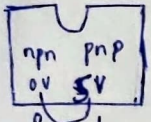
1. Fundamentals of Programming and Computer - 15/10/22

3 - technical discussion

CPU/MP (semi conductor technology device)



→ it understan 2 volts
0V & 5V

→ Transistor understand low & high voltages. 0 & 1's

0V → 0
5V → 1

→ Processor to Perform Addition, Sub, Mul

001001
101001
001001
} Instruction to perform operation. (Eg)

① Machine level language :-

→ writing Instructing in a form Machine understands (0's and 1's) → Machine level language.

→ Program :- So many Instruction is called as Program.

→ Processor understand 0's & 1's.

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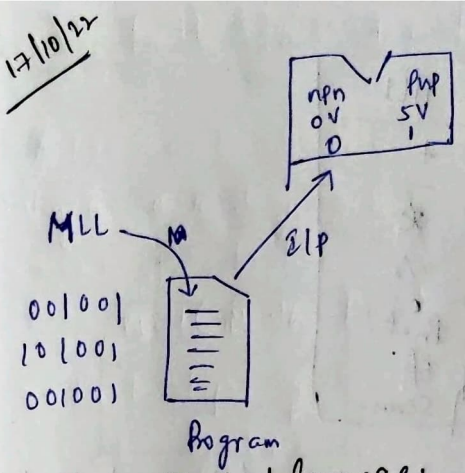
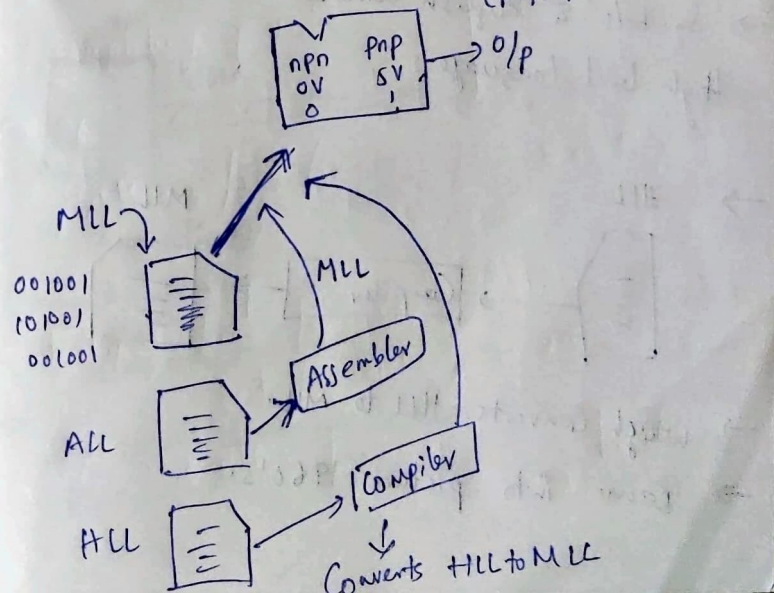


② Assembly level language :-

→ good Approach of giving Instruction. (mnemonics)

Eg 001001 ADD
101001 SUB
001001 DIV

→ Technically, we called as Assembly language.

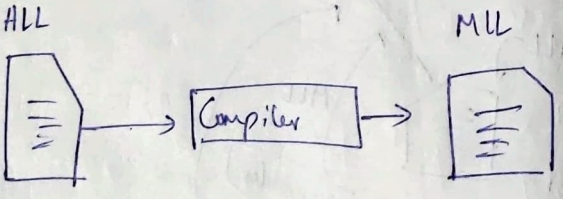


MLL	ALL	HLL
0000	ADD	+
0001	SUB	−
0010	MUL	*
0100	DIV	%
		Print
		if
		Scan.

② Assembler :- System software. which Converts ALL to MLL

take ALL Converts into MLL

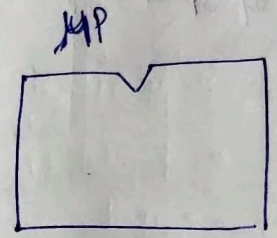
③ High level Language :- writing instruction using Symbols & English like Commands. We Called as High level Language.

