IACSD

INSTITUTE FOR ADVANCED

COMPUTING AND

SOFTWARE DEVELOPEMENT

AKURDI, PUNE

Documentation On

"**FLIGHT MANAGEMENT SYSTEM**"

e-DAC

Submitted By:

GROUP NO: 85

NAME	ROLL NO
• Rahul Tambe	2196
• Sayyam Telang	2199

Prashant Karhale:

Center Coordinator

Project Guide:

Mr.Akshay Parab

Table OF Contents:

List of Figures

INTRODUCTION

The web based "**Flight Management System**" project is an attempt to stimulate the basic concepts of flight management system. The system enables the customer to do the things such as search for flights for specified date, choose a flight based on the details.

The system allows the passenger to search for flights that are available between the two travel cities, namely the "Departure Airport" and "Arrival Airport" for a date. The system displays all the flight's details such as flight no, name, price etc.

After search the system display list of available flights and allows customer to book a particular flight.

To book a flight the user first needs to register themself with the application and the after using their particular Id and Password they can log-in into the application and can search and book a flight.

The main purpose of this software is to reduce the manual errors involved in the reservation process and make it convenient for the customers to book the flights as when they require such that they can utilize this software to make reservations.

PRODUCT SCOPE

The name of the software is "Flight Management System". This software provides options for viewing different flights available for a particular date and provides customers with the facility to book a ticket, modify their if in case it is required.

ABSTRACT

The Objective of the project is to Design a Flight Management System application which enables the customers (Users) to view their own details, to update their details, and to get their booked flight details, they also can be able to search the flights and can book accordingly. The backend of the Project has been designed in JAVA (Spring Boot) and the Frontend has been designed using React and consists of MySQL server which acts as Database for the Project.

Our motivation for the project came from the enthusiasm and the strong urge to learn JAVA and REACT which are one of the fastest growing technologies in today's world. The Flight Management System mainly consists of two types of users one will be our customer (client) and one will be the administrator(admin). The Customer will be responsible for mainly searching and booking the respective Flight (irrespective of their choice) and the admin will be responsible for mainly managing the Flights and their schedules. All the data required for the application will be stored in MySQL Database in the table format.

Aims and Objectives:

- In order to develop the web-based application and to get the hands-on JAVA (Spring Boot) and REACT
- In this growing world the technologies are developing so to make the Users familiar with technologies.
- This application will ease the painstaking efforts of the Users to book a Flight.

Overall Description:

Benefits of Flight Management System:

- Easy to book tickets
- Saves time and money
- Provides every information about flight
- 24/7 booking is available
- Easy Refund Policies
- Available for both Domestic and International Airlines

Operating Environment:

Server-Side Requirement

Processor: Intel Core

HDD: Minimum 500GB Disk Space

RAM: Minimum 4GB

OS: Windows 8.1(onwards), Linux 6

Database: 8.0.22 MySQL Community Server

Client-Side Requirement:

Processor: Intel Core

HDD: Minimum 80GB Disk Space

RAM: Minimum 2 GB

OS: Windows 7, Linux

Design and Implementation Constraints:

- The application will use Ajax, JavaScript, jQuery and CSS as main web technologies.
- HTTP and FTP protocols are used as communication protocols. FTP is used to upload the web application in live domain and the client can access it via HTTP protocol.
- Several types of validations make this web application a secured one and SQL Injections can also be prevented.
- Since Society Management system is a web-based application, internet connection must be established.
- The Society Management System will be used on PCs and will function via internet or intranet in any web browser.

Specific Requirement

External Interface Requirements

User Interfaces:

- All the users will see the same page when they enter in this website. This page asks the users a username and a password.
- After being authenticated by correct username and password, user will be redirect to their corresponding profile where they can do various activities.
- The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.

Hardware Interfaces:

- No extra hardware interfaces are needed.
- The system will use the standard hardware and data communication resources.
- This includes, but not limited to, general network connection at the server/hosting site, network server and network management tools.

Application Interfaces:

- **OS:** Windows 7, Linux
- **Web Browser:** The system is a web-based application; clients need a modern web browser such as Mozilla Firebox, Internet Explorer, Opera, and Chrome. The computer must have an Internet connection in order to be able to access the system.

Communications Interfaces:

- This system uses communication resources which includes but not limited to, HTTP protocol for communication with the web browser and web server and TCP/IP network protocol with HTTP protocol.
- This application will communicate with the database that holds all the booking information. Users can contact with server side through HTTP protocol by means of a function that is called HTTP Service. This function allows the application to use the data retrieved by server to fulfil the request fired by the user.

