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CSCI 330- M01

README.PDF

CPU scheduling and how Round Robin works

- CPU scheduling is important because it tells the CPU when and how to run processes. The point of CPU scheduling is to maximize CPU utilization. It's a process that allows the CPU to make the execution of a list of processes in the most effective way There are many different types of CPU scheduling, but the one that was used for this code is RoundRobin.
- In RoundRobin, the size of the time quantum depends on the overall performance. It allocates the CPU of each process(depending on the time quantum). If the process does not terminate before its time quantum, the process is then put back into the queue and is scheduled to run again for that time quantum until the process is finished.

Project Implementation

There are 3 classes

- Main: In this class, the file that the user enters is parsed through.
- Scheduler: This class the Round Robin processing. The roundRobin method checks to see that all of the parameters are defined in the CSV file and it will run until all of the processes are completed. After completion, it will print the CPU Utilization, Throughput, Average Waiting Time, and the Average Turnaround Time. This class also calculates the turnaround time, waiting time, CPU utilization and throughput.
- Process: Process: This class creates objects and defines the 3 parameters that will be accepted when reading the file (Process id, arrival time, and burst time). This class also initializes all of the variables.

How to run this project:

- Download the project and import it into Eclipse.
- Place your CSV file into the project folder.
- Run "Main".
- Enter the name of your file (make sure to put .csv at the end… i.e "test.csv").
- Enter the time quantum, press enter.

Resulting Output using 5 different time quantum:

```
Please enter filename: Test.csv
Please enter Time Quantum: 5
CPU Utilization: 0.9970000000000001
Throughput: 0.2
Average Waiting Time: 6.0
Average Turnaround Time: 11.0
```

```
Please enter filename: Test.csv
Please enter Time Quantum: 4
CPU Utilization: 0.9964999999999999
Throughput: 0.2
Average Waiting Time: 8.0
Average Turnaround Time: 13.0
```

```
Please enter filename: Test.csv
Please enter Time Quantum: 3
CPU Utilization: 0.9960000000000001
Throughput: 0.2
Average Waiting Time: 7.5
Average Turnaround Time: 12.5
```

```
Please enter filename: Test.csv
Please enter Time Quantum: 2
CPU Utilization: 0.9945
Throughput: 0.2
Average Waiting Time: 7.25
Average Turnaround Time: 12.25
```

```
Please enter filename: Test.csv
Please enter Time Quantum: 1
CPU Utilization: 0.99
Throughput: 0.2
Average Waiting Time: 7.5
Average Turnaround Time: 12.5
```