**Priya Pilla**

**Data Structures and Algorithms 2**

**Project 3**

**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:
   1. main.cpp
   2. permutations.cpp
   3. permutations.hpp
   4. bruteforce.cpp
   5. bruteforce.hpp
   6. genetic.cpp
   7. genetic.hpp
   8. Results.xlsx
   9. Distances.txt
   10. UML
   11. User’s Manual (this document)
   12. Makefile.mk
3. Environment: This program has been tested on the ssh linux server, so will probably run in the multi-platform lab.
4. Compiling: This program includes a Make file. At the command line in Linux, type “make -f makefile.mk”. The program produces an executable entitled main.

**Running the program:** Be sure distances.txt is in the same directory as the executable. Issue the command ./main to run the program.

**User input:** user input is needed for no. of cities to run, no. of tours in a generation, no. of generations, and percentage of generations comprised of mutations.

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

11 100 2000 50

The number of cities to run: 11

Optimal cost from brute force: 424.88

Time the brute force algorithm too: Seconds = 87.00000 Microseconds = 334859.00000

Cost from the genetic algorithm: 476.76

Time the genetic algorithm took: Seconds = 3.00000 Microseconds = 287807.00000

Percent of optimal that the genetic algorithm produced: 112.211%