CPSC 457 Assignment 3: Concurrency and Synchronization

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## Part 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Run | 1 | 2 | 3 | 4 | 5 | Average |
| 5 chopsticks (s) | 3.87 | 3.53 | 3.67 | 3.60 | 3.93 |  |
| 6 chopsticks (s) | 2.80 | 2.53 | 2.20 | 0.93 | 1.00 |  |
| 7 chopsticks (s) | 0.47 |  |  |  |  |  |
| 8 chopsticks (s) |  |  |  |  |  |  |
| 9 chopsticks (s) |  |  |  |  |  |  |
| 10 chopsticks (s) |  |  |  |  |  |  |

## Part 2 Results where num\_of\_elems = 100,000,000 (same srand seed)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| num\_threads | num\_of\_composite | Composite (%) | Real time | User time | System time |
| 1 | 8298789 | 82 | 0m0.762s | 0m0.683s | 0m0.062s |
| 2 | 8299871 | 82 | 0m0.581s | 0m0.840s | 0m0.077s |
| 4 | 8298736 | 82 | 0m0.424s | 0m0.969s | 0m0.054s |
| 8 | 8298262 | 82 | 0m0.338s | 0m1.234s | 0m0.054s |
| 16 | 8300802 | 83 | 0m0.298s | 0m0.942s | 0m0.052s |

With increasing number of multithreading, we expect computation time to decrease since the multiple CPUs/ cores are working simultaneously. The work to check whether the set of elements are composite numbers is as equally distributed as possible between *n* threads and thus computation time should decrease when using additional threads.