Prototype

Documentation, Configuration, Integration

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目录

User Stories

Role	What the role can do
As a user,	I can specify the departure city and arrival city
As a user,	I can choose a one-way or round-trip or multi-city ticket
As a user,	I can choose the departure/arrival date
As a user,	I can choose the coach/first class seat
As a user,	I can view list of available flights after I specify the departure/arrival city, departure/arrival date, first-class/coach seat, and the trip type
As a user,	I can filter/sort the flights by its price
As a user,	I can filter/sort the flights by number of stops
As a user,	I can filter/sort the flight by the length of flight
Aa a user,	I can filter/sort the flight by its time window
As a user,	I can filter/sort the flight by the airline name
As a user,	I can view all the flights in local time
As a user,	I can check whether there is layover and the layover time
As a user,	I can choose the flight that I would like to reserve
As a user,	I can purchase that flight that I have chosen

Use Case (Bubble chart)

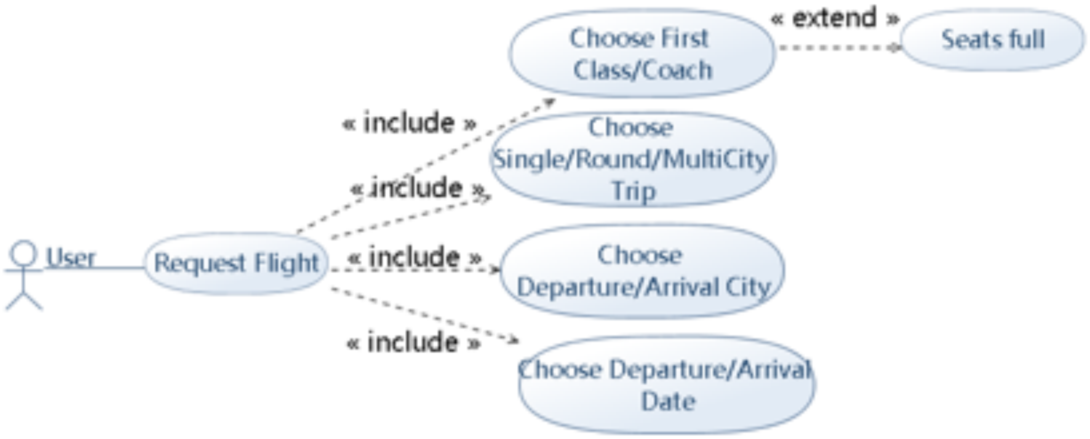


Figure1.1 Use Case Diagram (Request Flight)

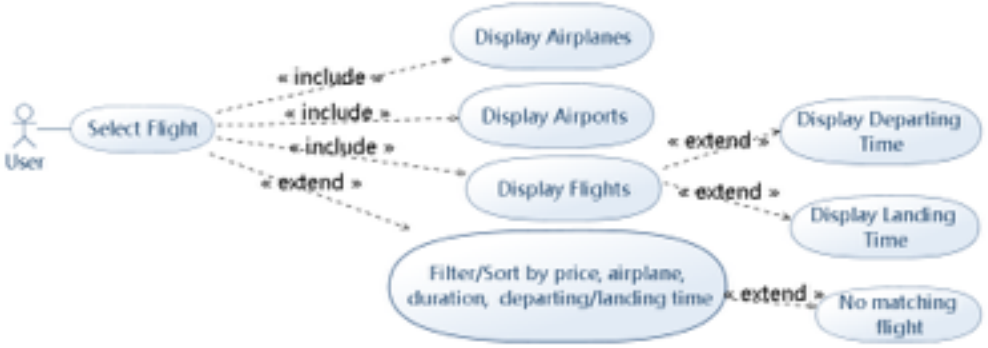


Figure1.2 Use Case Diagram (Select Flight)

