Multilevel Queue Scheduling
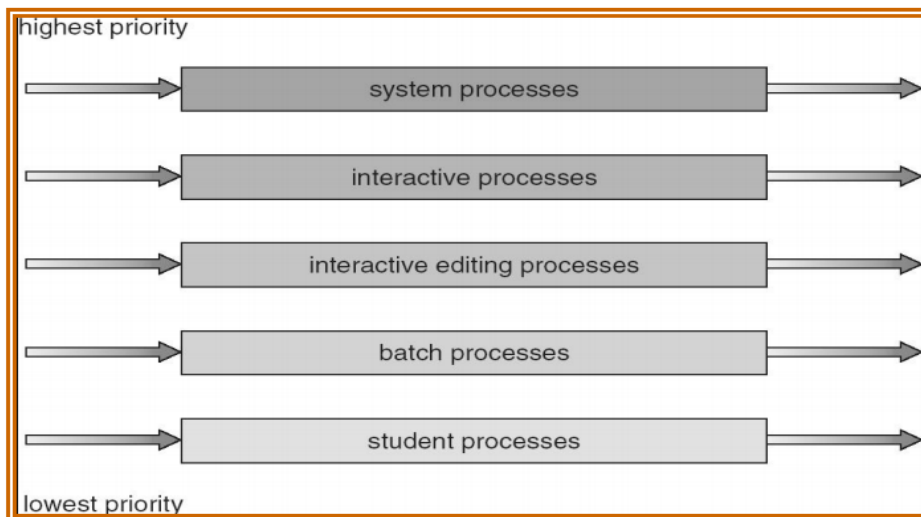
A multilevel queue-scheduling algorithm partitions the ready queue into several separate queues . The processes are completely assigned to one queue, generally based on some unique property of the process, such as memory size, process priority, or process type.

There must be scheduling between the queues, which is commonly implemented as a fixed-priority preemptive scheduling.

For example the foreground queue may have absolute priority over the background queue.

Example : Five queens

1. System processes
2. Interactive processes
3. Interactive editing processes
4. Batch processes
5. Student processes

User Problems:

Problem 1:

Consider a system which has a CPU bound process, which requires the burst time of 40 seconds.The multilevel Feedback Queue scheduling algorithm is used and the queue time quantum '2' seconds and in each level it is incremented by '5' seconds.Then how many times the process will be interrupted and on which queue the process will terminate the execution?

Solution :

Process P needs 40 Seconds for total execution.

At Queue 1 it is executed for 2 seconds and then interrupted and shifted to queue 2.

At Queue 2 it is executed for 7 seconds and then interrupted and shifted to queue 3.

At Queue 3 it is executed for 12 seconds and then interrupted and shifted to queue 4.

At Queue 4 it is executed for 17 seconds and then interrupted and shifted to queue 5.

At Queue 5 it executes for 2 seconds and then it completes.

Hence the process is interrupted 4 times and completes on queue 5.