

Computer Science 2920

Assignment 4 - Extra Task – Due Thursday April 11 @11:55pm

To do this extra assignment you must have successfully completed Assignment 4. You are now given a file named “routes with costs.csv” which contains not only the flight routes but also their associated cost (also fictional) in a third column.

Given this information you need to add a method to your “AirlineConnections” class. That method will be named *cheapestFlight()* and will return the path with the lowest cost given two airport codes (including the overall cost). Of course, you may also need to modify your graph implementation to include the costs associated to each edge. The rest of the class can remain the same. Now the update *AirlineConnections* class should be as follows:

```
class AirlineConnections {
AirlineConnections(filename) // creates the directed graph from the info in the file
void addFlight(DEP, DES, cost) // adds a flight to the graph from DEP to DES, including
                                // the cost
void removeFlight(DEP, DES) // removes a flight from the DEP to DES from the graph
                                // if the flight exist, otherwise does nothing
String findFlight(DEP, DES) // returns a path of connections between airports DEP
                                // and DES (an empty string if no connection exist).
String cheapestFlight (DEP, DES) // returns the cheapest flight (shortest path given the
                                // weights of the edges) between airports DEP and DES
                                // (an empty string if no connection exist). The
                                // string should include the path and the total cost.
int totalCount() // returns the number of single flights in the graph
}
```

In order to create this new method, you should implement Dijkstra’s algorithm.