SAVITRIBAI PHULE PUNE UNIVERSITY

A PROJECT REPORT ON

Project Title
Airlines Reservation System

BY

Mahesh Badhe (TE - 03)
Aditya Deo (TE - 15)
Darshan Ganatra (TE - 21)
Akshay Karale (TE - 30)

Under The Guidance of

Prof. Ajit Pagar

DEPARTMENT OF COMPUTER ENGINEERING
Dr. D. Y. PATIL SCHOOL OF ENGINEERING
Dr. D. Y. PATIL TECHNICAL CAMPUS
PUNE Pin – 412 105

Dr. D. Y. PATIL SCHOOL OF ENGINEERING, PUNE
DEPARTMENT OF COMPUTER ENGINEERING

CERTIFICATE

This is to certify that the Project Entitled

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Airlines Reservation System

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is a bonafide work carried out by students under the supervision of Prof. Ajit pagar and it is submitted towards the fulfillment of the requirement of Skill Development Lab Mini Project

Prof. Ajit Pagar Internal Guide Dept. of Computer Engg.	Dr. Pankaj Agarkar H.O.D Dept. of Computer Engg.

Chapter 1- Abstract

Our project is an attempt to stimulate the basic concepts of real world airline reservation system.

The main Purpose of this software is to reduce the manual errors involved in the airline reservation process and make it convenient for the customers to book the flights as when they require.

The Airline Reservation System project mainly consists of two types of users. The customers who access the information provided by the website and the administrator who modifies and updates the information.

The system enables the customer to do the things such as search for airline flights (Domestic & International) for two travel cities on a specified date, choose a flight based on the details, reservation of flight and cancellation of reservation.

Chapter 2 - Acknowledgement

This is a great pleasure and immense satisfaction to express our deepest sense of gratitude and thanks to everyone who has directly or indirectly helped us in completing our Project work successfully.

We express our gratitude towards guide Prof. Ajit Pagar and Dr. Pankaj Agarkar Head of the Department of Computer Engineering, D.Y Patil School of Engineering, Lohegaon, Pune who guided and encouraged us in completing the Project work in scheduled time. We would like to thank our principal for allowing us to pursue our project in this institute.

INDEX

Chapter 3 - Introduction

3.1 Project Idea:

The Airline Reservation System project is an implementation of a general Airline Ticketing website like Indigo, Air India, which helps the customers to search the availability and prices of various airline tickets, along with the different packages available with the reservations. This project also covers various features like online registration of the users, modifying the details of the website by the management staff or administrator of the website, by adding, deleting or modifying the customer details, flights or packages information. In general, this website would be designed to perform like any other airline ticketing website available online.

3.2 Motivation and Scope of the Project:

The main purpose of this vision document is to list the requirements of the Airline Reservation System project. This document also helps us to collect and analyze the ideas gathered for the project. This vision document will be subject to change, if more requirements are added to the project. This document is mainly prepared to set stage for the design phase of the project. The document being prepared is the first version of vision document for the Airline Reservation System project.

JavaFX is a new technology which is being used a lot in the IT field. My interest to learn this new technology has prompted me to take up this project, which would set the stage for the applications I would be developing in the future.

Chapter 4 - Requirements Elicitation

Requirement number	Description	Type	Priority
Req-1	The user will be able to search for flights through a standard screen.	Functional	Must have
Req-2	Database administrator maintains the user details and the flights details in the database.	Non functional	Must have
Req-3	Through a standard flight search method the user will be able to search one-way, round trip or multi destination flights.	Functional	Must have
Req-4	The user should able to specify the departure, arrival places and date of their flight.	Functional	Must have
Req-5	The user can only search for a flight in the future and with in only one year of current date.	Functional	Must have
Req-6	Any error in entry of the system will stop the system for processing the search. an error message will be presented to the user.	Functional	Must have
Req-7	The user will be able to see the price, duration of travelling, departure time and arrival time.	Functional	Must have
Req-8	User will able to specify the flight class which will be with respect to the flight chosen.	Functional	Could have
Req-10	The user will be able to choose the seats from the list of available seats of particular flights.	Functional	Must have
Req-11	The user must complete all the necessary steps to book flight.	Functional	Must have
Req-12	After booking the flight the user may cancel their flight.	Functional	Must have

Req-13	ARS shall be able to handle at least 1000 transactions per second.	Non functional	Shall have
Req-14	ARS should be available 24x7.	Non functional	Must have
Req-15	ARS shall always provide real time information about flight availability information.	Non functional	Could have
Req-16	Users need to authenticated before having access to any personal data	Non functional	Must have
Req-17	ARS shall authenticate the users credit cards and their personal information.	Functional	Must have
Req-18	Support for waiting list functionality.	Functional	Shall have
Req-19	The ARS shall be able to handle the situation where flight services are available to multiple cities or a single city.	Functional	Could have
Req-20	Only the system administrator has the right to change the system parameters.	Non-functional	Shall have
Req-21	ARS should be robust enough to have a high degree fault tolerance.	Non-functional	Shall have

Chapter 5 - Requirement Analysis

5.1 Hardware Requirement :

Processor : Standard processor with a speed of 1.6 GHz or more

RAM : 512MB or more

Hard Disk : 20 GB or more

5.2 Software Requirement :

Operating System : Windows or Linux or MAC

Interface : Java Programming

IDE : NetBeans

Front-end Design : Scene Builder & JavaFX using FXML

Database : MYSQL

Server : XAMPP

Documentation Tool : MS Office

SERVER SIDE

An Apache Web server will accept all requests from the client. A development database will be hosted locally (using MySQL); the production database is hosted centrally.

MY-SQL (BACKEND)

MySQL in July 2013, it was the world's second most widely used RDBMS, and the most widely used open-source client server model RDBMS. It is named after cofounder Michael Widenius's. The SQL abbreviation stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements.

Apache

The Apache HTTP Server is web server software notable for playing a key role in the initial growth of the World Wide Web. In 2009 it became the first web server software to surpass the 100 million web site milestone. Apache is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation.
Since April 1996 Apache has been the most popular HTTP server software in use.

XAMPP

XAMPP is a small and light Apache distribution containing the most common web development technologies in a single package. Its contents, small size, and portability make it the ideal tool for students developing and testing applications in PHP and MySQL. XAMPP is available as a free download in two specific packages: full and lite.
While the full package download provides a wide array of development tools, XAMPP Lite contains the necessary technologies that meet the Ontario Skills Competition standard.

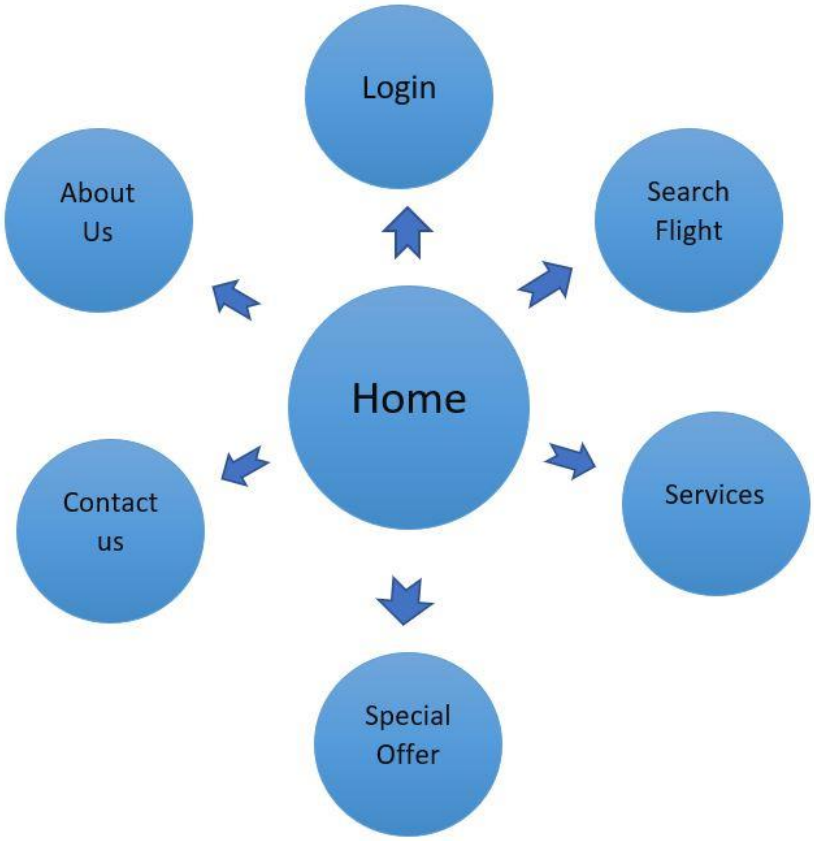
Chapter 6 - System Design

6.1 System Architecture

The Airline Reservation System has the following features:

This project is mainly intended for two types of audiences. One is the customer or the end user and the other is the administrator of the website. Some of the major functions of the product can be categorized under two different categories that are for the administrator and the user.

