CD's that are purchased blank and written onto using CD-R drive. The information recorded on WORM disk cannot be read by any ordinary CD-ROM drive. But data can be written only once. That is data once written cannot be over written. Because of their large capacity and non-alterable property these days WORM disks are the preferred choice for archival storage.

DVD

DVD stands for digital video, or digital versatile disk. DVD disk provide more capacity than a CD-Rom disk. These disk used with DVD drives are of the same diameter and thickness as traditional CD's.

DVD's cannot read by CD drives. DVD disks provide high video resolution and high quality of sound..

DVD-ROMs of capacity from 4.7 GB to 50 GB are now available.

HDD का पूरा नाम Hard Disk Drive (हार्ड डिस्क ड्राइव) होता है। यह एक non-volatile स्टोरेज डिवाइस है जिसका इस्तेमाल डेटा को स्टोर करने के लिए किया जाता है।

SSD

SSD का पूरा नाम Solid State Drive (सॉलिड स्टेट ड्राइव) होता है। यह एक प्रकार की सेकेंडरी स्टोरेज डिवाइस है, जो HDD के समान ही बड़ी मात्रा में डेटा को हमेशा के लिए स्टोर करके रख सकती है।

Magnetic Tape

Magnetic tape डेटा को स्टोर करने की सबसे पुरानी तकनीक है, इसकी capacity (क्षमता) काफी ज्यादा होती है तथा कीमत भी काफी कम होती है। इसकी स्टोरेज क्षमता 100Mb से 200 GB तक होती है।

Flash Drive

फ्लैश ड्राइव एक non-volatile मेमोरी है जिसका इस्तेमाल डेटा और फाइलों को स्टोर करने के लिए किया जाता है। फ्लैश ड्राइव दिखने में बहुत ही छोटी होती है और इसे USB Ports की सहायता से कंप्यूटर के साथ जोड़ा जाता है।

फ्लैश ड्राइव कंप्यूटर में डेटा को स्टोर और ट्रांसफर करने का सबसे आसान तरीका है और इसका साइज 2GB से 1TB तक होता है।

Memory Card

मेमोरी कार्ड एक स्टोरेज डिवाइस होता है जिसका इस्तेमाल डाटा और मल्टी मीडिया को स्टोर करने के लिए किया जाता है मेमोरी कार्ड को फ्लैश कार्ड भी कहते है। एक मेमोरी कार्ड 64GB तक डेटा को स्टोर कर सकती हैं।

Zip Drive

जिप ड्राइव एक छोटा पोर्टेबल डिस्क ड्राइव है जिसका इस्तेमाल कंप्यूटर की फाइलों को स्टोर करने और बैकअप लेने के लिए किया जाता है। ज़िप ड्राइव का साइज 750 MB तक होता है। अर्थात यह 750Mb तक डेटा को स्टोर कर सकता है।

Cache Memory:-

Cache memory (pronounced as "cash Memory") is placed in between the CPU and the main memory. It is much faster than the main memory. Hence access time is much less than that of the main memory. The access time of a cache memory is 15-25 nano seconds (ns) whereas that of the main memory is 80 ns. One nanosecond=10**9**

The cache memory stores data and instructions which are to be immediately executed.

Cache memory is a very high speed memory built in the processor and it is used between main memory (RAM) and the processor.

type of cache memory : cache memory are three type

1. L1 Cache
2. L2 Cache
3. L3 Cache

L1 Cache

यह एक छोटी मेमोरी होती है जिसका आकार 2KB से 64 KB तक होता है। L1 cache में दो प्रकार के cache होते हैं पहला निर्देश कैश (instruction cache) जो CPU द्वारा आवश्यक निर्देशों को स्टोर करते है और दूसरा डेटा कैश (data cache) जो CPU द्वारा आवश्यक डेटा को स्टोर करते है।

L2 Cache

L2 cache का साइज़ L1 cache से थोडा बढ़ा होता है और इसकी स्पीड L1 cache से थोड़ी कम होती है। इसका आकार 256 kb से 512 kb के बीच होता है।

L3 Cache

यह साइज में L1 cache और L2 cache से थोड़ी बड़ी होती है और इसकी स्पीड L1 cache और L2 cache मेमोरी से थोड़ी कम होती है। इसका आकार 1 MB से 8 MB तक होता है।

Register:-

In a computer, a register is the fastest memory. Register is a part of the computer processor which is used to hold a computer instruction, perform mathematical operation as storage address, or any kind of data. Registers are temporary memory units that store data and are located in the processor instead of in RAM, so data can be accessed and stored faster.

