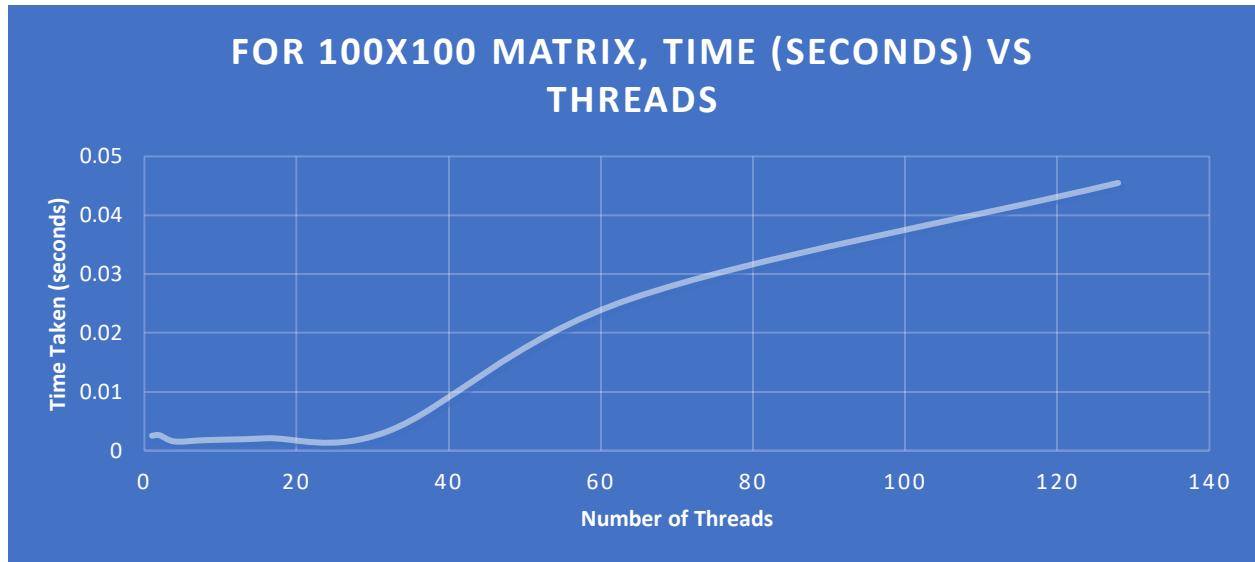


CSCE 435 Parallel Computing

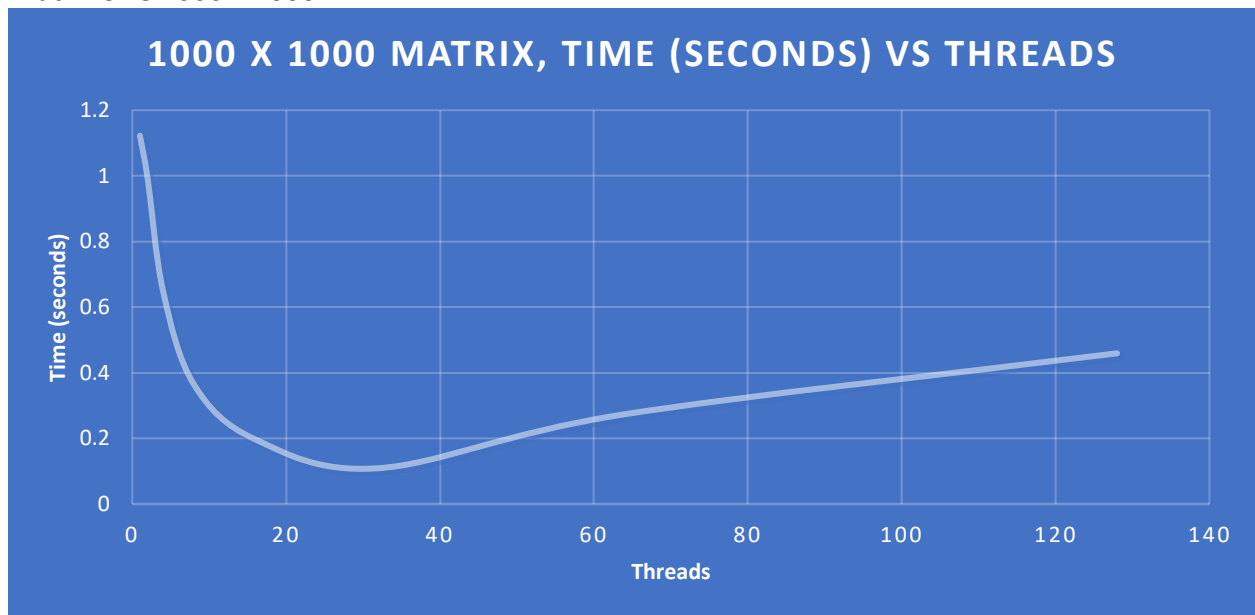
Lab 1 Results

Matrix Size 100 x 100



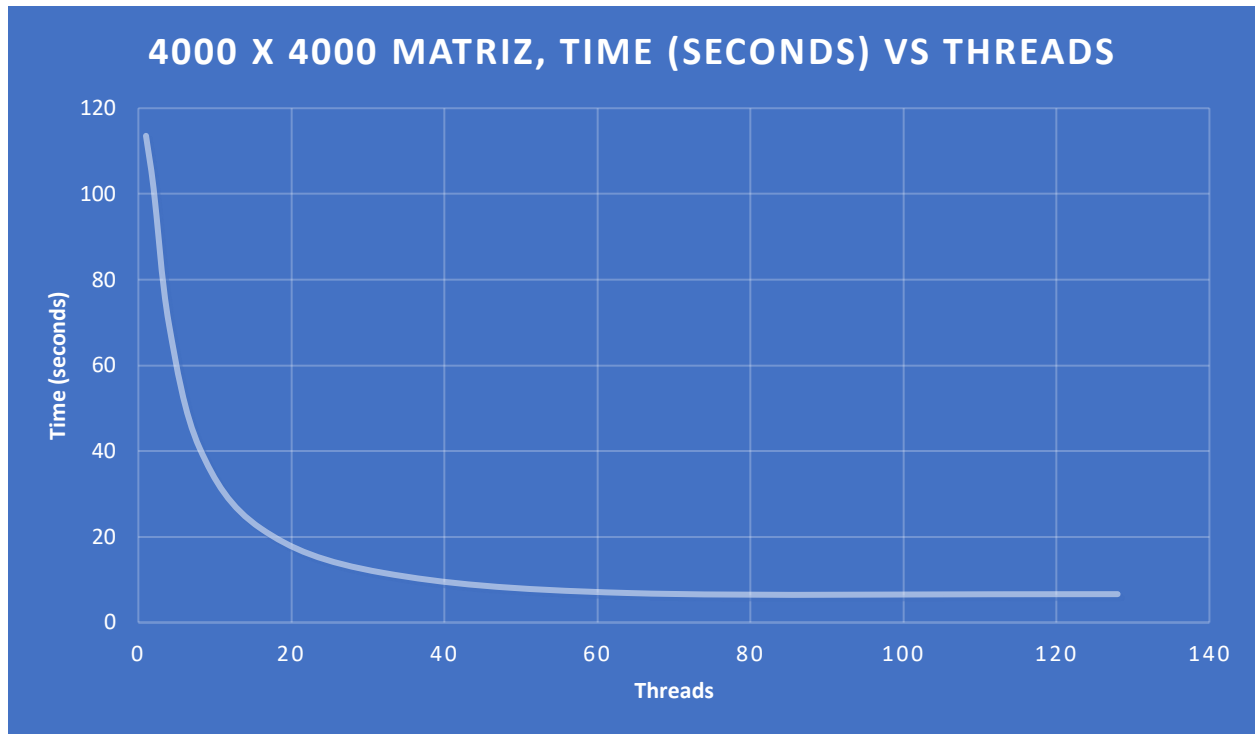
Answer: For matrix 100 by 100 in size, the number of threads seems to increase the time it takes to get the job done. This could be due to various reasons like multiple threads can fight for the processing power/job and therefore there could be too many context switches between threads. And therefore, the shared memory seems to negatively affect the performance for 100 x 100 matrix size.

Matrix Size 1000 x 1000



Answer: The matrix size 1000 x 1000 also seems to be like the matrix 100 x 100 in terms of performance. There seems to be an increase in the runtime with increase in threads. So, let's say you've got 32 threads running on 16 cores all sharing a single bus. Now at some point there's going to be contention for something, and that means that a lot of those threads must sit around and wait. More threads -> more contention -> more waiting for processing. Therefore, even for the threads to completely exit out of the program, there can be more start-time and more end-time (like we discussed in Week-3 in class). Therefore, therefore that is one of the several possibilities of getting more runtime upon having more threads.

Matrix Size 4000 x 4000



Answer: In this graph, the increase in threads seems to help the matrix of size 4000 x 4000. This is expected behaviors since there is a lot more processing to be done and having multiple threads can help complete the process faster.