Customer/End User/Client activities

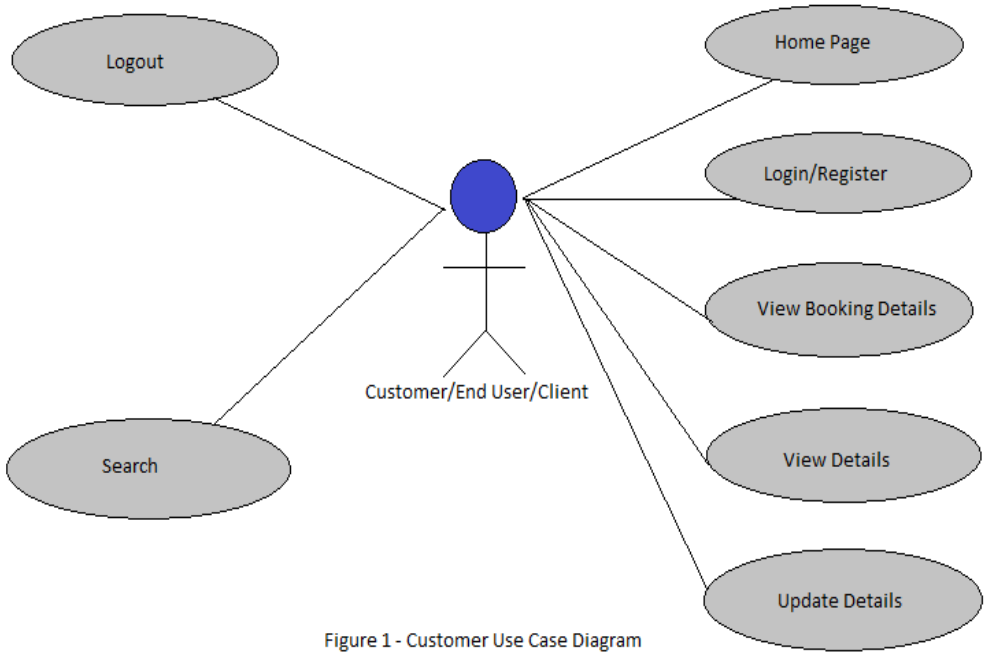


Figure 1 - Customer Use Case Diagram

Figure 1 – Customer Use Case Diagram

The above use case diagram showcases all the functionalities of the User (End User). They can be discussed in detail as follows.

Home Page: Like all the Other available online websites the user can access home page of the Flight Management System where the user can find the Login, Register and admin Login link.

Login and Register: As per the login is concerned the User needs to know the Id and the Password so as to log-in to the website. By clicking on the Register link available on the home page the User can simply Register themself.

View Booking: By clicking on the view Bookings User will get to know about their booking details.

Booking Details Comprises of

1.Booking Id

2.Flight Number

3. Amount

4.Amount

5.Booking Date

6.Booking Time

View Details: View Details link will be having the User information like

1.User Id

2.User Name

3.Phone

4.Email

Update details: By clicking on the update details link User can simply update their own details (if required) in this User will be having a Form.

Logout: By clicking on the logout link User can logout from the website.

Search: User can search the Flights (available if any) and can simply book (irrespective of their choice).

Consumer/Client/End User Page Flow Diagram:

