CSCE 435

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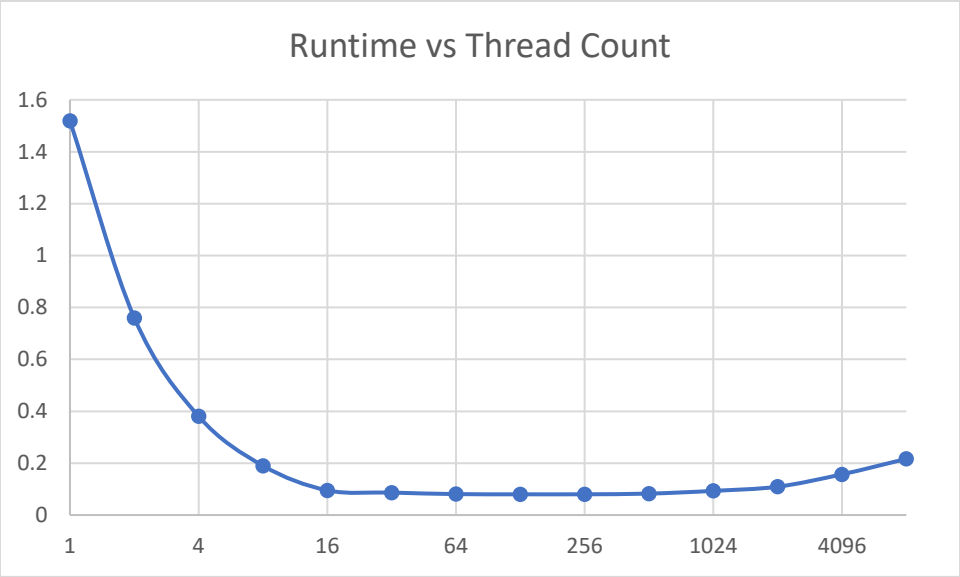
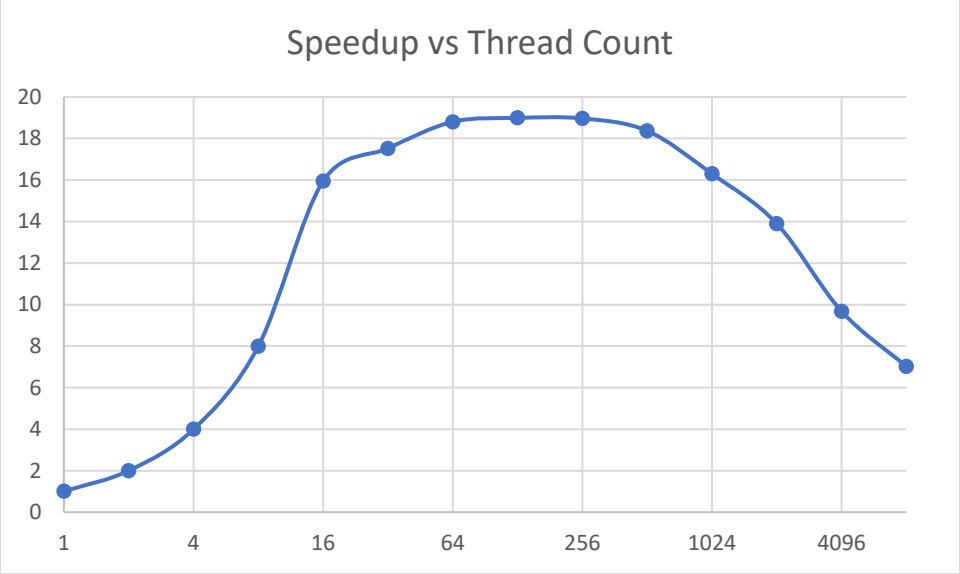
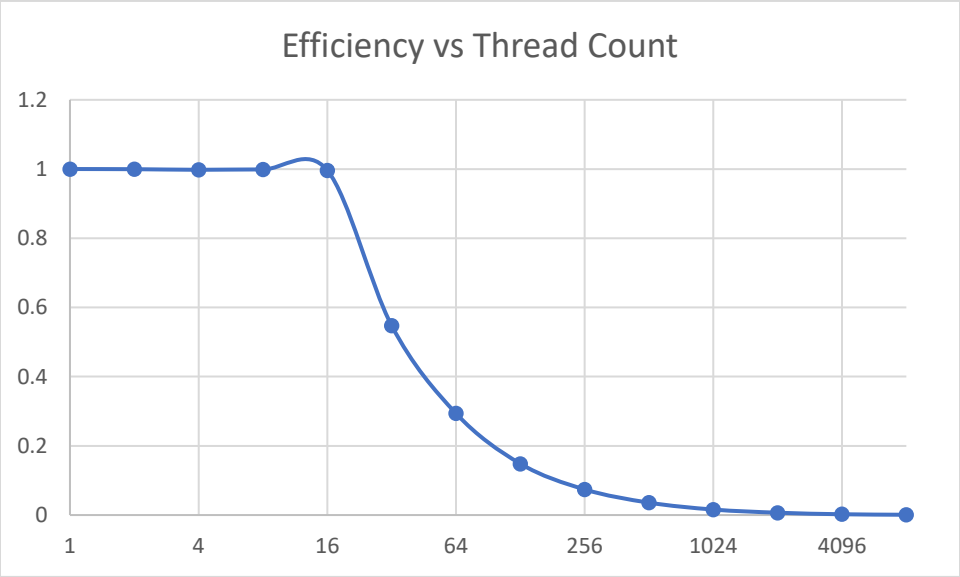
1)



