

# **Software Engineering Project Report**

## **Online Flight Ticket Booking System**

The project report submitted for

**5<sup>th</sup> Semester course project**

in

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## OBJECTIVES

- Develop an efficient web application that can be used for booking a flight ticket.
- Design an Intuitive user interface that non-technical users can use to book flight tickets, or cancel them.
- Providing users with real-time information about flight availability, schedules, pricing, and seat availability for informed decision-making.

## PROJECT PROFILE

<b>Project Name:</b> Online Flight Ticket Booking System
<b>Objective:</b> It is a system designed specifically for booking flight tickets.
<b>Platform:</b> Web Application
<b>Front End:</b> HTML, CSS, JavaScript
<b>Back End:</b> Node JS
<b>Database:</b> MySQL
<b>Other Tools:</b> VS Code, PHP

## **EXISTING SYSTEM**

- An existing system involves a lot of paper work and calculations.
- The existing system consumes a lot of time causing inconvenience to users and the staff.
- It's difficult to update, delete, or view the data due to its manual nature.
- Difficulty in maintaining and retrieving user's details.

## **NEED FOR A NEW SYSTEM**

- The new system is completely computerised which reduces a lot of paper work and load on the admin.
- The reservation and cancellation list can be retrieved easily.
- Any required addition, deletion, or updation can be performed much faster.
- Proper way of confirmation of bookings.

# **FUNCTIONAL SPECIFICATIONS**

## **USER SPECIFICATIONS**

- **Admin:**

- Admin can view overall records of total passengers, amount, flights, and airlines.
- Admin can also add a flight, or airline and also delete them.

- **User:**

- User can log in, log out, and book a ticket by entering the required details and payment.

## **MODULE SPECIFICATIONS**

- **Login / Register:**

- Admin can login/register via email or username and password credentials.

- **Booking Ticket:**

- User can book a ticket by providing the required details.

- **View E-ticket:**

- Users can view his/her ticket, and flight status and can print the tickets.
- Admin can view ticket booking details of all the users.

- **Cancel Ticket:**

- User can cancel his/her ticket.

- **Cancel Flight:**

- Admin can cancel the flights and remove airlines.

## **NON-FUNCTIONAL SPECIFICATIONS**

- Performance: The system should be able to manage a high volume of requests and transactions with minimal delays or performance concerns.
- Scalability: The system should be able to scale up or down to meet changing demand.
- Security: The system should protect sensitive client data and maintain the security of all transactions.
- Availability: The system should be available at all times, with as little downtime as possible for maintenance or updates.
- Usability: The system should be simple to use for both customers and staff, with a simple and straightforward interface.