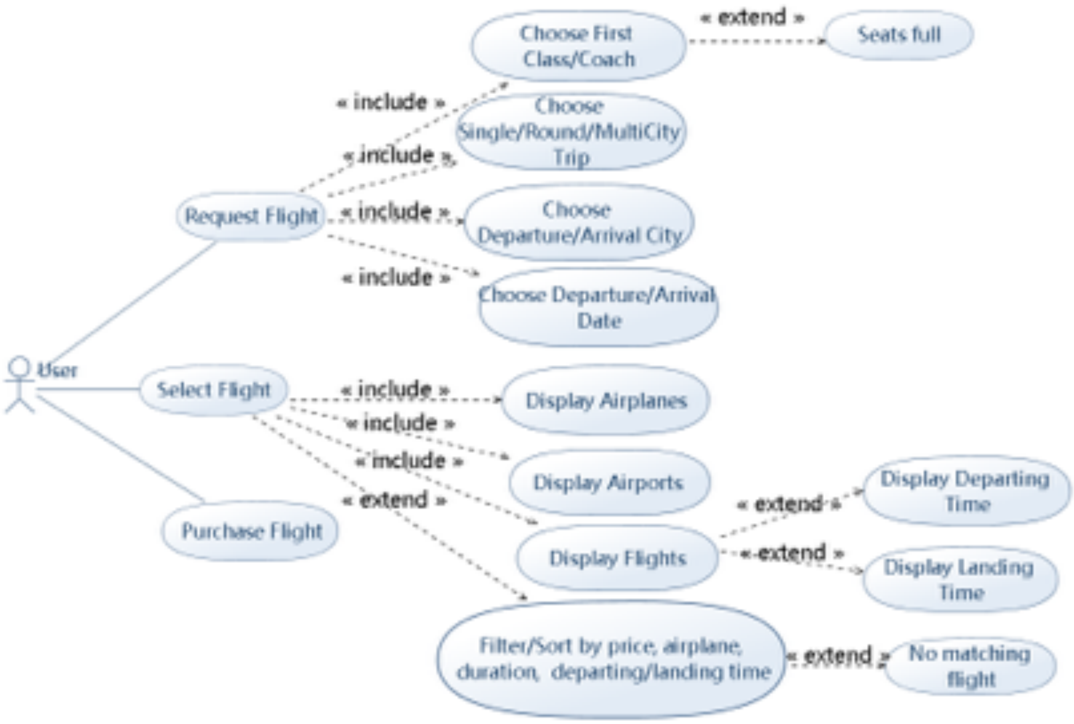
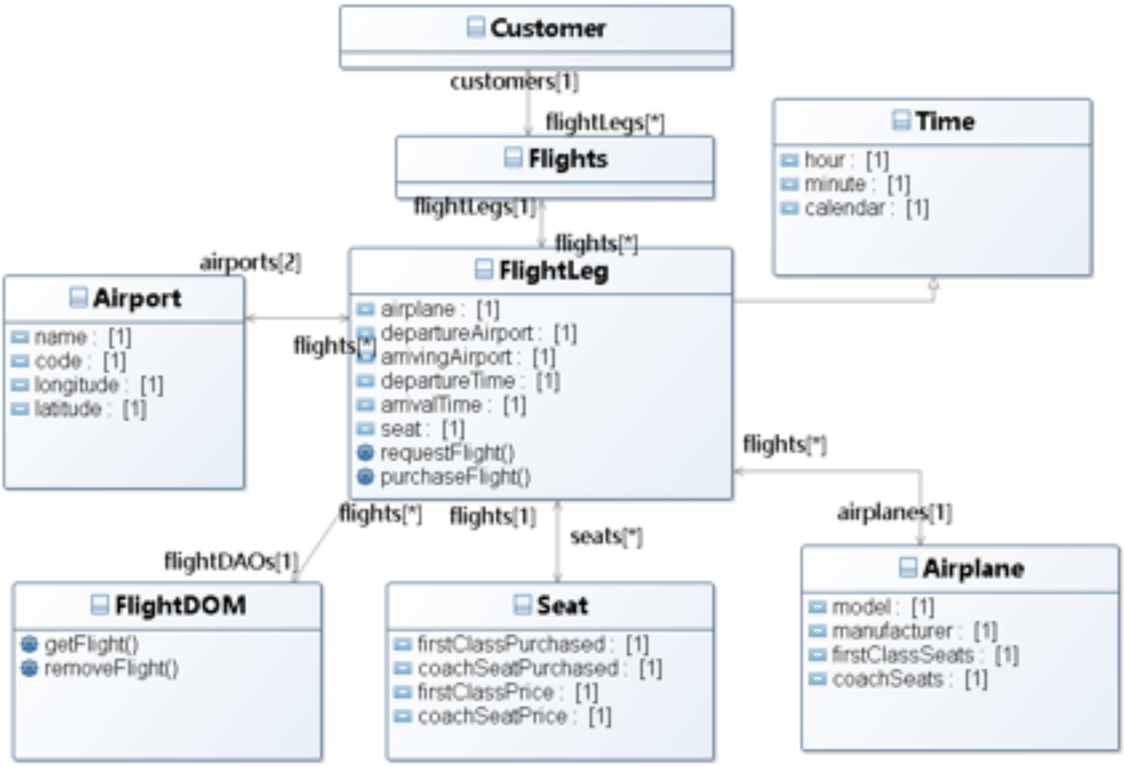


