CSCI 330 M04

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CPU Scheduling Project:

For this project, we were tasked with creating a simulation demonstrating how Round Robin Scheduling works inside a CPU. To do this we randomized our values for burst time, waiting time and turn around time to input into our algorithm along with user input on how many processes to create and the number of time quantum’s. From there our code calculates the average waiting time, response time, turnaround time and average throughput. As we learned in class, CPU scheduling refers to deciding which process will take control of the CPU in order to complete itself while other processes are suspended. It is taken further by using different algorithms in order to effectively use the CPU to ensure resource utilization and efficiency. These algorithms maximize the CPU productivity and reduces the chances of the CPU failing.

A screenshot of a computer

Description automatically generated with medium confidence In our project we simulated the algorithm for Round Robin which is a preemptive scheduling process that ensures that the CPU is allocated fairly to each process and also to prevent starvation. Below are a few runs of our code displaying the randomized data of each process and the calculated values for the CPU in regard to Waiting, Response, and Turnaround Times.

Figure Sample Run 1 with 3 processes and 5 time quantum

A screenshot of a computer

Description automatically generated with medium confidenceA screenshot of a computer

Description automatically generated with low confidence

Figure Sample Run 2 with 3 processes and 5 time quantum

Figure Sample Run 3 with 3 processes and 5 time quantum