## HARDWARE REQUIREMENTS

### Client side

<b>RAM</b> 2 GB
<b>Hard Disk</b> 16 GB
<b>Processor</b> 1.0 GHz

### Server side

<b>RAM</b> 8 GB
<b>Hard Disk</b> 64 GB
<b>Processor</b> 4.0 GHz

## SOFTWARE REQUIREMENTS

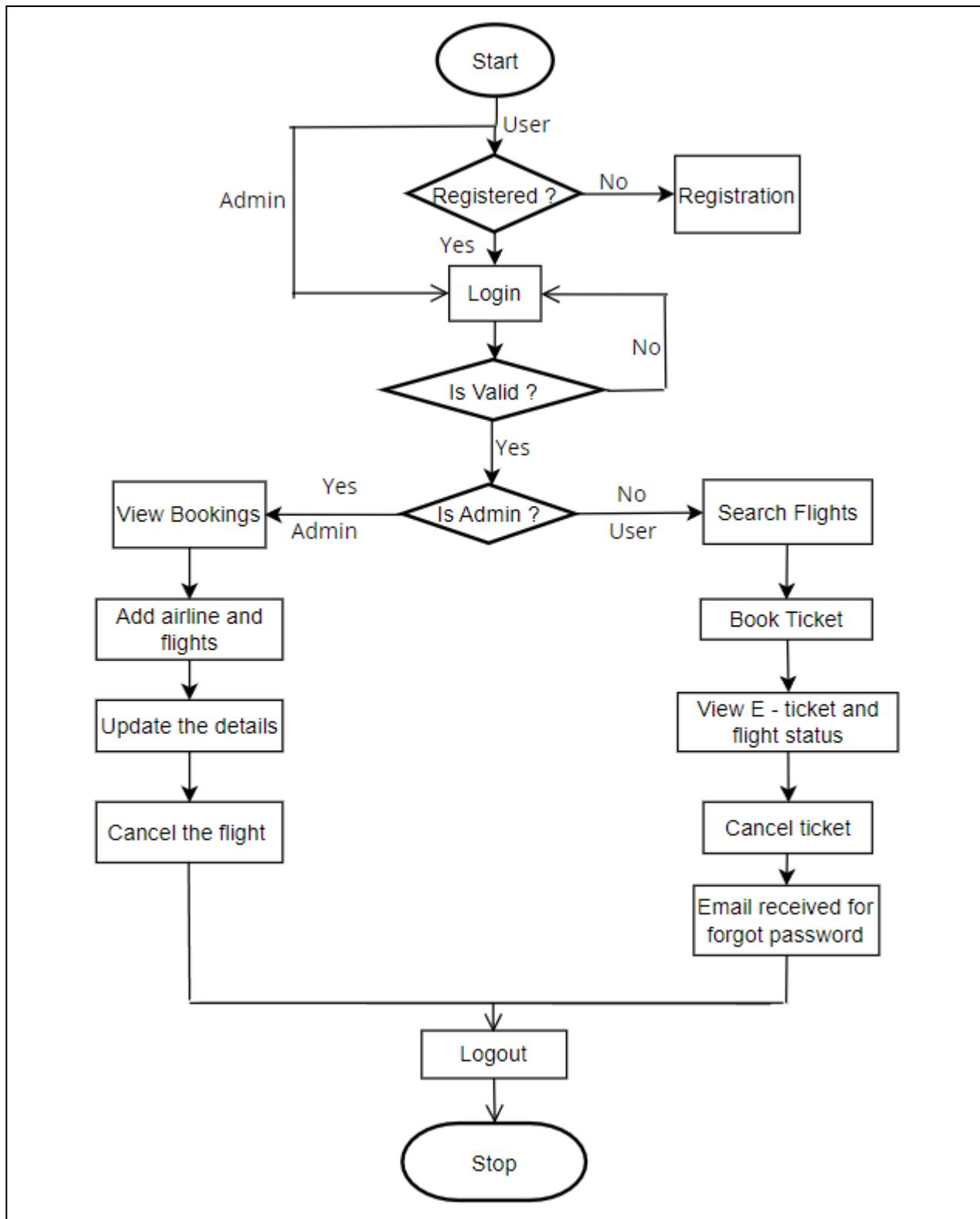
### Client side

<b>Web Browser</b>	Chrome or any compatible browser
<b>Operating System</b>	Windows 10/11 or any equivalent OS

