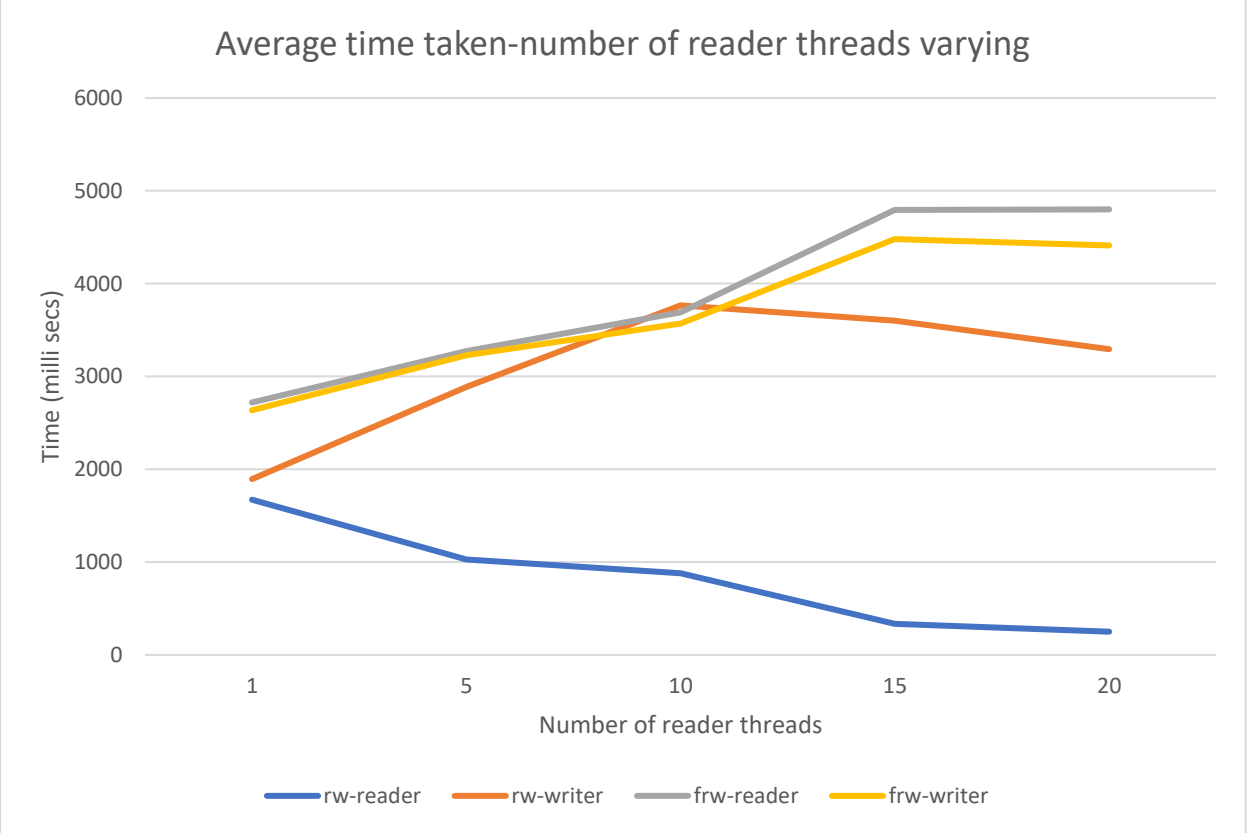
PROGRAMMING ASSIGNMENT 5 – REPORT

1. Average Waiting Times with Constant Writers and varying Readers:



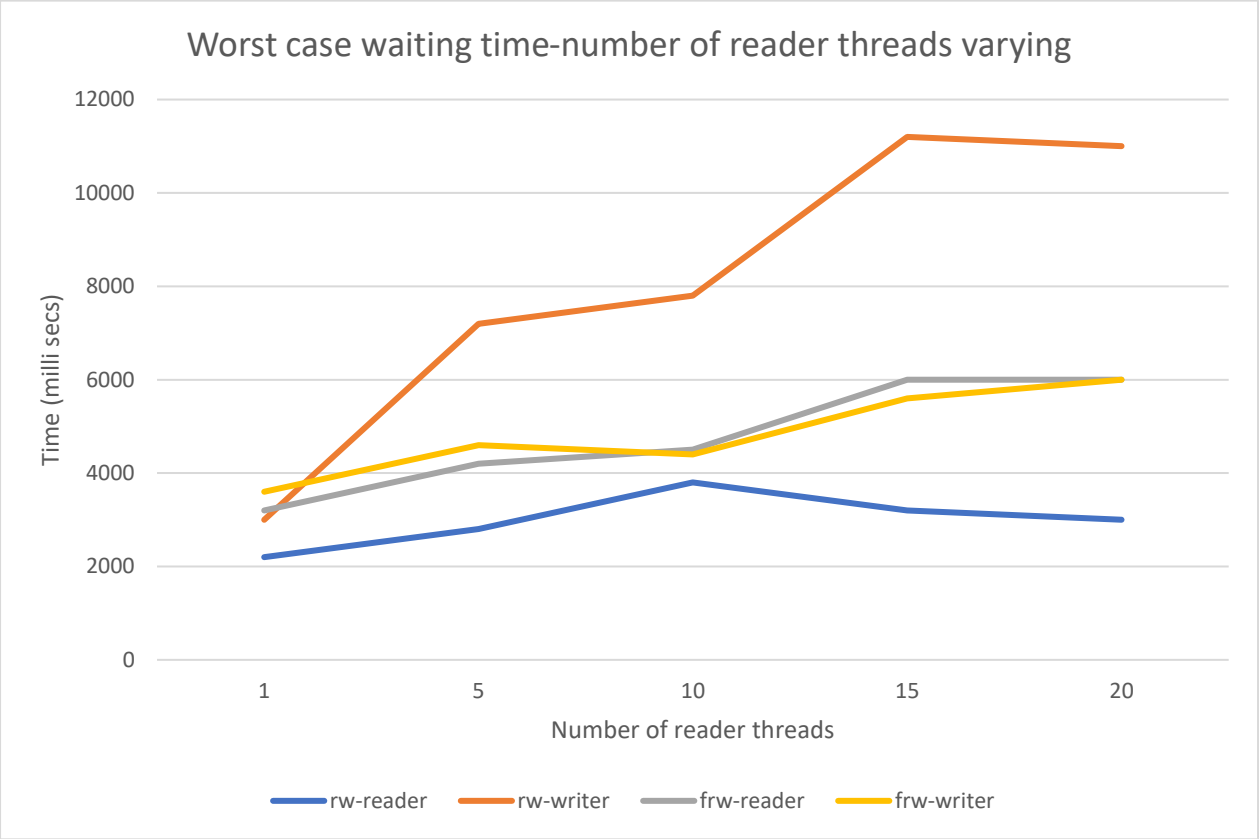
In this graph, we measure the average time taken to enter the CS by reader and writer threads with a constant number of writers.

We vary the number of reader threads nr from 1 to 20 in the increments of 5 on the X-axis.

We have all the other parameters fixed: Number of writer threads, nw = 10, kr = kw = 10, mu_cs = 100 and mu_rem = 300.

Y-axis shows the average waiting time taken by a thread to enter the CS in milli seconds.

