

**Laboratory -4 Deadline - 4th February 2024 11:59pm**  
**(Group Assignment)**

Design the following schedulers

- SJF, RR (sum of last digit of your roll number and your partner roll number is odd)
- SJF, SRTF (sum of last digit of your roll number and your partner roll number is even)

You have to

- (1) compute various performance measures (turnaround time, waiting time, penalty ratio for each process and system averages and system throughput)
- (2) analyze the behavior of your schedulers. Your output should include results per process and the system's overall performance

Process data is to be read in from a file in a standard format.

Assume that there is only one CPU and one I/O device in the system. The I/O device can be assumed to be sequential ie. it serves only one process at a time.

**Test Data:**

Test process data files have the following format:

0 100 2 200 3 25 -1    i.e. P1 : arrival time (0) CPU burst (100) I/O burst (2) .. CPU burst (25)  
5 6 2 25 2 25 2 25 -1    P2 : arrival time (5) ....

Assume that every line ends with -1

The arrival times are in nondecreasing order

A process may have any number of CPU / I/O burst cycles terminated with a -1.

There will be any number of processes, terminated by an end of file .

Three test case files are provided to you in the following link -

<https://drive.google.com/drive/folders/1lwQd3VzyMnK0AITrNTHYbNRRQhEo6bd4>

**Note:** When you are calculating waiting time for a process you should consider only waiting time of Ready queue(not I/O waiting queue).

**The assignment report must carry:**

1. An explanation of your scheduling scheme
2. What are the expected job characteristics for your scheme ?
3. Provide a test process data to bring out the suitability of your scheme
4. Provide a test process data to bring out the shortcomings of your scheme
5. The analysis of the performance of your scheduler when run on the test cases provided to you along with your test process data. Graphs capturing the variations in performance should be plotted as part of the analysis.

**Submit:** a single zip file (format: <roll-number1>\_<roll-number2>\_lab4.zip) with all required source files, test data and the completed report with all the required analysis. The evaluator

will simply unzip the submission, and run the file with different process data files. If the desired output is not seen, you will not be awarded any marks.