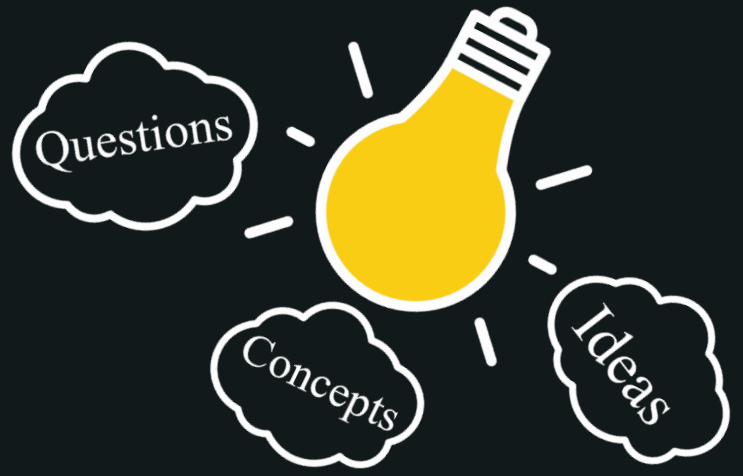


Computer Basics

C++ Programming

VEDINESH

Computer

Desktop, Laptops, Mobiles, Tabs

Computation

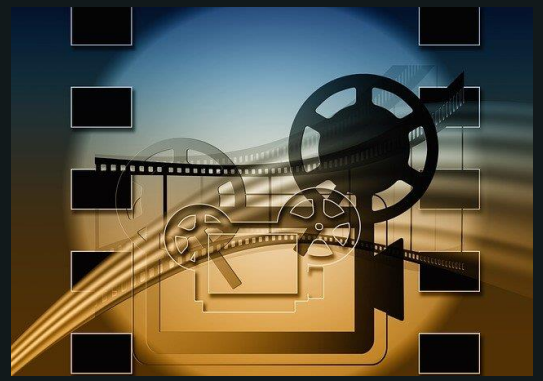
Calculation

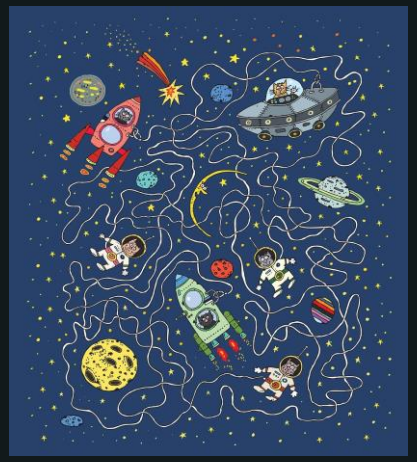
Any device that stores and processes data by performing calculation is computer.

Computer

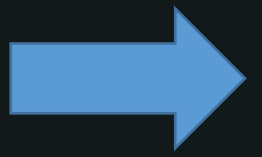
Now you might be thinking, that I use my laptop or desktop to watching movie, playing games, browsing the internet.

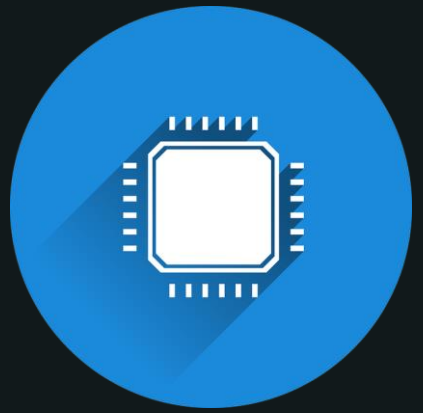
How computation is used there ?





