

# CPU Scheduling

CSOPESY S11 - MC01

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## Project Objective

This project's main objective is to implement a simulation of basic CPU scheduling algorithms that conforms to the input-output format prescribed. The included algorithms are as follows: First-Come-First-Serve, Shortest-Job-First, Shortest-Remaining-Time-First, and Round-Robin.

## Project Files

- driver: contains the main function to execute the program and responsible for parsing the input
- proc: contains the class for a process object
- utils: contains the common methods utilized by the CPU scheduling algorithms
- fcfs: contains the algorithm that runs the First-Come-First-Serve priority scheduling
- sjf: contains the algorithm that runs the Shortest-Job-First priority scheduling
- rtf: contains the algorithm that runs the Shortest-Remaining-Time-First priority scheduling
- rr: contains the algorithm that runs the Round-Robin priority scheduling

## How to Compile and Run

1. Open cmd in the folder where the MP files are found
2. Type "py driver.py < test\_files\sample\_io\input05.txt"
  - a. Replace test\_files\sample\_io\input05.txt with a different file destination, given inputs are the same format

Example:

```
C:\Users\Gabrielle Kaye\Documents\GitHub\CSOPESY\MP1>py driver.py < test_files\sample_io\input05.txt
IDLE start time: 0 end Time: 9 | Waiting time: 0
1 start time: 9 end Time: 13 | start time: 21 end Time: 42 | start time: 137 end Time: 183 | Waiting time: 103
2 start time: 13 end Time: 21 | Waiting time: 0
3 start time: 948 end Time: 1045 | Waiting time: 934
4 start time: 855 end Time: 948 | Waiting time: 831
5 start time: 303 end Time: 373 | Waiting time: 269
6 start time: 42 end Time: 50 | Waiting time: 0
7 start time: 50 end Time: 87 | Waiting time: 2
8 start time: 242 end Time: 303 | Waiting time: 194
9 start time: 1152 end Time: 1261 | Waiting time: 1085
10 start time: 87 end Time: 106 | Waiting time: 14
11 start time: 113 end Time: 137 | Waiting time: 34
12 start time: 598 end Time: 675 | Waiting time: 514
13 start time: 373 end Time: 446 | Waiting time: 281
14 start time: 675 end Time: 763 | Waiting time: 579
15 start time: 446 end Time: 522 | Waiting time: 347
16 start time: 106 end Time: 113 | Waiting time: 0
17 start time: 763 end Time: 855 | Waiting time: 653
18 start time: 1261 end Time: 1387 | Waiting time: 1151
19 start time: 522 end Time: 598 | Waiting time: 409
20 start time: 1387 end Time: 1513 | Waiting time: 1271
21 start time: 1045 end Time: 1152 | Waiting time: 918
22 start time: 183 end Time: 242 | Waiting time: 55
Average waiting time: 438.4
```