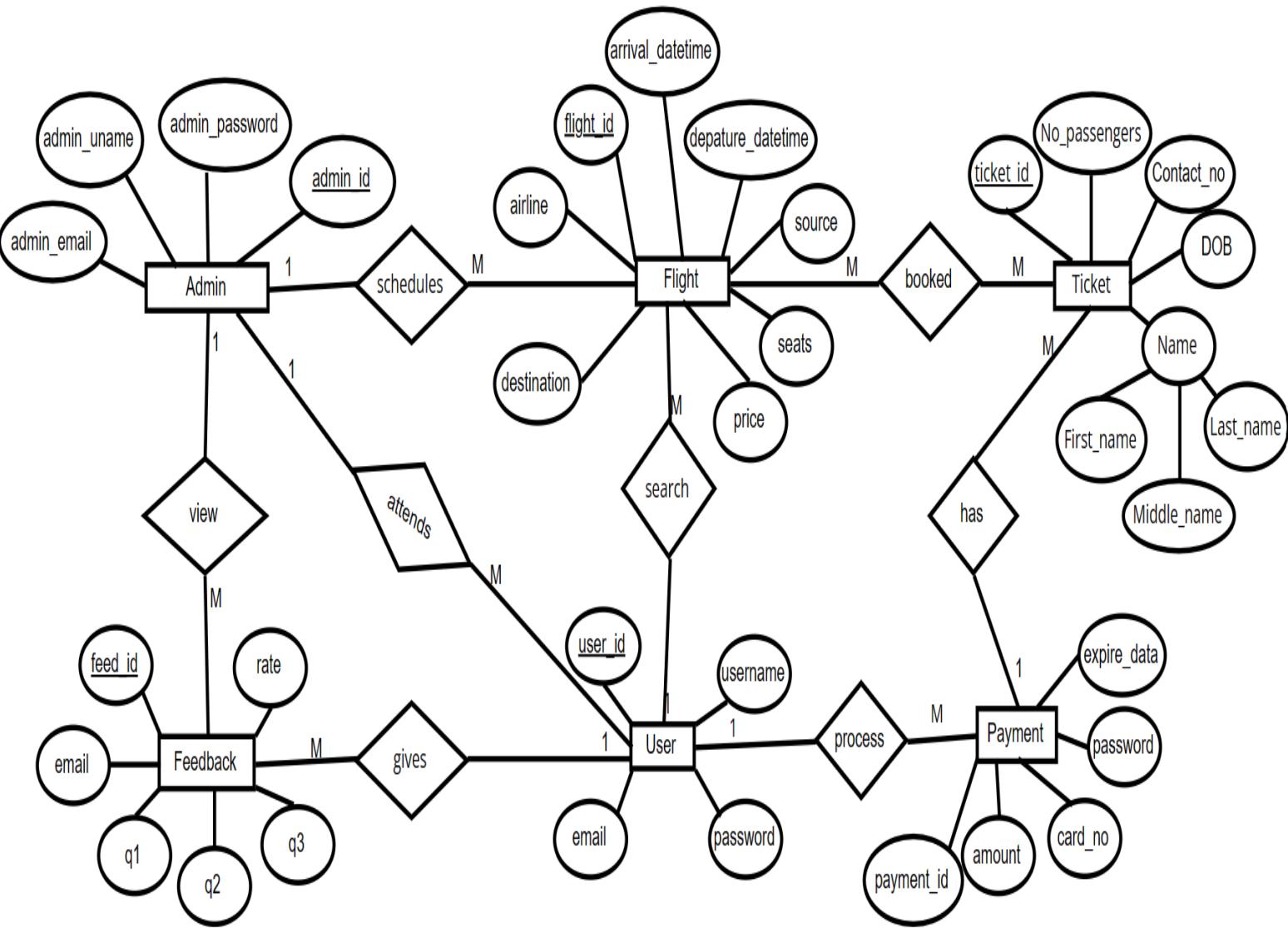
### Server side

<b>Web Browser</b>	Chrome or any compatible browser
<b>Operating System</b>	Windows Server 2007 or Linux based server Operating System

