Homework 2: CPU Scheduling

Due date: noon of Thursday Feb 17, 2022

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**[Question 1]** What preemptive scheduling algorithm gives optimal wait-time performance?

Shortest Remaining Time (SRT)

**[Question 2]** What is the difference between CPU-bound and I/O-bound processes?

An I/0 bound process is waiting for external input (thus it will sleep a lot). I/O bound processes have long wait times where they are reading/writing data and depended, in fact I/O stand for input/output. CPU-bound processes are processes that require a lot of calculations done by the CPU so they generally rely on how fast the computations can be done by the CPU and force it to work much more than an I/O bound process. CPU bound processes have long burt times that must be complete.

**[Question 3]** What is the effect of preemption on response-time, wait-time, and turnaround-time?

First off the difference between preemptive and Non-preemptive is in preemptive scheduling, the CPU is allocated to the processes for a limited time whereas, in Non-preemptive scheduling, the CPU is allocated to the process till it terminates or switches to the waiting state, In general preemption improves response time but and can increase turnaround and wait time.

**[question 4]** Compare average response-time, turnaround-time, and wait-time for the following processes, under Round Robin with **quantum=2** and **quantum=8** (show the three metrics for each process and overall average).

Table

Description automatically generated with low confidence

From here we can see that a quantum of 8 is overall worse with greater averages for all processes and this makes sense because every processes is finishing within the quantum time so it is basically FCFS

**[Submission]**

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