Assignment 1 Report

Description:

Usage: ./Assignment1 [samples] [nthreads]

I found that multi-threads acceleration has a normal effect on large sample sizes. On small sample sizes, the expending time of opening multiple threads is greater than the execution time of a single thread. Therefore, I set the threshold when the sample size is less than 100 would not use OpenMP, I also set the sample size at 1000000000 to test, 8 threads' elapsed time is 4.455285236239433, 16 threads' elapsed time is 2.259780149906874 which can verify my code is work on the big size samples.

Results:

Sec	100	100,000	10,000,000
1	2.028048038482666e-05	0.003551419824361801	0.3614099677652121
2	2.064555883407593e-05	0.001981606706976891	0.178615864366293
4	2.002716064453125e-05	0.001221455633640289	0.08981776610016823
8	2.043423023412931e-05	0.00104178860783577	0.04497000575065613
16	2.023950219154358e-05	0.00171265783905983	0.047489358112216

100

100000