## SYSTEM FLOWCHART

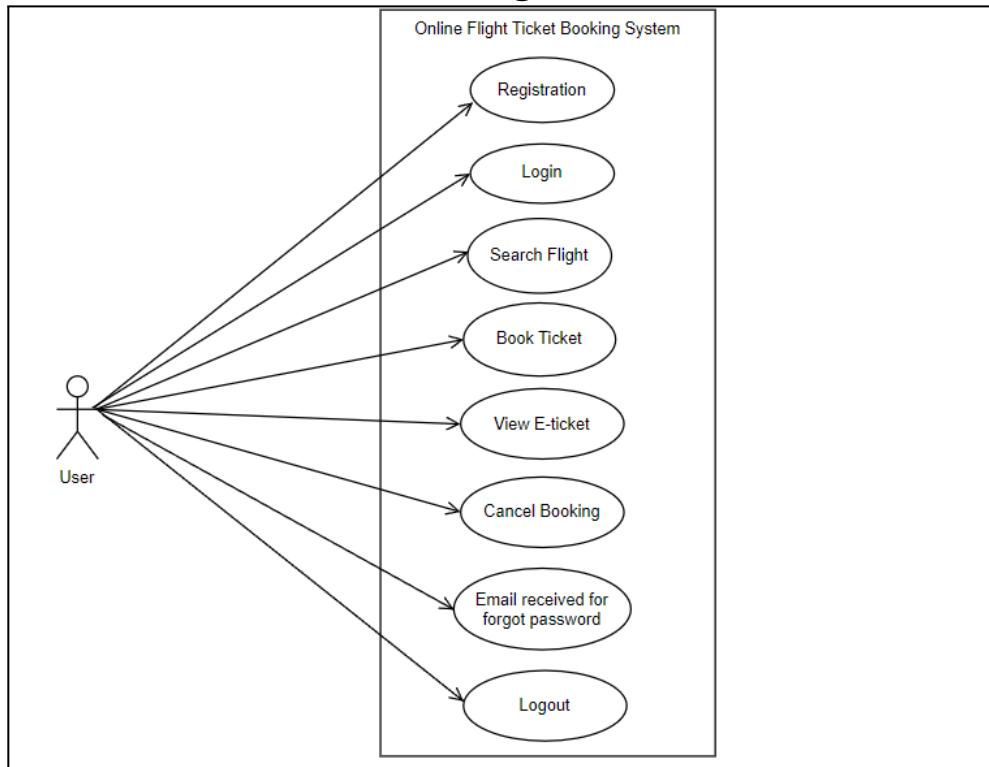


## ER DIAGRAM

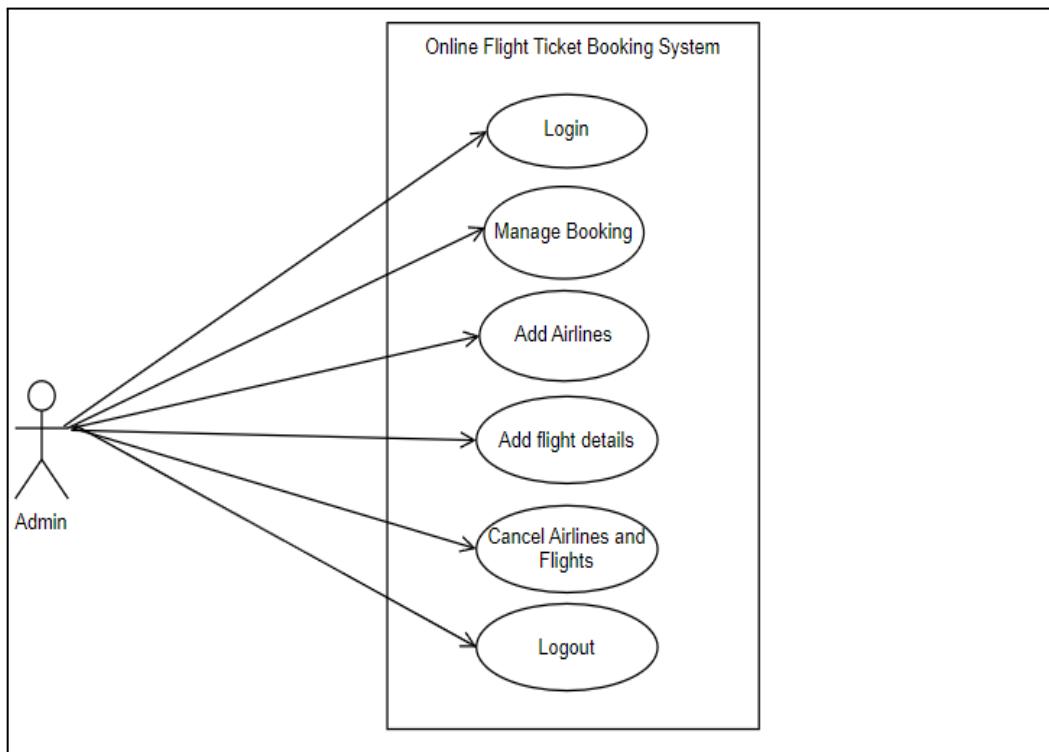


