

Part3: Write Up

Part3 of the assignment was quite different than part1 and part2. We did not generate C++ by using Python but wrote C++ code directly using the built-in thread module. Part A was rather simple in the sense that all we had to do was add up all elements in an array using only the ++ operator to add. This was single threaded and should be easily identifiable as the slowest running function in part3.

Part B needed to implement the C++ thread module and give each thread a section of elements to add together in the array. Because no two threads worked on the same element in the array, no race conditions could occur (assuming you programmed it correctly).

Part C is very similar to part B except that I added 4 additional increment operations in the loop in order speed it up.

Each loop was tested with 1, 2, 4, and 8 threads. With 8 threads instantiated, the results were as expected.

Part A: 1.071x speed up

Part B: 4.073x speed up

Part C: 4.363x speedup