3. `pthread` program

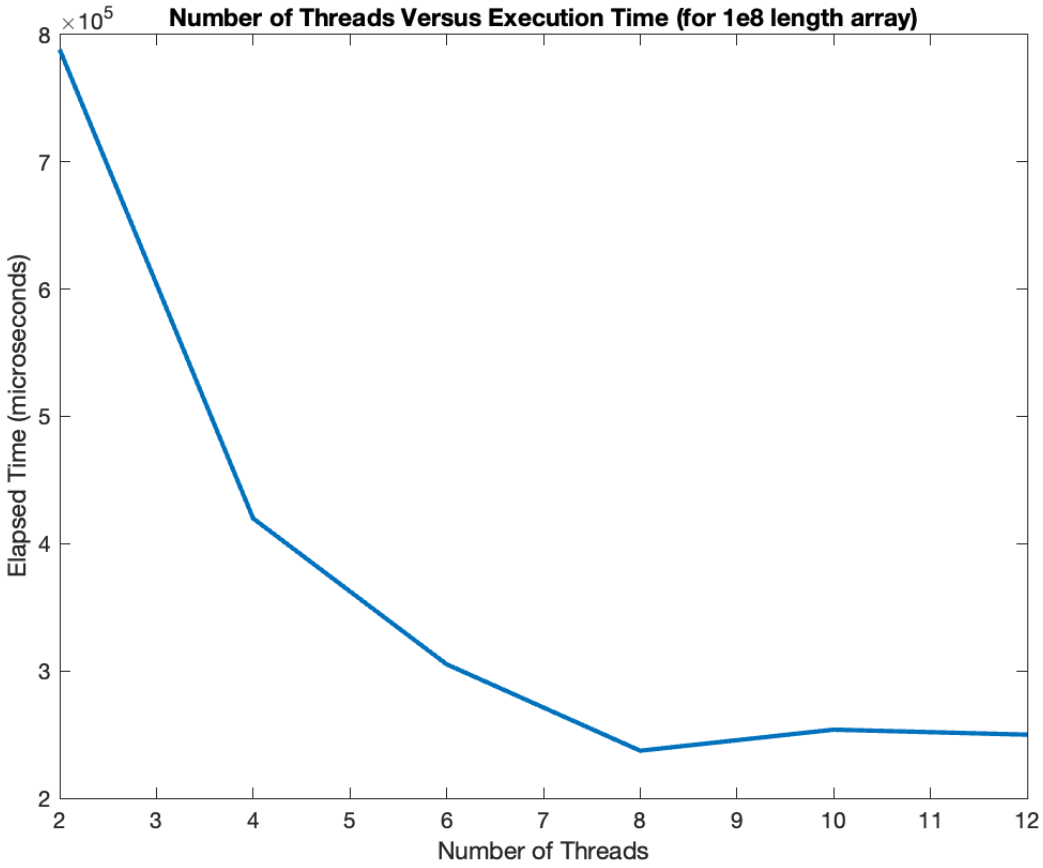

Figure 1: A plot of execution time versus number of threads is shown for a 100 million length elements array. Diminishing returns start past 8 threads which indicate limits of shared L3 cache (RAM), and page faulting on the sub-array for each thread.

`threadSum.c` for a 100 million length array with 2 threads took 788,306 microseconds, and with 4 threads took 419,845 microseconds. The ratio of the speedup from 2 threads to 4 threads is computed as follows.

$$\frac{time\ for\ 2\ threads}{time\ for\ 4\ threads} = \frac{788,306\ \mu s}{419,845\ \mu s} = 1.8776$$