Intermediate Computer Programming

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REFLECTIVE REPORT

In this project, I first divide the problem into segments for easy implementation. I first implement an Airport class the following attributes Airport ID, Name, City, Country, IATA code, ICAO code, Latitude, Longitude, Altitude, Timezone, DST (Daylight savings time), Tz database time zone, Type, Source of this data. And getters were implemented to get the attribute of an airport instance. Also, Airline and Route classes with Airline ID, Name, Alias, IATA, ICAO, Country, Callsign and Airline, AirlineID, AirlineName, sourceAirport, sourceAirportID, destinationAirport, destinationAirportID, and stop respectively

were also implemented with getters and setters. The dataset from the route.csv files contained some filthy data, so I filtered them out for efficient implementation and manipulation.

Next, I implemented ListOfAirlines, ListOfAirports, and ListOfRoutes which return the list of airlines, airports, and routes from their cvs files in a HashMap data structure for the ListOfAirlines and ListOfAirports for easy accessing.

Finally, I implemented a breadth-first search that uses a Queue (First-In-First-Out) for its implementation as the airport is being processed or explored to get the successor airports (reachable or destination) airports and add to the queue and remove all the already explored airports from the queue. This is achieved by using input city and country to create an airport instance and comparing the airport ID to the route IDs to get the source airport ID. Then source airport ID is then used to get the destination airports IDs and add then to the queue. Each of which is compared to the destination airport created from the destination city and country names.

There is a class call TextManager where the various functionalities for writing and reading files are found. This class allows user to input cities and countries from the terminal and this data is written to a file called input.csv. The FindRoute class is where most of the functionality of the program dominates.