Applications

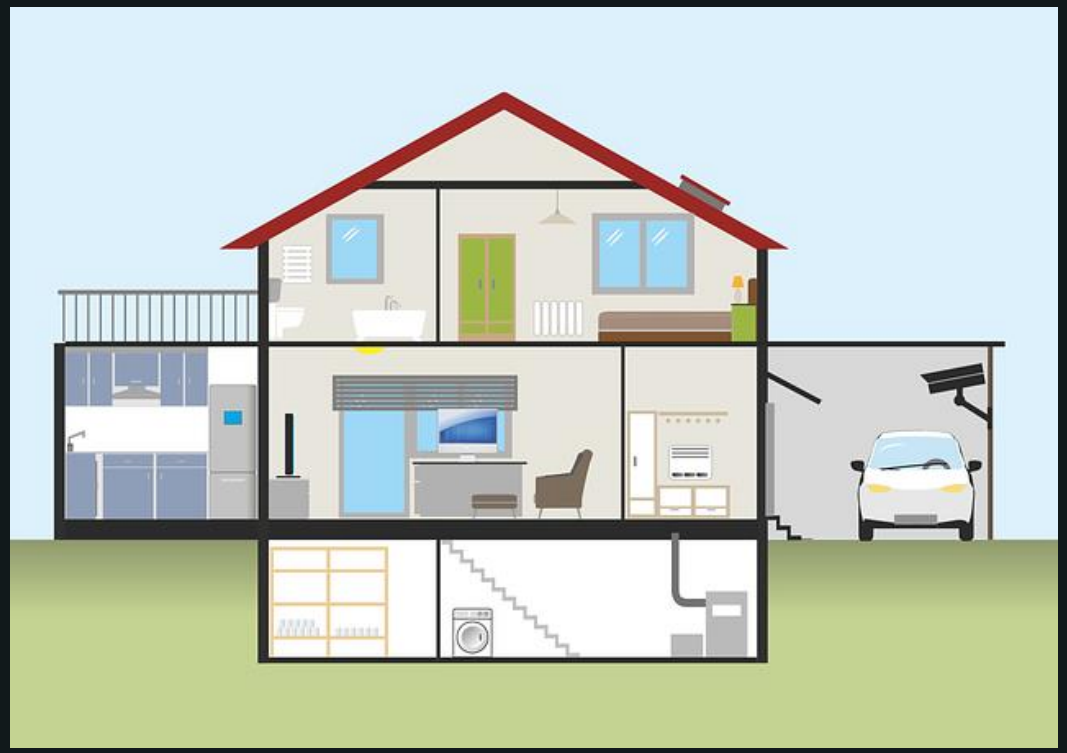


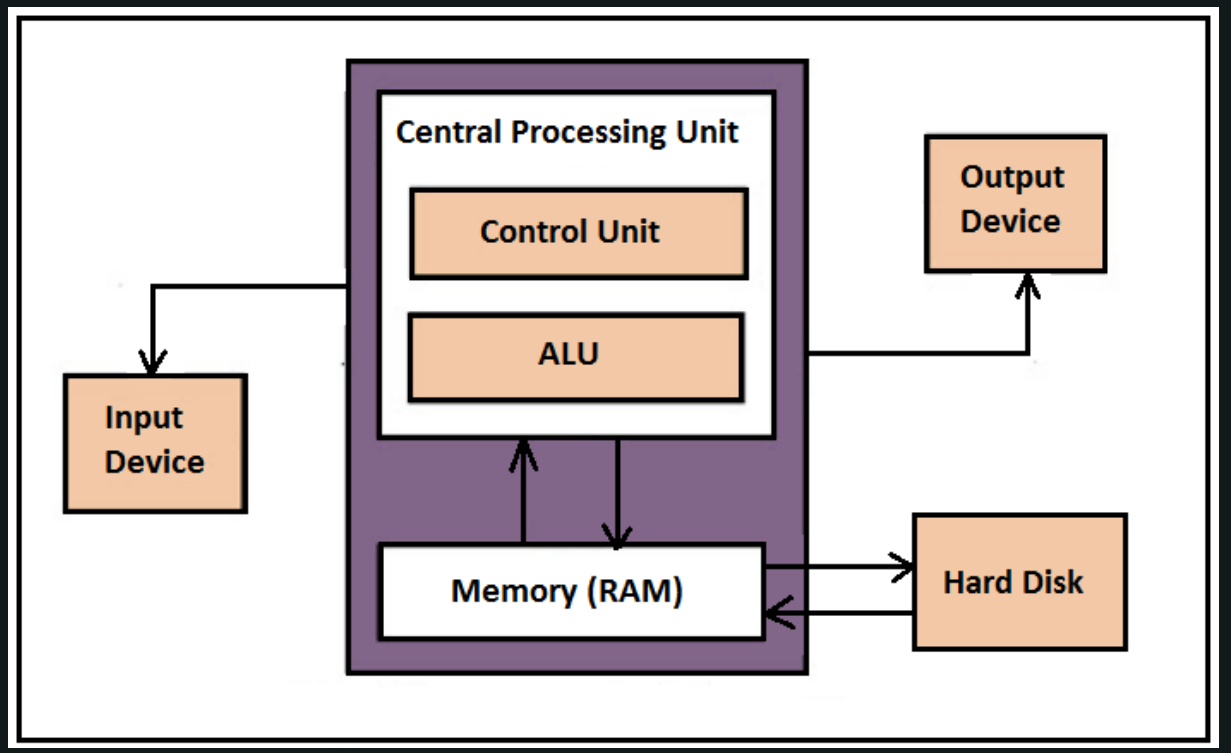


Processor

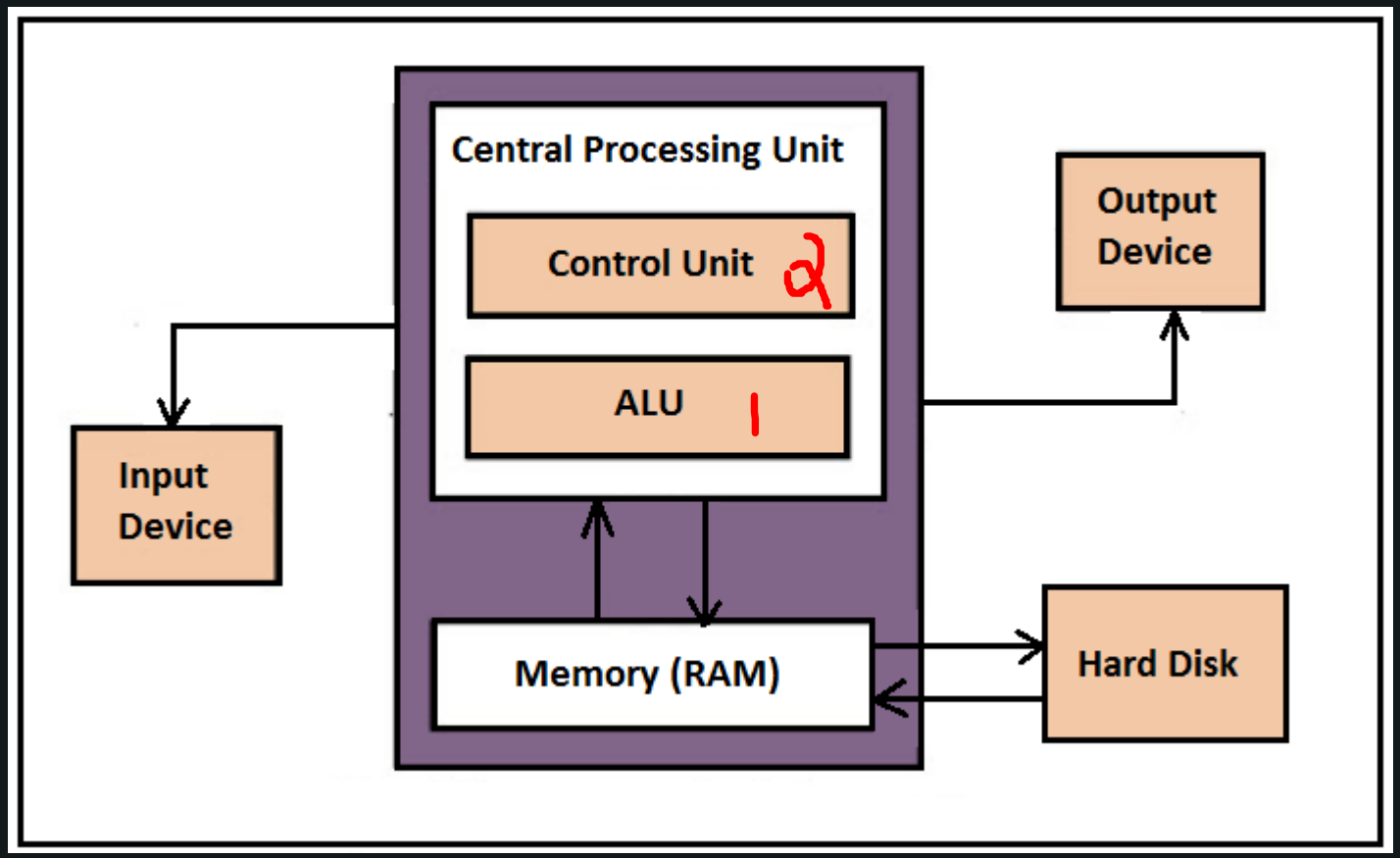
Computer Architecture

It is a set of rules and methods that describe the functionality, organization, and implementation of computer systems.





Computer Architecture



Input :- Keyboard, Mouse

Output:- Monitor, Printer

