CPSC 457 Assignment 3: Concurrency and Synchronization

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Part 1

Run	1	2	3	4	5	Average
5 chopsticks (s)	3.27	3.53	3.67	3.60	3.53	3.52
6 chopsticks (s)	0.67	0.73	0.60	0.87	0.80	0.73
7 chopsticks (s)	0.67	0.60	0.80	0.80	0.67	0.71
8 chopsticks (s)	0.40	0.20	0.22	0.13	0.33	0.26
9 chopsticks (s)	0.20	0.33	0.27	0.20	0.07	0.21
10 chopsticks (s)	0.00	0.00	0.00	0.00	0.00	0.00

Part 2 Results where num_of_elems = 100,000,000 and elem_max = 10,000

num_threads	num_of_composite	Composite (%)	Real time (s)	User time (s)	System time (s)
1	87694289	87	7.117	6.719	0.389
2	87692044	87	5.419	8.600	0.383
4	87686099	87	4.221	9.689	0.512
8	87693370	87	3.735	13.554	0.579
16	87688764	87	2.955	13.579	0.458

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.