Team 000000000111

Airport Map

Analysis Class Report

Revision History

Authors	Description of Change	Sections	Rev	Date
Matthew Noack	Added Project Description	2	1	3/1/18
Yushuo Lu	Class Diagram	2	2	3/1/18
Christine Trujillo	Adjusted Table of contents	I	2	3/13/18

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1 Team Description

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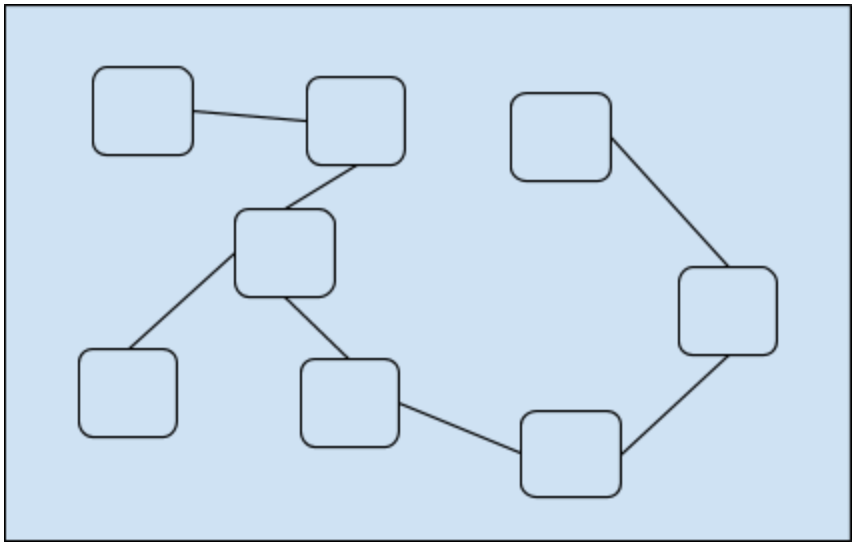
2 Project Description

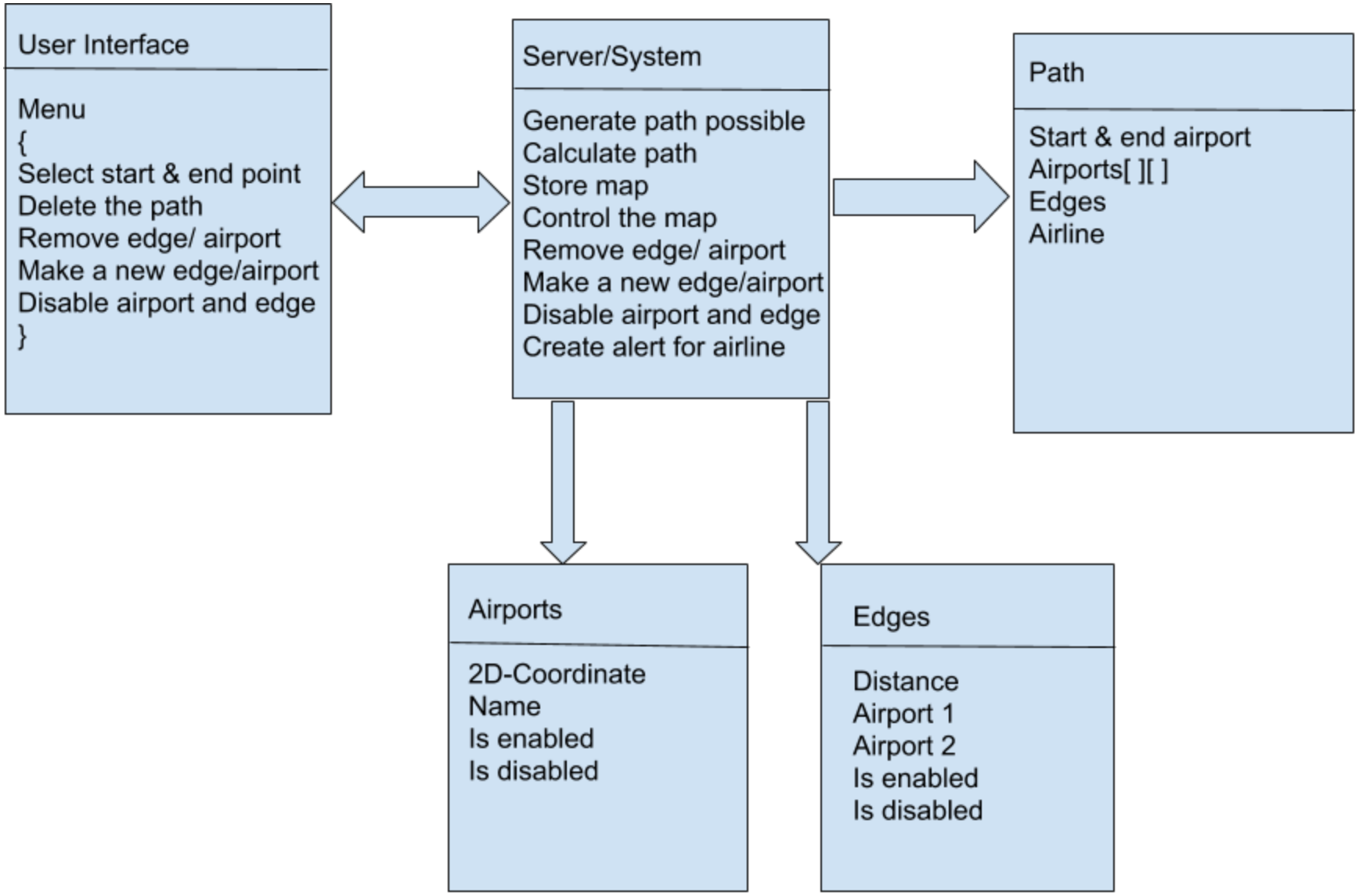
Statement of Purpose: The purpose of this project is to determine the optimal flight path based on distance between two airports.