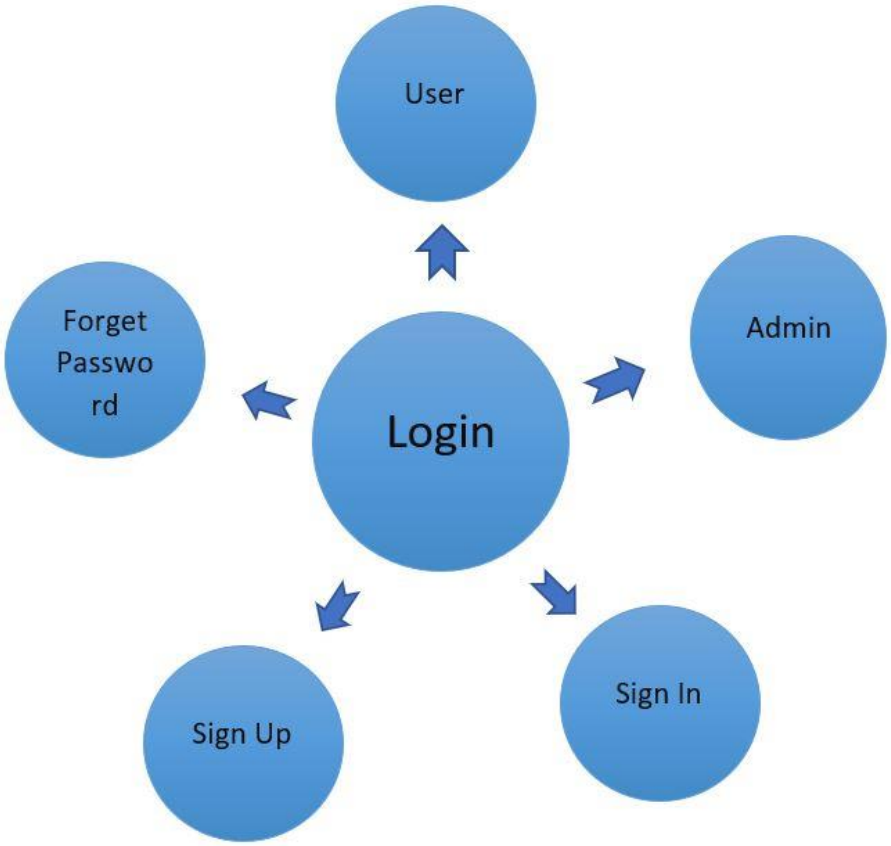
6.1.1 Activities Performed on Home :



The above use case diagram depicts all the functions or activities that admin/user can perform on the application when it starts. They can be discussed in detail as follows:

Home Page

Home page where user/admin can login or sign-up or change their passwords.



The above use case diagram depicts all the functions or activities that admin/user can perform on the home page. They can be discussed in detail as follows:

Login

Separate login for admin & customer is provided.

Register

User can make their accounts if they don't have or new admin can be added provided that they have a security key.

Forget Password

Password can be changed by providing the user-id if a user forgets his password.

Search Flights

It provides the facility for traveler to search for flight based on departure and arrival city and on particular date.

Services

Services we offer like Passenger Handling, Ramp Handling, VVIP & Charter Handling, Airport Handling Training, Technical Assistance & Cargo Handling & many more.

Special Offers

Offers only for you will be displayed like specials discounts for students, discounts from banks or cheapest flights discounts.

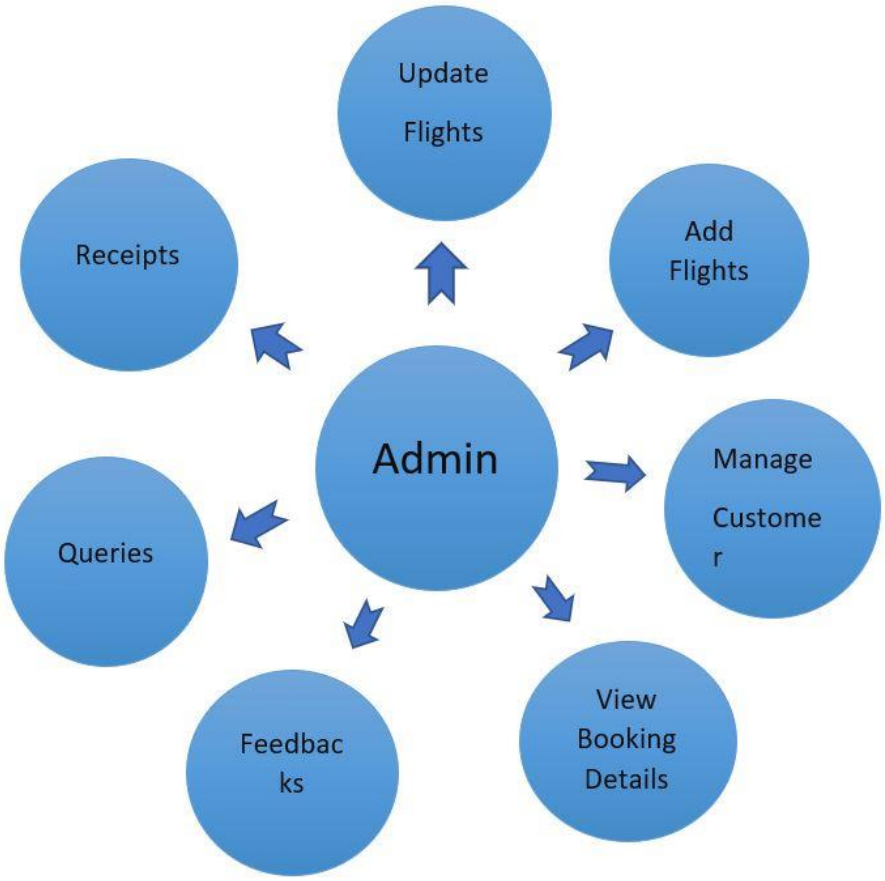
Contact Us

Anyone can write to us through this page by providing basic details like Name & Email. They can also mail us or call us or reach us through the information provided on the page.

About Us

Information about the Fly High Airlines and the Developers who made this application.

6.1.2 Administrator activities :



The above use case diagram depicts all the functions or activities that admin can perform on the application. They can be discussed in detail as follows:

Dashboard

Specials Offers and Notifications will be entered here for the user.

Manage Customers

All the customer's details will be displayed here except passwords. Searching of any customer can be done easily.

Add Flight

More Flights can be added to the system to meet the requirements of the user.

Update Flight

Their name, price, source & destination city & their resp. time can be updated. You can also delete the flight records.

View Booking

All the booking made by the customer can be seen in the form of tables.

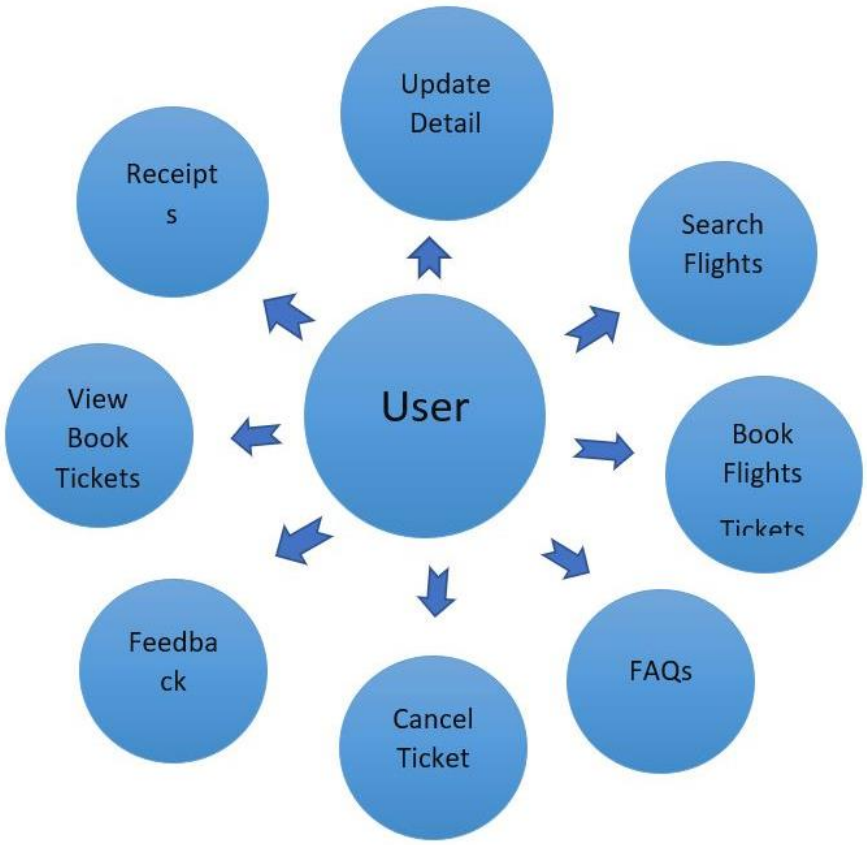
Feedback

All Customer Feedback done from their resp. id's can be seen. This will help to improve the quality of service.

