Assignment 4

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1. Thinking：

Abstract system comes from the analysis of real life problems. To realize a system, designers need to analyze real problems first. Firstly, the target users, that is, the travel agencies, and the service objects or management objects of the target users, that is, airlines and tourists, can be figured out. Then designers are able to divide the whole system roughly into two parts, flight subsystem and tourist subsystem. Then the designer needs to consider the services that these subsystems need to provide, that is the functions that the designer needs to realize:

The realization of the airline subsystem completes the management of the three roles of airlines, flights and planes, and realizes the functions of creating and logging in to airlines, and adding, deleting and updating flights and planes. The implemented logic includes FlightList from an Airliner class. Then, each Flight corresponds to an Airplane, which realizes the logical relationship from airline-flight-aircraft, and then lists the Airliner into a complete list to realize the addition, deletion and modification of its subsequent functions Check function. In addition, the Flight class implements the allocation algorithm for Seats, and in the Add Flight interface, through the imported jar package:DatePicker, the time selection is completed and the time change is implemented in the View Flight Panel. Because it is the one-to-one relationship between the Flight class and the AirPlane class in the implemented logic, the system completes the need for updating flights by setting a Hash().

The tourist subsystem mainly realizes the creation of tourists, the creation of tourist itineraries, the inquiry and reservation of tourist tickets, and the related information of tourists and their reserved flight tickets.In this case, we can abstract the tourist class, the place class (the specific departure place and destination can be instantiated from this class), the tourist itinerary class, the association class between tourists and flight information and so on. Since there are several instantiation objects of tourists, it is considered to use one data structure to store several instantiation information of tourists in order to manage them easier. The tourist trip class and the association class between tourists and flight information do the same.

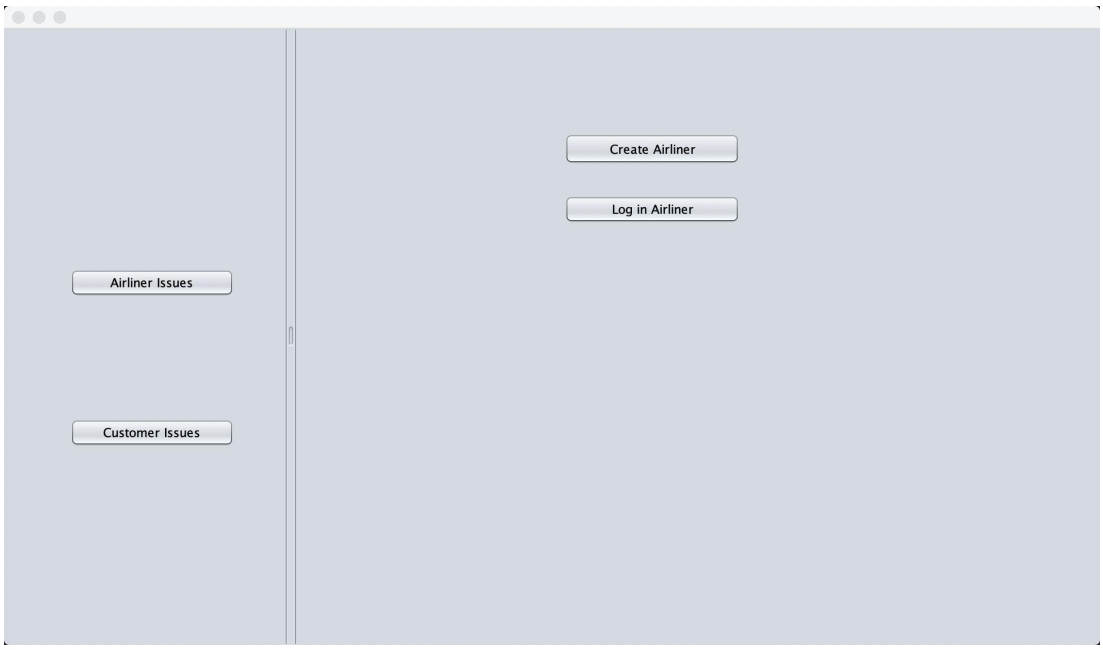
2. Specifications

Airliner Subsystem:

The entire Airliner System completes the airline registration, creation, addition, deletion, and update of aircraft and flight functions.

