Application CPU Scheduling Simulation

Given three applications, a simulation will run a fixed number of processes to determine the performance rate of the application using FCFS, SJF, LJF, and Round Robin algorithms.

Instructions

To compile and run application, enter the following in terminal in order:

1. javac \*.java

2. java Main

Choose one of the application programs provided and click on the **simulate** button to obtain the results of that application's overall turnaround time, waiting time, and throughput as well as the averages for each scheduler. As each scheduler runs asynchronously, please allow between 30 seconds to 2 minutes to pass for the results to appear on the GUI.

You can edit the burst times of an application by double clicking on the cell under the burst time column for a specific process. Once you entered the value desired for the burst time, press “Enter” on the computer keyboard or click on another cell on the table to save the change. When an application that has modified burst times is clicked again, it will maintain the previous change to the burst times. To reset the burst times of the application to the default times, exit the GUI window and restart a new one.

To reset the simulation, click on the **reset** button to clear the application selection and the tables generated. However, due to the same GUI running, it will save any changes made to the burst times for an application.

Default Application Details:

Default Table for Microsoft Outlook application:

|  |  |  |
| --- | --- | --- |
| Process Name | Arrival Order | Burst Times |
| P1 | 1 | 2 |
| P2 | 2 | 4 |
| P3 | 3 | 6 |

Default Table for YouTube application:

|  |  |  |
| --- | --- | --- |
| Process Name | Arrival Order | Burst Times |
| P1 | 1 | 1 |
| P2 | 2 | 3 |
| P3 | 3 | 5 |
| P4 | 4 | 7 |
| P5 | 5 | 9 |
| P6 | 6 | 11 |

Default Table for Google Chrome application:

|  |  |  |
| --- | --- | --- |
| Process Name | Arrival Order | Burst Times |
| P1 | 1 | 3 |
| P2 | 2 | 6 |
| P3 | 3 | 9 |
| P4 | 4 | 12 |
| P5 | 5 | 15 |
| P6 | 6 | 18 |
| P7 | 7 | 21 |
| P8 | 8 | 24 |
| P9 | 9 | 27 |
| P10 | 10 | 30 |

Note: Burst times are measured in seconds

Trials

Trial 1

Trial 1 uses the following burst times for each application:

|  |
| --- |
| Burst Times |
| 2 |
| 4 |
| 6 |
| 8 |
| 10 |
| 12 |
| 14 |
| 16 |
| 18 |
| 20 |

The order of burst times assigned to an individual process in the Microsoft Outlook application is as follows:

P1 has a burst time of 2,

P2 has a burst time of 4,

And P3 has a burst time of 6.

The order of burst times assigned to an individual process in the YouTube application is as follows:

P1 has a burst time of 2,

P2 has a burst time of 4,

P3 has a burst time of 6,

P4 has a burst time of 8,

P5 has a burst time of 10,

and P6 has a burst time of 12.

The order of burst times assigned to an individual process in the Google Chrome application is as follows:

P1 has a burst time of 2,

P2 has a burst time of 4,

P3 has a burst time of 6,

P4 has a burst time of 8,

P5 has a burst time of 10,

P6 has a burst time of 12,

P7 has a burst time of 14,

P8 has a burst time of 16,

P9 has a burst time of 18,

and P10 has a burst time of 20.

Trial 2

Trial 2 uses the following burst times for each application:

|  |
| --- |
| Burst Times |
| 1 |
| 3 |
| 5 |
| 7 |
| 9 |
| 11 |
| 13 |
| 15 |
| 17 |
| 19 |

The order of burst times assigned to an individual process in the Microsoft Outlook application is as follows:

P1 has a burst time of 1,

P2 has a burst time of 3,

and P3 has a burst time of 5.

The order of burst times assigned to an individual process in the YouTube application is as follows:

P1 has a burst time of 1,

P2 has a burst time of 3,

P3 has a burst time of 5,

P4 has a burst time of 7,

P5 has a burst time of 9,

and P6 has a burst time of 11.

The order of burst times assigned to an individual process in the Google Chrome application is as follows:

P1 has a burst time of 1,

P2 has a burst time of 3,

P3 has a burst time of 5,

P4 has a burst time of 7,

P5 has a burst time of 9,

P6 has a burst time of 11,

P7 has a burst time of 13,

P8 has a burst time of 15,

P9 has a burst time of 17,

and P10 has a burst time of 19.

Trial 2

Trial 2 uses the following burst times for each application:

|  |
| --- |
| Burst Times |
| 1 |
| 3 |
| 5 |
| 7 |
| 9 |
| 11 |
| 13 |
| 15 |
| 17 |
| 19 |

The order of burst times assigned to an individual process in the Microsoft Outlook application is as follows:

P1 has a burst time of 1,

P2 has a burst time of 3,

and P3 has a burst time of 5.

The order of burst times assigned to an individual process in the YouTube application is as follows:

P1 has a burst time of 1,

P2 has a burst time of 3,

P3 has a burst time of 5,

P4 has a burst time of 7,

P5 has a burst time of 9,

and P6 has a burst time of 11.

The order of burst times assigned to an individual process in the Google Chrome application is as follows:

P1 has a burst time of 1,

P2 has a burst time of 3,

P3 has a burst time of 5,

P4 has a burst time of 7,

P5 has a burst time of 9,

P6 has a burst time of 11,

P7 has a burst time of 13,

P8 has a burst time of 15,

P9 has a burst time of 17,

and P10 has a burst time of 19.

Trial 3

Trial 3 uses the following burst times for each application:

|  |
| --- |
| Burst Times |
| 3 |
| 6 |
| 9 |
| 12 |
| 15 |
| 18 |
| 21 |
| 24 |
| 27 |
| 30 |

The order of burst times assigned to an individual process in the Microsoft Outlook application is as follows:

P1 has a burst time of 3,

P2 has a burst time of 6,

and P3 has a burst time of 9.

The order of burst times assigned to an individual process in the YouTube application is as follows:

P1 has a burst time of 3,

P2 has a burst time of 6,

P3 has a burst time of 9,

P4 has a burst time of 12,

P5 has a burst time of 15,

and P6 has a burst time of 18.

The order of burst times assigned to an individual process in the Google Chrome application is as follows:

P1 has a burst time of 3,

P2 has a burst time of 6,

P3 has a burst time of 9,

P4 has a burst time of 12,

P5 has a burst time of 15,

P6 has a burst time of 18,

P7 has a burst time of 21,

P8 has a burst time of 24,

P9 has a burst time of 27,

and P10 has a burst time of 30.