Queries

Queries submitted through the contact us page will be visible. Solving queries is the top most priority.

6.1.3 Customer / End user activities :



The above use case diagram depicts all the functions or activities that a user or a customer can perform on the application. They can be discussed in detail as follows:

Dashboard

Specials Offers and Notifications will be displayed here for the user.

Update Details

User can update their personal detail like phone no., email id & password. Any one of these can be updated thus making user interface friendly.

Search Flight

It provides the facility for traveler to search for flight based on departure and arrival city and on particular date.

Book Flight

After choosing a flight, the traveler books the flight by using the system. To book a seat the traveler first enters his details. The system then checks the credit card and books the ticket and sends confirmation to user.

Cancel Flight

This use case is utilized by traveler. It enables the traveler to cancel his/her reservation if any problem occurs.

View Book Tickets

All the booked tickets made by him, will be visible to him in the form of table.

Receipt

A receipt will be generated for the selected booked tickets so he/she can use to travel to different places.

Feedback

A user can give feedback/ rate the quality of service provided by us so that we can improvised.

FAQ's

Frequently asked questions will be available in this section. A user can look here for any doubts.

Chapter 7 - Database Design

The general theme behind a database is to handle information as an integrated whole. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The general objective is to make information access easy quick and flexible for user. In database design several objectives are considered.

Table Structure

Registration table :

	#	Name	Type	Collation	Attributes	Null	Default	
☐	1	**id**	int(11)			No		*None*
☐	2	**firstname**	varchar(50)	latin1_swedish_ci		No		*None*
☐	3	**lastname**	varchar(50)	latin1_swedish_ci		No		*None*
☐	4	**email**	varchar(60)	latin1_swedish_ci		No		*None*
☐	5	**mobileno**	bigint(30)			No		*None*
☐	6	**gender**	varchar(20)	latin1_swedish_ci		No		*None*
☐	7	**dob**	date			No		*None*

Queries table :

C	#	Name	Type	Collation	Attributes	Null	Default
☑	1	**FName**	varchar(20)	latin1_swedish_ci		No	*None*
☐	2	**LName**	varchar(20)	latin1_swedish_ci		No	*None*
☐	3	**Email**	varchar(30)	latin1_swedish_ci		No	*None*
☐	4	**Query**	varchar(200)	latin1_swedish_ci		No	*None*

Book Flight Detail Table :

#	Name	Type	Collation	Attributes	Null	Default
1	**userid**	int(11)			No	*None*
2	**flightid**	int(11)			No	*None*
3	**source**	varchar(50)	latin1_swedish_ci		No	*None*
4	**destination**	varchar(50)	latin1_swedish_ci		No	*None*
5	**arrivaltime**	time			No	*None*
6	**class**	varchar(50)	latin1_swedish_ci		No	*None*
7	**departuretime**	time			No	*None*
8	**amount**	int(11)			No	*None*
9	**date**	date			No	*None*
10	**customername**	varchar(50)	latin1_swedish_ci		No	*None*
11	**seatno**	varchar(50)	latin1_swedish_ci		No	*None*
12	**gender**	varchar(50)	latin1_swedish_ci		No	*None*
13	**passportno**	varchar(50)	latin1_swedish_ci		No	*None*
14	**paymentdetail**	varchar(50)	latin1_swedish_ci		No	*None*

Flight Detail Table :

#	Name	Type	Collation	Attributes	Null	Default
1	**flightid**	int(11)			No	*None*
2	**nameflight**	varchar(50)	latin1_swedish_ci		No	*None*
3	**source**	varchar(50)	latin1_swedish_ci		No	*None*
4	**destination**	varchar(50)	latin1_swedish_ci		No	*None*
5	**takeuptime**	time			No	*None*
6	**landingtime**	time			No	*None*
7	**type**	varchar(50)	latin1_swedish_ci		No	*None*
8	**charges**	int(60)			No	*None*
9	**date**	date			Yes	*NULL*

Feedback table :

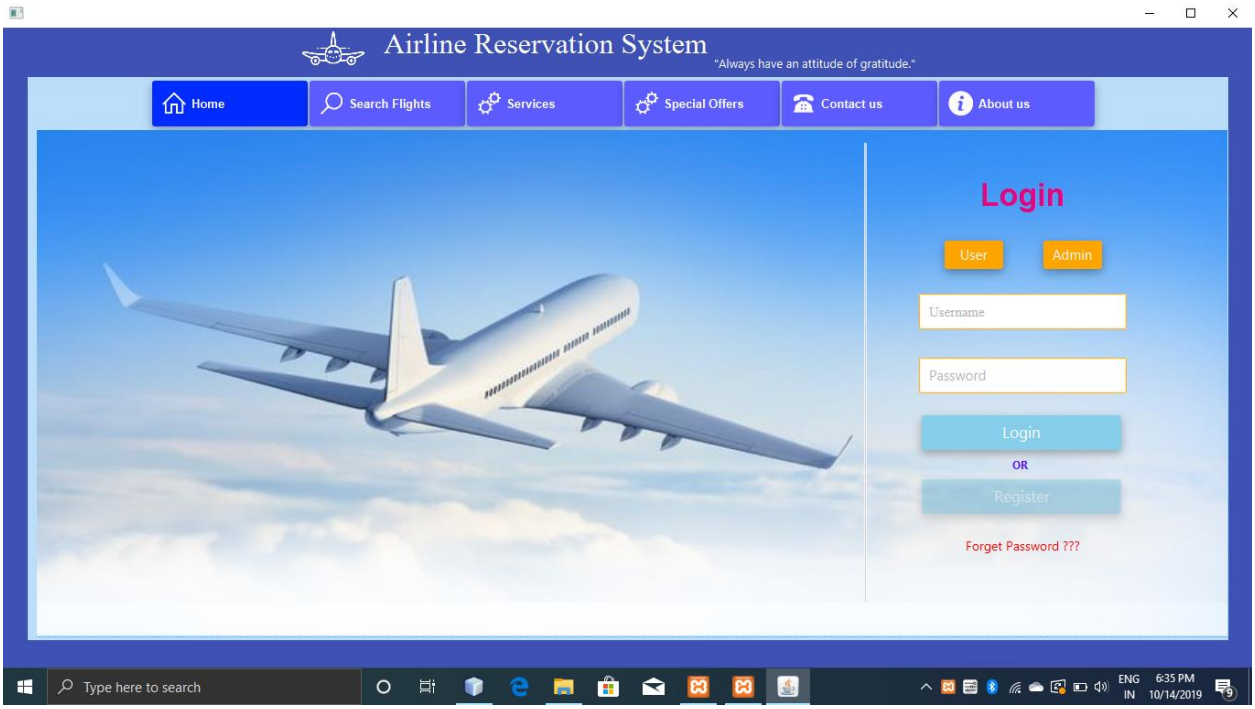
#	Name	Type	Collation	Attributes	Null	Default
1	**userid**	varchar(30)	latin1_swedish_ci		No	*None*
2	**ques1**	varchar(15)	latin1_swedish_ci		No	*None*
3	**ques2**	varchar(15)	latin1_swedish_ci		No	*None*
4	**ques3**	varchar(15)	latin1_swedish_ci		No	*None*
5	**ques4**	varchar(15)	latin1_swedish_ci		No	*None*
6	**ques5**	varchar(15)	latin1_swedish_ci		No	*None*

Admin Registration :