Figure 1.3 Use Case Diagram (combined)

Object Analysis Model



Prototype

What already works?

- Retrieving data from the server (XMLConnector.java)
- Parsing data Using DOM (AirportXMLParser.java, AirplaneXMLParser.java, FlightGetter.java)
- Purchase a ticket (FlightDaoImpl.java)
- Proof of ticket is purchased

What works, but needs to be optimized?

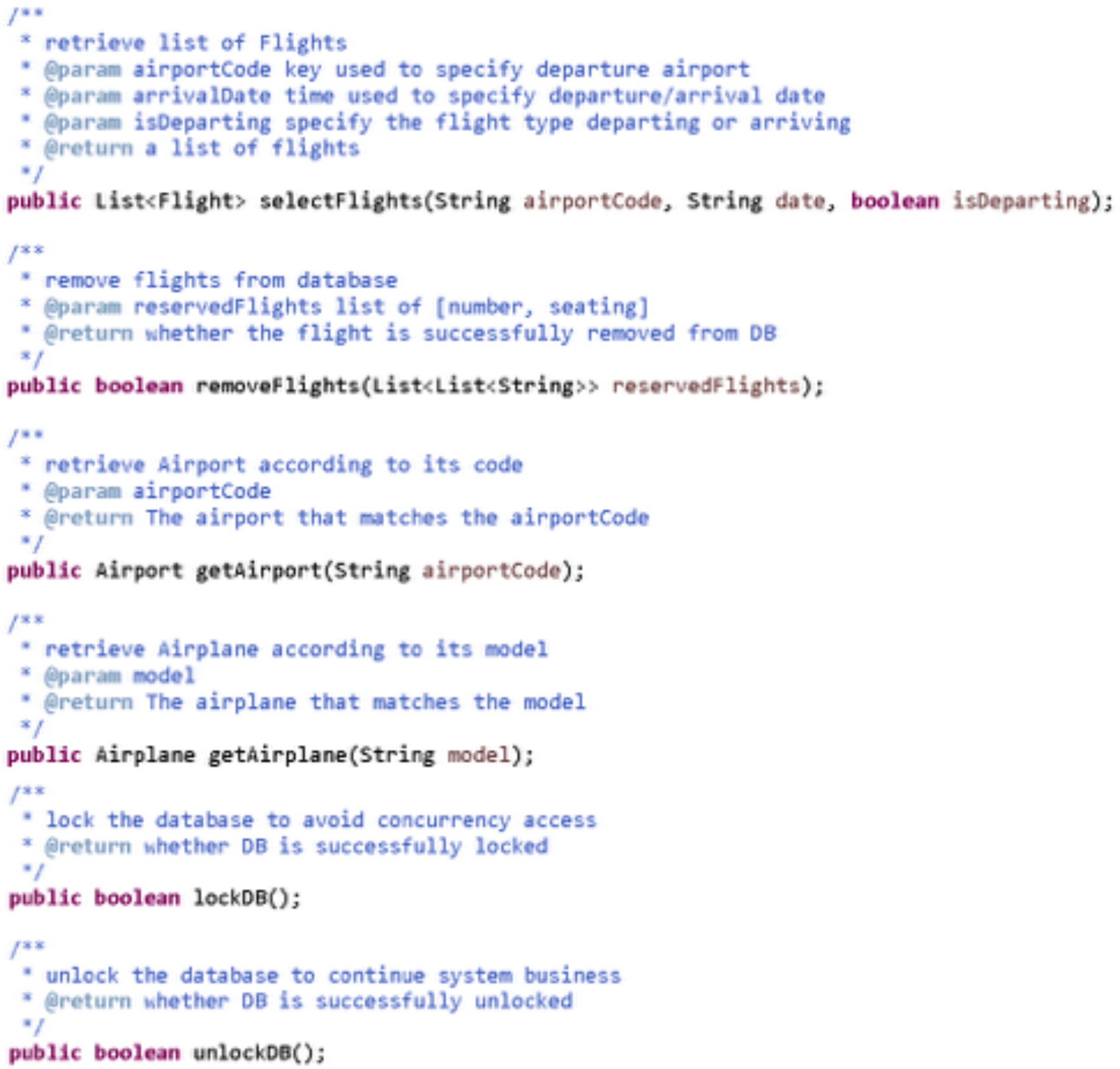
- Multi-Leg flights (works, not fast enough, roughly 5-8s latency)
- Seats detection