Memory:- RAM 4GB - 8GB - 16GB

CPU:- i3, i5, i7

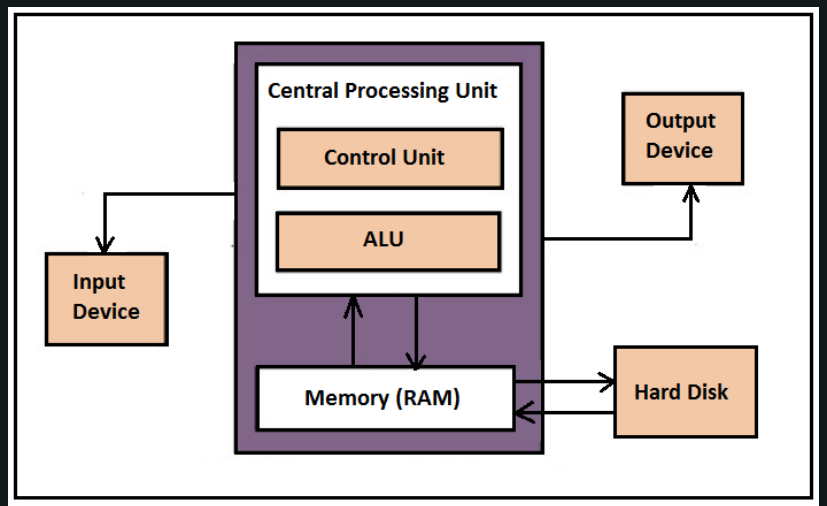
LU / ALU:- Arithmetic or logical operations (+ , - , * , / , < , >).
->

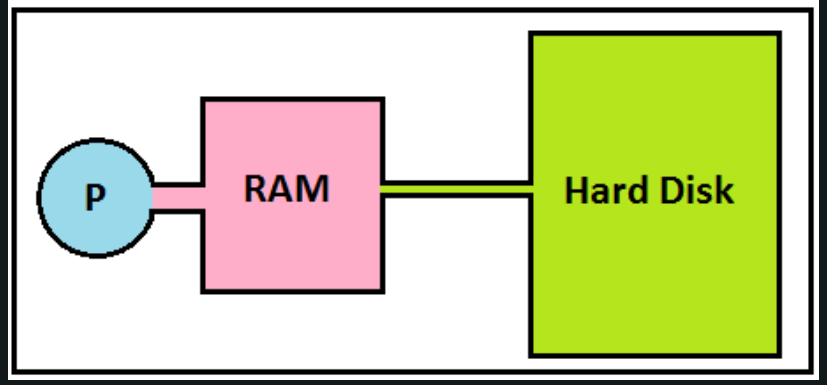
CU:- It directs the operation of the processor.

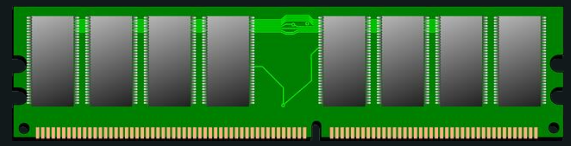
-> It directs the flow of data between the CPU and the other devices.

-> It manages computer resources.