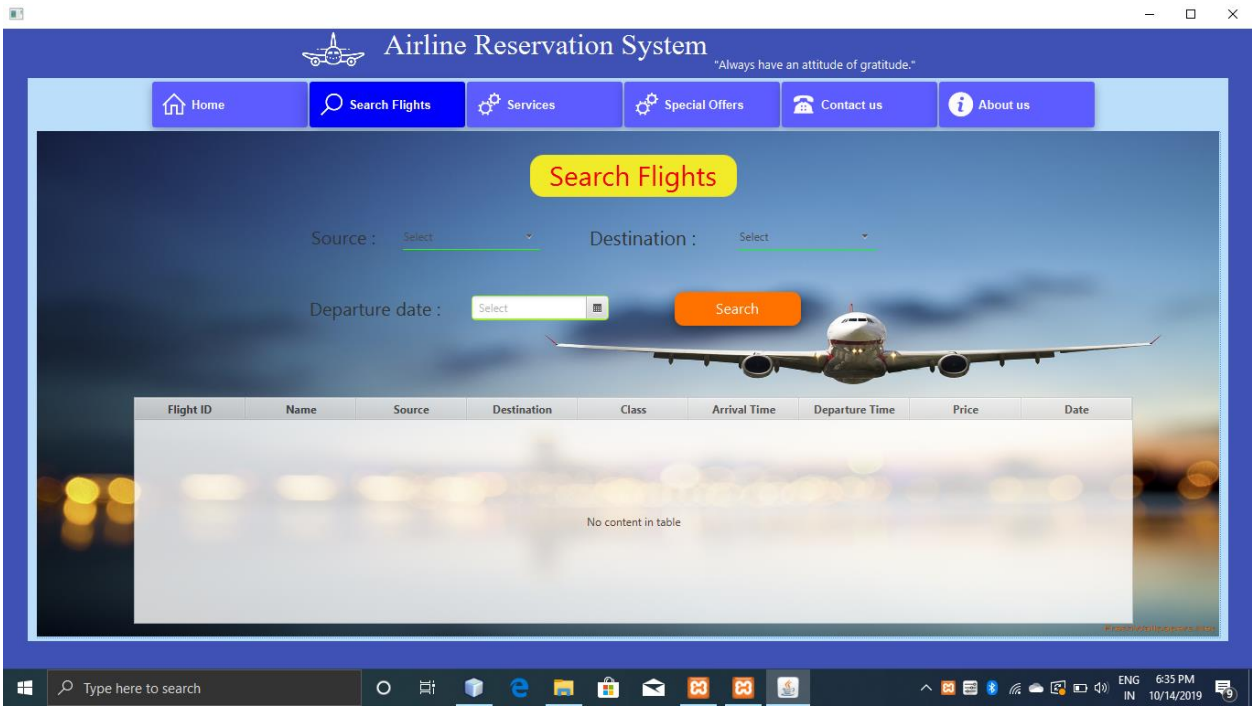
#	Name	Type	Collation	Attributes	Null	Default
1	**id**	int(200)			No	*None*
2	**firstname**	varchar(40)	latin1_swedish_ci		No	*None*
3	**lastname**	varchar(40)	latin1_swedish_ci		No	*None*
4	**email**	varchar(60)	latin1_swedish_ci		No	*None*
5	**mobileno**	bigint(22)			No	*None*
6	**gender**	varchar(20)	latin1_swedish_ci		No	*None*
7	**dob**	date			No	*None*

User Interface :

Home :

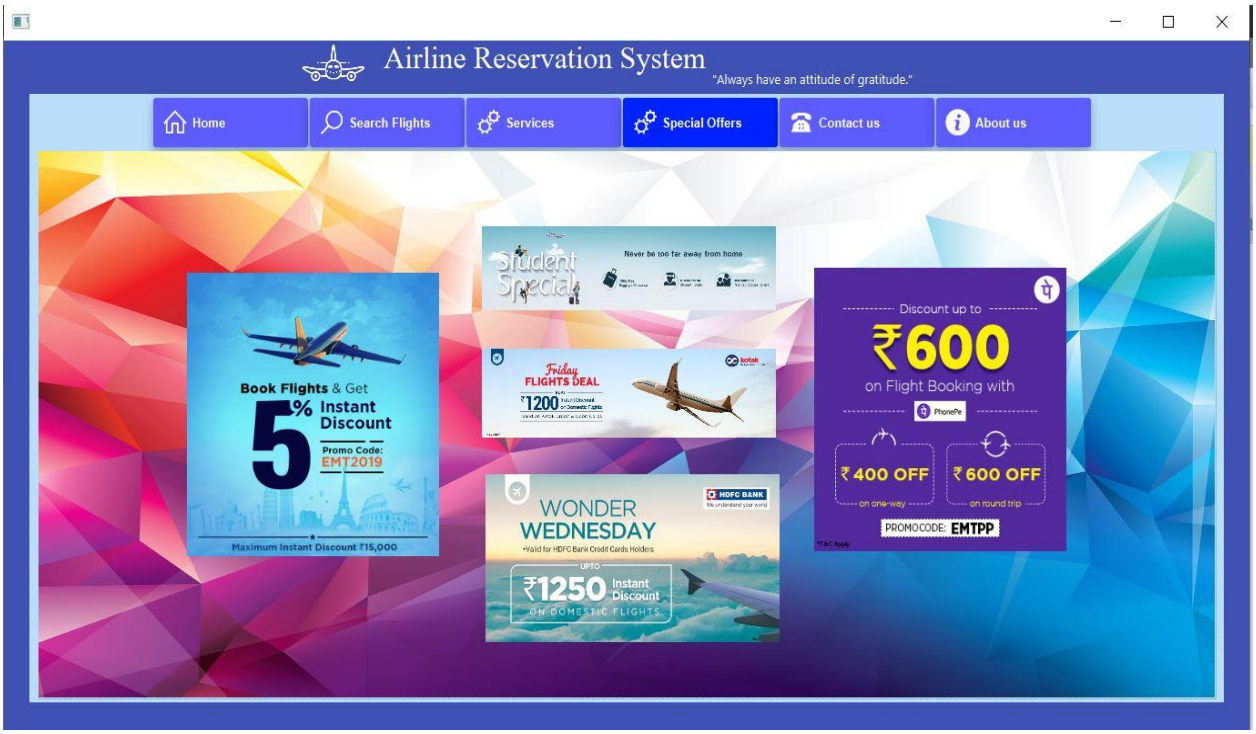


Search Any Flights Here :



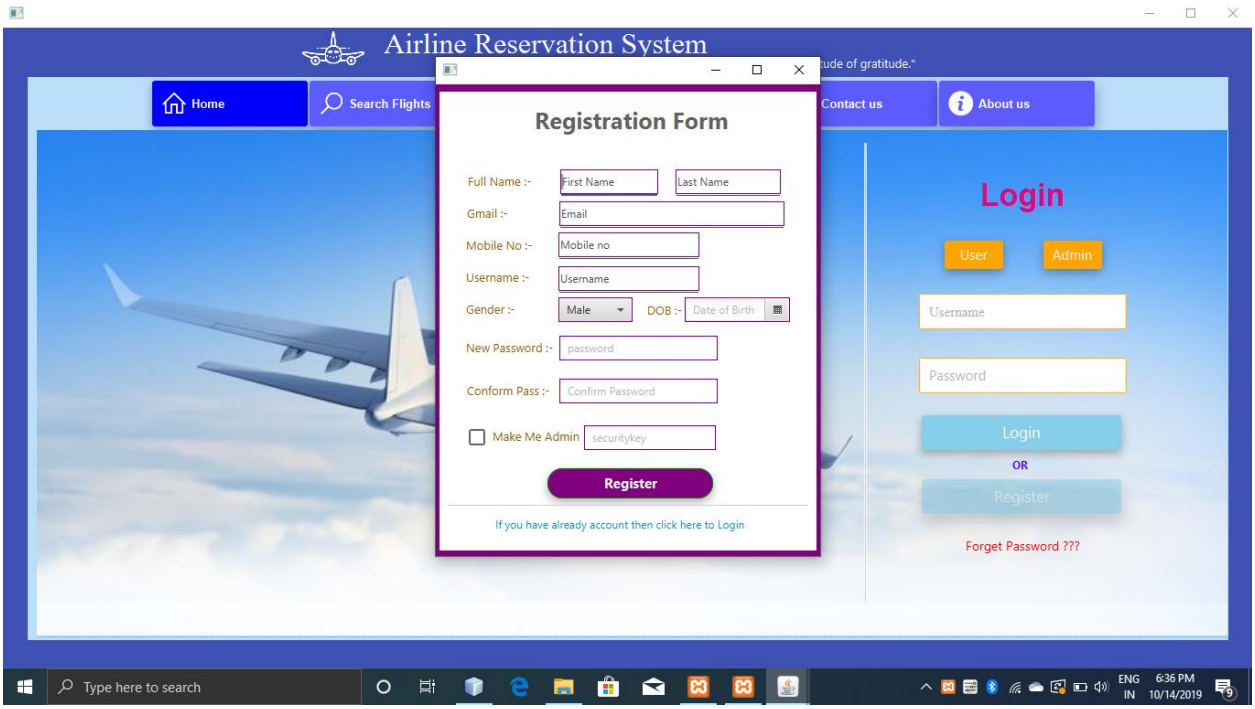
Services We Offer :