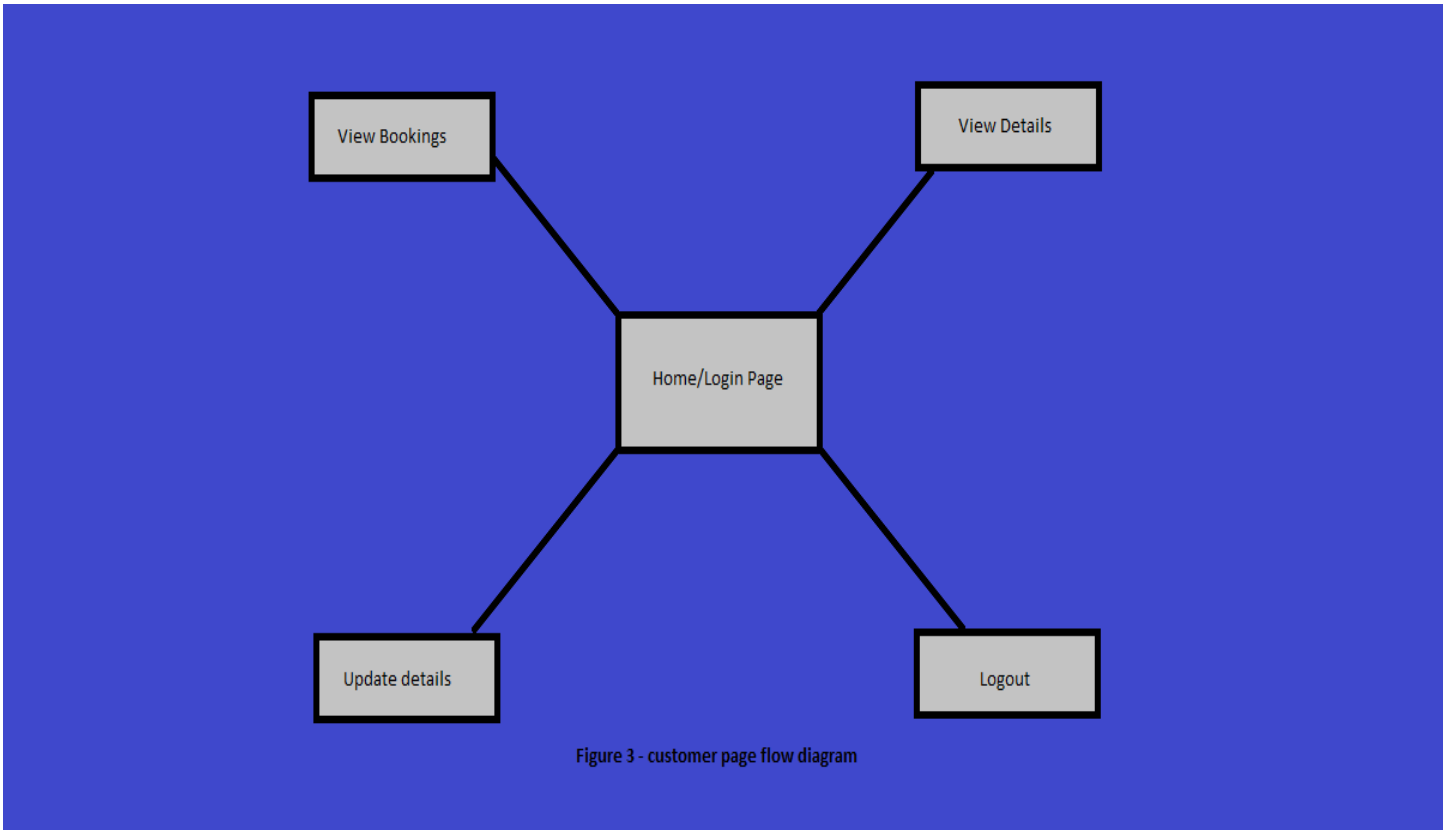


Figure 3 - customer page flow diagram

Note: The Homepage of the Flight Management System has the Id and the Password field for the Admin login. So, the Home Page can also be used as the login page for the Admin User

