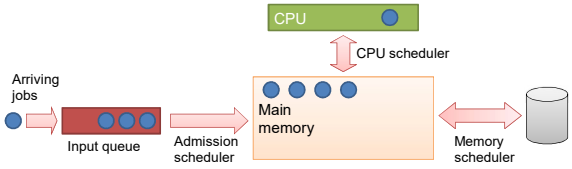
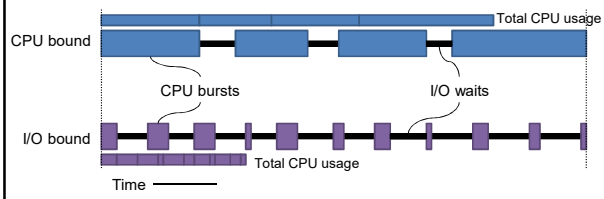
Scheduling

How to choose which of the Ready processes/threads gets to Run next

Three-Level Scheduling



CPU Bound vs. I/O Bound



Batch Scheduling

Non-interactive jobs that can be run "overnight"

When to Schedule

- Process Creation
- Process Exit
- Blocked
- I/O Interrupt
- Clock Interrupts

Throughput

Number of jobs completed per unit time

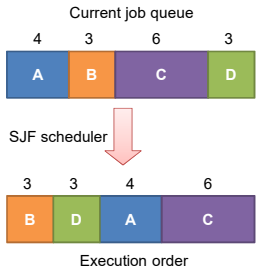
Turnaround Time

Time from job submission to job completion

Average Turnaround Time

Average of all turnaround times for a set of jobs

Shortest Job First (SJF)



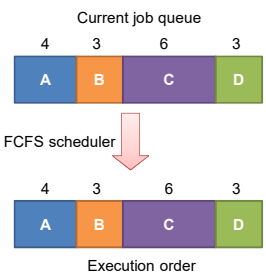
Fairness

Comparable processes get comparable service

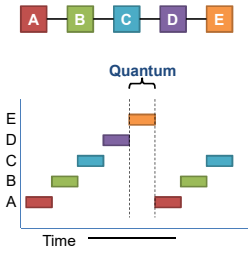
Interactive scheduling

Impatient users waiting

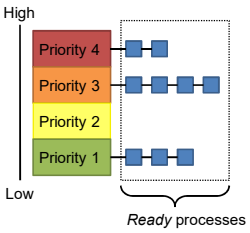
First Come, First Served



Round Robin Scheduling



Priority Scheduling



Policy

The rules a particular mechanism should follow (i.e., the parameters of an algorithm)

Other Scheduling Algorithms

- **Shortest Process Next**
  - *SJF applied to Interactive Systems*
- **Guaranteed Scheduling**
  - *N processes get 1/N of the CPU Time*
- **Fair Share**
  - *N users get 1/N CPU time*
- **Lottery Scheduling**
  - *Give out tickets, pull one at random, winner runs*

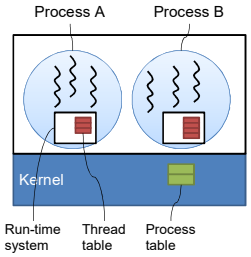
Earliest Deadline First (EDF)

Real-time: How you do homework

Mechanism

The way something is done (e.g., an algorithm)

Scheduling User Threads



Scheduling Kernel Threads