RAM - Random Access Memory







1001100011
0011011010
1010010101
0101111011
000001111
1110101111
0011101011
1101111011
1111110101
0001010110

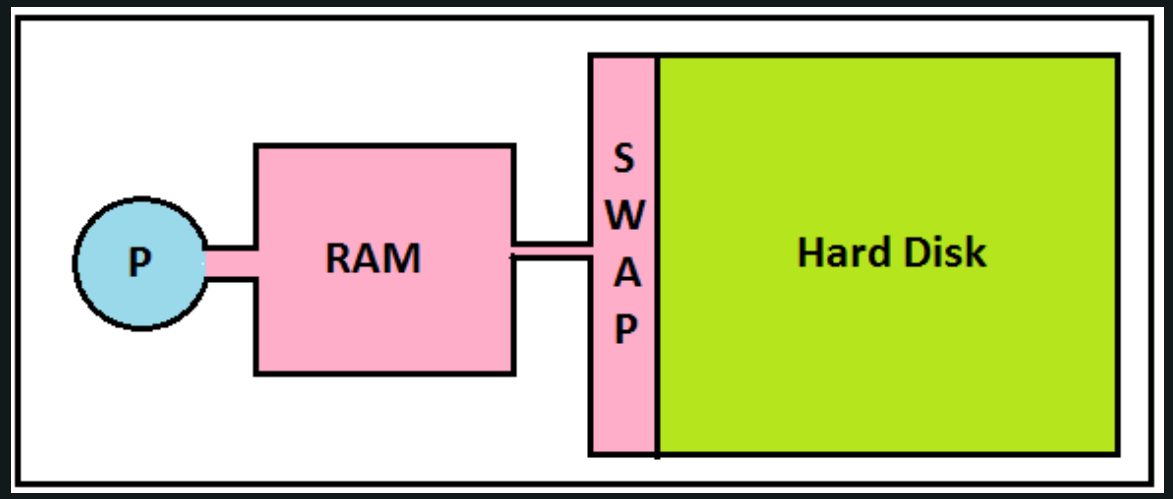
->RAM is used to store the data that is currently processed by the CPU.

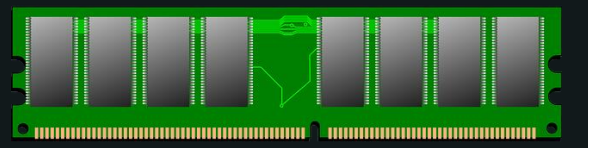
-> It is volatile in nature.

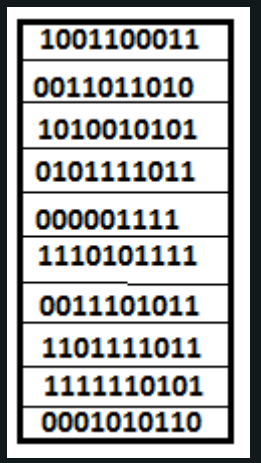
-> It contain capacitor.

-> Capacitors are constantly leaking charge, we need to charge them continuously thats why given name DYNAMIC.

RAM - Random Access Memory



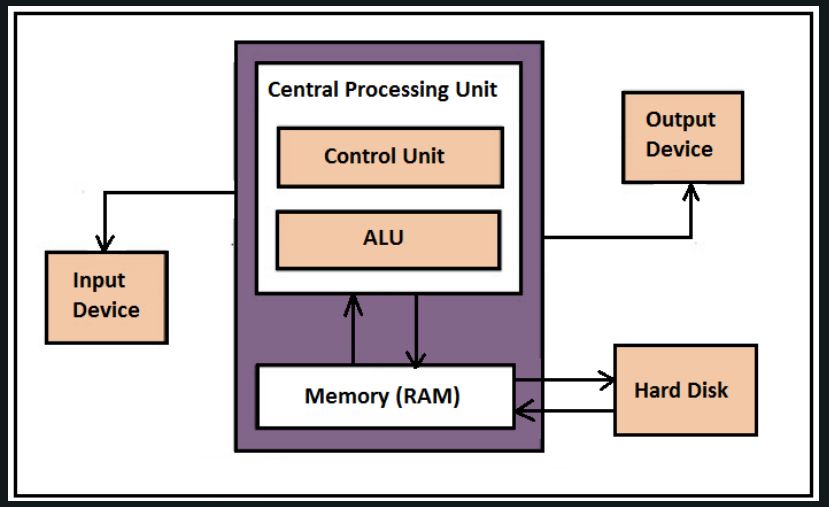


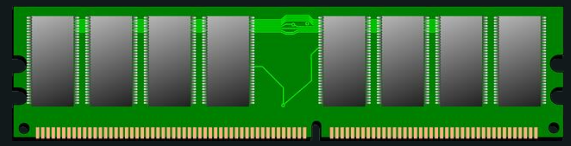


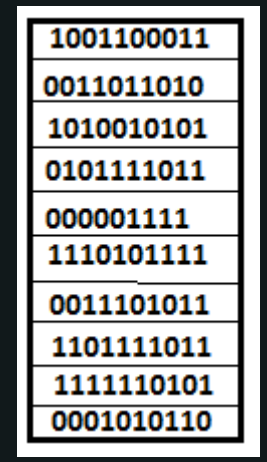
-> DRAM - Dynamic RAM
DRAM - Async. with computer clock., Not good coordination with processor. Hence SLOW
SDRAM - Sync. Dynamic RAM
SDRAM - Sync. with computer clock, good coordination with processor. Hence FAST & Used now a days.

