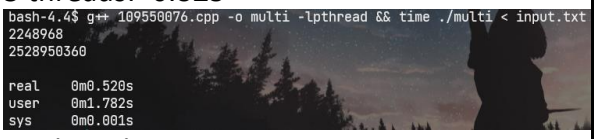
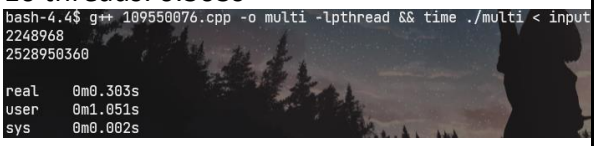
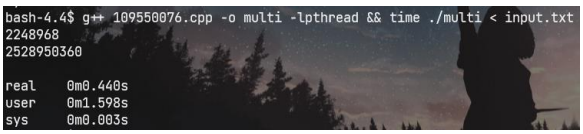
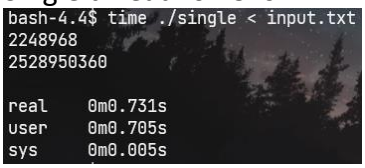
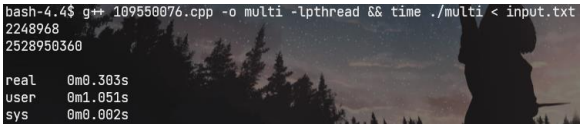
2022 NYCU OS HW2 report

Question	Answer
Q1. (5pts) Briefly describe your design for the add, multiple function of matrix, the thread management. Also, describe the number of threads in the Multi-thread program.	Every thread calculates 1 column in every N (# of threads) columns of results and sum them to a result array, then the master thread sums up all results in the array and gets the answer. I decided to use 10 threads in multi-thread program.
Q2. (15pts) Try at least 3 kinds of number of threads, and compare the difference in time.(Take screenshots of the time of each case) Also, explain the results.	5 threads: 0.52s  10 threads: 0.303s  20 threads: 0.440s  The more threads, the less work to do for each thread, so the time may decrease when # of threads increases. But, when there are too many threads, the increased efficiency is too low to cover the overhead of creating the thread.
Q3. (10pts) Show the best speedup between multi-thread and single-thread. (Take screenshots of the time of single-thread and multi-thread) Also, explain why multi-thread is faster.	Single thread: 0.731s  10 threads: 0.303s  Speedup: 0.731/0.303 = 2.41 Multi-thread is faster because the work is separated to several threads and calculated in parallel, so it should faster than using a thread to calculate all the results.