CSCI 3150 Introduction to Operating Systems
Assignment Two
Deadline: 23:59, Nov. 22, 2020
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:45, arrival_time:10, execution_time:95
pidnum:323, arrival_time:175, execution_time:100
pidnum:122, arrival_time:90, execution_time:160
pidnum:2023, arrival_time:80, execution_time:158
pidnum:195, arrival_time:10, execution_time:70
pidnum:542, arrival_time:435, execution_time:100

45 10 95
195 10 70
2023 80 158
122 90 160
323 175 100
542 435 100

(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

3 time 10
2 time 50
2 time 60

Scheduling result table:

	Time-slot	Process ID	Arrival Time	Remaining Time
(1)	*10 - 20*	*45*	*10*	*85*
(2)	*20 - 30*	*195*	*10*	*60*
(3)	*30 - 40*	*45*	*10*	*75*
(4)	40-50	195	10	50
(5)	50-60	45	10	65
(6)	60-70	195	10	40
(7)	70-120	45	10	15
(8)	120-130	2023	80	148
(9)	130-140	122	90	150
(10)	140-150	2023	80	138
(11)	150-160	122	90	140
(12)	160-170	2023	80	128
(13)	170-180	122	90	130
(14)	180-190	323	175	90
(15)	190-200	323	175	80
(16)	200-210	323	175	70
(17)	210-250	195	10	0
(18)	250-265	45	10	0
(19)	265-315	2023	80	78
(20)	315-365	122	90	0
(21)	365-400	323	175	35
(22)	400-410	122	90	70
(23)	410-420	323	175	25
(24)	420-430	2023	80	68
(25)	430-440	122	90	60

(26)	440-450	323	175	15	2
(27)	450-460	2023	80	58	2
(28)	460-470	542	435	90	1
(29)	470-480	122	90	50	3
(30)	480-490	323	175	5	3
(31)	490-500	2023	80	48	3
(32)	500-510	542	435	80	2
(33)	510-520	542	435	70	3
(34)	520-525	323	175	0	
(35)	525-575	122	90	0	
(36)	575-623	2023	80	0	
(37)	*623 - 673*	*542*	*435*	*20*	
(38)	*673 - 693*	*542*	*435*	*0*	

Submission:

In this Assignment, you need to fill all the blanks in the scheduling result table in the format we used in Lab & Tutorial 6.

You only need to submit one pdf file that contain the filled table, and name the file as "SID-Assign2.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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