2. Worst-case Waiting Times with Constant Writers and varying Readers:



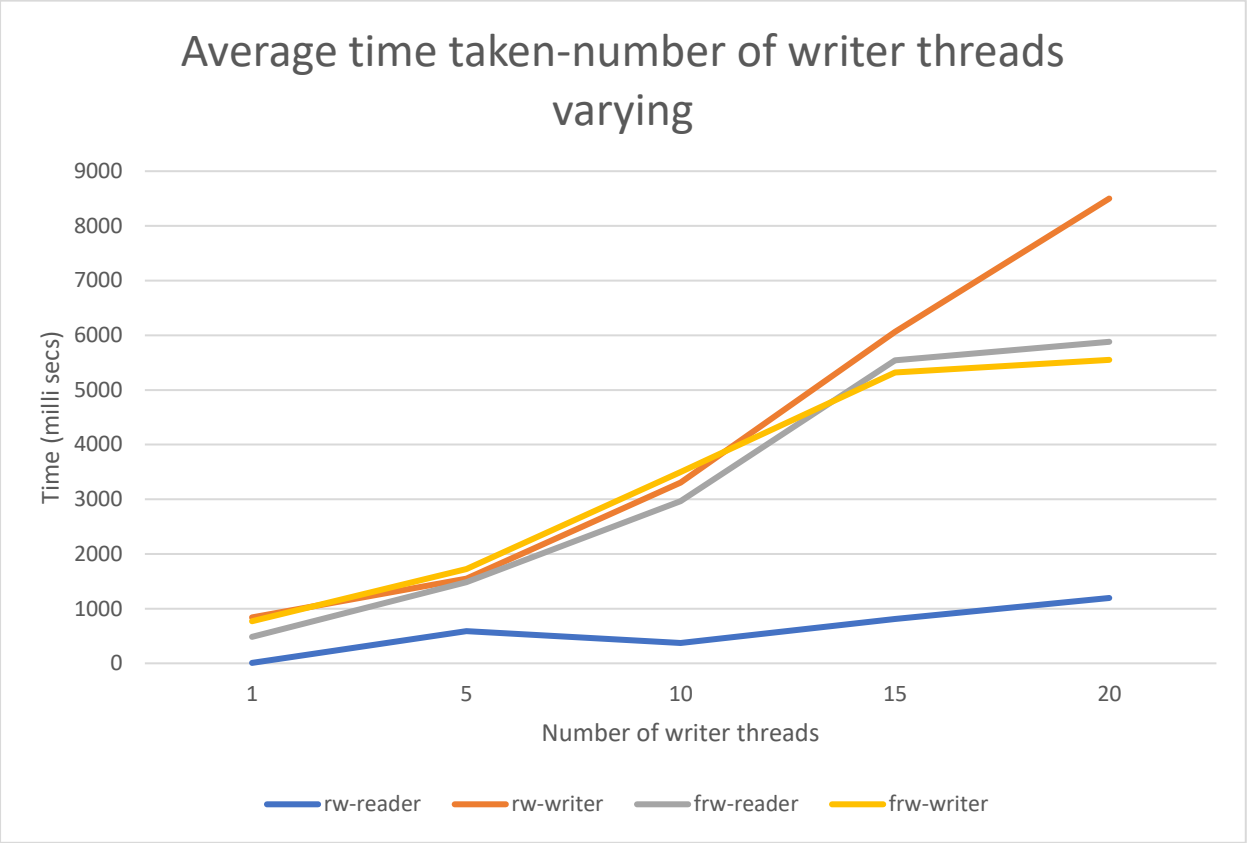
In This graph we measure the worst-case (instead of average) time taken to enter the CS by reader and writer threads with a constant number of writers.

We vary the number of reader threads nr from 1 to 20 in the increments of 5 on the X-axis.

We have all the other parameters fixed: Number of writer threads, nw = 10, kr = kw = 10, mu_cs = 100 and mu_rem = 300.

Y-axis shows the worst-case waiting time taken by a thread to enter the CS in milli seconds.