→ 

→ Which Converts HLL to MLL.

→ Came into picture 1960's.

(1) Compiler :- is System Software which HLL to MLL.

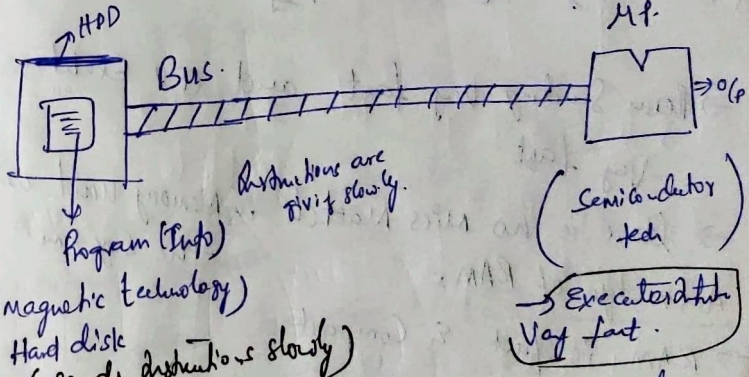


(Semi Conductor device)

→ it understand 0's & 1's.

→ it is fast in nature.

→ responsible for Executing instructions.

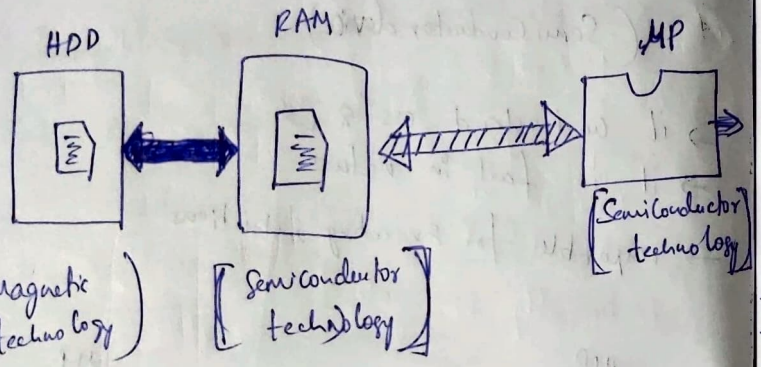


→ due to miss match in Speed b/w two devices their Entire Efficiency of System goes down.

① bus:- Set of wires which carries set of instructions from one Memory unit to another or Memory unit

→ for avoiding mismatch of speed they introduced RAM

② RAM



→ Ram Sending very fast and CPU Executing very fast.

→ there is no Miss Match in Memory unit within the Systems.

Advantge of RAM:

→ RAM is fast & Compact

~~→ it is Volatile~~

dis advantage:-

① it is a Volatile device.

→ Continous power supply ~~should~~ have to be there.

→ for fraction ms power gone whole data get Erased.

③ Hard disk (HDD)

HDD disadvantge

↳ it is bulky.

↳ slow.

HDD advantge

→ it is non volatile.

→ Permanent storage.

⇒

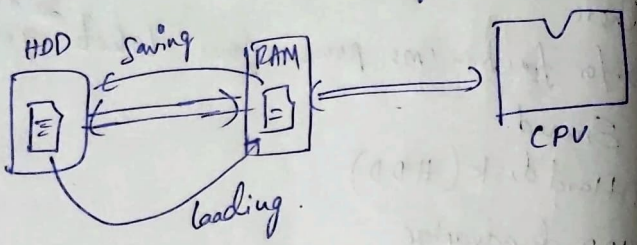
→ again HDD Connected RAM.

→ Processor is reposible for executing info.

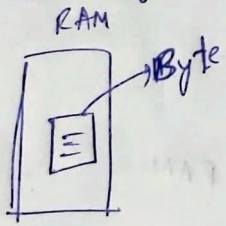
→ writing program on ram.

