SIT315 Programming Paradigms

Module2 Concurrent Programming

TaskM2.T2C: Complex Threading

Overview of the task

To fulfill the requirements of this task, you will need to demonstrate your skills to use multi-threading in C/C++ to speed up sequential program. In this task, you can choose one of these two algorithms:

- K-Means Cluster Algorithm, see here https://en.wikipedia.org/wiki/K-means_clustering
- QuickSort data sorting Algorithm, see here: https://en.wikipedia.org/wiki/Quicksort

Submission Details

Please make sure to provide the following:

- Source code of the sequential program,
- Source code of the parallel program, and
- Document reflecting your evaluation (Speed up) between both sequential and parallel programs.

Instructions

1. Implement a sequential version of the program and use it as your baseline to calculate execution time
2. Implement parallel version of the program using your choice C / C++ multithreading library - OpenMP or pthreading
3. Write a document reflecting on the perfomrance of both programs and your analysis of the decomposition you developed.
4. Submit your code and documentation on OnTrack