1. Airliner Function Select JPanel：

The Panel is the function selection interface of Airliner, which is convenient for new Airliner to choose registration and Airliner to choose login function.



2. Create Airliner JPanel

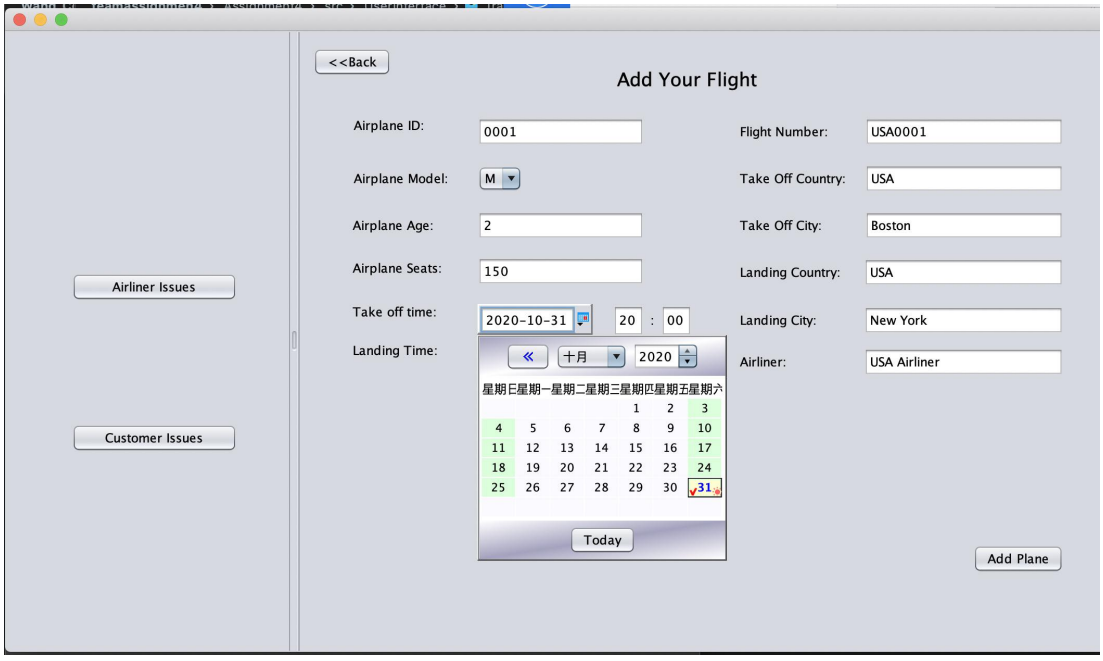
The Panel implements the function of creating airlines, and requires the four attributes of Airliner Name, Airliner Country, Airliner City, and password to create airlines, and checks the four input boxes to ensure that the airline name is not repeated. The remaining three positions comply with their respective input rules. After the creation is successful, enter the airline management interface, otherwise the creation will fail.

3. Manage Airliner JPanel

The Panel is divided into three parts, add flight and view flight, where the Flight class and the Airliner class form a one-to-one relationship, and the Table that displays Flight information. It is convenient for airlines to view detailed information and add to flights and aircraft.

