Project Proposal

Jamil Sinno
B00568580
IENG 6912
November 15, 2017

To demonstrate an understanding of the course material, this project will cover a hypothetical traveling salesperson scenario in the form of a student travelling to Europe for vacation. The main objectives of the trip will be trying to minimize travelling distance while attempting to minimizing the cost of the trip.

The reason for choosing this problem is due to its rate of occurrence. Many students choose to vacation in Europe after graduation. Students who travel to Europe choose multiple countries to visit in one vacation. The ability to travel relatively easily within Europe makes this scenario a perfect fit to solve as a mixed integer linear program.

In this scenario, the student will be leaving for Europe from Halifax and the trip will end once the student has returned to Halifax. The student has thirty days to travel, and the trips to and from Halifax will count from the 30 days. The student plants to visit Iceland, England, France, Spain, Italy and Germany. For the sake of simplicity, the student will only travel using airplanes and will travel to the capital cities. The reason for this constraint is that the cost of the trips will be pulled from travelling websites. Another constraint the student will set is that once they have visited a country, they will not return to it during the trip. This means the student will be returning to Halifax from the last country they visit and will need to plan accordingly.

To solve this problem, the simulated annealing problem will be applied to the scenario. The solver that will be used for this problem will be GLPK and will be solved using Python. The shortest path algorithm will be applied to the problem to get the result and compare it to the optimal solution which is to minimize cost.