# UML DIAGRAMS

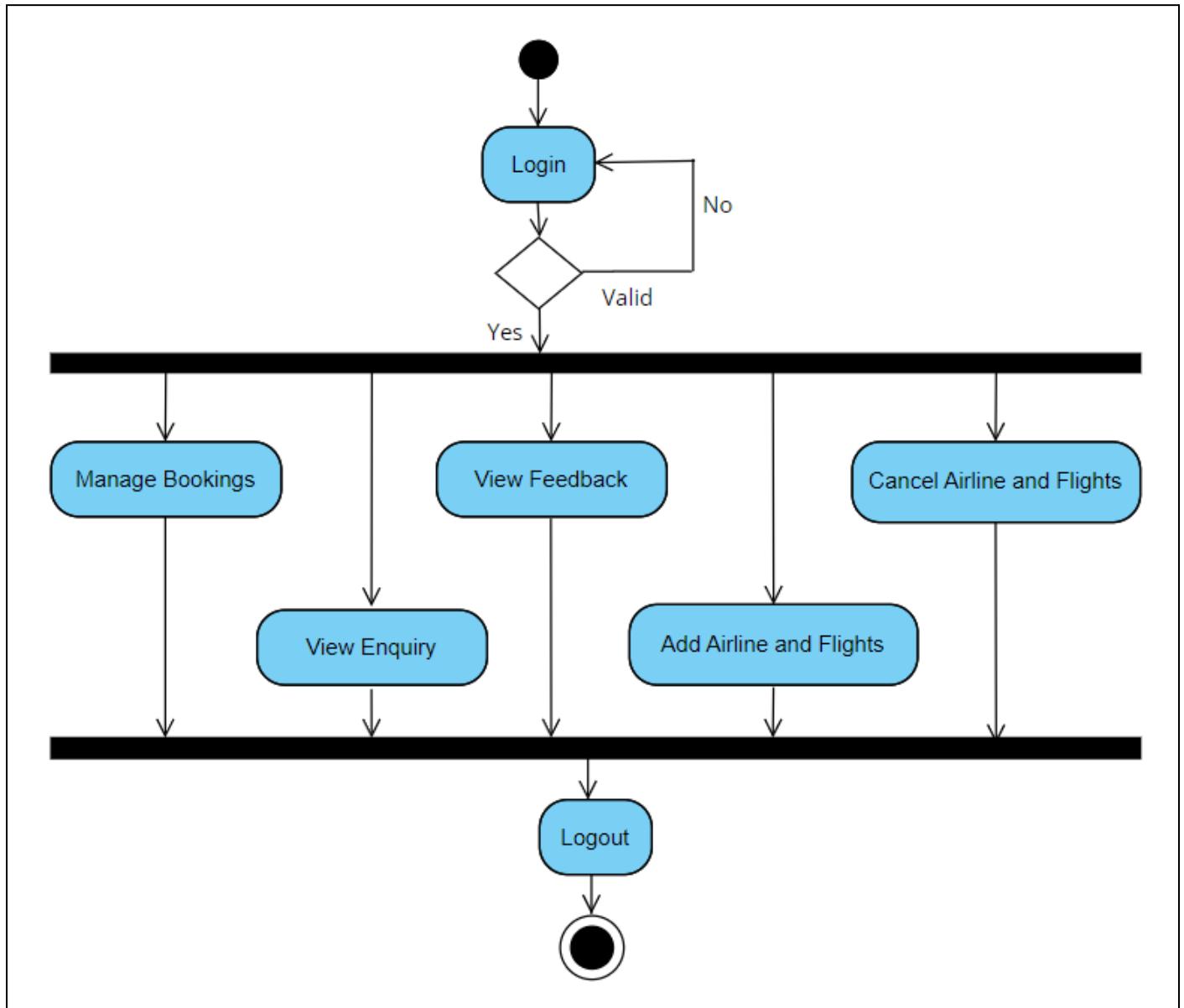
## Use Case Diagram for