User's Manual

**Setup and Compilation**

1. Download and unzip the submission from eLearning on a Linux box in the multi-platform lab.
2. The submission includes:

* main.cpp
* bruteForce.hpp
* bruteForce.cpp
* generation.hpp
* generation.cpp
* geneticAlgorithm.hpp
* geneticAlgorithm.cpp
* graph.hpp
* graph.cpp
* timer.hpp
* timer.cpp
* tour.hpp
* tour.cpp
* distances.txt
* UsersManual.docx (this file)
* UML-Diagram.docx
* Results-Table.xlsx

1. Environment: This program has been tested in the multi-platform lab and will run there.
2. Compiling. This program includes a *Makefile*. At the command line in Linux, type *make clean main*. The program produces an executable entitled *main*.

**Running the program:** Issue the command *./main* No command line arguments are required or checked.

**User input:** User is required to input an integer value between 1 to 20 for *number of cities per tour*, input an integer value between 3 to 120 for the *number of tours per generation*, input an integer value between 2 to 120 for the *number of generations*, and input an decimal value between 0.0 to 0.1 for *percent of mutation for each generation*. User must input in this specific order: *number of cities per tour*, *number of tours per generation*, *number of generations*, then *percent of mutation for each generation.*

**Output:** All output goes to the console. Output will be similar to this:

Number of Cities: 4

Optimal Cost of Brute Force: 307.78

Time the Bruce Force Algorithm Took: 2 milliseconds

Cost From the Genetic Algorithm: 307.78

Time the Genetic Algorithm Took: 2190 milliseconds

Percent of Optimal: 1