Offers We Have For You :

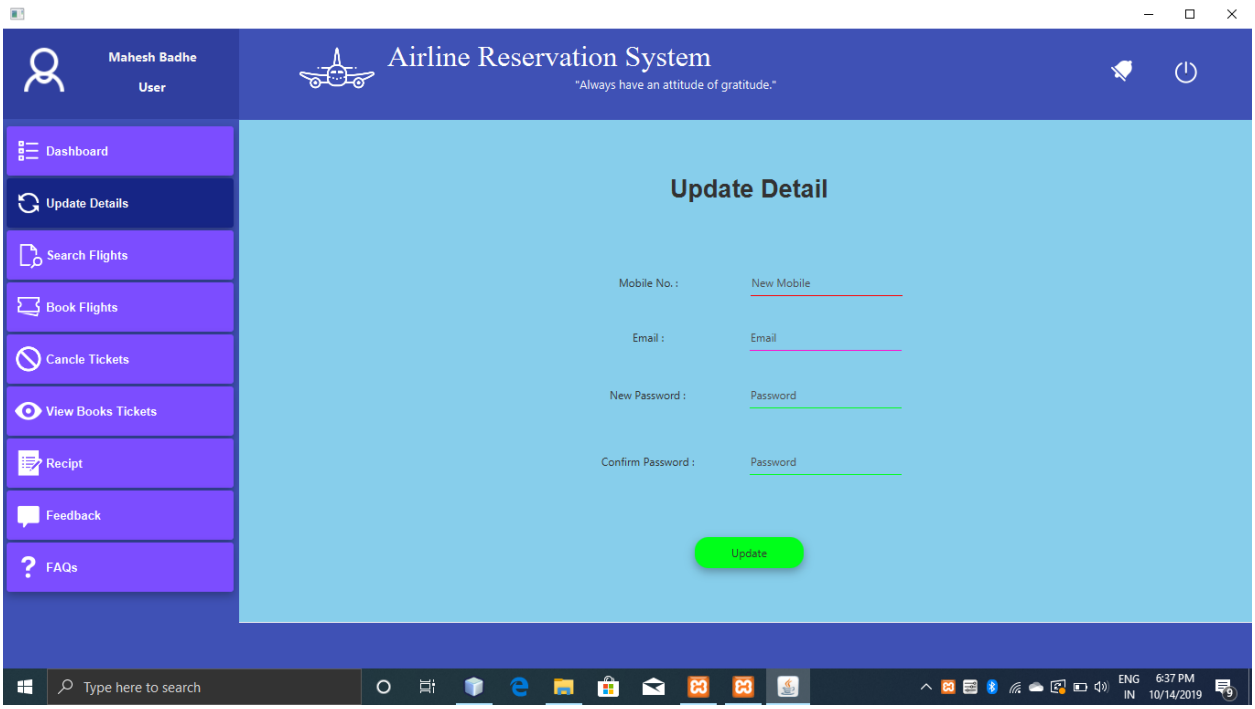


Contact Us :

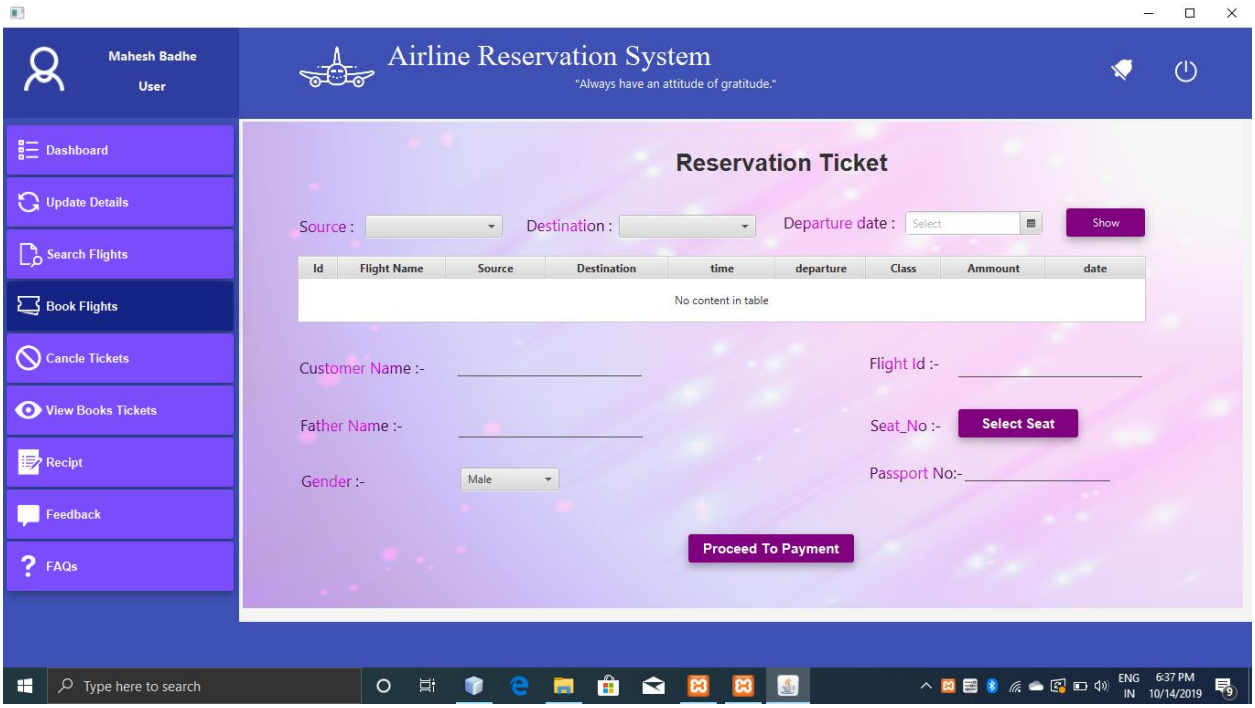
Registration Form For Admin & User :



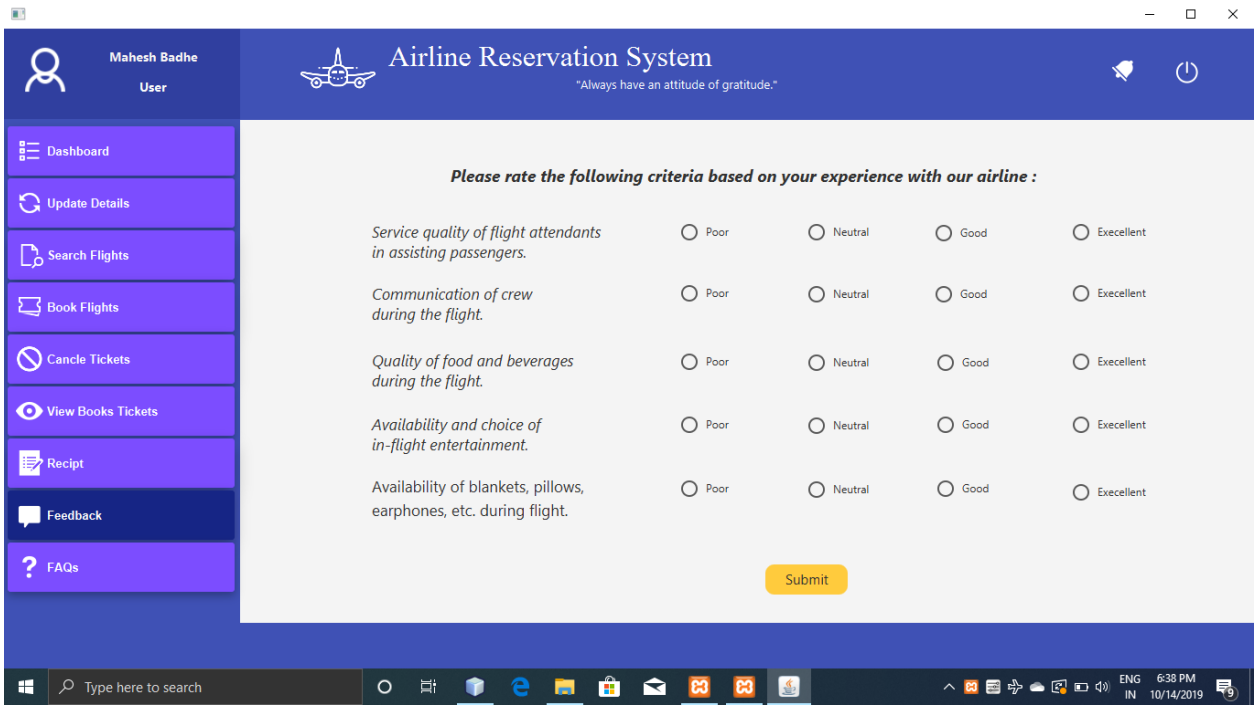
Update Your Personal Details :