Administrator (admin) Activities

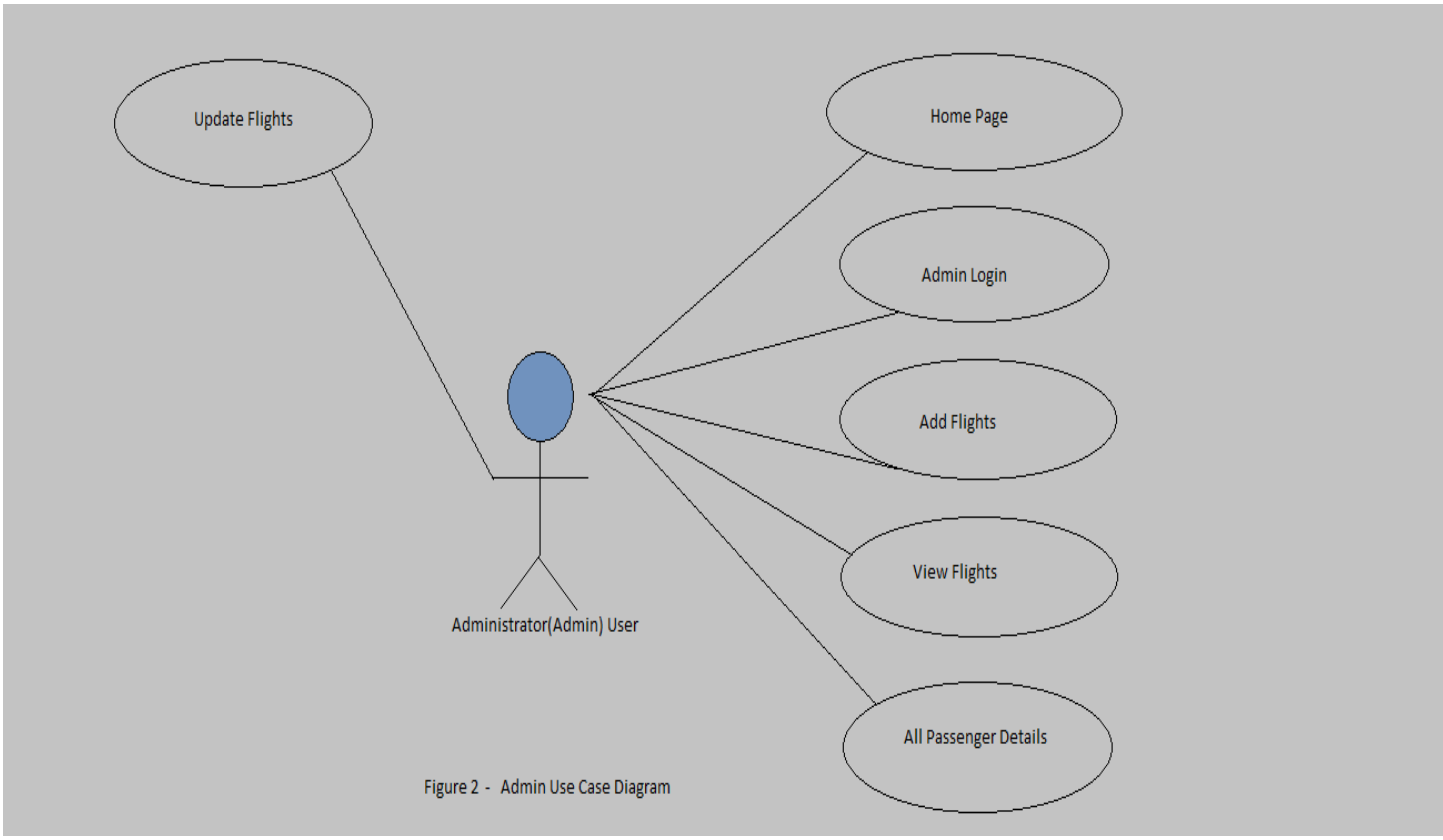


Figure 2 – Administrator(admin) use case diagram

The above use case diagram showcases all the functionalities of the Administrator (admin). They can be discussed in detail as follows.

Login: By clicking on the admin login (only the administrator associated with the website can logged into it) and are able to provide the facilities to the User.

Add Flight Details: The administrator (admin) will only be responsible to add the Flight Details so that the other end user/customer/client could be able to book the available flights.

All Passenger Details: By clicking on All passenger link (button) only the admin will be having the authority to view all the passenger details who has booked the Flights with them(website). The passenger details will be as follows.

1.Passenger Id

2.Passenger Name

3.Passenger Age

4.Luggage

View Flights: By clicking on the view flights link(button) admin can view all the available flights which are ready to give service to the client/customer/End User. View Flights comprises of

1.Flight Number

2.Departure Airport

3.Arrival Airport

4.Available Seats

5.Departure Date

6.Flight Vendor

7.Cost

Update Flights: Only the administrator will be having the authority to update the flights (if required).

Admin page Flow Diagram:

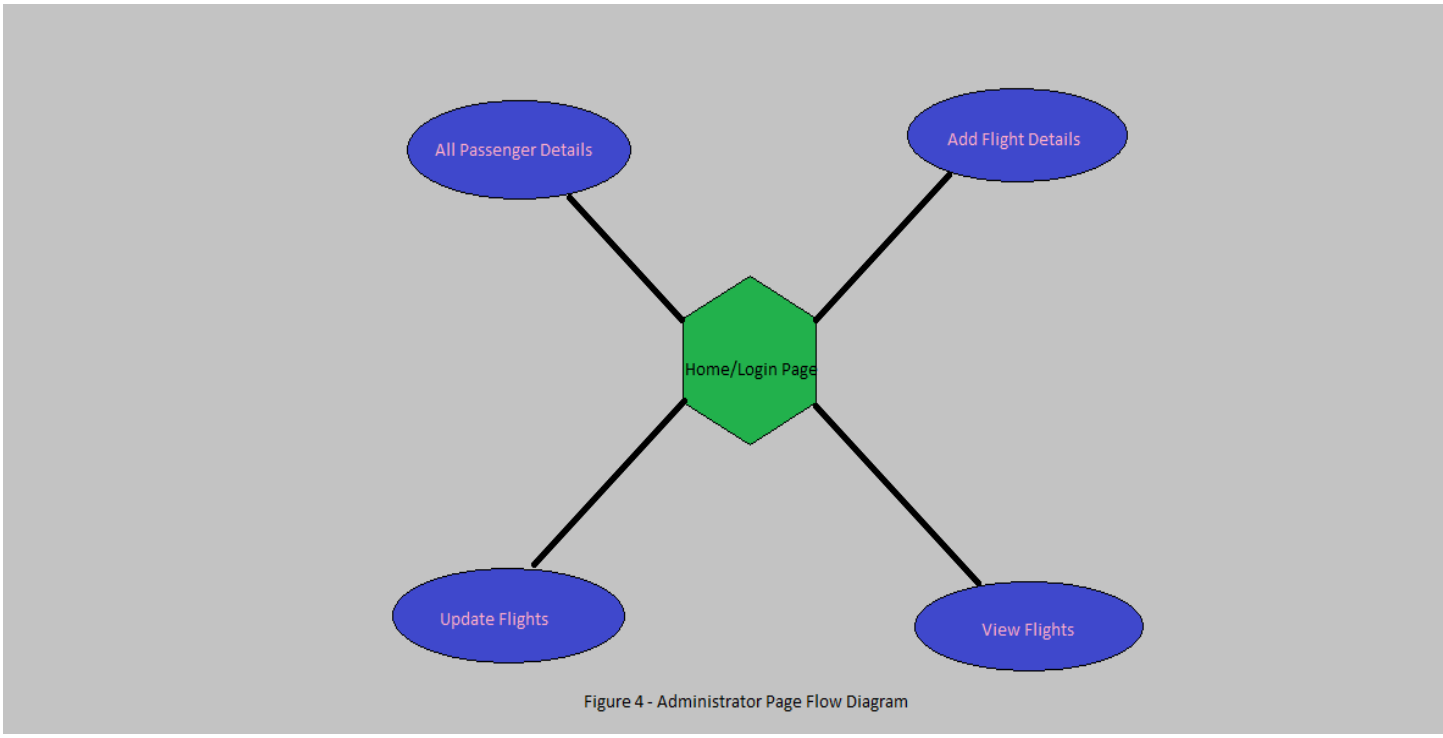


Figure 4 - Administrator Page Flow Diagram

Note: The Homepage of the Flight Management System has the Id and the Password field for the Customer login. So, the Home Page can also be used as the login page for the Customer User

ARCHITECTURE DESIGN

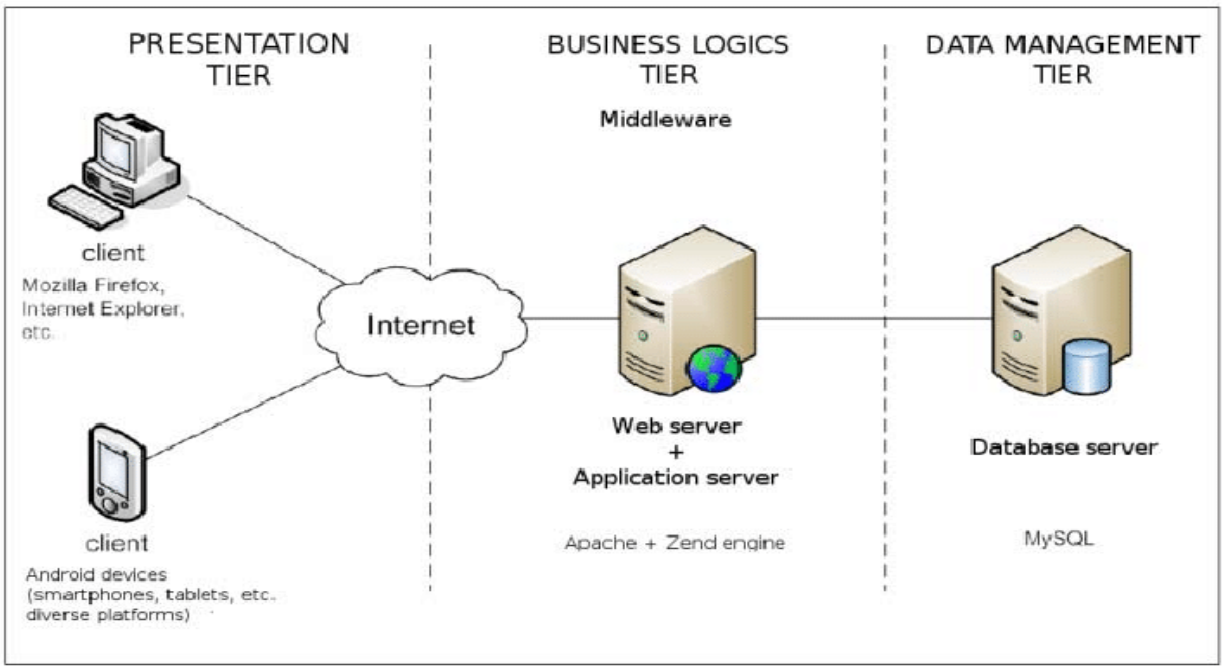
INTRODUCTION

The main purpose of the Architecture Design document is to discuss the architectural design for the Online Reservation System project in a clear and concise form. This design document will give a detailed description of the presentation tier, the middle tier which consists of the class diagrams, sequence diagrams for the Flight Management System and finally the data tier.

ARCHITECTURE OF THE FLIGHT MANAGEMENT SYSTEM:

The architecture of the Flight Management System is based on the three-tier architecture. This three-tier architecture mainly consists of three layers namely: • Presentation Tier • Business Tier • Data Access Tier the Presentation Tier converts and displays information into a human legible form. This tier displays information related to services such as browsing the website. It communicates with the other tiers by outputting results to the browser/client tier and all the other tiers. The Business Logic tier is mainly responsible for information exchange between the user interface and the database of the project. The final layer of the three-tiered architecture is the Data Access tier, which mainly consists of the Database servers. The information related to the Flight Management System is stored and retrieved from here.