What is still under working?

- User Interface (homepage.html, chooseflight.jsp, buyflight.jsp)
- Local time display (time zone conversion, TimeAdapter.java)
- Sorting flights
- Possible iterator design pattern like: flightLegIterator

Basic interface:

Enter the src package, and cd com/flight_ticket_search/Dao/FlightDao
The basic interface of the models show as follows:



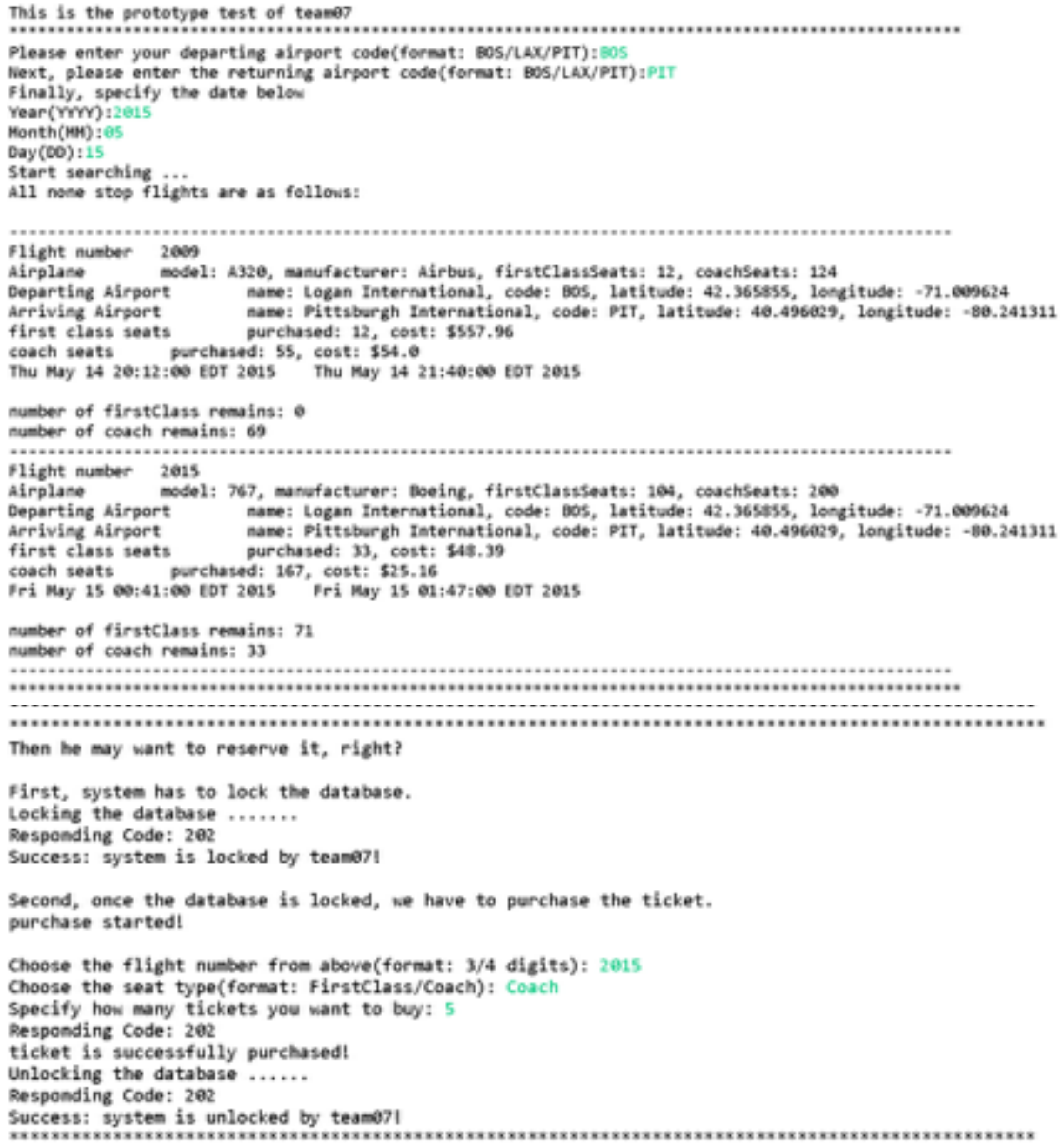
```
/**
 * retrieve list of Flights
 * @param airportCode key used to specify departure airport
 * @param arrivalDate time used to specify departure/arrival date
 * @param isDeparting specify the flight type departing or arriving
 * @return a list of flights
 */
public List<Flight> selectFlights(String airportCode, String date, boolean isDeparting);

/**
 * remove flights from database
 * @param reservedFlights list of [number, seating]