Detailed Description: Each rectangle is a vertex, an indivisible object that are connected by edges, and each vertex represents a airport. Each line between two airports are called an edge, and the set of edges that connect a starting point and ending point is called a path. The program will generate a map based on the number of vertices and edges created by the FAA(It will look like the following drawing).



The airline enters a starting point and ending point for the path. First, the system will determine if the path is possible. If the path is possible, the system will generate the shortest path for the airline based on distance. If not, the system will generate an error message. If the airline selects a generated path. the FAA will then record said path selected by the airline. The FAA can remove airports and paths at anytime.

2.1 Analysis Class Diagram


User Interface
Menu
{
Select start & end point
Delete the path
Remove edge/ airport
Make a new edge/airport
Disable airport and edge
}
Server/System
Generate path possible
Calculate path
Store map
Control the map
Remove edge/ airport
Make a new edge/airport
Disable airport and edge
Create alert for airline
Path
Start & end airport
Airports[ ][ ]
Edges
Airline
Airports
2D-Coordinate
Name
Is enabled
Is disabled
Edges
Distance
Airport 1
Airport 2
Is enabled
Is disabled

2.2 Analysis Class List

Sequence Number	Analysis Class
1	User interface
2	Server/System
3	Airports
4	Edges
5	Path
6	

2.2.1 User Interface

Description: This class will do all the functions that user can use and interact will system. It will access functions from Server/System class in order to display the information that the user can use.

Methods:

- Select path(start airport,end airport);
- Save path(start airport, end airport);
- delete path();
- make a new airport(x,y coordinate,name,location);
- make a new edge(airport 1,airport 2,id,distance);
- remove edge(edge.id);
- remove airport(airport.name);
- disable edge(edge.id);
- disable airport(airport.name);
- enable airport(airport.name);
- enable edge(edge.id);

Attributes:

- Menu();

2.2.2 Server/ System

Description: This class will do all of the calculations. It will use attributes from the Airports, Edges, and Path classes in order to generate and control the Airline Map.

Methods:

- Generate path(start airport,end airport);
- Calculate path(start airport,end airport);
- make a new airport(x,y coordinate,name);
- make a new edge(airport 1,airport 2,id,distance);
- remove edge(edge.id);
- remove airport(airport.name);
- disable edge(edge.id, edge.isDisabled);
- enable edge(edge.id, edge.isEnabled);
- disable airport(airport.name, airport.isDisabled);
- enable airport(airport.name, airport.isEnabled);
- Create alert for airline(airport.name, edge.id, airport.isDisabled, edge.isDisabled);
- Store map(airports[][], edges, paths[]);

Attributes:

- Airport;
- Edge;
- Path;

2.2.3 Airports

Description: Determined the name location and 2d coordinate for airports. Determine if airport is enabled or disabled.

Methods:

-

Attributes:

- 2D coordinate;
- name;
- isEnabled;
- isDisabled;

2.2.4 Edge

Description: Determined the id, connecting airports, and distance for edges. Determine if edge is enabled or disabled.

Methods:

-

Attributes:

- airport 1;
- airport 2;
- distance;
- isEnabled;
- isDisabled;

2.2.5 Path

Description: Determined all information for each requested path.

Methods:

-

Attributes:

- Airport[][];
- Start and end time
- edge[];
- Airline;
- departureTime;