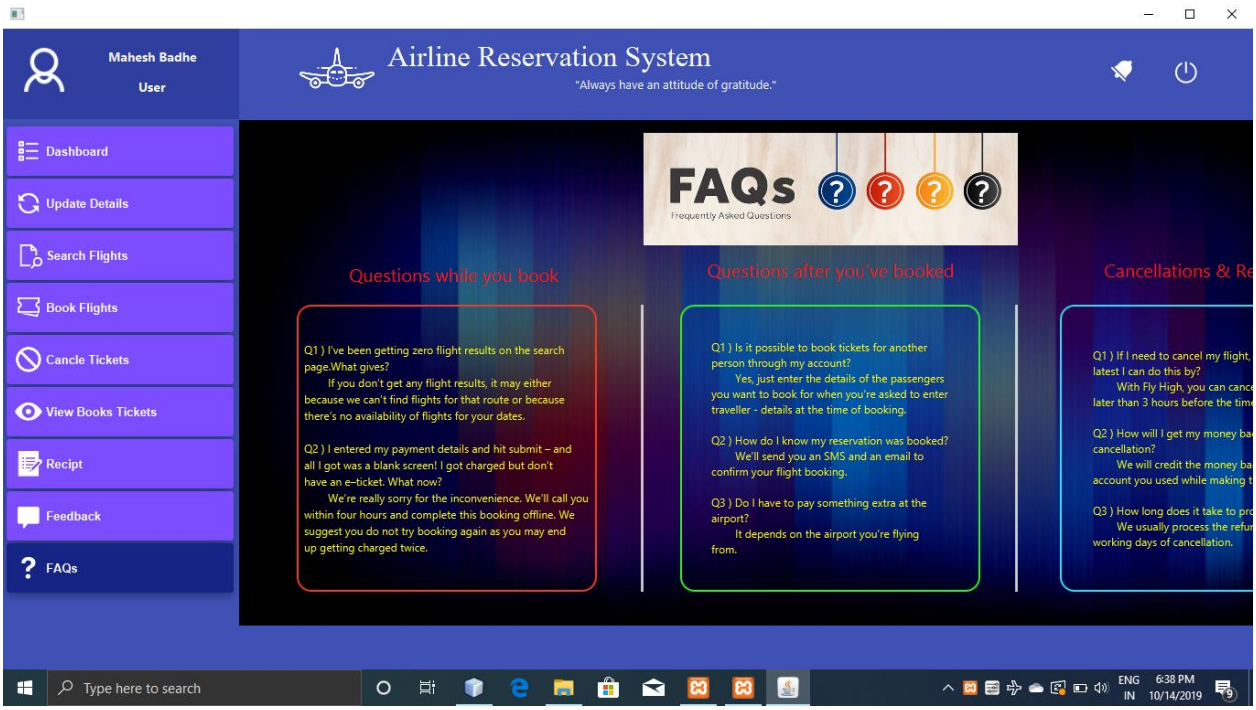
Book Tickets :



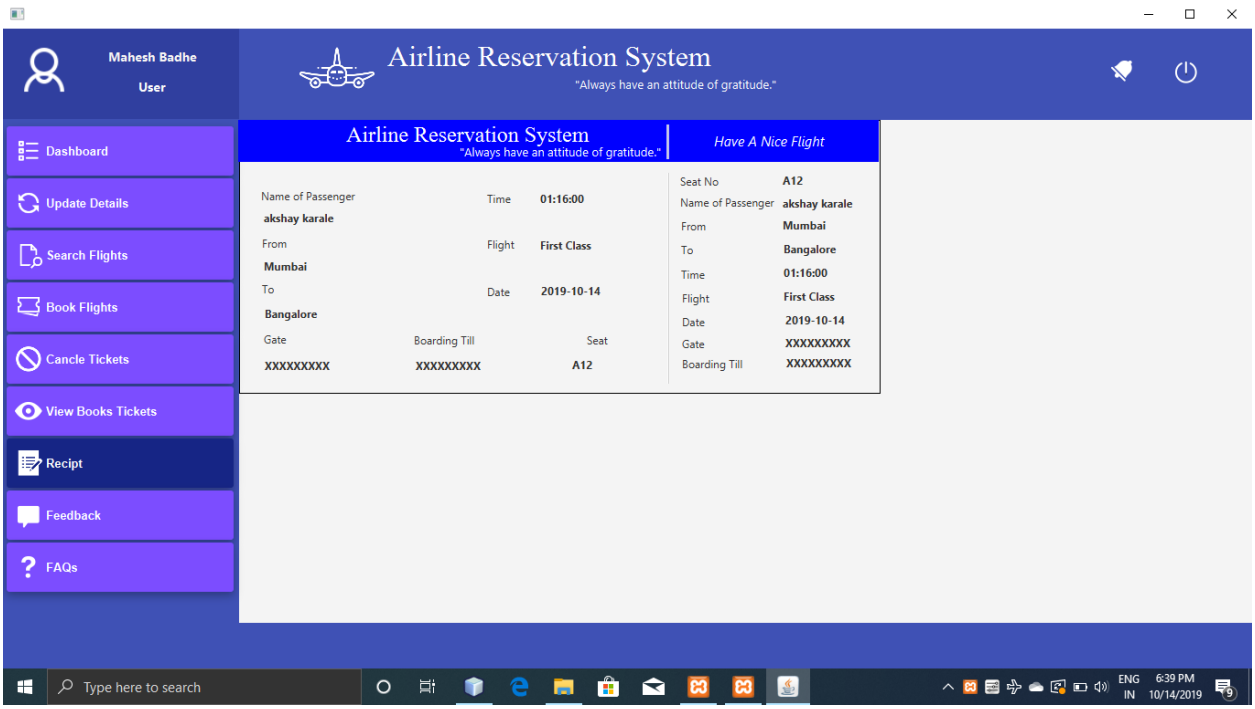
Submit Your Valuable Feedback :