 * @return whether the flight is successfully removed from DB
 */
public boolean removeFlights(List<List<String>> reservedFlights);

/**
 * retrieve Airport according to its code
 * @param airportCode
 * @return The airport that matches the airportCode
 */
public Airport getAirport(String airportCode);

/**
 * retrieve Airplane according to its model
 * @param model
 * @return The airplane that matches the model
 */
public Airplane getAirplane(String model);
/**
 * lock the database to avoid concurrency access
 * @return whether DB is successfully locked
 */
public boolean lockDB();

/**
 * unlock the database to continue system business
 * @return whether DB is successfully unlocked
 */
public boolean unlockDB();
```

Singleton classes:

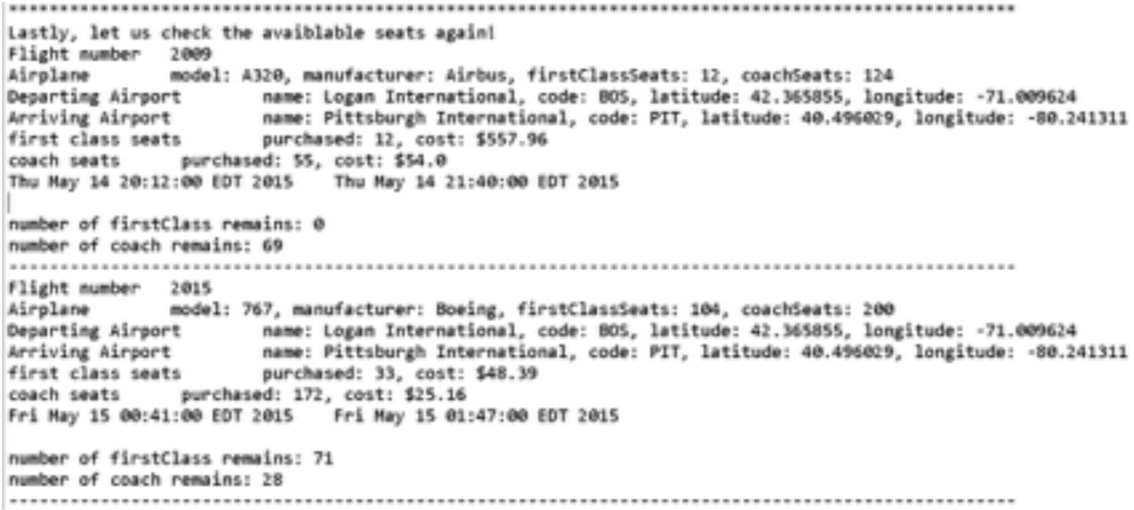
XMLConnector.java(write/read data from db);

