

CSCI 3310 – CPU Scheduling Exercises

1. Suppose two jobs A and B that perform CPU work only. The job length of A is 50 time units and the job length of B is 10 time units. Both jobs arrive at time 0, with job A first in the queue. Assume that context switches are free (0 time units). Assuming first-come-first-serve (FCFS) scheduling, compute the completion times and wait times of both jobs, along with the averages of each. You can use a table like the below:

| Job | Length | Completion Time (CT) | Wait Time (WT) |
|----------------|--------|----------------------|----------------|
| A | 50 | | |
| B | 10 | | |
| Average | | | |

2. Repeat question 1 for round-robin (RR) scheduling, assuming a scheduler time slice of 1 time unit. How does the average performance of the two schedulers compare in this case?

3. Now assume that job B has a length of 50 (instead of 10). Repeat the exercise using FCFS scheduling and then RR scheduling. How does the average performance of the two schedulers compare in this case?

4. Given five jobs A-E with the lengths indicated below, compute the completion times, wait times, and averages for FCFS, RR, and shortest-job-first (SJF) scheduling. Assume that all jobs arrive at time 0 (with job A first in the queue), free context switches, and a round-robin time slice of 1 time unit.

| Job | Length | Completion Time | | | Wait Time | | |
|----------------|--------|-----------------|----|-----|-----------|----|-----|
| | | FCFS | RR | SJF | FCFS | RR | SJF |
| A | 50 | | | | | | |
| B | 40 | | | | | | |
| C | 30 | | | | | | |
| D | 20 | | | | | | |
| E | 10 | | | | | | |
| Average | | | | | | | |