Project 1: Input & Outputs

CmpE 160, Introduction to Object Oriented Programming, Spring 2022

Updated Input Format:

First line: "<M> <A> <P>"

These are integer type values.

- <M> is the maximum number of aircrafts allowed
- <A> is the number of airports.
- <P> is the number of passengers.

Second line: "<prop> <widebody> <rapid> <jet> <operational_cost>"

These are double type values.

- <prop> is the operationFee of PropPassengerAircraft objects.
- <widebody> is the operationFee of WidebodyPassengerAircraft objects.
- <rapid> is the operationFee of RapidPassengerAircraft objects.
- <jet> is the operationFee of JetPassengerAircraft objects.
- <operational_cost> is the operationalCost of the airline.

Next <A> lines: "<airport_type> : <ID>, <x>, <y>, <fuel_cost>, <operation_fee>, <aircraft_capacity>"

- <airport_type> is either "regional", "major", or "hub".
- <ID> is the unique ID of the airport.
- <x> is the X coordinate of the airport.
- <y> is the Y coordinate of the airport.
- <fuel_cost> is the fuelCost at this airport.
- <operation_fee> is the operationFee of this airport.
- <aircraft_capacity> is the maximum aircraft capacity of this airport.

Next <P> lines: "<passenger_type> : <ID>, <weight>, <baggage_count>, <destinations>"

- <passenger_type> is either "economy", "business", "first" or "luxury".
- <ID> is the unique ID of the passenger.
- <weight> is the weight of this passenger.
- <baggage_count> is the number of baggages this passenger has.
- <destinations>: "[<airport_IDs>]"

  <airport_IDs> : "<airport_ID>, <airport_IDs>" |

  "<airport_ID>"

  This is the format for <destinations>, where <airport_ID> denotes a unique airport ID. Destinations list will not have duplicate airport IDs. The first airport ID will be the initial airport for the passenger.

Circle Inputs:

In this input type every airport will be inside a circle with a diameter specific diameter.

- **Type 1:**

  There will be 10 airports and 700 to 3000 passengers. Passengers will have destination lists of length 2, the first one is the initial airport. Thus, the passenger will want to go to a single destination. All airports will be generated in a circle with a diameter of 7000 units. This will let fully fueled up Widebody and Rapid aircrafts reach any airport without thinking about range limitations.

- **Type 2:**

  There will be 10 airports and 1000 to 5000 passengers. Passengers will have destination lists of length 2 to 4. This will allow connection flights. All airports will be generated in a circle with a diameter of 7000 units. This will let fully fueled up Widebody and Rapid aircrafts reach any airport without thinking about range limitations.

- **Type 3:**

There will be 25 to 35 airports and 3000 to 15000 passengers. Passengers will have destination lists of length 2 to 5. This will allow connection flights. All airports will be generated in a circle with a diameter of 14000 units. This will let fully fueled up Widebody aircrafts reach any airport without thinking about range limitations.

Scatter Inputs:

These inputs will not have restrictions on how far the airports can generate. First, hub airports will be scattered around, then, major airports will be scattered between hub airports. Regional airports will be scattered with close proximity around (Thus allowing you to use shorter range aircrafts) hub and major airports, forming clusters. If a passenger starts off in a regional airport, then the next destination will be a hub or major airport which is in close proximity. If a passenger wants to go to a regional airport, the previous destination will be a hub or major airport of close proximity.

These inputs do not have any other restrictions.

Additional Warnings:

- A passenger can only make a single connection when coming into a new airport. Do not transfer passengers more than once in the same airport. You can transfer that passenger again after it flies to another airport.
- A passenger will sit in the highest class chair possible. For example, if there is a free first class seat and you load a luxury or first class passenger, then that passenger must be seated in that first class seat.