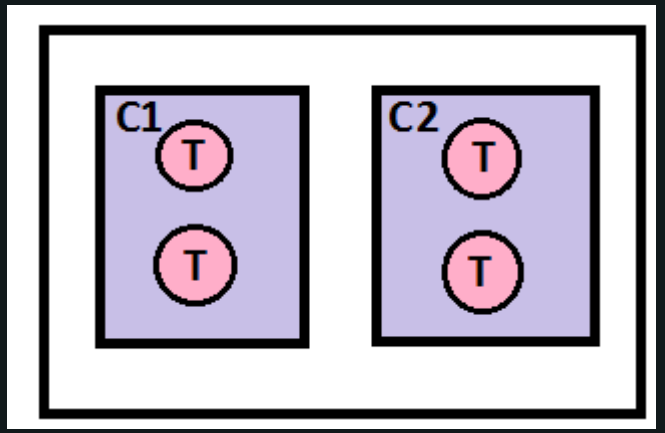
-> SWAP :- Swap space is virtual memory on hard disk which is a substitute of physical memory.

CPU (Central Processing Unit)









->CPU is the primary component of a computer that processes instructions.

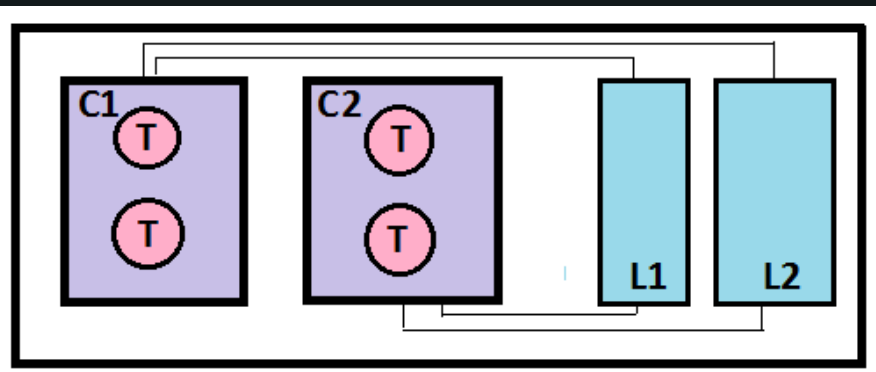
-> The CPU contains at least one processor, which is the actual chip inside the CPU that performs calculations.

->Now a days it is common for a single CPU to have at least two processors or "processing cores." .

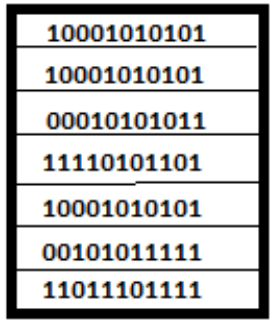
-> A CPU with two processing cores is called a dual-core CPU and with four cores are called quad-core CPUs.

CPU (Central Processing Unit)

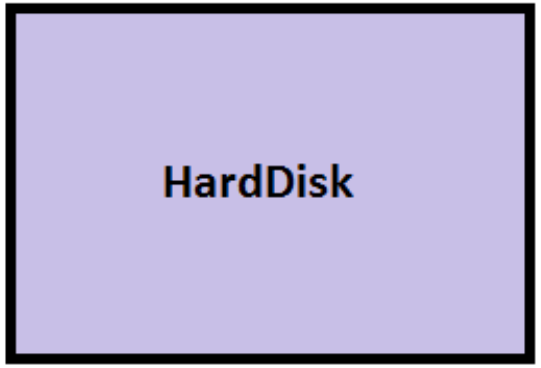
VEDINESH

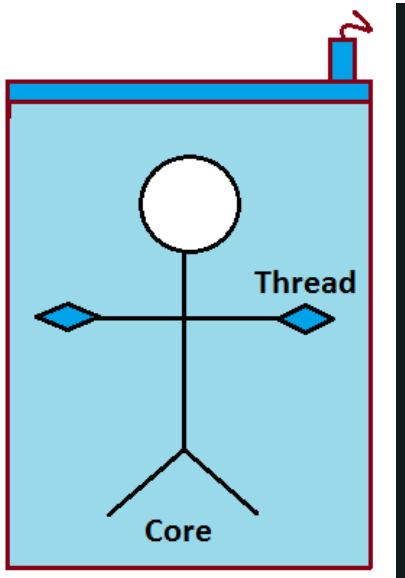


CPU



RAM





CPU

-> Core is Physical Component.