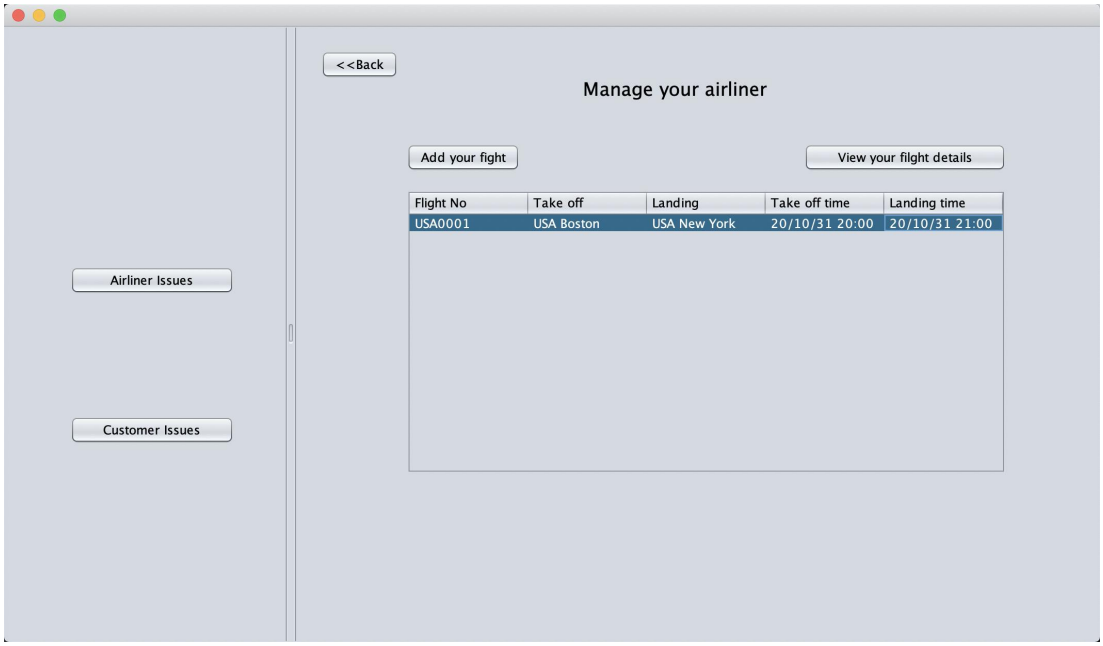
4. Add Flight JPanel

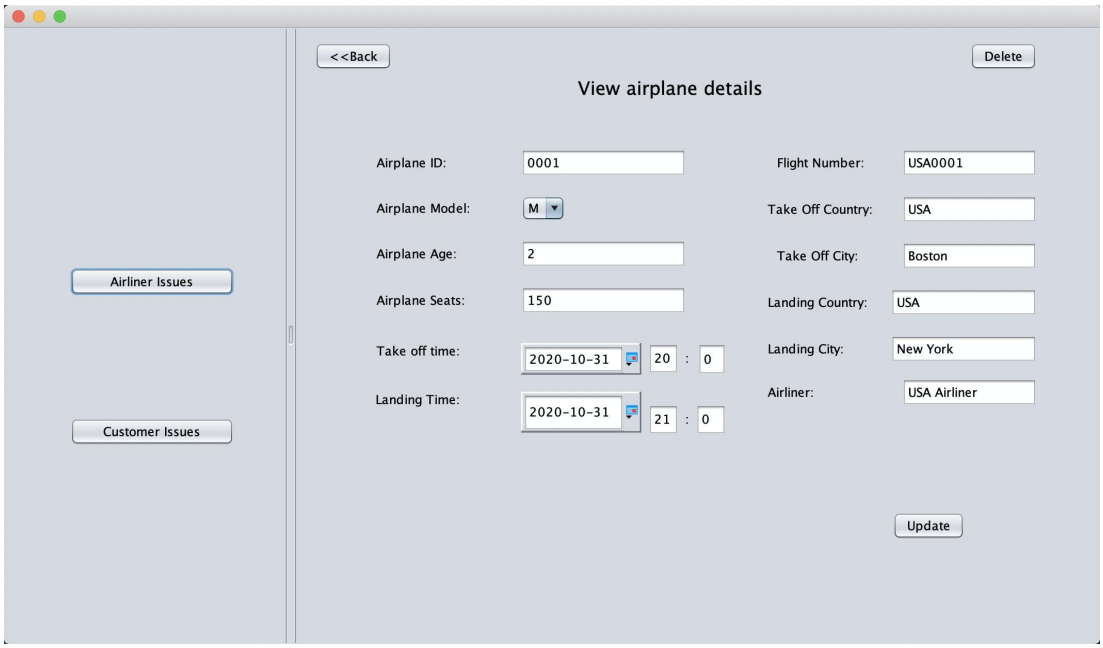
The Panel realizes the creation of flights and aircrafts and forms a one-to-one relationship, in which we verify that each attribute is not empty and meets the input rules. In addition, a new jar package: DatePicker is imported to complete the time selection. It is convenient for airlines to allocate their own flight time.



