

Scheduling.

OPERATING SYSTEM EXECUTIVE:

Scheduler

1. High level Scheduler.
2. Low level Scheduler.
3. Medium level Scheduler.

Resources of System:

1. Processor time
2. Memory space.

Terminologies

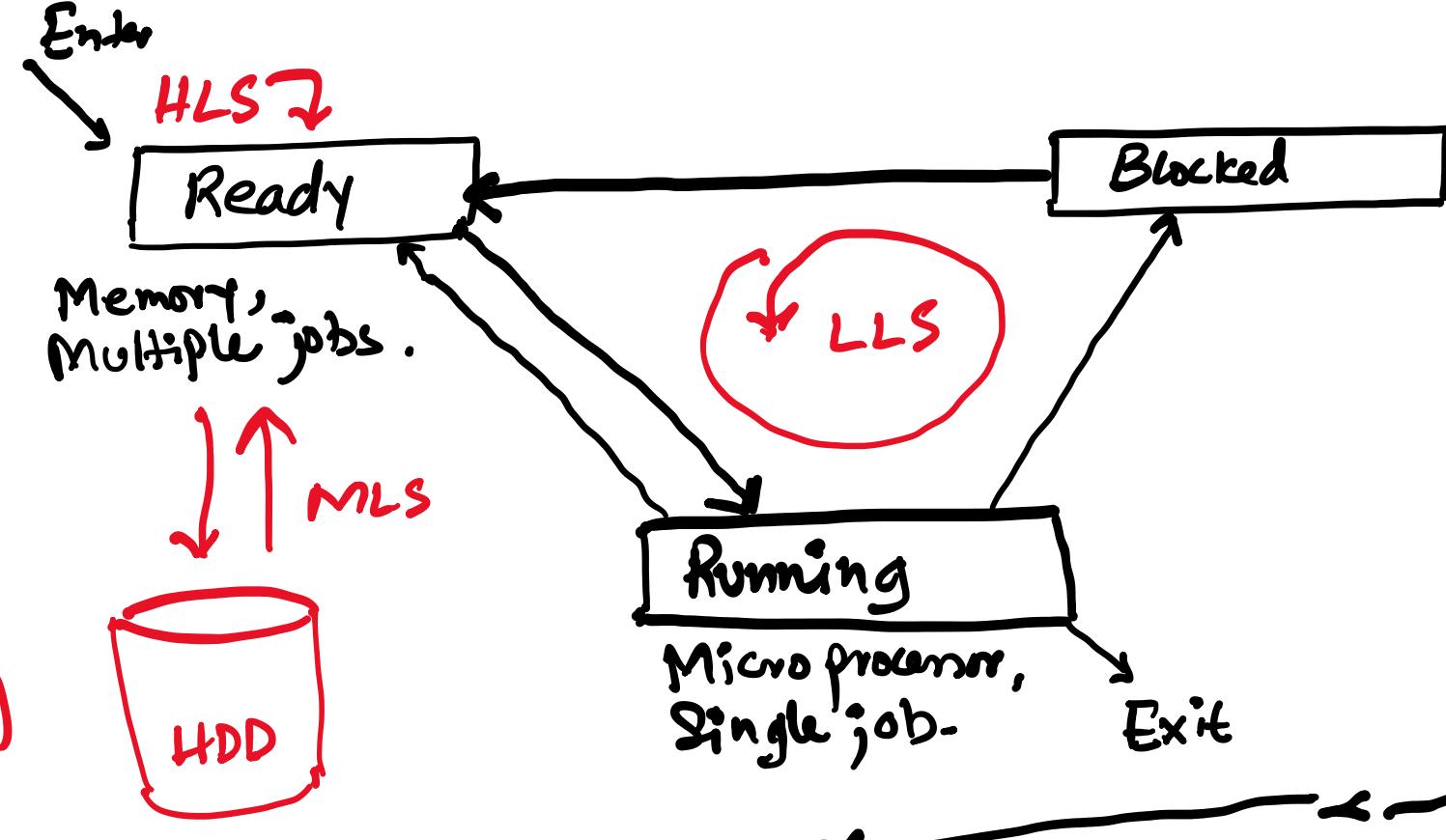
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|----------|---|
| Synonyms | Job Task Program process Thread |
|----------|---|

Scheduling Objectives

Criteria

- Real time / Batch
 - Resources used so far.
 - Resources required
 - I/O bound & Processor bound
- To Policies (Algorithms)
- Pre-emptive.
 - Non pre-emptive.

Policies (Algos) are applied using HLS.



