**User Manual**

**Graph ADT Program**

This program builds and maintains a set of vertices and a set of weighted edges. Its purpose is to allow for a graph construction or destruction of any type, and size. There are multiple real world applications for a Graph ADT. Managing travel routes for sales people with vertices representing customer locations and edges representing the travel routes between locations with their associated costs, and managing computer network configurations with vertices representing computer sites and edges representing communication links between computer sites with associated costs would be a few examples. As the program runs, the user will be prompted with a selection of options to choose from to access the Graph and its components.

1. **Executing the Program**

Turn on and boot your computer.

Open the executable graph.exe file.

If selecting option one: Locate the filename containing the pre-existing properly formatted graph, enter it into the program. Then, follow the input requirements.

If selecting any other option: Follow on screen instruction at this point. Several options will be made available to be chosen at any time during the program.

1. **Input**

**2.1 Input Requirements**

A valid file-path must be entered. For example, C:\Desktop\examplefile.txt is a valid filename. Note that a filename must only be entered if a pre-existing record is willed to be updated, or if creating a new record is desired.

Remember to double check that the correct file path was entered into the console screen. When a valid file-path is input, press enter.

**2.2 Input Restrictions**

The file must be formatted properly.

The file must have a valid path for the program to process it.

The file must have the correct data formatted inside it.

There must be a “#” symbol (no quotes) to symbolize the end of an adjacency entry.

1. **Output**

A user input will decide when the record is to be printed to the console. This is a programmer-chosen filename that would be used as the input file to retrieve the data to display either the graph, a Breadth-first Traversal of the graph, a Depth-first Traversal of the graph, or the shortest distances between and desired starting and ending location in the given graph.

If the file-path entered is invalid, then the following message will display:

“Invalid path. Now exiting program.”