



# Process Scheduling System

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### Abstract

- We propose a java based application with features designed to calculate the different parameters related to process scheduling.
- This application will provide the user with the choice to select the different algorithms used to schedule processes to the CPU.
- At the end the results will be shown in a tabular manner for easier comparison between the distinct algorithms.
- The results will be accompanied by message highlighting the most efficient algorithm to be used for that particular set of inputs.

### Introduction

#### Why do we need scheduling?

- A typical process involves both I/O time and CPU time. In a Uniprogramming system like MS-DOS, time spent waiting for I/O is wasted and CPU is free during this time. In multiprogramming systems, one process can use CPU while another is waiting for I/O. This is possible only with process scheduling.
- This application is designed to schedule the different processes according to the scheduling techniques.
- The main objective of this application is to calculate and provide the parameters like waiting time and turnaround time for each individual process to the user.
- The purpose of this mini-project is to provide the user with some knowledge about how the CPU and the

### Methodology

- This GUI java application is named as ProSio. The Pro stands for process and the Sio comes from a popular company manufacturing calculators known as Casio.
- ProsSio will provide the user with the different parameters calculated for each process along with a message emphasizing the most efficient algorithms to be used for that particular set of inputs.
- The comparison for the most efficient algorithm will be done on the basis of average waiting time.
- However ProSio will not simulate and display a Gantt chart for each algorithm dynamically.



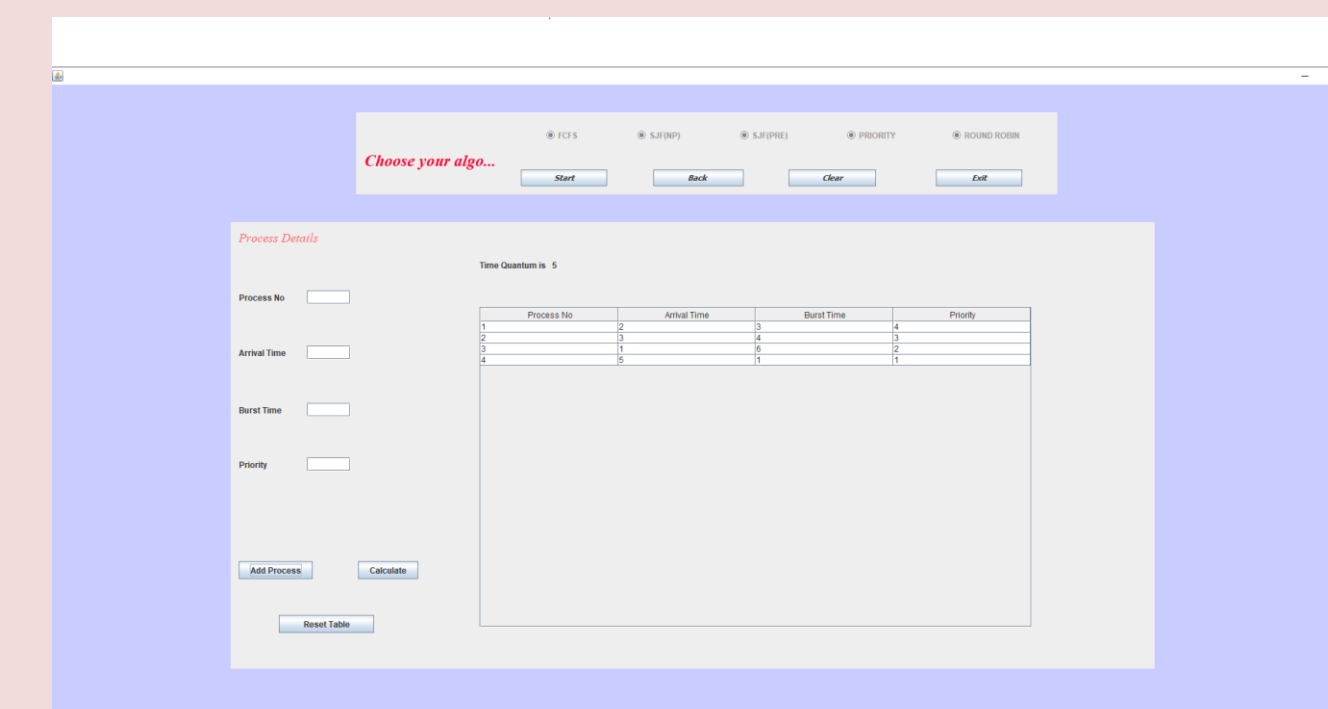
- ProSio is entirely created on the NetBeans IDE for Java. NetBeans features of Drag and Drop has been used extensively for the creation of the GUI.
- ProSio is made up of four classes: Main, App, Cal, Result.
- Main is used as an initializer for the application.
- App provides the Main Screen.
- Cal enables the user to select the different algorithms and provide their inputs.
- Result will display the results in a clear tabular manner for easier comparison accompanied with a message showcasing the most efficient algorithms to be used.

