SIT315 Programming Paradigms

Module3 Distributed and Hybrid Programming

TaskM3.T2C: Complex distributed computing

Overview of the task

To fulfill the requirements of this task, you will need to demonstrate your skills to use MPI and OpenCL 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
- Data sorting Algorithm, see here: https://en.wikipedia.org/wiki/Quicksort

Submission Details

Please make sure to provide the following:

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

Instructions

1. Implement an MPI version of the program and use it as your baseline to calculate execution time

2. Implement OpenCL version of the program

3. Write a document reflecting on the perfomrance of both programs against previous versions from module 2. Also include your analysis of the decomposition you developed.

4. Submit your code and documentation on OnTrack