Policies:

- First Come First Serve (FCFS)
- Shortest Job First (SJF)
- Shortest Remaining Time (SRT)
- Round Robin (RR)
- Multilevel Feedback Queues (MLFQ)

Notes:

- There are 3 states for a job to be in, i.e.: Ready, Running, Blocked.
- When a job enters the system it goes to the "Ready" state.
- When a job leaves the system, it leaves from the "Running" state.
- From the running state either job:
 - leaves
 - goes back to ready state
 - goes to blocked state.
- There are multiple jobs in Ready state and that's why we call it "Ready queue".
- There is only one job in the processor, in running state.
- The jobs waiting for I/O to be completed are sent to "Blocked state" and from blocked state they go to Ready state.

I/O Bound jobs

v/s

Processor Bound jobs

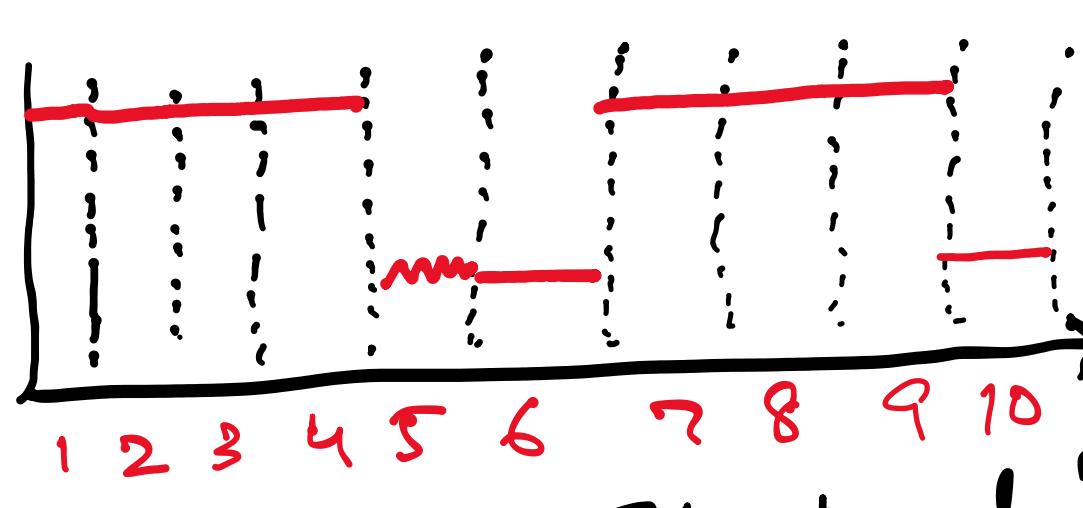
Jobs making use of I/O more than processor time are I/O Bound.

Jobs making use of processor time more than I/O are processor bound.

If system gives higher priority to processor bound job then I/O bound jobs will work very slow close to stoppage.

Processor Bound

I/O Bound Job B

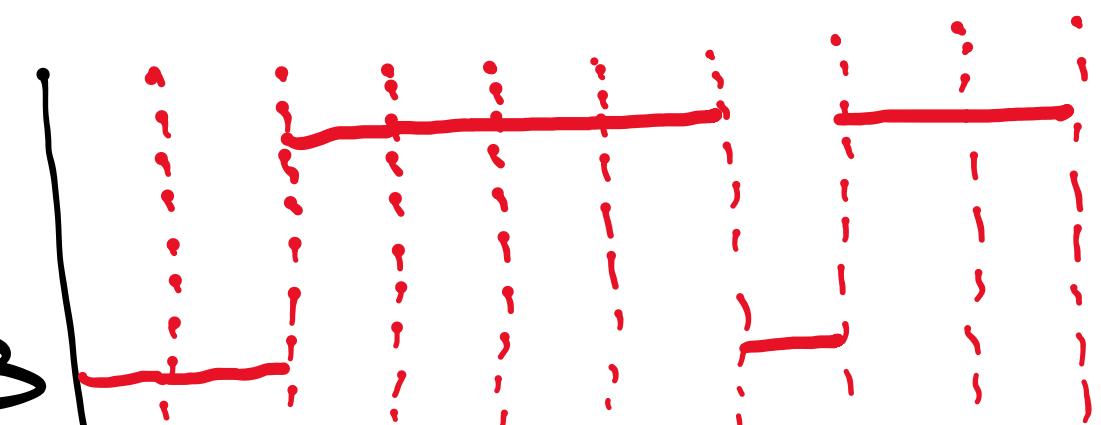


Processor time

System gives priority to I/O bound jobs so they don't stuck. This doesn't let any I/O bound job to wait anymore.

Job A

Job B



Processor time