User



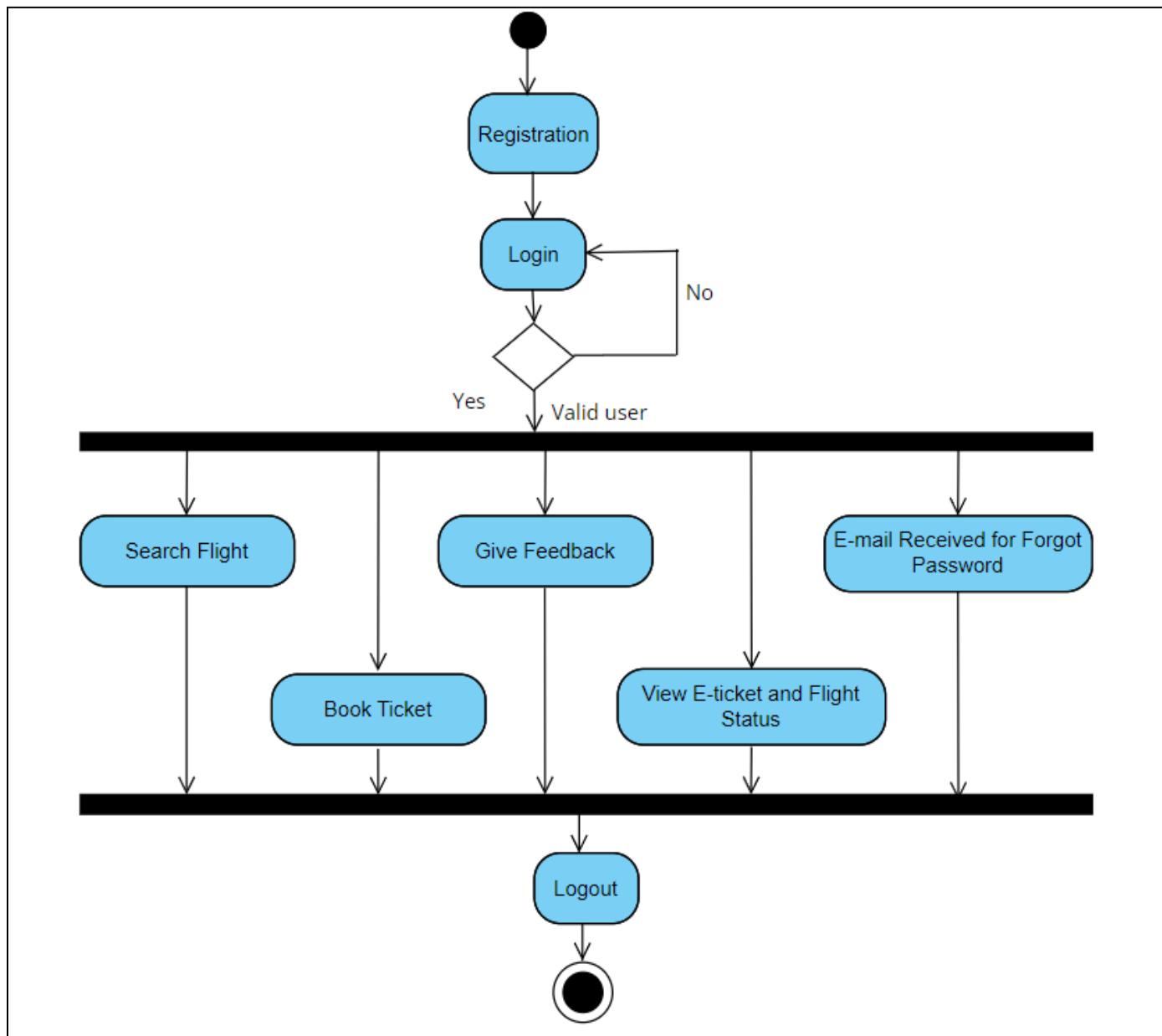
## Use Case Diagram for Admin



