**Individual Project 1 Reflection**

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I solved this project using the breadth-first search. I first created three classes, each representing the three data files we were given: airports, airlines, and routes. I then read the files in a class I called FileReadAndWrite. I created a method to read all three data sets and used the scanner object to read them. I then split the file at commas and uploaded each entry on each line to an array. Then, I created a hashmap with the keys of the airport, airline and routes methods being city, country (a concatenated string of the city and the country), airline ID and source airport ID respectively.

After this, I created my node class, which creates instances of the needed variables. Then, I created a class to find the route and implemented the breadth first search algorithm here. The breadth first search algorithm loops through a frontier to check whether it’s empty and if it is not, pops the first node off the frontier and adds it to the explored set. It then checks if the child nodes of the explored node are in the frontier or the explored set. If it is in neither, it adds it to the frontier. If it is in the frontier, it does nothing.

From this project, I learnt the proper implementation of data structures like hashmaps, arraylists and arrays and learnt how to use their methods. I also learnt how to how to create an object and its instance. I learnt how to read from files and the importance of closing a file stream after using it. I learnt the importance of using exceptions in methods where you are trying to do something specific. For example, if you’re trying to use an array within a method, it is important to use an ArrayIndexOutOfBoundsException.

Some references I used were javatpoint, github, stackoverflow, w3schools, geeksforgeeks, and codegrepper.