CSC 139 Operating System Principles

9/25/2019 In-class Group Assignment

1. Assume that you have the following processes all arriving at time 0:

|  |  |  |
| --- | --- | --- |
| Process | Burst | Priority |
| P1 | 8 | 4 |
| P2 | 6 | 1 |
| P3 | 1 | 2 |
| P4 | 9 | 2 |
| P5 | 3 | 3 |

For each of the following CPU scheduling algorithms, determine the turnaround and wait times for each process as well as the average wait and turnaround times.

* First Come First Serve
* Shortest Job First
* Non-Preemptive Priority Scheduling (assume that low numbers represent high priority)
* Round Robin (assume a quantum of 1-unit time)

Assume that when even, the process with lowest index will be favored. Which of the four algorithms has the shortest wait time? Which has the fastest average turnaround time? Which has the shortest response time?

1. Let’s change the assumptions and now assume that the jobs arrive at different times as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Process | Burst | Priority | Arrival Time |
| P1 | 8 | 4 | 0 |
| P2 | 6 | 1 | 2 |
| P3 | 1 | 2 | 2 |
| P4 | 9 | 2 | 1 |
| P5 | 3 | 3 | 3 |

Calculate the average turnaround and wait times for the following algorithms:

* First Come First Serve
* Non-Preemptive Priority Scheduling (assume that low numbers represent high priority)
* Preemptive Priority Scheduling (assume that low numbers represent high priority)
* Round Robin (assume a quantum of 1-unit time)

Assume that when even, the process with lowest index will be favored.