Have Any Questions ?? Take A Look here

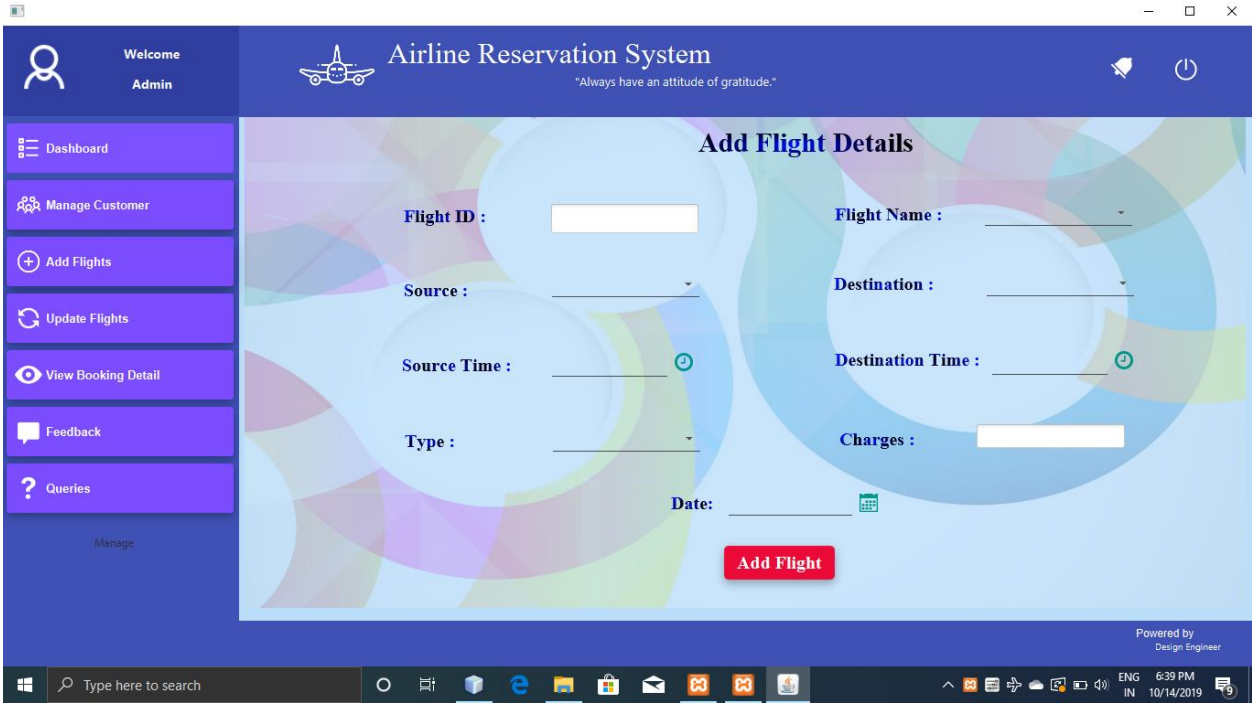


See Your Tickets :

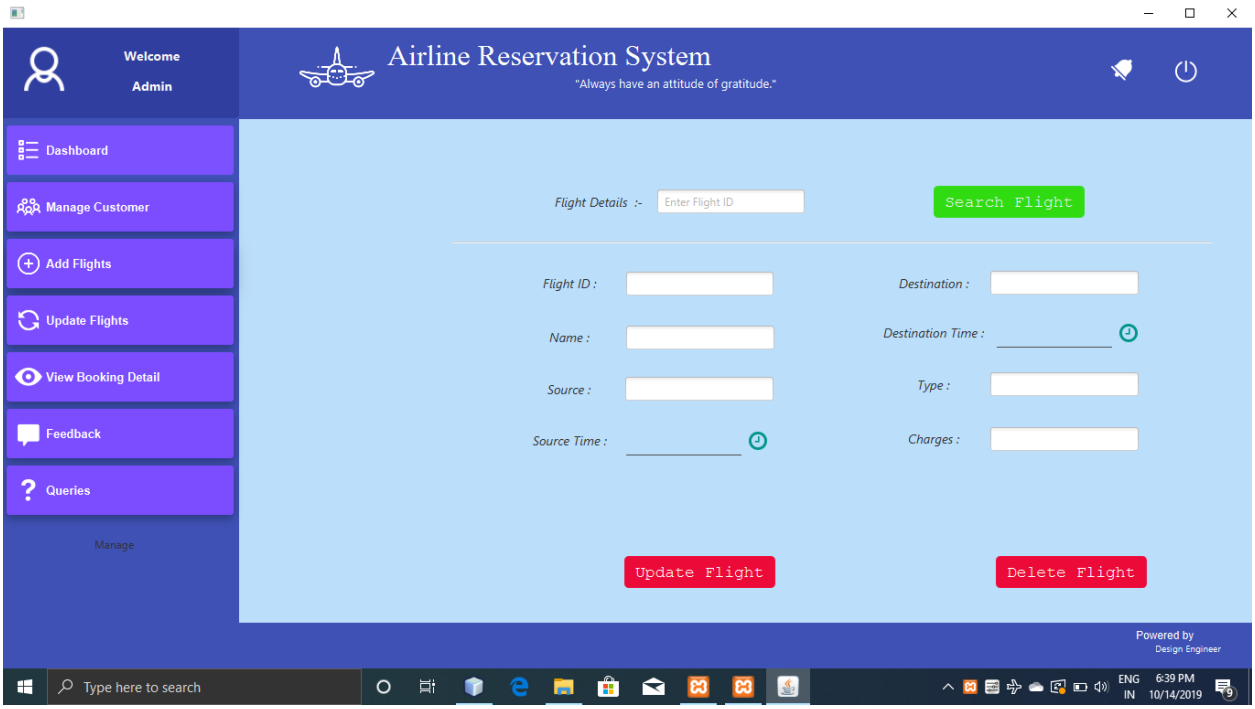


All The Customer Details Available To Administrator :

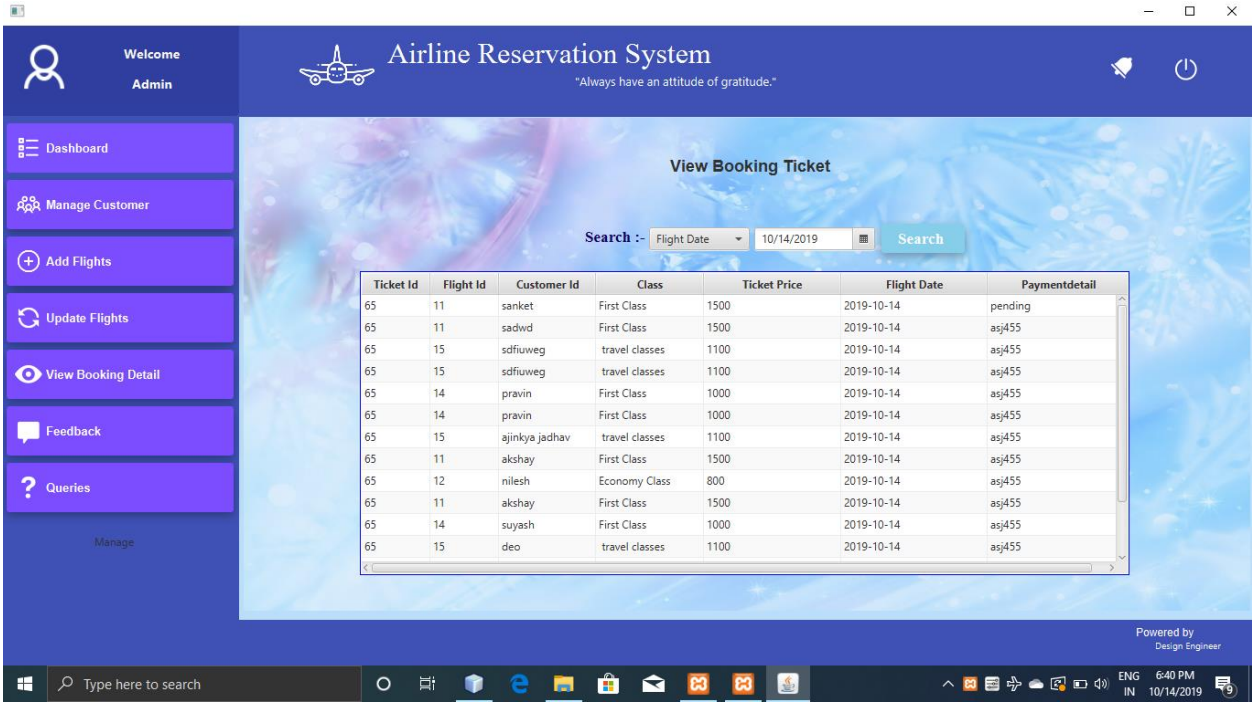
Add More Flights To Reach Your Destination :



Update The Data Of Any Flights :

