**ICP Individual Project 1**

This project aimed to find a flight or list of flights, given a start country and city and a destination country and city. The user input was to be given by a file and the output was to be printed into a file.

The datasets provided had IATA codes in routes that matched the source airport codes.

I created a Route class that contains constructors for a route object. The Route class has a method, getRoute, that reads the routes file into a Hashmap. Its’ key is the IATA of a given source airport. The value for each key is an Arraylist that has the IATA codes of all destination airports that could be reached from the key. Inside the route class is a method, findRoute, that implements a breadth-first search. It takes the IATA codes of the source and destination airports as parameters.

The solution path returned by findRoute is defined in a Node class. This class has a constructor that creates node objects to handle the parent-child relationship between each airport. The constructor takes the IATA codes of the current airport and its parent as parameters. The solution path method within this class returns an array containing the names of each airport, from the source to the destination, that is visited in the path. The names of the airports are obtained from the objectInit method in the Airport class.

The Airport class contains a constructor that creates airport objects for each airport in the data file. The airport objects are stored as values in a hashmap and the key of each value is the IATA of the airport it indexes. The objectInit method in this class allows for the initialized airport object to be accessed using the string value of the IATA codes. It returns an airport object when its IATA is passed as an argument. This allows for all the attributes of that airport object, including its name, to be returned in the solution path.