CSC 369 Worksheet 4 Solution

August 17, 2020

1. Assume all arrive jobs at the same time.

   First, I need to calculate the turnaround time when running three job of length 200 with the SJF and FIFO schedulers.

   I will do so in parts.

   - **Part 1:** Calculating turnaroundtime with FIFO schedulers

   $$\frac{200 + 400 + 600}{3} = 400 \tag{1}$$

     seconds.
   - **Part 2:** Calculating turnaroundtime with SJF schedulers

   $$\frac{200 + 400 + 600}{3} = 400 \tag{2}$$

     seconds.

   Second, I need to calculate the response time when running three job of length 200 with the SJF and FIFO schedulers.

   Notes

   - **Scheduling:**
     - Is a process at which allows one process to use the CPU while another is on hold, to make full use of CPU
   - **Turnaround Time:**
     - Is a performance metric

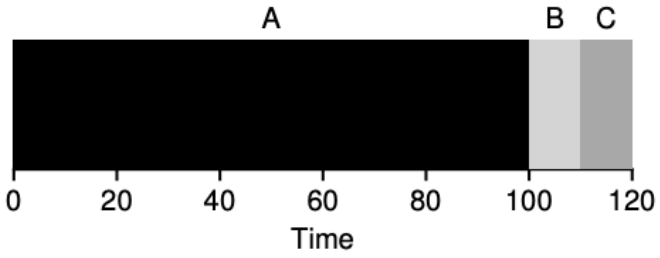
– Is amount of time to execute a particular process [1]

$$T_{turnaround} = T_{completion} - T_{arrival} \tag{3}$$

– $T_{completion} \rightarrow$ Time at which the job completes
– $T_{arrival} \rightarrow$ Time at which the job arrived in the system

- **FIFO scheduling algorithm:**
  – Is the most basic scheduling algorithm

Example

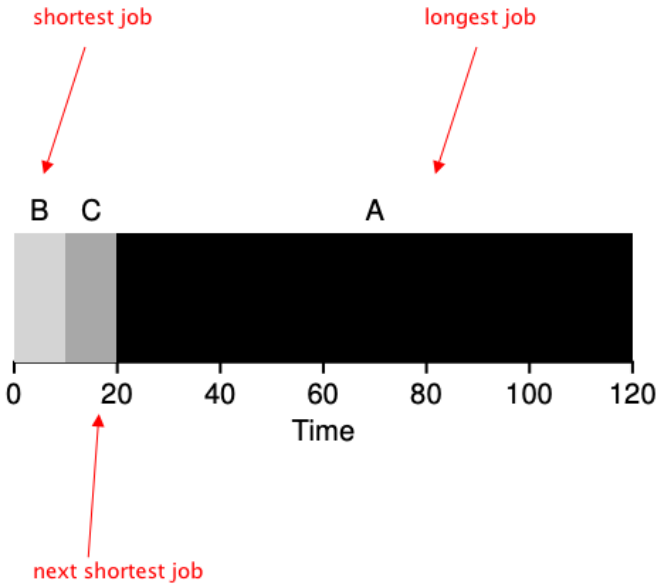


Here, the average turnaround time is:

$$\frac{100 + 110 + 120}{3} = 110 \tag{4}$$

- **SJF scheduling algorithm:**
  – Is a schduling policy where the shortest job is run first, then the next shortest and so on.

Example



Here, the average turnaround time is:

$$\frac{10 + 20 + 120}{3} = 50 \tag{5}$$

- **Response Time:**
  - Is amount of time from when a request was submitted until the first response is produced [1]

$$T_{response} = T_{firstrun} - T_{arrival} \tag{6}$$

  - $T_{firstrun} \rightarrow$ First time a job is scheduled
  - $T_{arrival} \rightarrow$ Time at which the job arrived in the system

References

1) Old Dominion University, CPU Scheduling link