3. Average Waiting Times with Constant Readers and varying Writers:



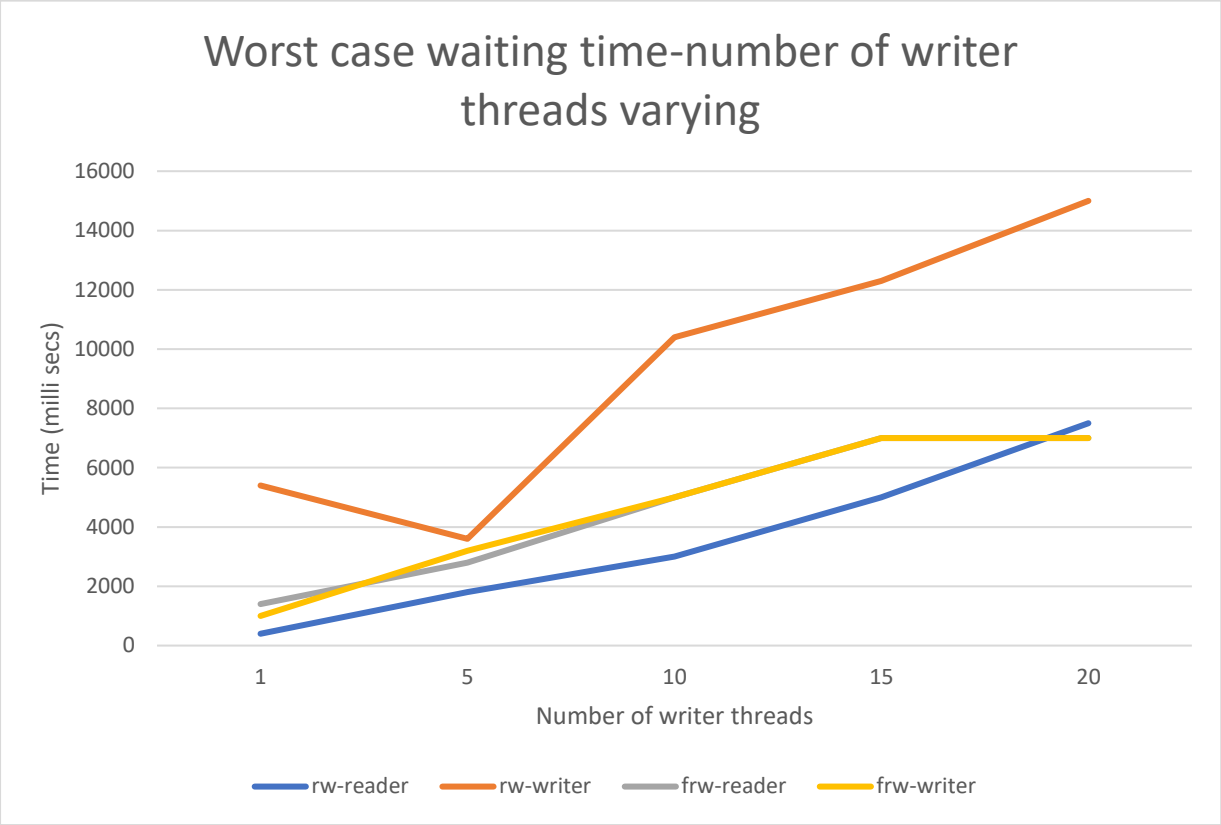
In this graph, we measure the average time taken to enter the CS by reader and writer threads with a constant number of readers.

We vary the number of writer threads nw from 1 to 20 in the increments of 5 on the X-axis.

We have all the other parameters fixed: Number of reader threads, nr = 10, kr = kw = 10, mu_cs = 100 and mu_rem = 300.

Y-axis shows the average waiting time taken by a thread to enter the CS in milli seconds.

4. Worst-case Waiting Times with Constant Readers and varying Writers:



In This graph we measure the worst-case (instead of average) time taken to enter the CS by reader and writer threads with a constant number of writers.

We vary the number of writer threads nw from 1 to 20 in the increments of 5 on the X-axis.

We have all the other parameters fixed: Number of writer threads, nr = 10, kr = kw = 10, mu_cs = 100 and mu_rem = 300.

Y-axis shows the worst-case waiting time taken by a thread to enter the CS in milli seconds.

Observations:

From graph 1 and graph 3:

1. Average waiting time of reader threads in readers preference is less as compared to writer threads.
2. Average waiting time of reader and writer threads are almost same in fair readers writer's case.
3. There is a significant amount of difference between Average waiting time of reader threads and writer threads in readers preference.

From graph 2 and graph 4:

1. Worst-case waiting time is the less for reader threads as compared to writer threads in readers preference case because readers have preference.
2. Worst-case waiting time is almost equal for both readers and writer threads in fair readers writer's case as expected.
3. There is a significant amount of difference between worst-case waiting time of reader threads and writer threads in readers preference.