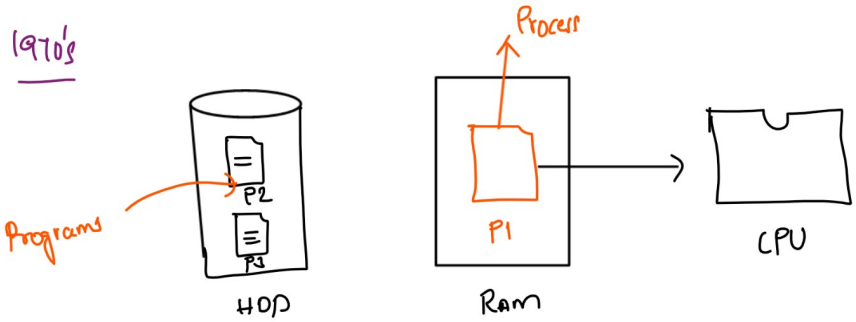
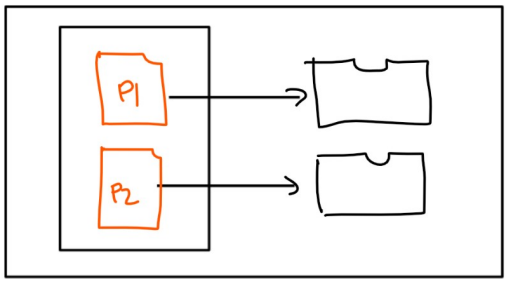
Multi Tasking

1970's



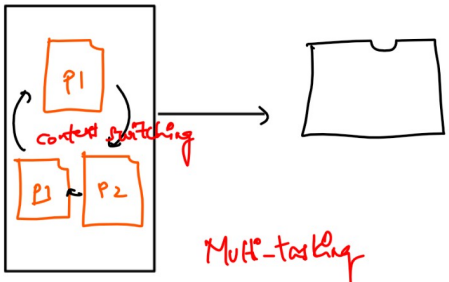
1980's



[parallel processing]

< 1 ms $\frac{1}{1000}$ sec

1990's < 0.5 ms



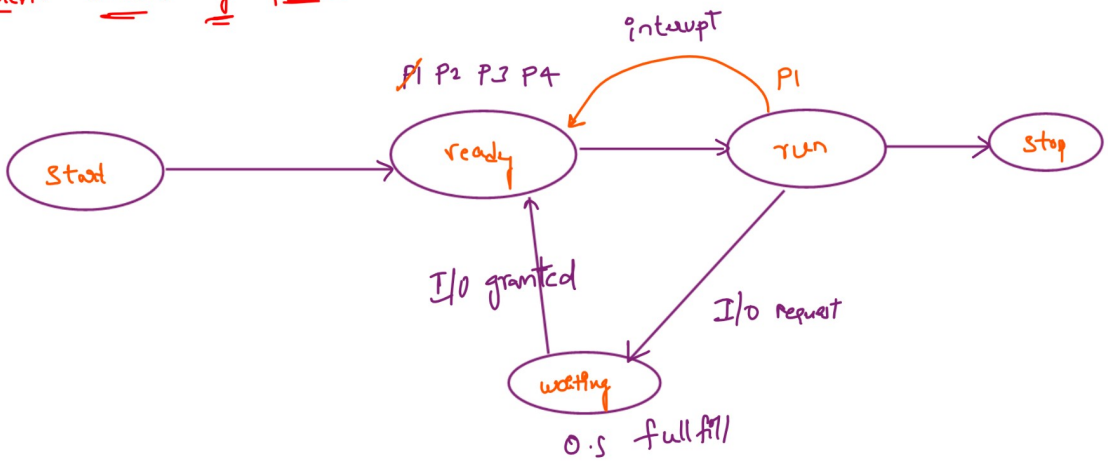
Multi-tasking

Process : A program under execution is reffered as "process"

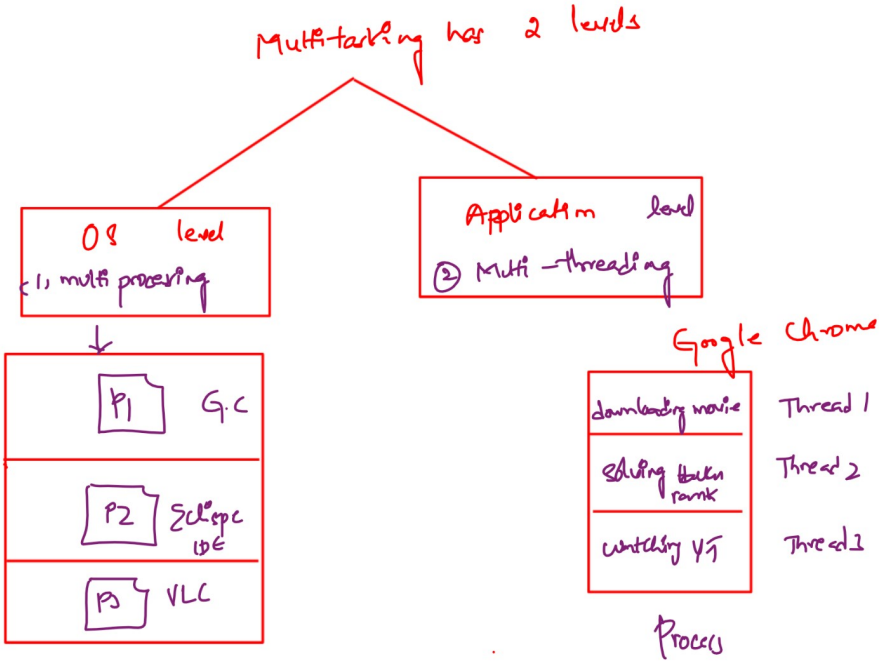
→ Executing more than one process simultaneously by a single processor is reffered as "multi-tasking"

* The main use of multi-tasking is to utilize the CPU efficiently
* The process of shifting from one program to another program is refered as "content switching" which is performed by "O.S"

Different states of process



Mutually Exclusive Resources: are such resources which can be used by only process at a time



Multi-processing: It happens on O.S level .i.e O.S is going to control all different processes

→ In the above example, all are executing at same time, is considered as multi-processing

→ all the processes above is controlled by O.S

Multi-threading: It happens at application level

Thread: A thread is a light weight process (or) it is a smallest unit in a process

Computer

How count?

→ How many process ?

→ How many threads ?