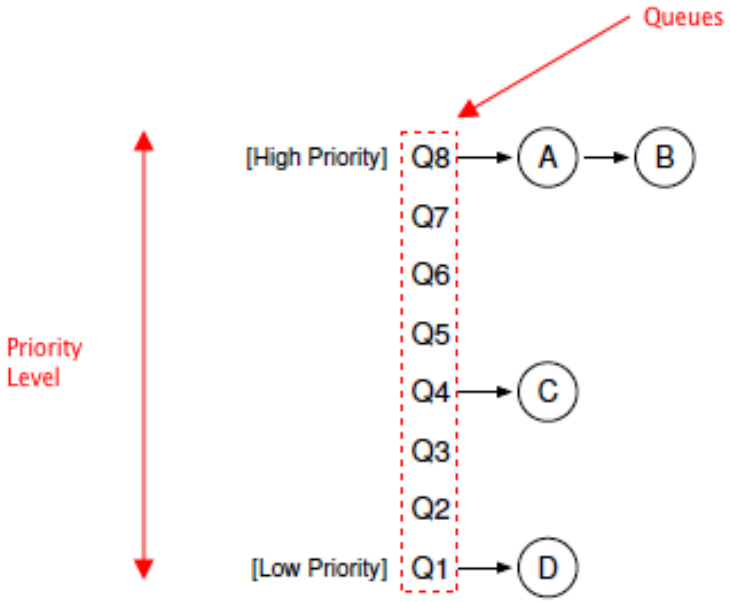
CSC 369 Worksheet 5 Solution

August 18, 2020

1. **Notes**

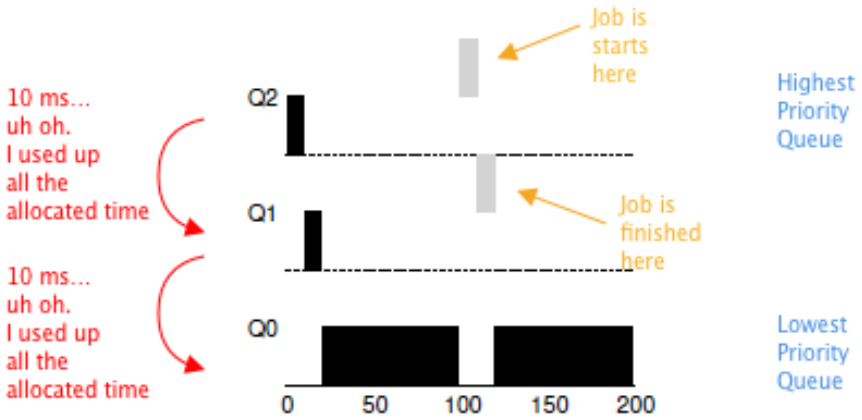
   - **Multi-level Feeback Queue (MLFQ):**
     - Is one of the most well-known approaches to scheduling
     - Does two things:
       a) Optimizes turnaround time
       b) Minimizes response time
     - Uses **priority level** and **Queues** to achieve it's goal
   - **MLFQ Basic Rules:**
     - Jobs on same queue → Same priority
     - **Rule 1:** If Priority(A) > Priority(B), A runs (B doesn't)
     - **Rule 2:** If Priority(A) = Priority(B), A & B run in RR



- **Attemp #1: How to Change Priority**
  - **Rule 3:** When a job enters the system, it is placed at the highest priority (the topmost queue)
  - **Rule 4a:** If a job uses up an entire time slice while running , its' priority is reduced (i.e. it moves down on queue).
  - **Rule 4b:** If a job gives up the CPU before the time slice is up, it stays at the same priority level (e.g I/O Operation)

    Example (Along Came a Short Job):

    1) A job A enters system
    2) Job is placed on highest Queue Q_2
    3) After time-slice (e.g. 10 ms) in Q_2, A is placed on lower queue Q_1
    4) After time-slice in Q_1, A is placed in lowest priority queue Q_0


Job is starts here
Highest Priority Queue
10 ms... uh oh. I used up all the allocated time
Q2
Q1
Job is finished here
10 ms... uh oh. I used up all the allocated time
Q0
Lowest Priority Queue
0
50
100
150
200