5. View Flight details JPanel

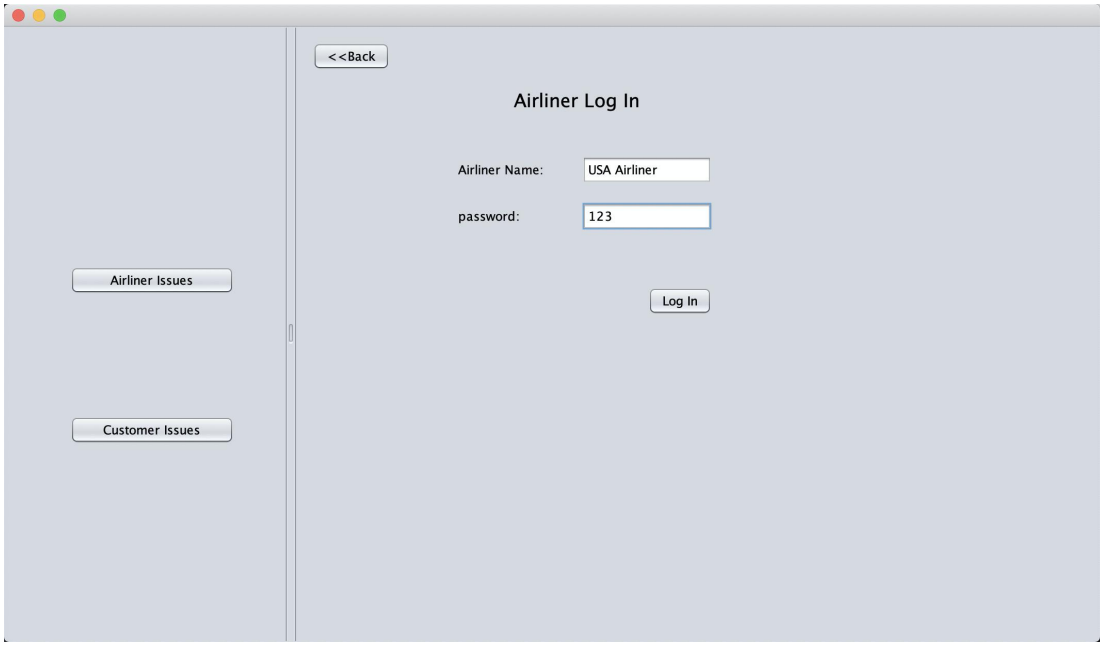
The Panel completes the selection of Table in the Manage Airliner interface, and jumps to the View Flight Panel to view the selected flight information and aircraft information. If the flight is cancelled, you can delete it on this interface. If the flight and aircraft have The changes can also be updated in this Panel.





6. Airliner Log In JPanel

After the Airliner is created, you can log in on LogIn Panel , and then enter the management Panel to manage flights.