### Results

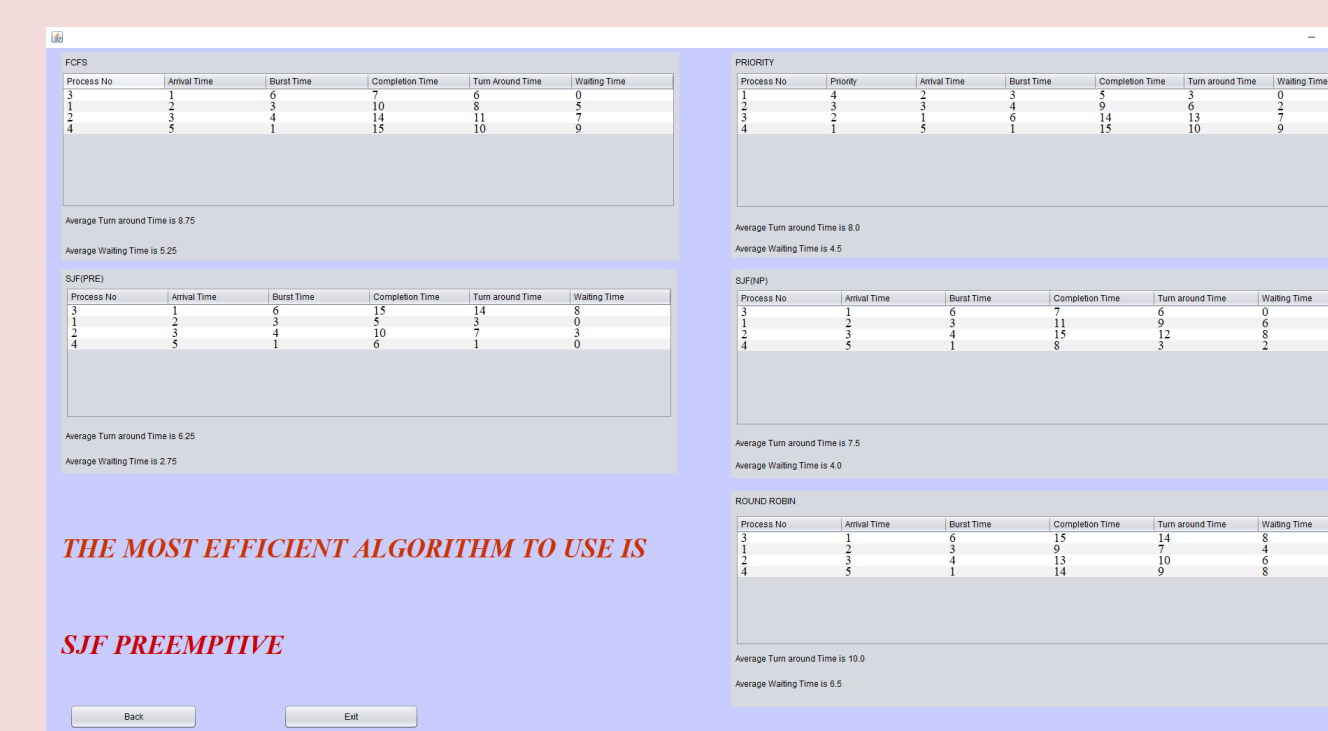
- Accessing through the Main Screen.



- Selecting the scheduling algorithms



- Displaying the calculated parameters



### Conclusion

- Process scheduling is an integral part of any Operating system. We can't afford to keep our CPU idle indefinitely in the hopes of a process to be executed in any order.
- With these algorithms we get the most efficiency, our throughput increases, latency of the CPU decreases and overall we get a much better performance.
- The industry implementation of schedulers have employed variations based on flavors and hybrids of the standard algorithms. As with most NP-hard problems, in designing the standard algorithms, scholars did not concern themselves with security matters.

### References

- <https://www.geeksforgeeks.org/>
- <https://www.thejavaprogrammer.com>
- [http://www.ijesi.org/papers/Vol\(6\)11/Version-1/L0611016771.pdf](http://www.ijesi.org/papers/Vol(6)11/Version-1/L0611016771.pdf)
- [https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/5\\_CPU\\_Scheduling.html](https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/5_CPU_Scheduling.html)

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