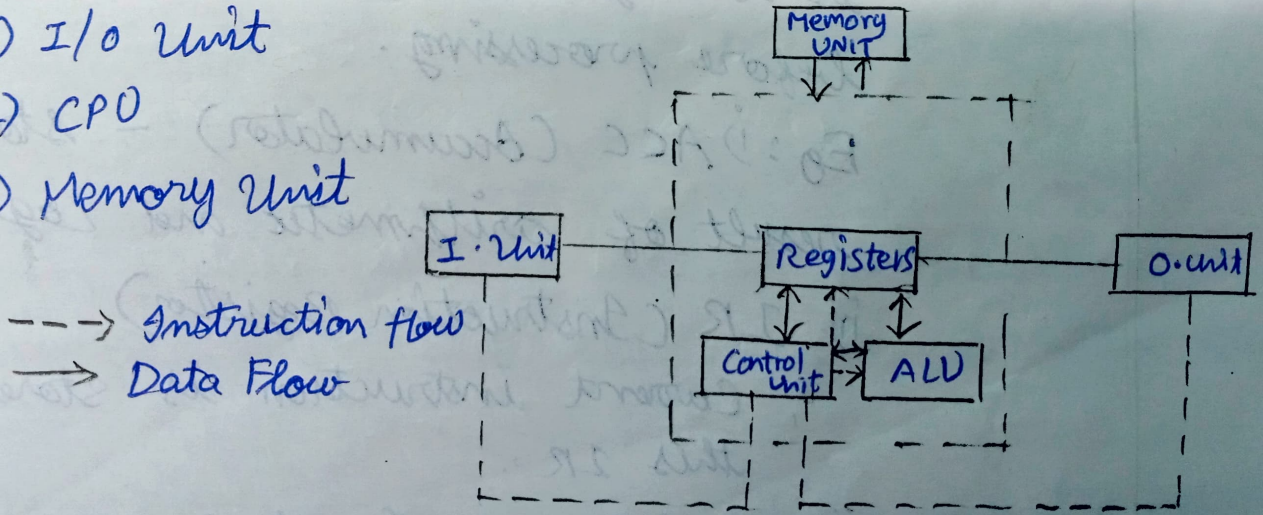
22/9/23

1. What is the 1st developed Programming languge and developer name? (John Backus)

AS: FORTRAN (FORmula TRANslating System)
DEVELOPED BY IBM in 1957.

Components of a computer

1) I/O Unit
2) CPU
3) Memory Unit



i) I/O Unit

Accepts data, converts data into a form that is understandable by Computer.

Eg: Keyboard, mouse, ~~pointer~~, Scanner, etc..

ii) O/P Unit

Displays the processed data, provides output in a form that is understandable by user.

Eg: Monitor, printer, plotter.

iii) CPU (Central Processing Unit)

Heart / Brain of Computer. It controls, coordinates and supervises the operations of computer. Three parts are Control Unit, ALU and Registers.

i) ALU – It consists two parts called Arithmetic and Logic Unit.

ii) Registers – High speed storage area within the CPU, less storage capacity. It is not referenced by address. It will store data, informations, address and intermediate results. (CPU's working memory). Data & Instructions that require processing is brought in the CPU's register before processing.

Eg: i) ACC (Accumulator) – stores the result of arithmetic and Logic Operation

ii) IR (Instruction Register)
Current instruction is stored in this IR.

iii) PC (Program Counter) Contains

address of next instruction to be processed.

iv) MAR (Memory Address Register) contains address of next location in memory to be accessed.

v) MBR (Memory Buffer Register) temporarily stores data from memory or the data to be sent to memory.

vi) DR (Data Register) stores the ~~difference~~ operands and any other data.

Size of Register (amount of data stored)

⇒ Word Size

⇒ Register size → 8, 16, 32 & 64 bits

* Control unit

⇒ Organises the processing of data & Instruction. It acts as a supervisor

⇒ Controls and coordinates.

⇒ The activity of the other ~~hand~~ unit of computer.

⇒ Coordinates input / output device

⇒ It directs the computer to carry out stored program.
Instructed the IR.

⇒ Instruction ALU to perform aerial operations.

⇒ When a program is run, PC keeps trade of the instruction to be executed next.

* Control unit tells "When" to fetch the data and instruction"
"what to do", "where to store the result"

⇒ Control unit holds the CPU's instruction set, which is a list of all operations that the CPU can perform

* Memory unit ⇒ It stores the data permanently or temporarily.

⇒ The storage capacity is measured in bytes.

1 0
↓ ↓
bit (Binary digit)

8 bits = 1 byte
1024 bytes = 1 Kilo byte (KB)
1024 KB = 1 Mega byte (MB)
1024 MB = 1 Giga byte (GB)
1024 GB = 1 Tera byte (TB)

Two types of memory

Primary / Volatile (or) Main / Temp

Secondary / non-Volatile (or) Auxiliary / Permanent

→ RAM (Random Access Memory) Volatile

→ ROM (Read only Memory) Non-Volatile

Volatile ⇒ need power to maintain data
Non-Volatile ⇒ Retains the data permanently

* Primary Memory - Stores data & Instructions, intermediate results and output temporarily during processing of data. It is a semiconductor
* Cache Memory - Data & Instructions that are

required for processing is brought from secondary storage devices to RAM. these data are taken from RAM to register. Time taken to move the data between RAM and CPU register is large. This will affect the speed of Computer. The cache is placed in between RAM and CPU. During processing CPU first checks cache memory for required data. If data is not found in cache then it looks in RAM. for the data. To access cache memory CPU need not use the data bus. Cache is two ~~times~~ times faster than RAM. Cache is very expensive

* Secondary Memory.
  - ⇒ Non-Volatile, It provides backup storage.
  - ⇒ Eg: HDD, Floppy, CD, pendrive
  - ⇒ It has high storage capacity.
  - ⇒ It is cheaper than primary memory.
  - ⇒ It takes longer time to read & write data.

* Computing devices:
  - i) Desktop PC – Its a standalone machine. It has three units. Keyboard, Monitor and CPU. Its very expensive. Eg: DELL, Lenovo
  - ii) Laptop – It is portable, small in size, It has battery backup and costlier.
  - iii) Tablet – It will not have keyboard, and mouse. It is portable.
  - iv) PDA (Personal Digital Assistant) – Smaller in size, doesn't have disk drive. It does not have ~~disk~~ keyboard and mouse, Limited memory. Eg: Apple computer
  - v) Smart phone – you can connect via internet, Digital computer, High storage, mini computer,

High processing speed.
Eg: PDP 11, IBM 800 series

* Main frame computer - Multi user, Multi programming and high performance Computer, More storage capacity, more powerful.
Eg: CDC 6600, IBM ES00CS
* Wearable computers - Smart watch
* Super computers - They are faster & Expensive, speed is measure in flops (FLOPS) (Floating point operations per speed)
Eg: IBM road runner, Intel ASCI red