**User’s Manual**

**Description:**

This program is used to experiment with a Genetic Algorithm. It makes use of a brute force method and a genetic algorithm to compare the two run times, against the calculated cost.

**Output Format:**

In the manual system the output will look as follows:

Cities:

Generations:

Population:

[GA TIME] [GA PATH 0 0 0 0 0 ] [GA COST]

[BF TIME] [BF PATH 0 0 0 0 0 ] [BF COST]

Note: the brute force output will only happen if the amount of cities is less than 13.

**How to Run:**

* Load folder into PuTTY and access host directory (should be “digioacchinoe”)
* Use “make all” command to build the project.
* Run program using “./manual” for user input, use “./auto” for an automated response.

If you wish to unit test the system before hand:

**Make graph:** use to unit test the base graph operations

**Make load:** test the operation of building the graph.

**Make path:** Path is used to track the progress of an algorithm.

**Make time:** tests use of timer interface.

**Make hopper:** verifies implementation of heap structure

**Make brute:** Tests the action of the Brute Force class.

**Make gene:** Checks Genetic Algorithm for breaks.

**Make auto:** Runs brute force and genetic algorithm for comparison. (Runtime about 8hrs). Outputs values to comparison.txt

**Make manual:** Allows user to see comparison between brute force and genetic algorithm.

**Github Repo:** The github page for this program can be found at:

<https://github.com/EricDiGi/GenAlgGraphSort.git>