**LOVELY PROFESSIONAL UNIVERSITY  
Academic Task-3 (Operating System)**

School of Computer Science and Engineering Faculty of Technology&Sciences

Name of the faculty member: Ashu

Course Code: CSE 316 Course Title: Operating System   
Max. Marks:30 Date of Allotment: 29/02/2020

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**Problem** :

**Ques. 13**. Write a program for multilevel queue scheduling algorithm. There must be three queues generated. There must be specific range of priority associated with every queue. Now prompt the user to enter number of processes along with their priority and burst time. Each process must occupy the respective queue with specific priority range according to its priority. Apply Round robin algorithm with quantum time 4 on queue with highest priority range. Apply priority scheduling algorithm on the queue with medium range of priority and First come first serve algorithm on the queue with lowest range of priority. Each and every queue should get a quantum time of 10 seconds. Cpu will keep on shifting between queues after every 10 seconds  i.e. to apply round robin algorithm OF 10 seconds on over all structure.

Calculate Waiting time and turnaround time for every process. The input for number of processes  should be given by the user.

**Description of concept :**

A multi-level queuescheduling algorithm partitions the ready queue into several separate queues. The processes are permanently assigned to one queue, generally based on some property of the process, such as memory size, process priority, or process type.Multi-level queue scheduling algorithm is used in scenarios where the processes can be classified into groups

based on property like process type, CPU time, IO access, memory size, etc. In a multi-level queue scheduling

algorithm, there will be 'n' number of queues, where 'n' is the number of groups the processes are classified

into. Each queue will be assigned a priority and will have its own scheduling algorithm like round-robin

scheduling or FCFS. For the process in a queue to execute, all the queues of priority higher than it should be

empty, meaning the process in those high priority queues should have completed its execution. In this

scheduling algorithm, once assigned to a queue, the process will not move to any other queues

* Algorithms and Formulas used to solve the problem.
* FORMULAS: -

1. Turn Around Time(TAT) = Completion Time(CT) - Arrival Time(AT)
2. Wait Time (WT) = Turn Around Time(TAT) - Burst Time(BT)
3. Turn Around Time(TAT) = Completion Time(CT) - Arrival Time(AT)

* ALGORITHM: -

1. In the question, Burst Time(BT) = Queue selected
2. In the question, Wait Time (WT) = Turn Around Time(TAT) - Burst Time(BT).
3. Make a structure of process that will withhold within it any important fields such as- Arrival Time, Burst Time, Completion Time, Turn Around Time and Waiting Time.
4. Now sort according to the arrival time.
5. Process every one of the units after finding the process with the Largest Burst Time. Increase the total time by 1 and reduce the Burst Time of that process with 1.
6. NOTE: Completion Time of any process will equal Total Time at that time for any process with 0 as its Burst Time.
7. Once we are done finding Completion time we will now go for turnaround time and waiting time.
8. At last we’ll find average turnaround time and waiting time.

## CODE SNIPPETS