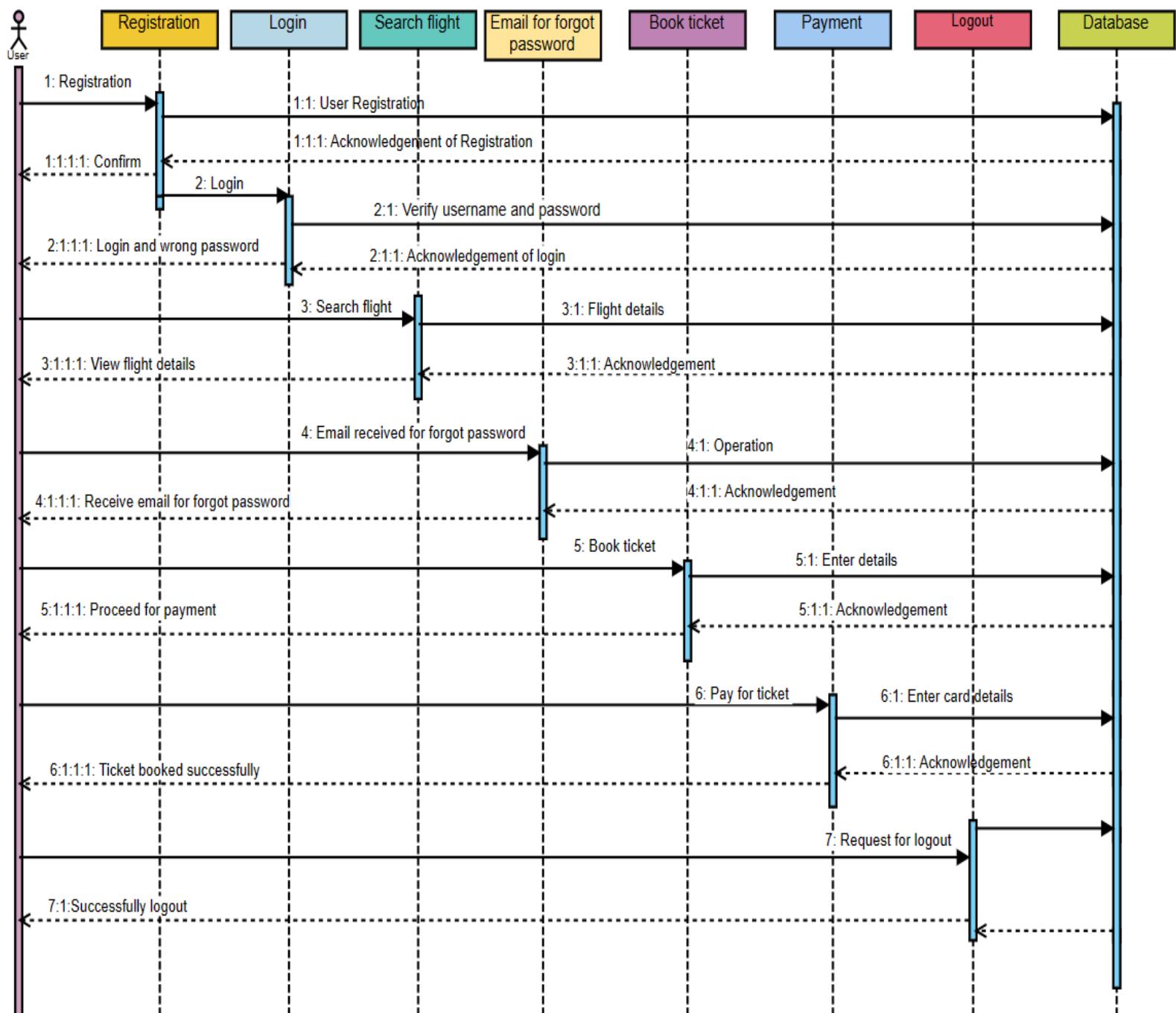
## Activity Diagram for Admin



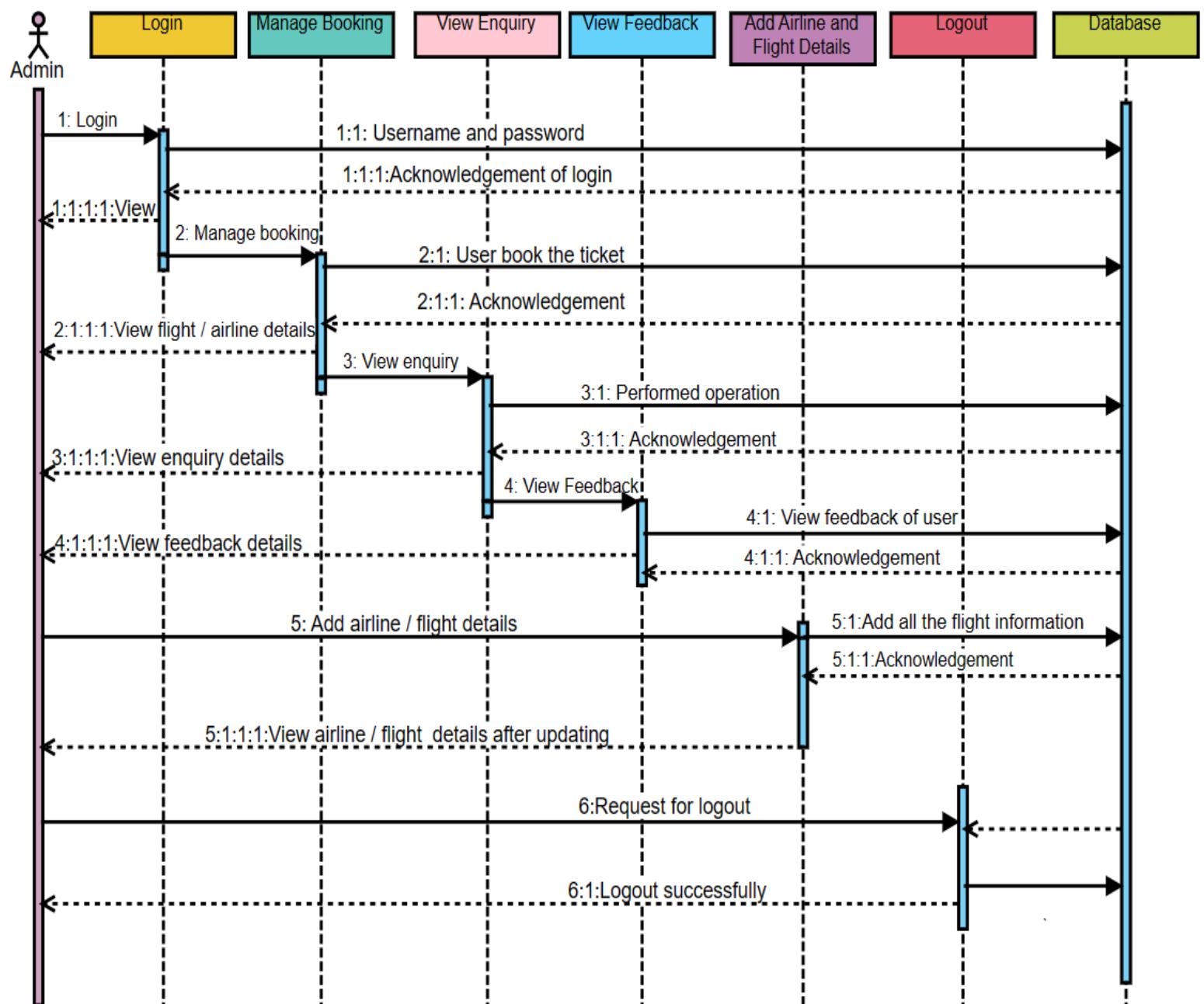
