REPORT

BRIEF SUMMARY:

In this assignment, a serial code is multithreaded to calculate the average angular distance between 50,000 stars in the Tycho Star Catalogue. The aim is to determine the optimal number of threads that are necessary to calculate the minimum, maximum, and mean angular distances.

LIBRARIES USED:

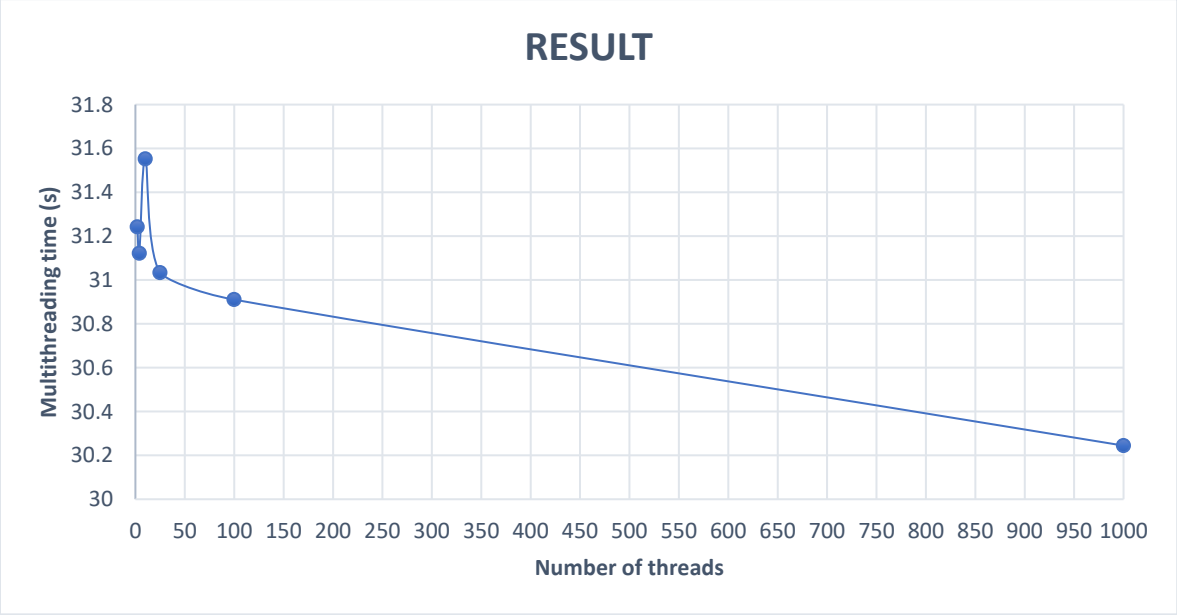
<sys/time.h> header file is used to provide functions for working with timer.

<pthread.h> header file is used to provide support for multithreading.

RESULT IN TABULAR FORM:

NUMBER OF THREADS	*MULTITHREADING TIME (S)*
2	31.241858
4	31.121975
10	31.551905
25	31.033018
100	30.910426
1000	30.244602

RESULT IN GRAPH FORM:



ANOMALIES:

Based on the graph of multithreading time versus number of threads, it can be seen that as thread count increases, multithreading time decreases. A spike can only be observed in the case of 10 threads, where there is anolamy.

CONCLUSION:

After the analysis of the code, the optimal number of threads for this program is 1000 since it uses the least amount of time to process.