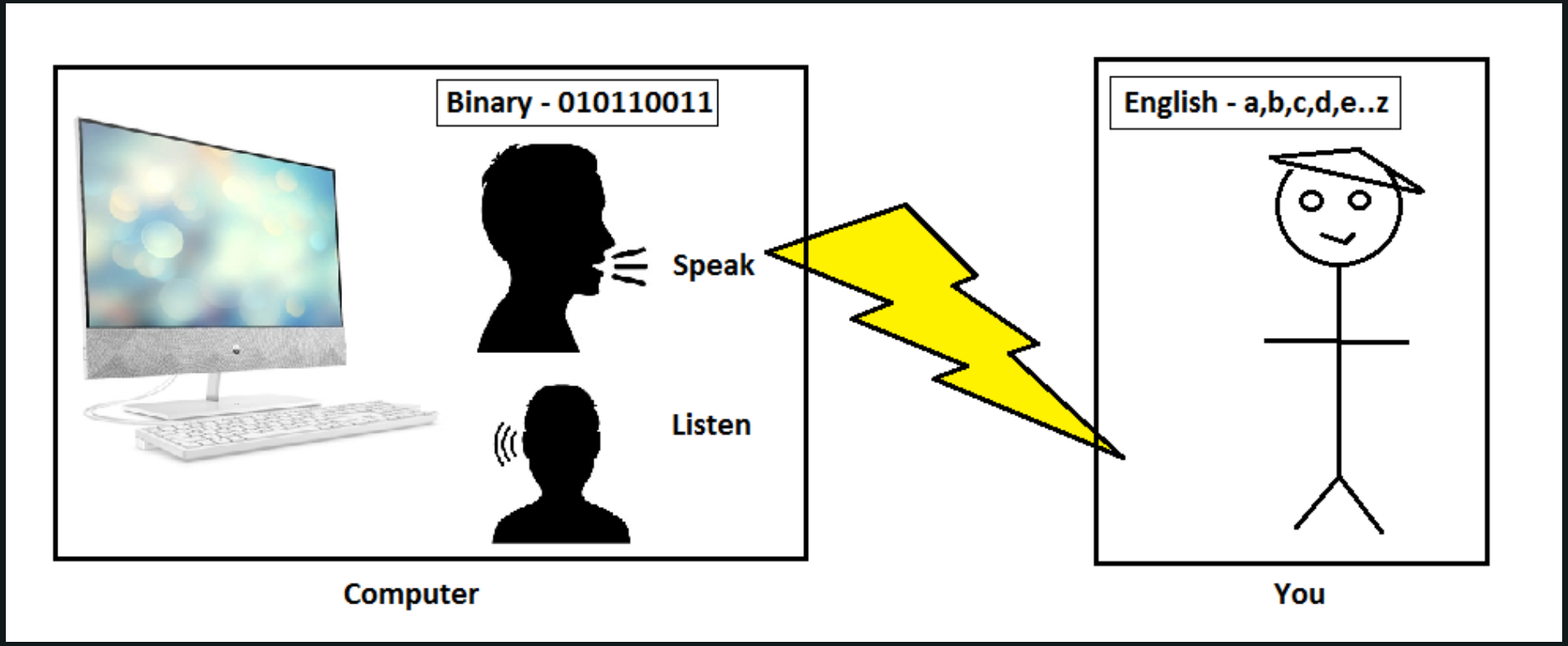
->Thread is a logical part of core that execute every command and gives output.

-> CPU caches are small pools of memory that store information the CPU is most likely to need next. (L1 and L2)

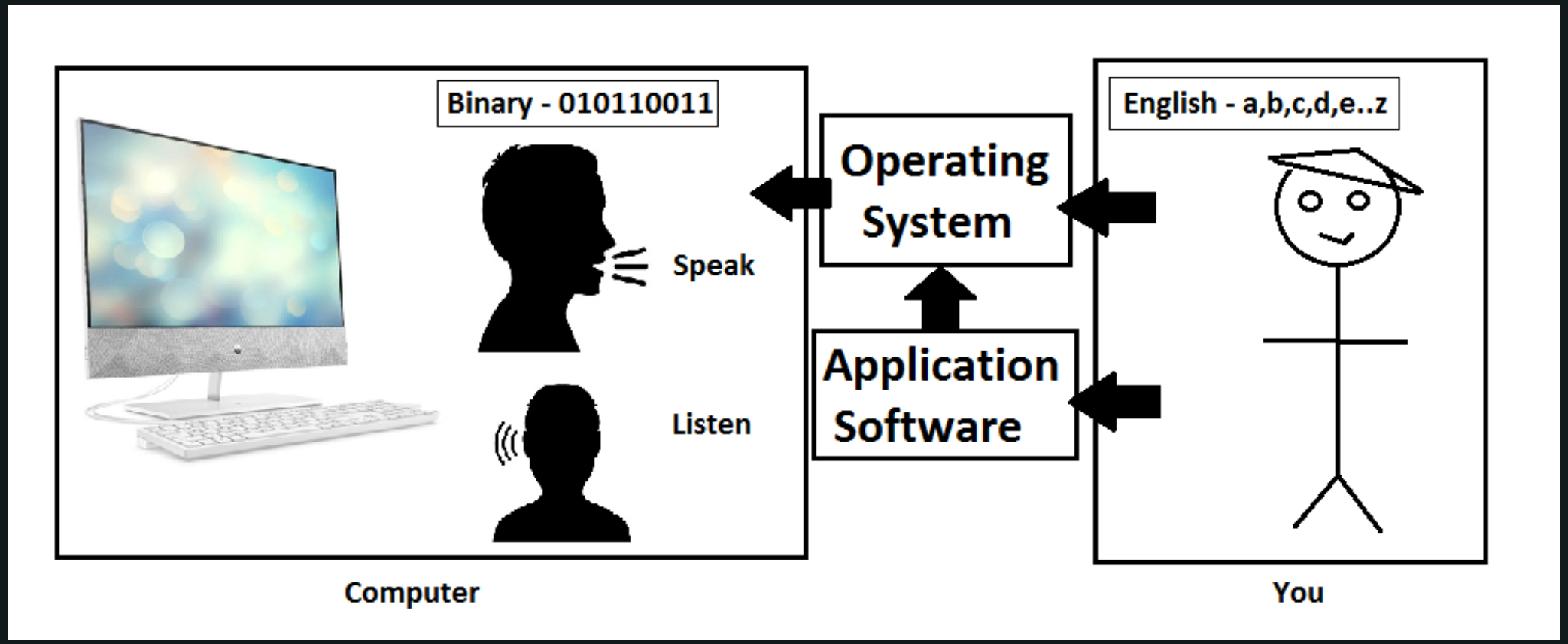
-> First L1 cache is checked it is small in size, but FAST.
If found is called (Cache Hit) and if not found is called (Cache miss).

-> If not found then L2 cache is checked it is larger in size, hence SLOW.

