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**Data Structures and Algorithms II**

**Project 3**

**User’s Manual**

**Setup and Compilation**

1. Download and unzip the submission file from eLearning.
2. The submission file includes:
   * BruteAlg.cpp
   * BruteAlg.hpp
   * distances.txt
   * DistMatrix.cpp
   * DistMatrix.hpp
   * GeneticAlg.cpp
   * GeneticAlg.hpp
   * InputHandler.cpp
   * InputHandler.hpp
   * main.cpp
   * Makefile
   * Results.xlsx
   * UMLDiagram.pdf
   * UsersManual.docx
3. Environment: This program has been tested in the multi-platform lab and will run there.
4. Compiling: This program includes a Makefile. In the command line, type “make”. The program will create an executable file named dsp3.exe.

**Running the program:** Issue the command “./dsp3.exe” in order to run the program. No command line arguments are required.

**User Input:** The program will be interactive. When the program runs it will prompt the user in this order:

* Number of cities to run
* # of tours are in a generation
* # of generations to run
* Percentage a generation is comprised of mutations

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

Number of cities: 10

Tours per generation: 100

Number of generations: 100

Percentage of mutations per generation (0-100): 70

Number of cities ran: 10

Optimal cost from brute force: 405.1

Time the brute force algorithm took: 2.574 s

Cost from the ga: 443.55

Time the ga took to run: 0.026 s

Percent of optimal that the ga produced: 109.491%