
SHORT-TERM PROCESS & THREAD SCHEDULING

This assignment is due on October 13th at 11:00 PM. Post all your answers to the corresponding quiz in eLearning. Late assignments will not be accepted. See course syllabus for details on all course policies.

PROBLEM 1 – 8 POINTS

Consider the following processes and their arrival and CPU burst times in ticks:

Processes	Arrival Time	Burst Time	Priority
P1	0	25	3
P2	2	30	2
P3	9	5	1
P4	10	15	5

Consider the following 4 scheduling methods:

- First-Come, First-Served (FCFS),
- Non-preemptive Shortest-Job-First (SJF),
- Non-preemptive Priority Scheduling (see assigned priorities in column 4; the larger the value the higher the priority),
- Round-Robin, with a time quantum of 10 ticks.

For the questions below, assume that a context switch between two processes takes the OS exactly 1 tick. Also, assume that newly arriving processes will be first inserted into the ready queue before any running processes will be inserted again.

- Determine the order by which each process is executed. Start by drawing a Gantt chart for each scheduling method to determine order of execution. (2 points)
- In each Gantt chart note the start time and departure time for the execution of a process as well as the arrival time. Include the time for context switch in your calculations. Then compute the average turn-around and response time for the processes using the respective times from the Gantt charts. (6 points)

PROBLEM 2 – 2 POINTS

Which of the following scheduling algorithms could result in starvation? Select all that suffer from possible starvation.

- First-come, first served.
- Shortest job first.
- Multi-Level Feedback Queue.
- Priority.
- None of the above.