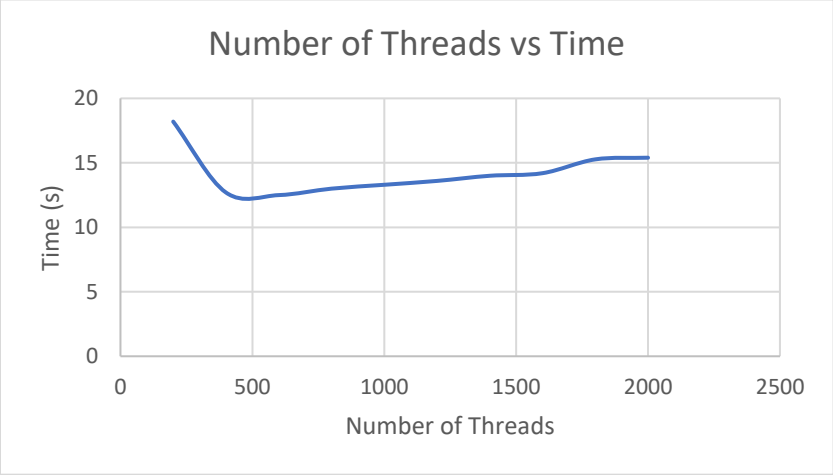
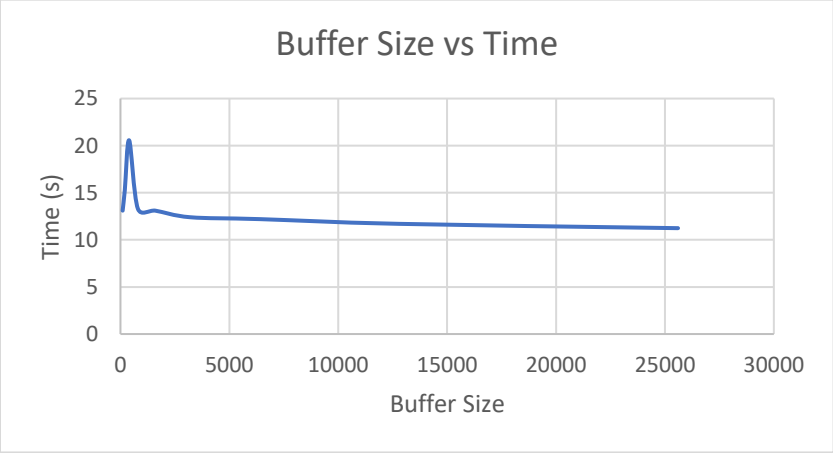
PA4 REPORT: THREADING AND SYNCHRONIZATION

Muhammad Taha Haqqani
CSCE 313-507

DATA REQUESTS:





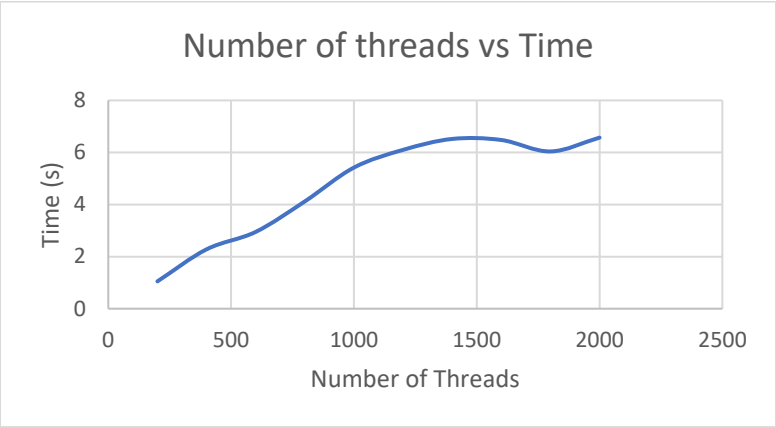
Observations:

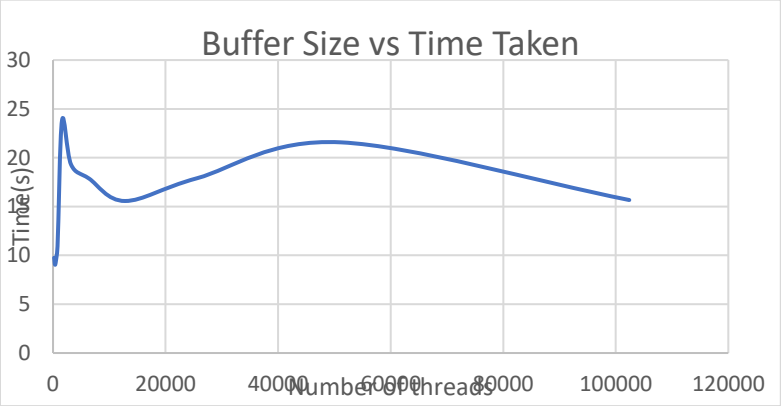
- Time taken decreases until number of threads are around 500
- Time taken increases linearly when thread count is increased beyond 500
- Time taken decreases linearly when buffer capacity is increased

Explanation:

- Increasing the number of threads causes greater context switching which has a significant impact on performance
- Increasing the number of threads also leads to more pop calls which leads to greater instances of underflows
- For this design, the best performance is achieved by having close to 500 threads
- Increasing the buffer capacity reduces the number of overflows and leads to better performance

FILE REQUESTS:





Observations:

- The time taken increases almost linearly for increasing the number of threads
- Buffer size has show varying change in the time taken

Explanation:

- Increasing the number of threads decreases the time taken because of context switching
- The time taken is best for smaller number of threads
- Buffer size does not affect the performance since multiple threads are present