ORIE 5380, CS 5727: Optimization Methods
Homework Assignment 7
Due October 26, 12:00 pm

Question 1

In the attached text file, you will find data for a network. The first line in the file shows the number of nodes and the number of arcs in the network. Thus, there are a total of 8 nodes and 16 arcs. We label the nodes 1 through 8. Each line in the rest of the file corresponds to an arc. In each line, the first entry corresponds to the origin node of the arc. The second entry corresponds to the destination node of the arc. The third entry corresponds to the length/cost of the arc. Thus, the second line in the file corresponds to an arc from node 1 to node 2 with a length/cost of 1. The last line in the file corresponds to an arc from node 7 to node 8 with a length/cost of 6.

Write code in Python or in another programming language of your choice that calls Gurobi to find the shortest path from node 1 to node 8 in this network. Your code should read the data from the text file and use loops to create appropriate decision variables and constraints. It should solve the corresponding linear program, get the optimal solution and print the optimal solution and the optimal objective value, all in Python or in another programming language of your choice. Submit a printout of your code and the output from your code.