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Job Scheduling Simulator

Introduction

- The Job Scheduling Simulator is a program that allows the user to input job data and then execute 4 different job scheduling algorithms on the created jobs
- The result is the finishing time, waiting time, and turnaround time for each job, as well as the average waiting time and average turnaround time
- The user has the ability the select how many jobs they want to create, what is the arrival time for that job, as well as how long is the CPU cycle for that job
- The user can keep running the different algorithms until they quit the system

Installation and setup

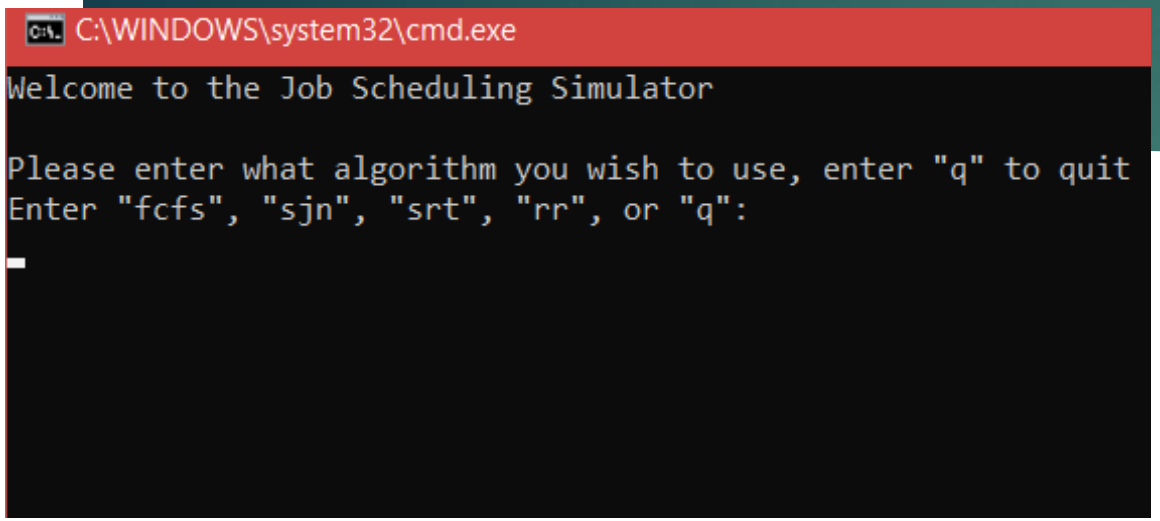
- Requirement: Java version 8 or higher
- In order to install this program on your own computer please copy the files from the flash drive onto wherever you wish to store them on your own system
  - Note: it is important to keep all files inside the same directory, especially the .jar and .bat files
  - Note: make sure folder that files are installed in does not have a space in the name (ex: folder named “folder 1” instead of “folder1”) for some reason if the folder name has a space in it the .bat file has trouble running the .jar file
- Once stored where you wish, double click to run the runJobSchedulingSim.bat file. This .bat file has the commands needed to run the program from the windows cmd

Installation and setup

- If for some reason the .bat file fails to run the program, you will need to manually run the program from the windows cmd
  - Note: (java is multiplatform, these same commands should work on linux and mac as well)
- On windows, open the cmd and change to the directory that you installed the JobSchedulingSim.jar file in
  - (EX: If installed in documents, type: cd Documents/JobSchedulingSim.jar
  - Once in the directory, run the command: java -jar JobSchedulingSim.jar

Features

- When the program loads, the first thing it asks for is what algorithm you wish to run
- The choices are: type “fcfs” for first come first serve, “sjn” for shortest job next, “srt” for shortest remaining time, and “rr” for round robin
- User can also enter “q” at this stage which will terminate the program
- After algorithm is selected, user will be asked for how many jobs they wish to create, then for the name, arrival time, and cpu cycle of each job
- For round robin, the user is also asked to provide the time quantum




```
C:\WINDOWS\system32\cmd.exe
Welcome to the Job Scheduling Simulator

Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
fcfs
Enter how many jobs you want:
3
Enter the name of Job: 1
A
Enter the arrival time for Job: A
1
Enter the cpu cycle of Job: A
5
Enter the name of Job: 2
B
Enter the arrival time for Job: B
0
Enter the cpu cycle of Job: B
8
Enter the name of Job: 3
C
Enter the arrival time for Job: C
3
Enter the cpu cycle of Job: C
2
Job Name:       Arrival Time:   CPU Cycle:      Finish Time:    Wait Time:      Turnaround:
B               0               8               8               0               8
A               1               5               13              7               12
C               3               2               15              10              12
Average Wait Time: 5.6666665
Average Turnaround Time: 10.666667

Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
```

C:\WINDOWS\system32\cmd.exe

```
Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
sjn
Enter how many jobs you want:
3
Enter the name of Job: 1
A
Enter the arrival time for Job: A
5
Enter the cpu cycle of Job: A
3
Enter the name of Job: 2
B
Enter the arrival time for Job: B
6
Enter the cpu cycle of Job: B
1
Enter the name of Job: 3
C
Enter the arrival time for Job: C
0
Enter the cpu cycle of Job: C
3
Job Name:       Arrival Time:   CPU Cycle:      Finish Time:    Wait Time:      Turnaround:
C               0               3               3               0               3
A               5               3               8               0               3
B               6               1               9               2               3
Average Wait Time: 0.6666667
Average Turnaround Time: 3.0

Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
```

```
Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
srt
Enter how many jobs you want:
4
Enter the name of Job: 1
A
Enter the arrival time for Job: A
4
Enter the cpu cycle of Job: A
1
Enter the name of Job: 2
B
Enter the arrival time for Job: B
2
Enter the cpu cycle of Job: B
6
Enter the name of Job: 3
C
Enter the arrival time for Job: C
4
Enter the cpu cycle of Job: C
3
Enter the name of Job: 4
D
Enter the arrival time for Job: D
1
Enter the cpu cycle of Job: D
4
Job Name:       Arrival Time:   CPU Cycle:      Finish Time:    Wait Time:      Turnaround:
D               1               4               6               1               5
B               2               6               15              7               13
A               4               1               5               0               1
C               4               3               9               2               5
Average Wait Time: 2.5
Average Turnaround Time: 6.0

Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
```

C:\WINDOWS\system32\cmd.exe

```
Welcome to the Job Scheduling Simulator

Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
rr
Enter how many jobs you want:
4
Enter the time quantum:
2
Enter the name of Job: 1
A
Enter the arrival time for Job: A
0
Enter the cpu cycle of Job: A
12
Enter the name of Job: 2
B
Enter the arrival time for Job: B
3
Enter the cpu cycle of Job: B
6
Enter the name of Job: 3
C
Enter the arrival time for Job: C
2
Enter the cpu cycle of Job: C
5
Enter the name of Job: 4
D
Enter the arrival time for Job: D
1
Enter the cpu cycle of Job: D
2

Time Quantum: 2
Job Name:       Arrival Time:   CPU Cycle:      Finish Time:    Wait Time:      Turnaround:
A               0               12              25              13              25
D               1               2               8               6               7
C               2               5               19              14              17
B               3               6               18              12              15
Average Wait Time: 11.25
Average Turnaround Time: 16.0

Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
```

```
Please enter what algorithm you wish to use, enter "q" to quit
Enter "fcfs", "sjn", "srt", "rr", or "q":
q
Now exiting the system
Press any key to continue . . .
```