Three-Tier-Architecture (Just an example):



Reference: https://www.researchgate.net/figure/3-tier-architecture_fig1_277187696 (Internet)

Figure 5 - Three-Tier-Architecture

The Architecture of the Flight Management System is depicted as:

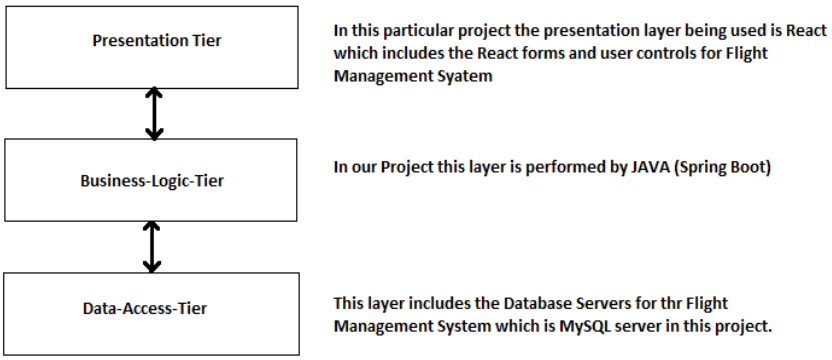


Figure: 6 – Class Diagram

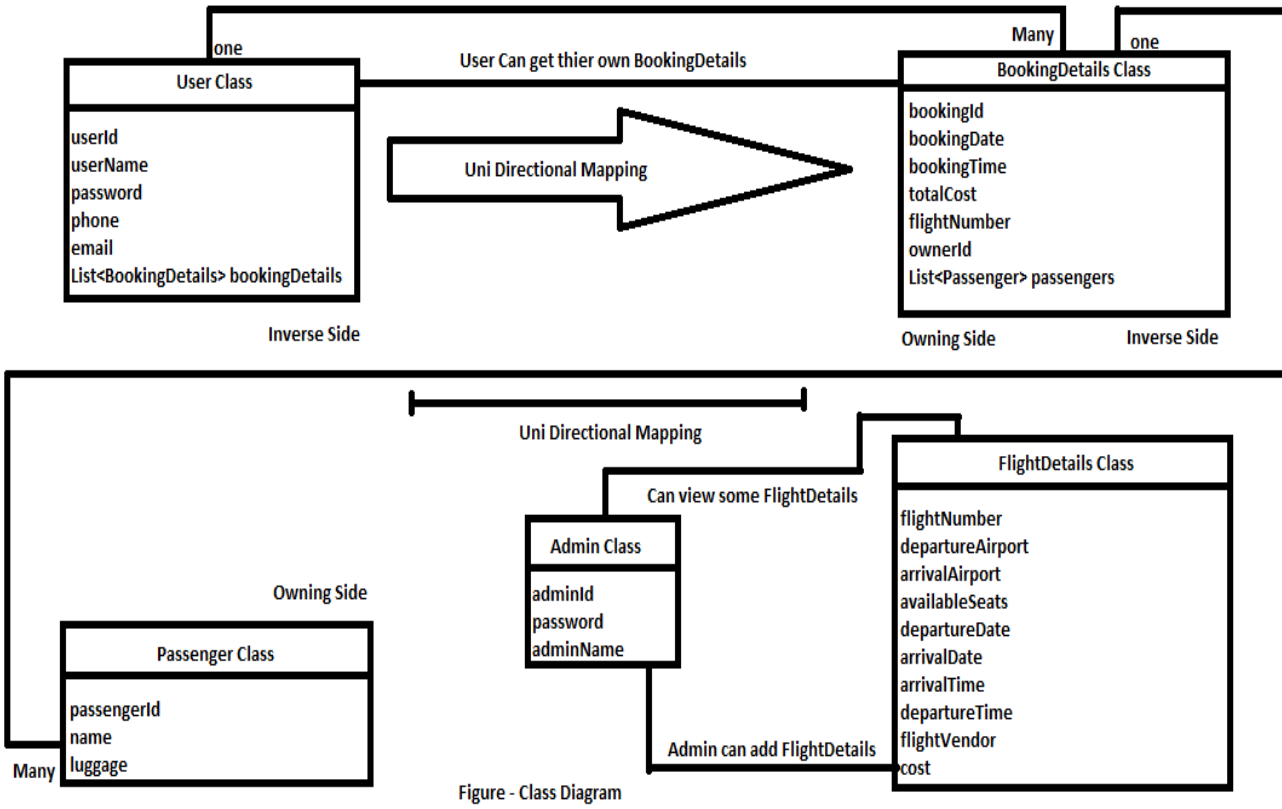


Figure - Class Diagram

User Class: User class will serve completely to the User whoever the User will be barring from admin User will be authenticated with the help of the User class. The Id and the Password which are in the homepage are verified using the User Class.