Tourist Subsystem：

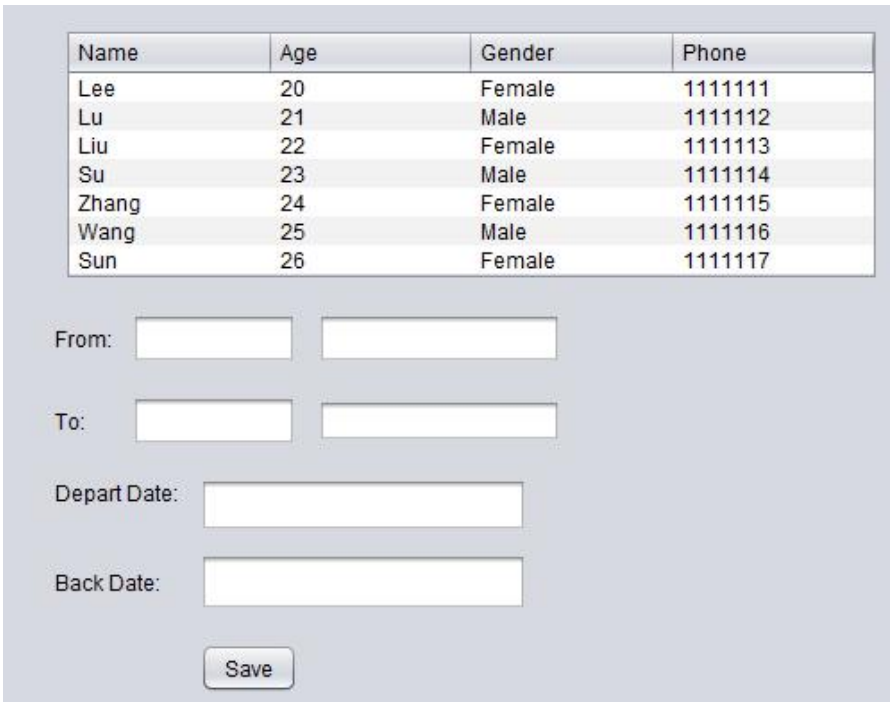
The main interface of tourist subsystem is as following:

1. Create a customer

The CUSTOMER class includes basic information like name, gender, phone and etc. which will be initialized in the following picture:

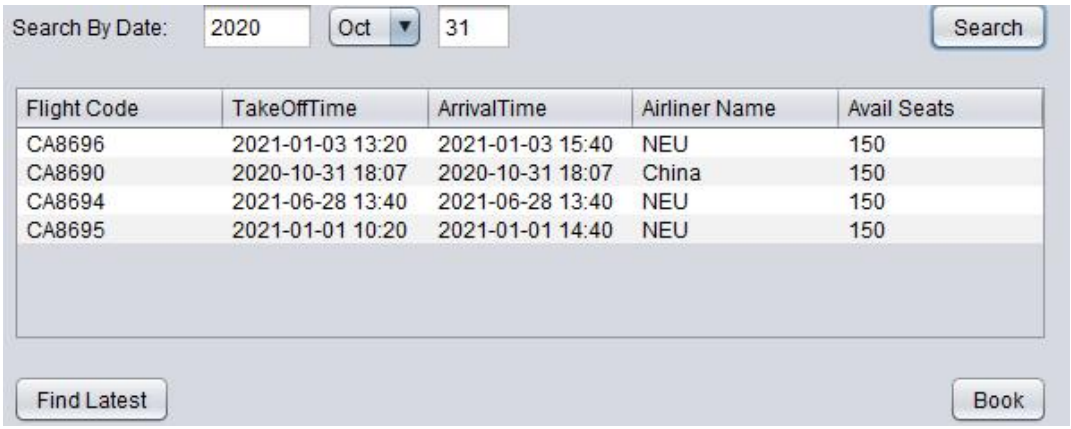
2. Create a tourist itinerary

This class includes departure place, destination, departure time and etc. except basic customer information stored in CUSTOMER class. And the in erface is like:



3. Search a flight

The flight information generates from customer itinerary. And then it is allowed to query flight information through specific date.

