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ECE 368 Project 3

Milestone 1

The goal of this assignment is to to parse through a graph from point A to point B, using the shortest distance possible with Dijkstra's algorithm. The information about the tree will be given in in the first input file, and I will build the tree/graph based on this information. The vertices and the links between them will be given in the first file, so it should be easy to create a graph. The first two numbers also contain the number of vertices and number of edges, so I will be able to use them to create the graph more easily.

The second input file contains the list of queries along with the start and end points. This information is necessary to parse the graph. The data structure that will be used will be a graph. This is different from linked lists and binary trees in that it uses number of edges to interconnect between them, and there are no limitations on how to implement these edges including their directions. The abstract data type will be used to implement the graph structure. Each node will contain the location of its vertex in space, and it will also include the link to the connected node using the edge and its distance.

The algorithm for find the shortest path takes the non-negative edge lengths and parses through each node until it finds the shortest path to the destination. Each node that is unvisited should be marked as such and then marked visited when the algorithm finishes with it. Once the algorithm reaches the end point, it will halt instruction and return the shortest path.