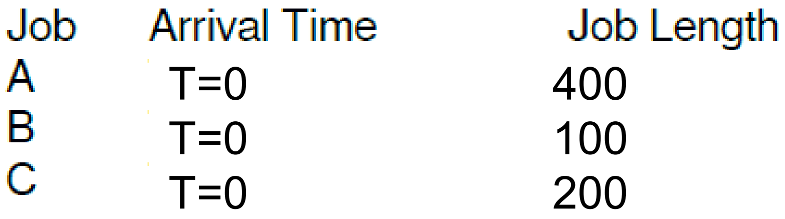
TCSS 422 A Fall 2021 - BONUS SESSION

CPU SCHEDULER EXAMPLE PROBLEMS

Draw a scheduling graph for the FIFO CPU scheduler.
Use the scheduling graph to calculate the average turnaround time (ATT), and the average response time (ART) .



Job	Arrival Time	Job Length
A	T=0	400
B	T=0	100
C	T=0	200

Draw a scheduling graph for the SJF CPU scheduler.
Use the scheduling graph to calculate the average turnaround time (ATT), and the average response time (ART) .

Job	Arrival Time	Job Length
A	T=0	400
B	T=0	100
C	T=0	200

Draw a scheduling graph for the STCF CPU scheduler with preemption

Use the scheduling graph to calculate the average turnaround time (ATT), and the average response time (ART) .

Job	Arrival Time	Job Length
A	T=0	400
B	T=150	100
C	T=100	200

Jackson deploys a 3-level MLFQ scheduler. The time slice is 1 for high priority jobs, 2 for medium priority, and 4 for low priority. This MLFQ scheduler does NOT priority boost. When a new job arrives the scheduler is not pre-empted, but the new job is added to the end of the work queue.

Job	Arrival Time	Job Length
A	T=0	4
B	T=2	16
C	T=4	8

(11 points) Show a scheduling graph for the MLFQ scheduler for the jobs above.
Draw vertical lines for key events and be sure to label the X-axis times as in the example.
Please draw clearly. An unreadable graph will loose points.

Jackson deploys a 3-level MLFQ scheduler. The time slice is 1 for high priority jobs, 2 for medium priority, and 4 for low priority. This MLFQ scheduler performs a Priority Boost every 6 timer units. When the priority boost fires, the current job is preempted, and the next scheduled job is run in round-robin order.

Job	Arrival Time	Job Length
A	T=0	4
B	T=0	16
C	T=0	8

(11 points) Show a scheduling graph for the MLFQ scheduler for the jobs above.
Draw vertical lines for key events and be sure to label the X-axis times as in the example.
Please draw clearly. An unreadable graph will loose points.

```
HIGH  |
      |
      |
MED   |
      |
      |
LOW   |______________________________________________________________

      0
```

Jackson deploys a 3-level MLFQ scheduler. The time slice is 1 for high priority jobs, 2 for medium priority, and 4 for low priority. This MLFQ scheduler performs a Priority Boost every 6 timer units. When the priority boost fires, the current job is preempted, but is rescheduled to run next in the top-level queue.

Job	Arrival Time	Job Length
A	T=0	4
B	T=0	16
C	T=0	8

(11 points) Show a scheduling graph for the MLFQ scheduler for the jobs above.
Draw vertical lines for key events and be sure to label the X-axis times as in the example.
Please draw clearly. An unreadable graph will loose points.

Jackson deploys a 3-level MLFQ scheduler. The time slice is 1 for high priority jobs, 2 for medium priority, and 4 for low priority. This MLFQ scheduler performs a Priority Boost every 6 timer units. When the priority boost fires, the current job is preempted, and the runqueue is reset so that the first job in the runqueue is run next.

Job	Arrival Time	Job Length
A	T=0	4
B	T=0	16
C	T=0	8

(11 points) Show a scheduling graph for the MLFQ scheduler for the jobs above.
Draw vertical lines for key events and be sure to label the X-axis times as in the example.
Please draw clearly. An unreadable graph will loose points.

HIGH
MED
LOW
0