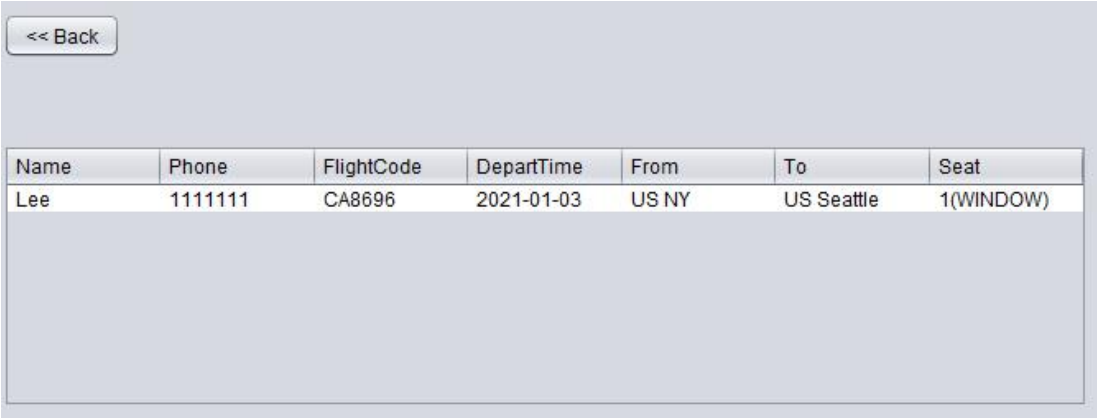


4. Book a ticket

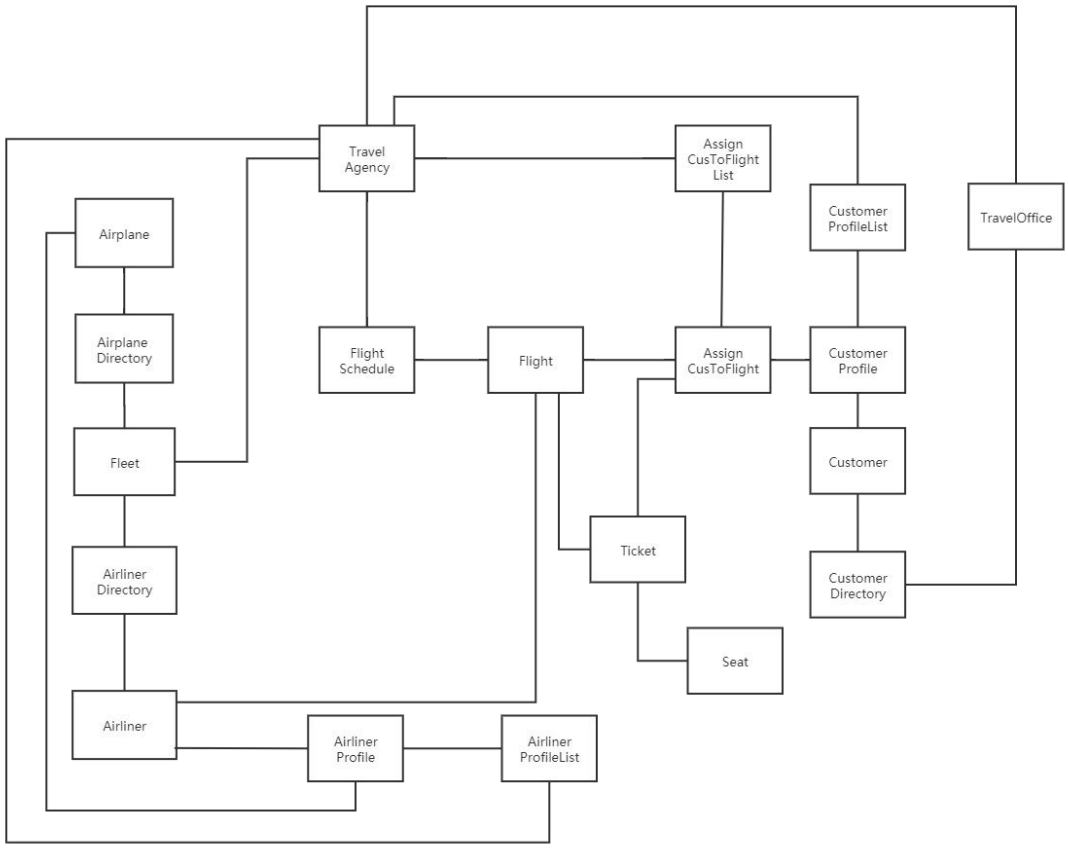
After selecting a flight, booking is necessary.

