CMPUT 275 Final Project Proposal

Project:

Flight Path Finder

Team Members:

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Description:

The Flight Path Finder will store data on numerous flights from OpenFlights.org. The user will be able to input the number of destinations they wish to visit on a trip, *n* and a number of possible destinations, *m*. The number of destinations can be larger than the number of destinations they wish to visit. The user will then input a list of *m* destinations. The program will find the most efficient trip based on distance traveled and will choose the *n* most efficient destinations. Layovers listed in destinations not specified by the user will be allowed, and will not be counted as destinations.

This problem will be modelled similarly to the travelling salesman problem, and will be using resources from:

- http://www.cs.ucf.edu/~dmarino/progcontests/modules/dptsp/DP-TSP-Notes.pdf
- https://www.geeksforgeeks.org/travelling-salesman-problem-set-1/

Milestones (4 to 7 days):

1. Format data and figure out how to parse the file.
2. Implement the travelling salesman algorithm stopping at all *n* possible destinations from a set starting point.
3. Alter travelling salesman algorithm so to allow the user to input *m* destinations, which can be greater than *n* (the number of destinations they will visit). Ie. They could input 5 destinations, but only wish to travel to 3, and the algorithm would find the best 3 locations to travel to (by distance traveled) in the most efficient order.
4. Format input and output to be intuitive and user-friendly.

Bonus Milestones:

- Output the top 5 instead of one single output

- Store flight data with prices, and find the most efficient path by price. Store information about each airport a hash table (which will contain the average daily spend in the destination city) and allow users to make their trip most cost efficient.
- Filters:
    - Only fly on specified airlines
    - Only fly on airlines with above a specified rating