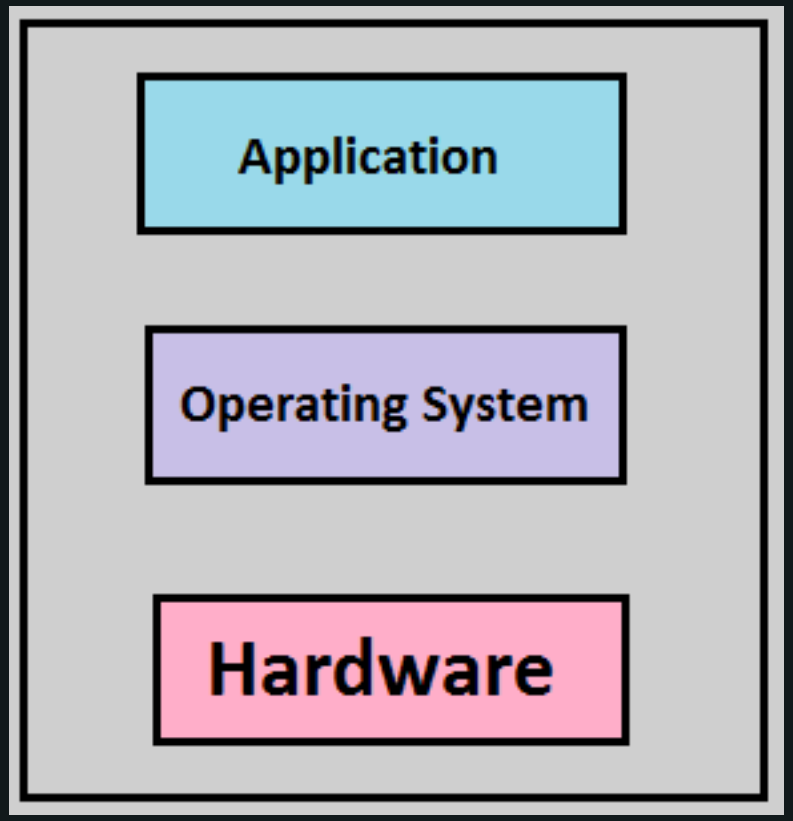
Computer Language



Computer Language



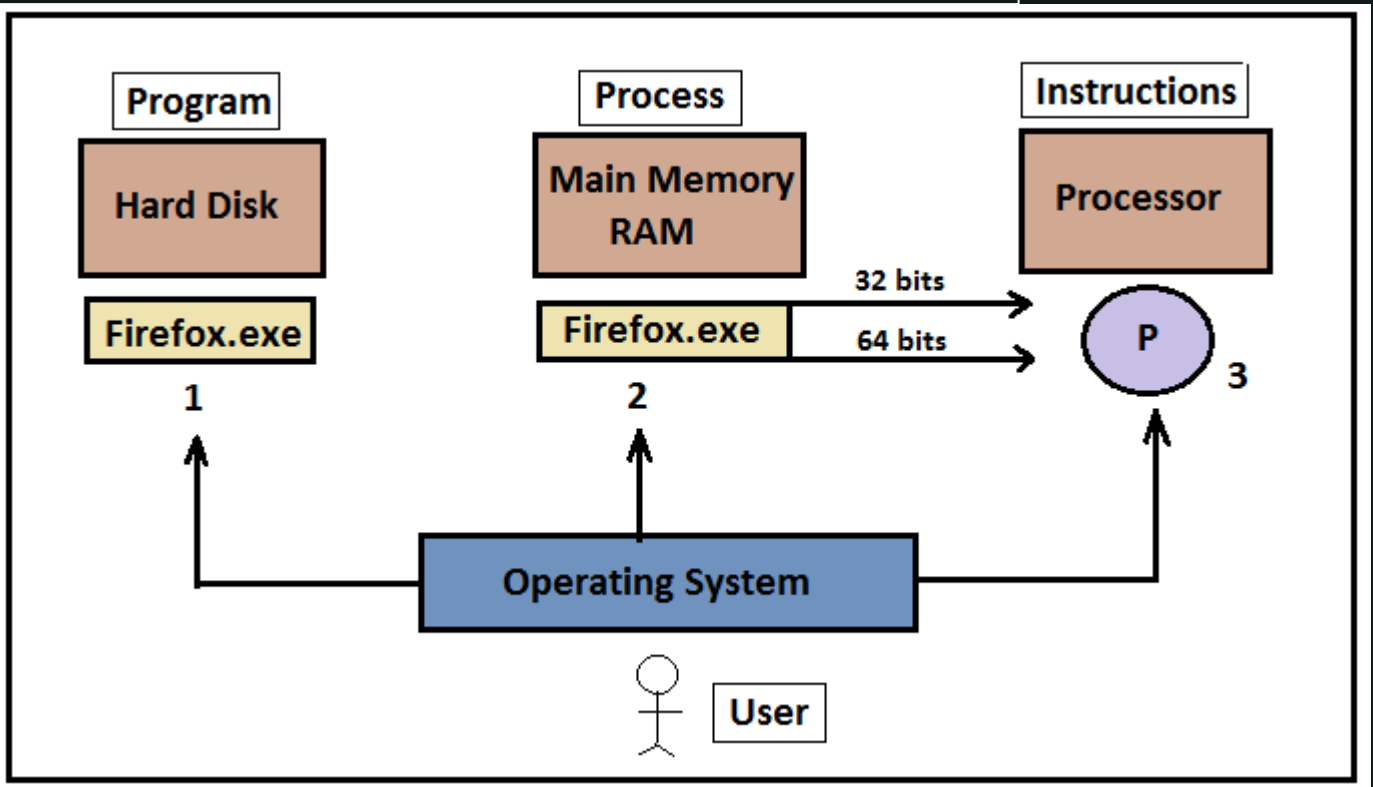
Application Software

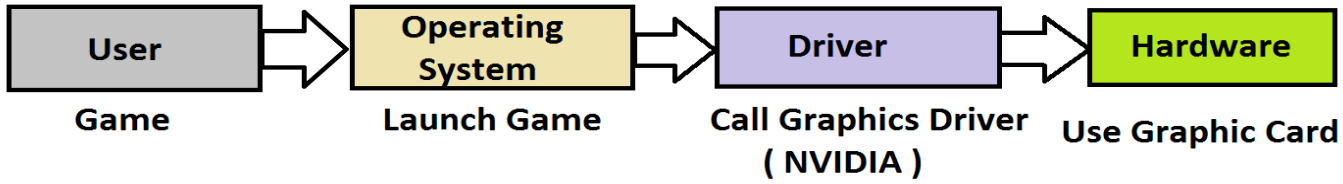


Application Software

-> A software that runs over Operating System.
-> A software that performs a single task.
-> VLC (play audio, video)
-> Notepad (Writing text)

Operating System





Operating System

-> It helps you to communicate with the computer without knowing how to speak the computer's language.

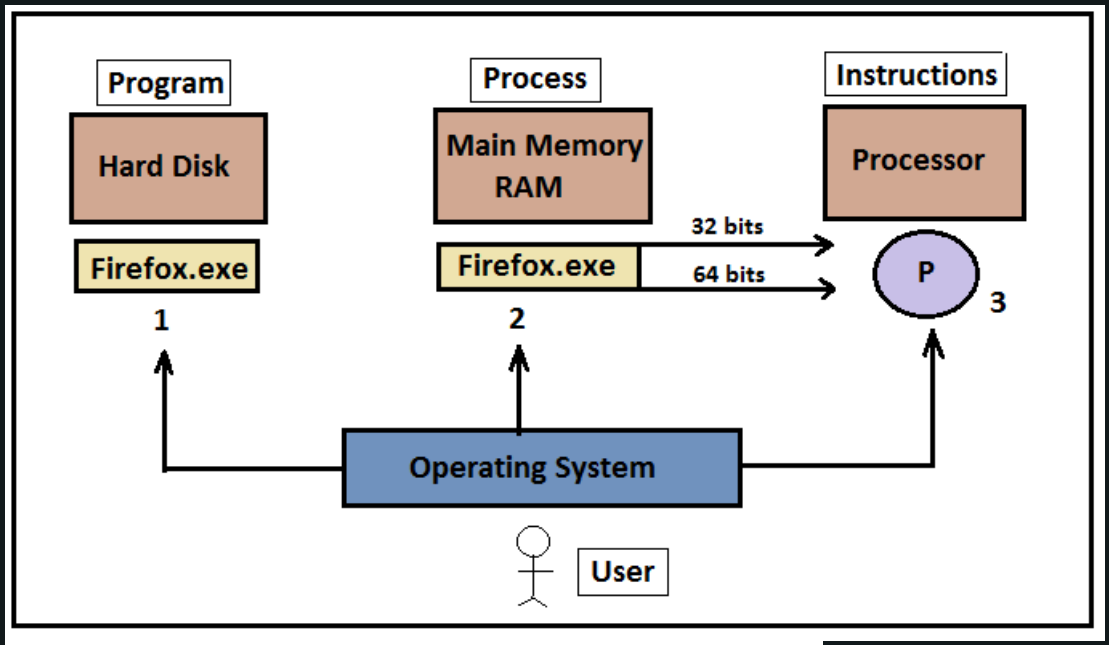
-> Interface between the user and computer hardware.

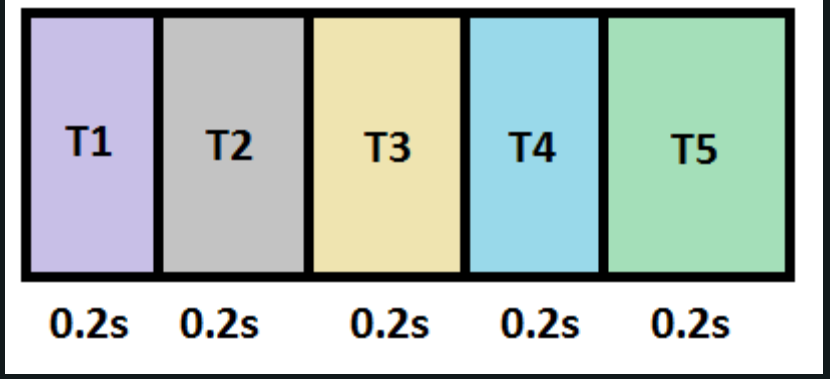
-> MacOS, Windows 7/8/10 , Red Hat Linux

-> Application like Chrome, MS Word, Games, etc needs some environment to run and perform its task.

-> Moreover OS also provides Drivers so that your hardware can work and communicate with operating system

Operating System





Functions of an Operating System

-> Process management:- Process management helps OS to create and delete processes.

-> Memory management:- Memory management module performs the task of allocation and de-allocation of memory space to programs.

-> File management:- It manages all the file-related activities such as organization storage, retrieval, naming, sharing, and protection of files.

-> Device Management: Device management keeps tracks of all devices.

-> Security:- Security module protects the data and information

VEDINESH

Why Programming