Unit of Memory:-

0, 1	1 bit
4 bit	1 nibble
8 bit	1 byte (2 nibble)
1024 byte	1 KB
1024 KB	1 MB
1024 MB	1 GB
1024 GB	1 TB
1024TB	1PB

1. Input device

Data and instructions are entered into a computer through input devices. An input device first converts desired input data and instructions into a suitable binary form(0 and 1) and then feed it into the CPU. The commonly used input device is keyboard.

A number of other input device have been developed that do not require typing these are

Eg. **Mouse, Joystick, Light pen, Keyboard, Digital camera, Web cam, Microphone (Mic), Scanner, Track ball, Digitizing tablet, Touch screen, MICR, OCR, BCR, OMR, Card reader, Video camera, Graphic tablet.**

i. Keyboard:-

Program and data are entered into a computer through a keyboard which is attached to a computer. When a key is pressed, an electronic signal is produced which is detected by an electronic circuit called keyboard encoder.

ii. Mouse:-

A mouse is a pointing device, which is held in one hand and moved across a flat surface. The mouse can also be used to draw sketches, diagrams, etc. on the monitor screen.

iii. Joystick

A joystick is also a pointing device. It is used to move the cursor position on a monitor screen. It's function is similar to that of a mouse and is used for playing games.

iv. Scanner

A scanner is a hardware device which is used to scan text or image into the computer. Sometimes the information, picture or text that is available on paper is needed on the computer. The basic function of scanner is to convert a document into a digital format.

v. Web cameras

Web camera allows to a computer to accept input just by focusing on an object. The camera is focused on the input object to take a picture of the object. Picture so taken can be transferred over computer network to a distant place.

vi. Trackball

Trackball is also a pointing device and contains a ball which can rotate in any direction .the user spins the ball in different directions to move the cursor on the monitor.

vii. Light pen

A light pen is a pointing device. It is used to select a displayed menu option on the monitor. It is a photo sensitive pen like device. It is capable of sensing a position on the monitor screen when it is tip touches the screen.

viii. OMR (Optical Mark Reader):-

Optical Mark Readers are special scanners used for recognizing a pre- specified type of mark made by pencil or pen. OMR focuses light on the page being examined and the light pattern reflected from the dark marks is then detected.

ix. BCR (Bar Code Reader):-

Bar code readers are special devices used to read bar coded data. Bar code is a specialized code used for fast identification of items. It consists of a series of small lines, known as bars. These are primarily used for identification of goods, such as books, postal packages, badges, etc.

x. MICR (Magnetic Ink Character Recognition):-

MICR detects the special encoded characters on bank cheques and deposit slips. After detecting the encoded characters, the MICR converts them into digital data for the computer.

xi. OCR (Optical Character Reader):-

This device is capable of detecting alphabetic and numeric characters on a computer print-out containing complete pages of typed or hand-written text.

xii. Microphone:-

It is a kind of Input device which is used to take sound as input. We do connect it with the jack port of the computer system at the front or rear panel of the system and use it.

Output devices:-

Device that are used to give the result of processing to the user are called output devices. Output devices supplies information or results either in the form of hardcopy (printer) or softcopy (monitor).

Some common output devices- Monitor, Printers, Plotters, Multimedia projector, speech synthesizer.

Monitor:-

This is the most important output device. It is just like a television screen and is also known as Visual Display Unit (V.D.U.). it measured diagonally from one corner of the screen to the opposite corner.

Monitors come in three types

1. CRT (Cathode Ray Tube)
2. TFT/LCD (Thin Film Transistor/Liquid Crystal Display)
3. LED (Light Emitting Diode)

a. CRT Monitor:-

A VDU (Visual Display Unit) or CRT Monitor is similar to a television and its size is measured in diagonal length of the screen. Monitors are available in 12", 14", 15" 17", 19" and even in 21" size. It shows text or picture in color or black and white, depending on the type.

b. TFT/LCD Monitor:-

LCD monitor is the flat panel type of monitor found on notebook pcs. TFT/LCD is a variant of liquid crystal display which uses thin film transistor technology to improve image quality. TFT/LCD is one type of active matrix LCD. It is used in televisions, flat panel displays, projectors, etc.

c. LED Monitor:-

It is a flat panel display that uses light emitting diodes that can be placed either behind the screen or around its edges.

