**Reflective Report**

After reading the project and what was required of us, I opened the provided csv files and viewed their contents taking note of the important details that I will need. I started brainstorming on how to go about the project given the three csv files. I started by creating a package called “com.example.flights”. In this package, I created a class called “Node” where I instantiated the node, with instance variables, constructor, accessor and mutator methods. I also created another class called “Flights” where I had all the methods. I declared instance variables and a constructor. I then wrote the accessor and mutator methods. In order to view either of the provided csv files, I created a method called “read” and parsed a file as a parameter. I then created a method called “write” that writes into a text file. The text file is the input file that the user is supposed to enter the start city and country, and the destination city and country before the program outputs a series of flights from the entered start city to the destination. When the user enters the start city and country, there should not be a space, only a comma between the city and country. This also applies to the destination city and country. I then created a method called “airportSearch” that takes a csvFile as a parameter. The method creates a hashmap with a String of city concatenated with the country as the key and the airport codes as the values. I then created a method called “outputRoutes” that gets the start city and country, and the destination city and country from the input file and adds them to an ArrayList.

The next method is called “getCodes” which takes a map as a parameter, finds the airport codes corresponding to the start city and country, and destination city and country. The two codes are added to an ArrayList called “codes”. The next method “routesMap” creates a Hashmap that maps the airport code an ArrayList consisting of nodes. The method takes a csvFile as a parameter. The file used is the routes.csv file. In addition to that, I created a method “findRoutes” which uses the breadth-first search algorithm to find the series of flights from the start airport to the destination airport. Moreover, I created a method called “solutionPath” that gets a series of flights from the start to the destination and writes to the output file. Lastly, I had the main method where I called the other methods for testing.

Some of the challenges I encountered included choosing the right data structures to store the data like airport codes and ease of accessing them. Also, the breadth-first search algorithm was taking too long to find the series of flights from the start airport to the destination airport. This made it hard for the solution to be found thus the output file was not created. I also had many methods, some of which were calling other methods. This made the program to have many methods calls apart from the calls made in the main method.

I used several resources to aid me in doing the project. These resources included Stackoverflow, slides from class and several google searches.

**References**

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