Admin Class: Same as to the User Class the admin user will be authenticated using the Admin Class and similarly as that of the User validation the Id and the Password for the Admin login will be verified using the Admin class.

Passenger Class: The passengers which will be added during the booking of the Flight ticket by the User will be visible to the admin is because of the Passenger Class.

BookingDetails Class: The authenticated user after log-in into the website will be able to get all the BookingDetails is because of the BookingDetails class.

FlightDetails Class: Only the admin user after log-in to the website will be able to fill the flight details and only admin will be able to use the fields of the FlightDetails Class. After adding the flight details the admin is also able to view some of the fields of the FlightDetails class after clicking on the view flight details button.

System Design

Activity Diagram:

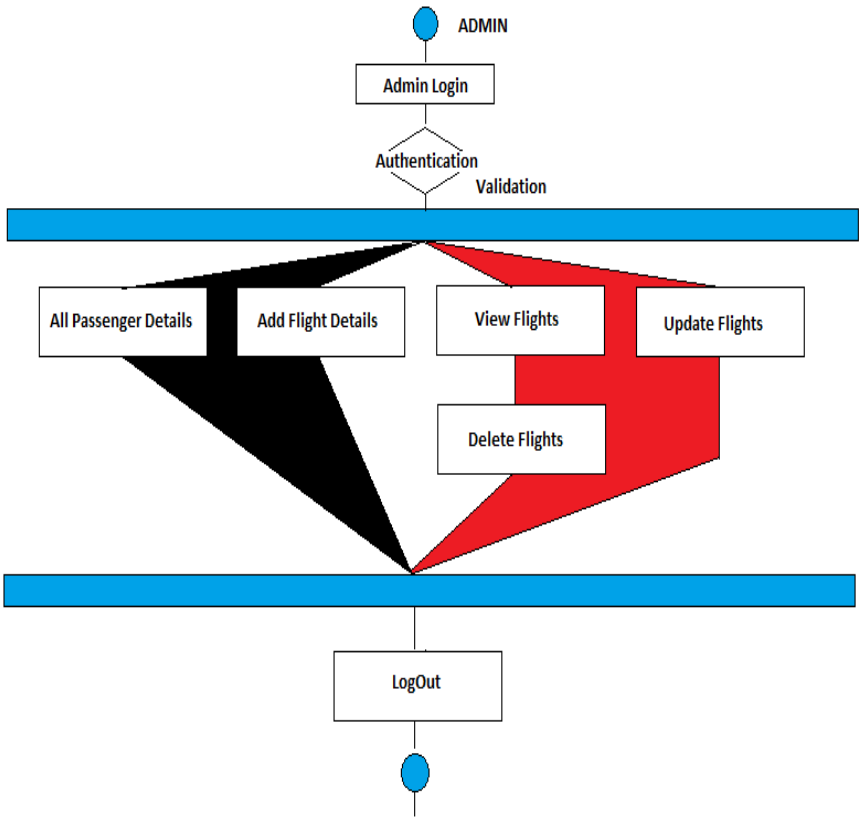


Figure 7: Admin Activity Diagram

Customer Activity Diagram:

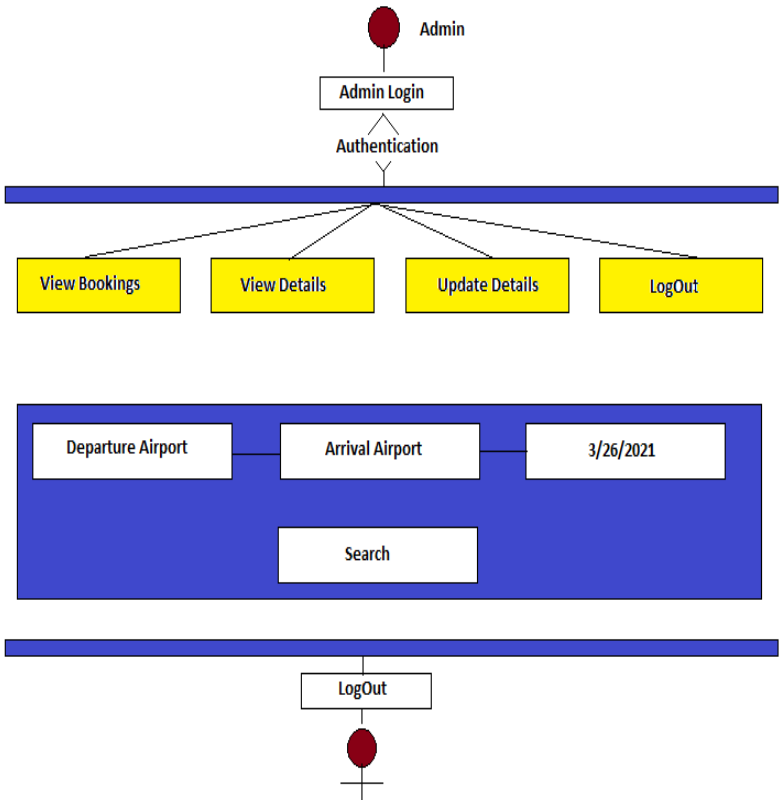


Figure 8: Customer Activity Diagram

Entity-Relationship-Diagram (ER Diagram):