Printer:-

Printers are the most popular output devices. They provide information in a permanent readable form. They produce printed outputs of results, programs and data. Printer quality is measured in dot per inch (DPI).

There are two types of printers

i. Impact printers

ii. Non impact printers

a. Impact Printers:-

Impact printers use an electro-mechanical mechanism that causes hammers or pins to strike against a ribbon and paper to print the text. These printers are noisy, slow, cheap and poor quality output.

Eg. DMP (Dot Matrix printer), Line printer, chain printer, daisy wheel printer, Drum printer.

b. Non Impact printer:-

Non impact printers don not use any electro-mechanical printing head to strike against ribbon and paper. Non impact type printer is faster than an impact type.

Eg. Inkjet printer, laser printer, desk jet printer, thermal printer.

Multimedia Projector:-

Multimedia projector is an output device connected to a PC and used to project information from a computer onto a large screen. The information is thus viewed by a large number of people. It is widely used for making presentations.

Speech synthesizer:-

Speech synthesizer is an output device than convert's textual data into spoken sentences. To produce the speech, basic sound units known as phonemes, are combined.

Plotter:-

Plotter is an output device that is used to produce graphical output on papers. Plotters are used to produce precise and good quality graphics and drawings. Plotter is used to print the maps and architecture of infrastructure.

Speaker:-

Speakers are also kind of output devices which is used to play a sound as output. It is used in multimedia applications to play or listen to sound or music.

Processing Device (CPU):-

The central processing unit (CPU) is the brain of any computer system. In a human body, all major decisions are taken by the brain and all other parts of the body function as directed by the brain. In a computer system, all major calculations, manipulations and comparisons are made by the CPU.

The major parts of a CPU are-

1. ALU (Arithmetic and Logic Unit)
2. CU (Control Unit)
3. Memory Unit

Arithmetic Logic Unit (ALU) :-

All calculations, including comparisons, are made by the ALU. The data and instructions, stored in the primary memory, are transferred to the ALU for processing. Results generated in the ALU are transferred to the primary memory. After completion of processing, the final results are sent to an output device, such as printer.

ALUs are designed to perform the four basic arithmetic operations-add, subtract, multiply, divide- and logic operations or comparisons, such a less than, equal to, or greater than.

Control Unit (CU):-

Control Unit obtains instructions from the program stored in the main memory, interprets the instructions, and issues electrical signals that cause other units of the system to perform their functions.

Mobile Apps:-

A mobile app is a piece of program intended t run on a mobile devices or tablets. Mobile apps were in the beginning planned for productivity assistance such as email, calendar, and contact databases, but the public demand for apps caused rapid expansion into other areas such as mobile games, factory automation, GPS, and location-based services, order-tracking, and ticket purchases, so that there are now millions of apps available.

Mobile apps are normally downloaded from application distribution platforms which are operated by the owner of the mobile operating system, such as the App Store (iOS) or Google Play Store.

Few most important mobile apps are as follows:

1. BHIM (Bharat Interface for Money)
2. MyGov App
3. IRCTC Connect App
4. DigiLocker App
5. Voter Help Line App
6. GARV (Grameen Vidyutikaran) App
7. mPassport Seva
8. Online RTI

Evolution of Computers & it's applications:-

History of computer can be considered from arise of human culture as person known the calculation, they used to something for this purpose like, pebbles, stone etc. but as a device Roman's abacus is first device used in B.C. for calculation. In A.D. various mechanical devices were invented for the calculation like Pascaline by Blaise Pascal, Joseph Jacquard invented a power come into view that is programmed using punched cards, and Chales Babbage invented two machines Analytical engine and difference engine and Hollerith's Census Machines (Tabulating machine). Atanasoff-Berry Computer (ABC) is a fully digital electronic device used for linear equation. Howard Aiken (IBM) had designed Mark I, the first operational general-purpose electro-mechanical computer. John Mauchley and Presper Eckert make the Electronic Numerical Integrator and Calculator (ENIAC) first general purpose, digital electronic computer used to compute a ballistic firing. Universal Automatic computer (UNIVAC I), was the first commercially successful computer. Two Era arises Mechanical Era (before 1945) having mechanical devices and the Electronic Era (from 1945) having electronic processing technology. Electronic Era is divided into Four generations.

