**Intermediate Computer Programming**

**Reflective Report**

My code consisted of 5 classes, a node class, an airport class to represent the attributes of the airport, the airline class, and the route class. The airport class contains 13 attributes from the dataset such as the airport id, airport name etc. The Airline class has 8 attributes such as the Airline ID, the name, the alias/nickname of the airline or the IATA or ICAO codes. The route class contains 9 attributes, such as the source and destination airline codes, the costs and the airline Id to name a few. For each class, a *Data\_Retrieve* method was created whos goal was to read and extract the relevant data from the respective csv files and store the relevant data in objects of the respective class which was later stored in a Hashmap with a key and an array list as the value. In each class:

**Airport**: The key was a combination of the city and country

**Airline:** The key was the IATA code

Routes: The key in this was the source\_Airport

In implementing my breadth first search algorithm, I experienced quite a lot of struggles, especially when it came to translating previously known python knowledge into java and also trying to implement the system in such a way that the search algorithm utilized the data being read, in a somewhat efficient manner. I had previously decided to implement a Uniform Cost Search as I believed it would be the most efficient search, especially when dealing with optimality however after running into many roadblocks, I was forced to switch to the breadth first implementation which seemed somewhat easier to implement. Additionally, I also ran into roadblocks where certain Start Destinations and End Destinations that had flights connecting them would return an error or not return a path whiles others would. For instance, Accra, Ghana to Winnipeg, Canada would result in no route although there is one but for another case like Accra, Ghana to London, United Kingdom it would give me a solution.

Although I found this work very challenging, I believe it helped reinforce some basic java fundamentals as well as key concept we learn in class such as how to read from a file and throwing exceptions. Websites such as GeekforGeeks were also very crucial in helping me remember crucial syntax to implement my code.

**References**

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