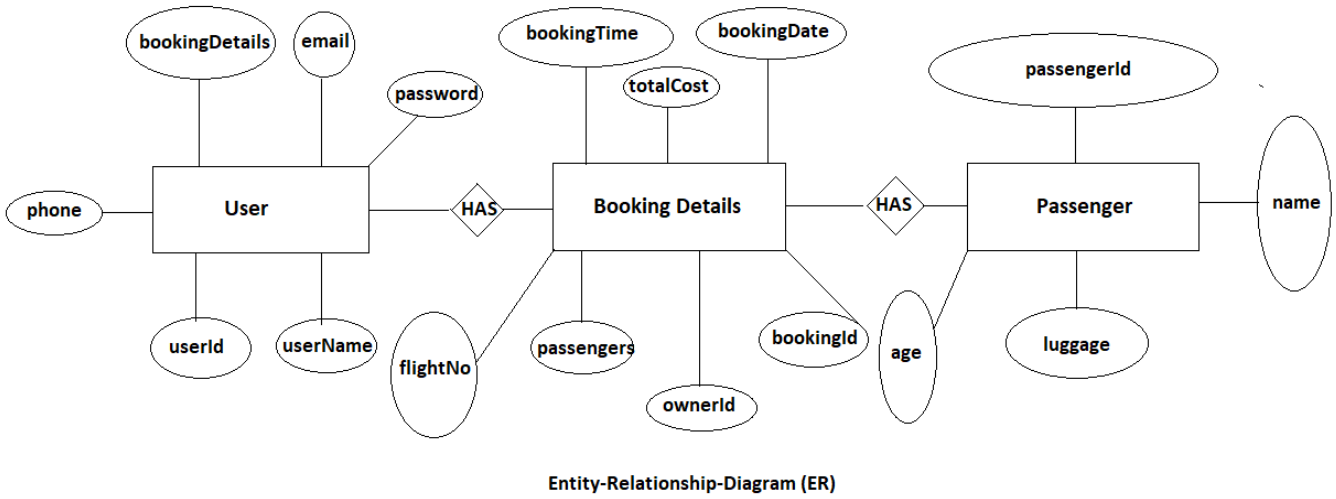


Figure 9: ER Diagram

Table Structure:

Admins Tale:

Field	Type	Null	Key	Default	Extra
admin_id	int	NO	PRI	NULL	
admin_name	varchar(255)	YES		NULL	
password	varchar(255)	YES		NULL	

Users Table:

Field	Type	Null	Key	Default	Extra
user_id	int	NO	PRI	NULL	
email	varchar(255)	YES		NULL	
password	varchar(255)	NO		NULL	
phone	bigint	NO		NULL	
user_name	varchar(255)	NO		NULL	

Passengers Table:

Field	Type	Null	Key	Default	Extra
passenger_id	int	NO	PRI	NULL	
age	int	YES		NULL	
luggage	double	YES		NULL	
name	varchar(255)	YES		NULL	

BookingDetails Table:

Field	Type	Null	Key	Default	Extra
booking_id	int	NO	PRI	NULL	
booking_date	varchar(255)	YES		NULL	
booking_time	varchar(255)	YES		NULL	
flight_number	int	YES		NULL	
owner_id	int	YES		NULL	
total_cost	double	YES		NULL	
user_id	int	YES	MUL	NULL	

Flight Details table:

Field	Type	Null	Key	Default	Extra
flight_number	int	NO	PRI	NULL	
arrival_airport	varchar(255)	NO		NULL	
arrival_date	varchar(255)	NO		NULL	
arrival_time	varchar(255)	NO		NULL	
available_seats	int	YES		NULL	
cost	double	NO		NULL	
departure_airport	varchar(255)	NO		NULL	
departure_date	varchar(255)	NO		NULL	
departure_time	varchar(255)	NO		NULL	
flight_vendor	varchar(255)	NO		NULL	

Conclusion:

Flight Management System will ease the efforts of the Users in booking the flight. User will be having much more options while booking the flight. The application will be available 24/7 to serve them and it will help them in learning the new and the latest technologies.

Future Scope:

This application can be made more enhanced by adding some more functionalities like giving the User some discounts while booking the flights

Administrator functionalities can also be enhanced by giving the User the relevant packages of booking hotels along with booking of the tickets.

References:

The books and materials referred during the pre-development stages of the project include

1. Software Engineering-A Practitioner's Approach

By Roger S. Pressman

2. Software Engineering-By James Peters