Jordan University of Science and Technology

Computer Engineering Department

CPE 473: Operating Systems

Programming Assignment #1: OS Scheduler

Notes:

1- **Due date is 13/11/2022 at 11:55 PM.**
2- **Late submissions (i.e. after due date) will not be accepted.**
3- **Submit the source code files and write your name and ID as a comment on the top.**
4- **Groups are allowed (up to 2 students). Can be from different sections.**

In this assignment, you will implement a simple OS scheduler using C/C++. The scheduler's task is to receive a set of processes and their details, and then decide the order of executing these processes based on the chosen algorithm. Finally, the scheduler will output the order of process execution, in addition to some stats about each of the processes.

The scheduling algorithm chosen for this assignment will be **LIFO (Last In First Out),** which is the opposite of the FIFO algorithm taught in the class. The input will start with an integer N, representing the number of processes, followed by N lines (one for each process). For each line i, the line will start with a string s, representing the process name, followed by 2 numbers representing the arrival time and processing time for the ith process, respectively.

Your program should print a line indicating the order of executing the processes. Then, for each process, the program should print a line showing the process's name, response time, turnaround time, and delay. See the sample output below for details.

The input will be read from a file (in.txt), and the output should be written to a file (out.txt). The output format must strictly match the formatting shown in the sample output.

Sample Input (file *in.txt*):

5

A 0 3

C 4 4

B 2 6

D 6 5

E 8 2

Sample output (file *out.txt*):

ABEDC

A: (response=0, turnaround=3, delay=0)

C: (response=12, turnaround=16, delay=12)

B: (response=1, turnaround=7, delay=1)

D: (response=5, turnaround=10, delay=5)

E: (response=1, turnaround=3, delay=1)