5. Query the association information between tourists and tickets

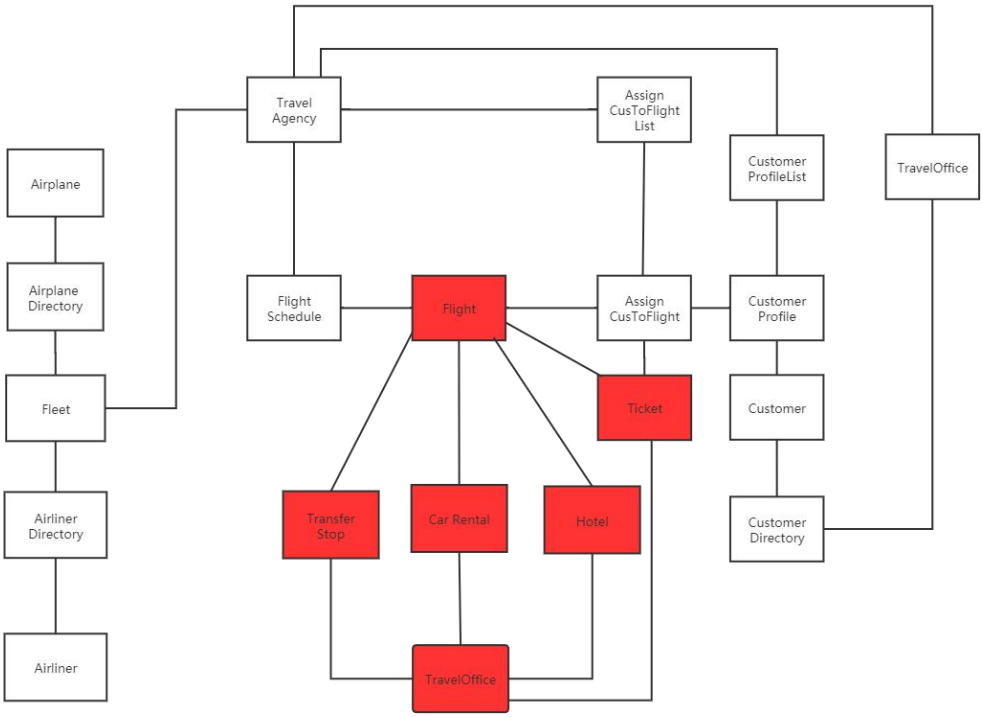
Users are able to examine the association information between tourists and tickets in another interface. The final result is like:



6. Object Model



7. Extra Credit



Class Travel Service save all service information. In the class Transfer Stop, Car Rental and Hotel contains the detail of stop service, cars and hotels information. In each flight object, it will have three attribute. In attribute Transfer Stop, it will store support service information the accroding to the flight plan detail save in the flight object. In atrtribute Car Rental, it will save a list of rental cars accroding to the information such as when and where the plane will take off or land. So passengers can see which cars they can rent if they want to catch a particular flight. In attribute hotel, it will save a list of hotels accroding to the information such as where the plane will take off or land. So passengers can obtain information about hotels near the airport.