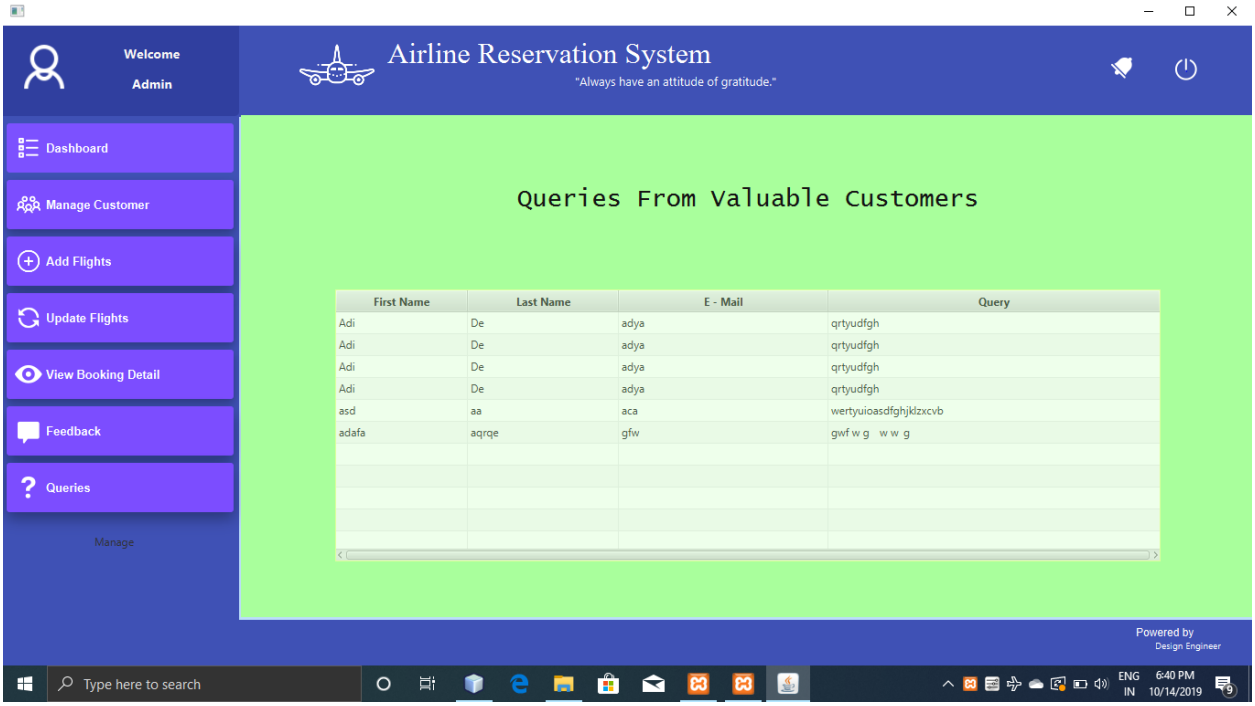


View All The Booked Tickets For Administrator :



Improving Quality Of Services Through You :

All Queries Will Be Solved



Chapter 9 - Assessment Evaluation

9.1 Introduction

The Assessment Evaluation document presents the results obtained by testing the Airline Reservation System.

9.2 Test Case Result Summary

The summary of the test case result has been depicted in the table shown below:

These are the test cases for the User/Customer pages. The major part of testing has been concentrated on the customer pages, as they would be the main clients of the Airline Reservation System website.

Table 1 - user/customer pages testing summary

TEST CASE #	DESCRIPTION	RESULTS/COMMENTS
TC # 1	**User Login**	**Passed**
TC # 2	**User Registration**	**Passed**
TC # 3	**Search and Book Flights**	**Passed**

The below table represents the summary of results of testing on the Administrator pages. The results have been explained in detail later in the document.

Table 2 - Administrator pages testing summary

TEST CASE #	DESCRIPTION	RESULTS/COMMENTS
TC # 4	**Administrator sign in**	**Passed**
TC # 5	**New Flight Addition**	**Passed**
TC # 6	**Updating Flight details**	**Passed**

9.3 Detailed Test Results

9.3.1 Manual Testing

To start with, I have performed manual testing on the Airline Reservation System website. Manual Testing is one of the oldest and rigorous methods of software testing. This testing strategy gives the best opportunity to check every page thoroughly

and make sure it works in the expected manner. Due to the complexity of the various automation tools and the time available for testing the entire web application, I preferred to use manual testing based on the fact that it is one of the best methods of testing suggested for a beginner.

9.3.1.1 TC # 1 – USER LOGIN

TEST UNIT	TEST CASE	RESULT
Log In Button	An invalid username(which is the e-mail id in this case) or password is entered by the user	The system generates a message saying " invalid user id" or invalid password, whichever is the case.
Log In Button	A valid username and password is entered by the user	The system logs on the user and transfers him to the booking page

9.3.1.2 TC # 2 - USER REGISTRATION

TEST UNIT	TEST CASE	RESULT
New User button (Used for Register)	Wrong format entered in the input fields of the registration page	The system prompts a message to the user saying that he has entered a wrong format in the input fields.
New User button	Passwords and Confirm Password fields do not match in the registration page	The system generates a message to the user saying "please enter the confirm password field" again.

New User button	Data Fields left out empty in the registration page.	The system prompts a message to the user asking him to fill the empty fields he has left out.
New User button	Correct data entered into the fields in the register page	The system accepts the details of the customer and then logs him onto the system and displays the page where he can search and book for flights, packages and hotels.

9.3.1.3 TC # 3 – SEARCH AND BOOK FLIGHTS

TEST UNIT	TEST CASE	RESULT
Flight booking	Wrong format of information entered into the data fields of the flight booking page	The system generates an error message to the user indicating that the wrong format of data is entered and to re-enter the data.
Flight Booking	Wrong date format, in the date of journey data field, wrong flight number in the Flight Number fields etc., (similarly for all the other data fields of the Flight Search page)	The systems generates a message to the user saying that he has entered an invalid date format and incase of wrong flight number, indicates that his entry is invalid.

Flight Booking	Correct format of data is entered into the data fields in the flight booking page.	The system allows the users to book the flight by providing details required and directs them to the booking confirmation page.

All the above mentioned results are for the customer pages. On the whole, the user/customer pages have passed the manual testing phase. The manual testing results for the Administrator pages of the Airline Reservation System are as follows:

9.3.1.4 TC # 4 - ADMINISTRATOR SIGN IN

TEST UNIT	TEST CASE	RESULT
Administrator sign in feature	Wrong username/password entered into the username and password data fields	The system generates a message to the user saying that an incorrect username / password have been entered.
Administrator sign in feature	Correct username and password entered into the username and password fields in the Administrator sign in page.	The system verifies the details and allows the administrator to log on to the system.

9.3.1.5 TC # 5 – NEW FLIGHT ADDITION

TEST UNIT	TEST CASE	RESULT
Add new flight to the database	The administrator tries to add flight details already matching the details of a flight present in the database. In other words, a duplicate record is being created by the administrator.	The system generates a message to the Administrator saying that the Record already exists, thus avoiding duplicates.

Add new flight feature	The administrator enters new flight details into the form, that is those details are already not present in the database.	The system then verifies the details entered by the Administrator and then saves the entry into the table and displays a message that Record has been saved successfully.

9.3.1.6 TC # 6 – UPDATING FLIGHT DETAILS

TEST UNIT	TEST CASE	RESULT
Update flight details button	The administrator enters the wrong format of data in the data fields of the flight/motel/package page and hits the update button	The system displays a message to the Administrator saying that wrong format of data has been entered into the data fields
Update flight details button	The administrator enters the correct format of data in the data entry fields for the flight updating	The system verifies the details entered by the administrator and then sends a message to the admin saying that the update was successful and updates the details in the database.

Thus, the Administrator web pages have also passed the manual testing phase and thus the above results have been produced.

Chapter 10 - Future Requirements

- The telephonic interface of the ARS shall be improved to support more functionality like allowing the customers to cancel a ticket etc., by incorporating security measures.
- ARS shall be made more dynamic and helpful to the users by enabling it to send instant messages to the passengers, of a cancelled or rescheduled flight, through email, phone, fax etc., informing them about the change, and providing them with other feasible alternatives.
- Information about the kind of meals served in a flight and the type of entertainment offered on a flight should be incorporated into the system.
- Provide service integration with auto rental agencies and hotel chains.
- Interface for the travel agents shall be provided in the future versions with additional features like informing them of any availability of seats on a flight which was earlier booked to capacity.
- Choices like aisle or window seats shall be provided to the users.
- The ARS shall be able to handle the situation where flight services are available to multiple airports in a single city.

Chapter 11 - Conclusion

The Airline reservation system a java project is not an exception. With working employees traveling 24/7 this software speed up your reservation process and makes it convenient for the customers to book flights whenever and wherever!

It reduces the scope of manual error and conveniently maintains any modifications, cancellations in the reservations. It not only provides flight details but also but also creates a platform to book tickets, cancels or modifies ticket timings or dates and even informs about the number of people on board!

Chapter 12 - References

https://brainly.in/question/3104842#readmore

https://www.academia.edu/6521426/REQUIREMENTS_Analysis_Documentation_for_Air_ticket_reservation_system_ATRS_Team_Composition_Project_Title_Air_ticket_reservation_system_Prepared_By_S_No

https://www.slideshare.net/ash21j/airline-reservation-27531607

https://www.coursehero.com/file/16389580/Abstract-for-Airline-Reservation-System/

https://www.oracle.com/technetwork/java/javase/downloads/jdk-netbeans-jsp-3413139-esa.html