

**Turnaround time** - Time required for a particular process to complete, from submission time to completion. It is equal to the sum total of *Waiting time* and *Execution time*.

**Response time** - The time taken in a program from the issuance of a command to the commence of a response to that command.(i.e., the time-interval between submission of a request, and the first response to that request, *not the output* .)

**Execution Time** – The time spent running the task or thread on the CPU.

When comparing the response time of each scheduler, we notice that the Multilevel feedback queue (MFQS) performs significantly better. This is because of each respected algorithm. The Round Robin (RR) switches between each thread every 1000 milliseconds, while MFQS responds to each new thread every 500 for the first iteration of thread running. This makes the response time of MFQS better than RR in all aspects.

However when we look at execution time for MFQS, we start to notice that there is not much of a difference or the RR does better. This is because RR has a time slice of 1000 milliseconds which allows shorter threads to be completed in the first iteration of thread running. This however makes the CPU idle for threads that have burst times that are not in 1000 millisecond increments. That being said, overall the MFQS performs slightly better in execution times because it has a multi queue architecture that allows for longer threads to be pushed downwards while new and shorter threads get finished earlier. There is however a minor flaw with MFQS which is that at the end of each execution of a thread, it moves the thread to the next queue without checking if it is dead; It will leave checking for a dead thread for the next time the scheduler runs the thread increasing the execution time for shorter threads.

Then there is turnaround time. Overall, with the exception of thread e, MFQS had a better turnaround time. This is because of the multiple queues and finishing the shorter threads first, with shorter time-slices, before running the longer threads for longer time-slices. This allows for threads that have short burst times (less than 1500) to finish quickly. That being said, thread e had a long turnaround time because the queues only check if a thread is dead at the beginning before it is run, it does not check when the thread is suspended and moved to the next queue.

Overall the MFQS performs better because it utilizes multiple queues with different time quantum that allow for shorter threads to be finished and longer threads to be run.

For the hard statistics, please view the excel sheet provided.