

1 Goal

In this project, our aim is to code from scratch a parallel algorithm able to solve the exact **traveling salesman problem**. Specifically, given a list of objects and the distances between each pair of objects compute the path that travels through all objects and returns to the given starting location with minimum distance traveled. Moreover, we assume the distances between each pair of objects to be symmetric i.e. path between those objects are undirected.

2 Technical Approach

Our approach towards achieving the goal is as follows -

- Researching existing algorithms and their key ideas to implement into our own
- Utilizing **C language** for our program along with **OpenMP** for extracting parallelism. (Potentially MPI as well, thereby a hybrid program)
- We'll be using interactive and batch nodes from the **Comet** to execute our code.

3 Team Members and Responsibilities

- Rohit Gupta (A53272428)
 - Code development*
 - Results analysis
 - Presentation*
- Zhimin Liang (A12577466)
 - Code development*
 - Documentation
 - Presentation*

Note - * here indicates sub-tasks will be discovered as work progresses.

4 Time-lines

Week 1	Serial code complete
Week 2-3	Parallelization
Week 4	Scaling and Testing the parallel program
Week 5	Documentation & Result analysis
Week 6	Buffer

5 Final Deliverable

1. Parallel program for the problem in a Github repository with instructions to re-execute.
2. Presentation illustrating the key concepts in the algorithm.