Saving:- getting copy from RAM to HDD & to save it permanantly is called Saving..

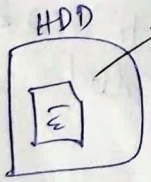
② **Loading**:- The process of getting program (or file) on to ram to take care of further Execution we called it as loading.



③ **Byte**:- the place where program stored on ram is called Byte.



④ **File**:- a The place where info (or) program stored on Hard disk is called file.



→ A storage placed on hard disk which stored permanently is called file.

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⑤ **Register**:- A storage placed on MP which is Executed is called Register

→ Ram also called primary Memory (or Main Memory.

⇒ HDD is called Secondary Memory.

⑥ **Cache Memory**:- faster than ram Memory.

→ Closer to ram
→ if instruction is given again & again
→ it stored at cache Memory.
→ it is Executed very fast next time by taking info from Cache Memory.

⑦ **SSD**:- Better version of HDD
↳ we Semi-Conductor technology.
↳ flash memory.
↳ you store data & when you want to load we can load it faster.

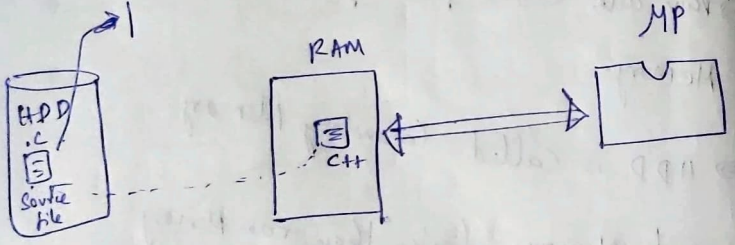
⑧ Object file Vs Executable files :- (.obj Vs .exe)

① Object file :- is a file in which code contains Machine level language (binary form).

→ object file incomplete file.

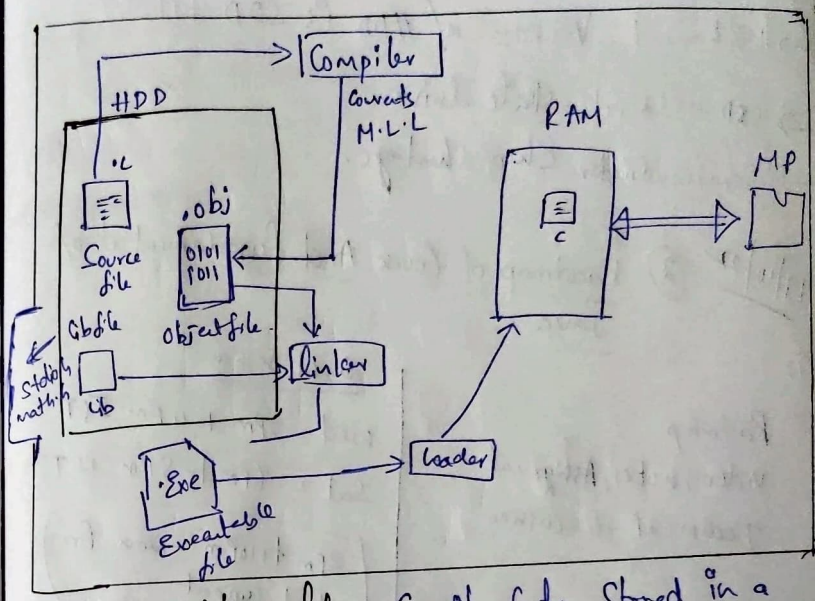
② Executable file :- is a file in which code contains in Machine level language.

→ it is Complete file.



① Source file :- Saved file which contain our code.

Eg :- .C, Java, .py.



② Object file :- Compile code stored in a file it is called object file.

→ for function body is not written in Code they are connected by library.

③ Linker :- it links library file and object file & generate Executable file (.exe file).

④ Loader :- loads into ram from HDD.

→ body of the functions present particular library.

→ Enhanced Version of HDD is SDD.

→ SSD → Solid-state drive.

→ Semiconductor Chip Shortage.