2)



3)



4)

The minimum runtime is 0.0800 seconds with p = 128.

5)

When $n = 10^9$,

The minimum runtime is 0.7657 with p = 256

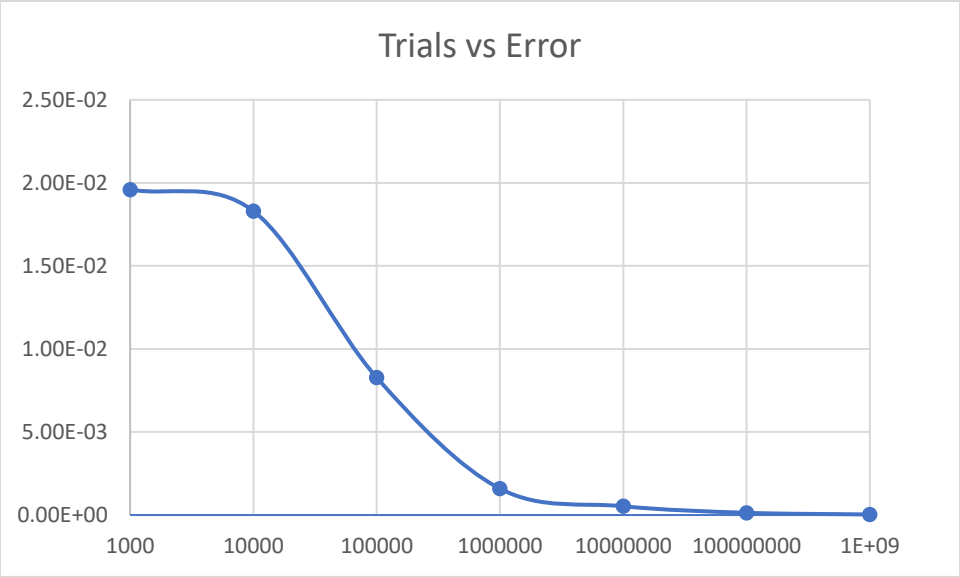
6)

The main reason for increase in runtime with more threads is the time overhead from context switching between threads and overhead in scheduling threads in and out of the processor.

7)

Due to a larger n, all the threads have more work to do. This makes the computing part the significant portion of the runtime. Using the n/p+ p calculation, since more threads make the computing part faster, we have the 256 thread test give us the minimum runtime with a larger n.

8)


Trials vs Error
2.50E-02
2.00E-02
1.50E-02
1.00E-02
5.00E-03
0.00E+00
1000
10000
100000
1000000
10000000
100000000
1E+09