AirportXMLParser.java, AirplaneXMLParser.java

Test for prototype that is working (com/flight_ticket_search/Util/prototype.java)



```
This is the prototype test of team07
****************************************************************************************************
Please enter your departing airport code(format: BOS/LAX/PIT):BOS
Next, please enter the returning airport code(format: BOS/LAX/PIT):PIT
Finally, specify the date below
Year(YYYY):2015
Month(MM):05
Day(DD):15
Start searching ...
All none stop flights are as follows:

---------------------------------------------------------------------------------------------------
Flight number   2009
Airplane        model: A320, manufacturer: Airbus, firstClassSeats: 12, coachSeats: 124
Departing Airport        name: Logan International, code: BOS, latitude: 42.365855, longitude: -71.009624
Arriving Airport         name: Pittsburgh International, code: PIT, latitude: 40.496029, longitude: -80.241311
first class seats        purchased: 12, cost: $557.96
coach seats      purchased: 55, cost: $54.0
Thu May 14 20:12:00 EDT 2015    Thu May 14 21:40:00 EDT 2015

number of firstClass remains: 0
number of coach remains: 69
---------------------------------------------------------------------------------------------------
Flight number   2015
Airplane        model: 767, manufacturer: Boeing, firstClassSeats: 104, coachSeats: 200
Departing Airport        name: Logan International, code: BOS, latitude: 42.365855, longitude: -71.009624
Arriving Airport         name: Pittsburgh International, code: PIT, latitude: 40.496029, longitude: -80.241311
first class seats        purchased: 33, cost: $48.39
coach seats      purchased: 167, cost: $25.16
Fri May 15 00:41:00 EDT 2015    Fri May 15 01:47:00 EDT 2015

number of firstClass remains: 71
number of coach remains: 33
---------------------------------------------------------------------------------------------------
****************************************************************************************************
--------------------------------------------------------------------------------------------------------------
**************************************************************************************************************
Then he may want to reserve it, right?

First, system has to lock the database.
Locking the database .......
Responding Code: 202
Success: system is locked by team07!

Second, once the database is locked, we have to purchase the ticket.
purchase started!

Choose the flight number from above(format: 3/4 digits): 2015
Choose the seat type(format: FirstClass/Coach): Coach
Specify how many tickets you want to buy: 5
Responding Code: 202
ticket is successfully purchased!
Unlocking the database ......
Responding Code: 202
Success: system is unlocked by team07!
************************************************************************************************************
```



```
****************************************************************************************************
Lastly, let us check the avaiblable seats again!
Flight number   2009
Airplane        model: A320, manufacturer: Airbus, firstClassSeats: 12, coachSeats: 124
Departing Airport        name: Logan International, code: BOS, latitude: 42.365855, longitude: -71.009624
Arriving Airport         name: Pittsburgh International, code: PIT, latitude: 40.496029, longitude: -80.241311
first class seats        purchased: 12, cost: $557.96
coach seats      purchased: 55, cost: $54.0
Thu May 14 20:12:00 EDT 2015    Thu May 14 21:40:00 EDT 2015

number of firstClass remains: 0
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Flight number   2015
Airplane        model: 767, manufacturer: Boeing, firstClassSeats: 104, coachSeats: 200
Departing Airport        name: Logan International, code: BOS, latitude: 42.365855, longitude: -71.009624
Arriving Airport         name: Pittsburgh International, code: PIT, latitude: 40.496029, longitude: -80.241311
first class seats        purchased: 33, cost: $48.39
coach seats      purchased: 172, cost: $25.16
Fri May 15 00:41:00 EDT 2015    Fri May 15 01:47:00 EDT 2015

number of firstClass remains: 71
number of coach remains: 28
---------------------------------------------------------------------------------------------------
```

