Lab

Lab 02

Generate prime number

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CSCI-UA.0480-003 PARALLEL COMPUTING

**­Tables**:

A screenshot of a cell phone

Description generated with very high confidence

From above table, the trend are similar. The largest runtime is when the thread is 1. From threads 2 to 100, the runtime is increasing but is smaller than serial type. This is because in my code, I made a the for loop in parallel function in ‘#pragma omp parallel for’. This could fork a team of threads to execute the following for loop and then diving the iterations of the loop among the thread.

**The graphs of runtime:**

**The graph of SpeedUp:**

A picture containing object

Description generated with very high confidence

**Conclusion:**

The speedup distributions of N=10,000 and N=100,000 are similar. As we can see from above, the number of threads increases, the speedup is decreasing exponentially. It might because the performance cost of fork() and join() increases and then let the overhead increase.

Also, the speedup decreases when the N increase. Each thread will be distributed more data to work, it requires more time to execute.