What is Language?

Language is a mode of communication that is used to **share ideas, opinions with each other**. For example, if we want to teach someone, we need a language that is understandable by both communicators.

Types of Computer Languages

Different types of Computer languages are given below.

1. Low Level Language
2. High Level Language

Low-Level Language

A Low-level computer language consists of only 1's and 0's. First and Second generation computers were first built using this language. This type of language is easily understood by a computer but it is very difficult for humans to understand this. These Low-level languages are specifically designed to interact with the computer hardware,

Low Level Language is categorized into two types-

1. Machine level language
2. Assembly level language

Machine Language:

Machine level language is a type of Low level language. Machine language is considered to be the oldest computer language. Machine language is developed by only using binary numbers i.e., 0 and 1. So, the instructions or the statements in this language use a sequence of 0's and 1's.

Assembly Language:

Assembly level language in computer programming has evolved with the advancements in the machine language. Assembly language uses symbols, which are popularly known as mnemonics in computer terminology to write the instructions. So, comparatively writing a program in Assembly language is more understandable to the Human than Machine Language.

High Level Language:

High Level computer languages are the advanced development languages in the evolution of computer languages. These languages are designed to make the programming easier and less error-free. High level language uses words and commands along with symbols and numbers. The keywords used in High level languages are similar to English words and can be easily understood by Humans when compared to a Low level language.

Types of programming languages in High level languages are:

- C
- C++
- Java
- Java Script
- Python
- C#
- PHP

Programming Language:-

A programming language consists of all the symbols, characters, and usage rules that permit people to communicate with computers.

There are some high level language-

a. COBOL:-

Full-Form – common business oriented language

- Developed by – Grace Hopper

 Year – 1960

- Used for – Business Purpose

b. BASIC:-

Full-Form – Beginner all-purpose symbolic instruction code

- Developed by–Thomas E-Kurtz and John Kemeny

 Year- 1964

c. C language:-

Developed by – Dennis Ritchie.

 Year– 1972

- Used for– Operating System

d. LisP:-

Full-Form – List Processor

- Developed by–John McCarthy

 Year- 1958

- Used for– Artificial Intelligence

e. ALGOL:-

Full-Form – ALGOrithmic Language

- Developed by– Peter Naur

 Year- 1958

f. FORTRAN:-

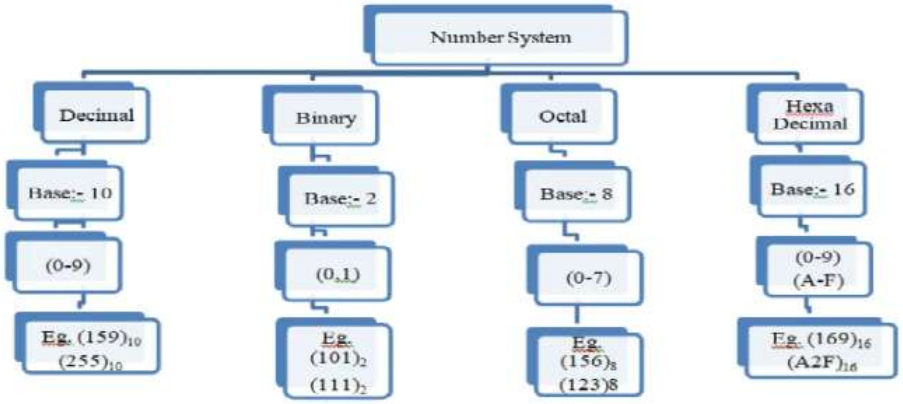
Full-Form – Formula Translation

- Developed by– John Backus

 Year- 1954

Used for – Scientific purpose

Number System:-



BUG:-

A software bug is the common term used to describe an error, flaw, mistake, failure, or fault in a computer program or system that produces an incorrect or unexpected result.

Motherboard

All the electronic components in a system are mounted on a piece of fiberglass called the motherboard. Fiberglass is used because it is a non-conductor of electricity and hence various components remain insulated from one other.