Task Allocation

Task	Chen Lin	Kun Huang	Chunfu Hou	Xuanyu Li	Completed Date
RAD	√	√	√	√	2.18
System Decomposing	√		√		
Interface Designs	√			√	3.12
Coding – Models		√		√	3.20
Documentation	√	√	√		3.24
Configuration			√		3.26
Integration		√		√	3.26
Peer review	√	√	√	√	
Unit Test, Component Test		√	√		
System Test		√		√	
System Validation	√		√		
Project Management		√		√	
Coding – Service	√			√	
Coding - User Interface	√		√		
Performance Analysis		√		√	
Real-time Analysis	√		√		
Reliability Analysis		√		√	
Algorithm Optimization	√			√	

Simple Role Description

Chen Lin: Architect, some UI

Xuanyu Li: Implementer, Architect Liason
Kun Huang: Object Designer, Tester
Chunfu Hou: UI designer, Configuration Manager

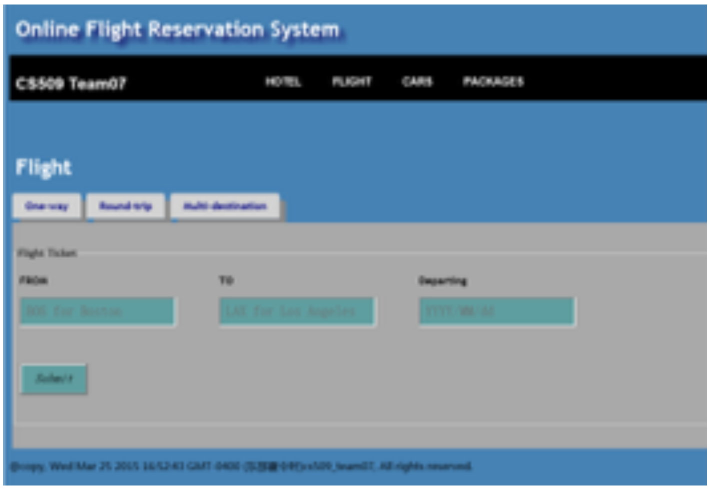
User Interface

Mainly 3 pages:

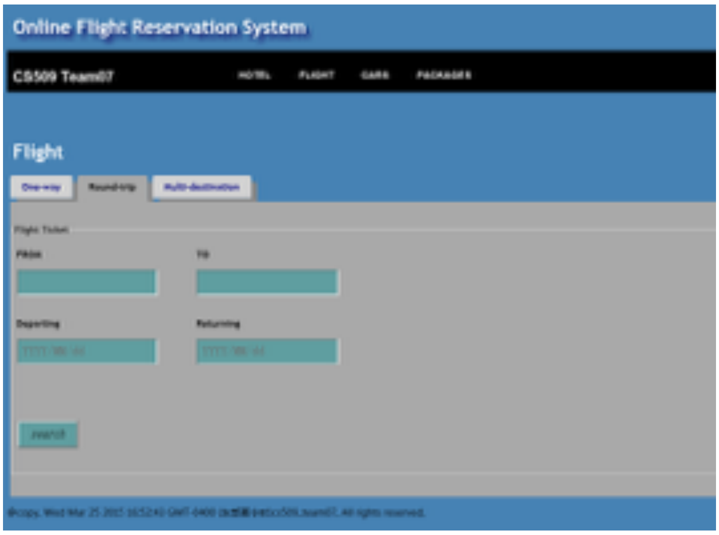
- homepage (cd project/WebContent/homepage.html)
- choose_flight_page (under building)
- purchase_page (under building)

Homepage:

Single-Trip



Round-Trip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CS509 Team07
HOTEL
FLIGHT
CARS
PACKAGES
Flight
One-way
Round-trip
Multi-destination
Flight Ticket
FROM
TO
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Returning
YYYY-MM-dd
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