CSCI 3150 Introduction to Operating Systems
Assignment Three
Deadline: 23:59, ~~Nov. 21,~~ Nov.28 2021
Total Marks: 100

1. 100 marks

Given the MLFQ scheduling rules, process information and queue information below, fill in the blanks of Scheduling result table.

(1) Rules

- **Rule 1: If Priority(A) > Priority(B), A runs (B doesn't).**
- **Rule 2: If Priority(A) = Priority(B), A & B run in round-robin fashion using the time slice (quantum length) of the given queue.**
- **Rule 3: When a job enters the system, it is placed at the highest priority (the topmost queue). For the jobs arriving at the same time, schedule the job with smallest pid first.**
- **Rule 4: Once a job uses up its time allotment at a given level (regardless of how many times it has given up the CPU), its priority is reduced (i.e., it moves down one queue and will be at the tail of the target queue, which means it will be scheduled last).**
- **Rule 5: After some time period S, move all the jobs in the system to the topmost queue, and sort all the jobs by pid. The job with the smallest pid will be scheduled first.**

Note: Sorting will happen every time it arrives the Period S.

(2) Process information

```
ProcessNum 6
pidnum:47, arrival_time:10, execution_time:125
pidnum:551, arrival_time:175, execution_time:95
pidnum:132, arrival_time:10, execution_time:130
pidnum:346, arrival_time:80, execution_time:138
pidnum:88, arrival_time:90, execution_time:80
pidnum:209, arrival_time:440, execution_time:110
```

(3) Queue information

```
QueueNum 3
Period_S 400
Time_Slice_Q3 10 Allotmenttime_Q3 30
Time_Slice_Q2 50 Allotmenttime_Q2 100
Time_Slice_Q1 60 Allotmenttime_Q1 120
```

Scheduling result table:

	Time-slot	Process ID	Arrival Time	Remaining Time
(1)	*10 - 20*	*47*	*10*	*115*
(2)	*20 - 30*	*132*	*10*	*120*
(3)	*30 - 40*	*47*	*10*	*105*
(4)				
(5)				
(6)				
(7)				
(8)				
(9)				
(10)				
(11)				
(12)				
(13)				
(14)				
(15)				
(16)				
(17)				
(18)				
(19)				
(20)				
(21)				
(22)				
(23)				
(24)				
(25)				

(26)				
(27)				
(28)				
(29)				
(30)				
(31)				
(32)				
(33)				
(34)				
(35)				
(36)				
(37)	*608 - 658*	*209*	*440*	*30*
(38)	*658 - 688*	*209*	*440*	*0*

Submission:

In this Assignment, you need to fill all the blanks in the scheduling result table.

You only need to submit one pdf file that contain the filled table, and name the file as "SID-Assign3.pdf".

TA Zhang Kai is in charge of this assignment, if you have any questions about this assignment, you can enquiry with this email:

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