## Activity Diagram for User



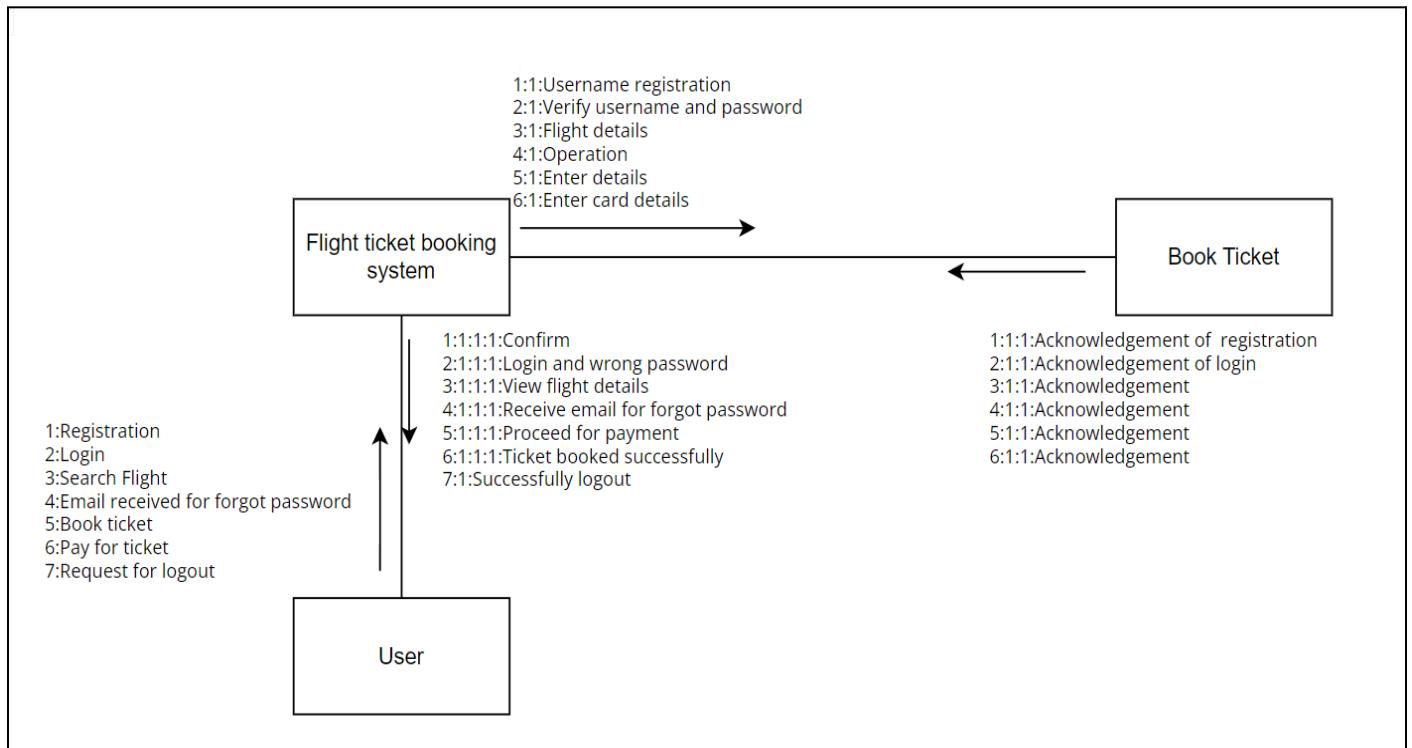
## Sequence Diagram for User



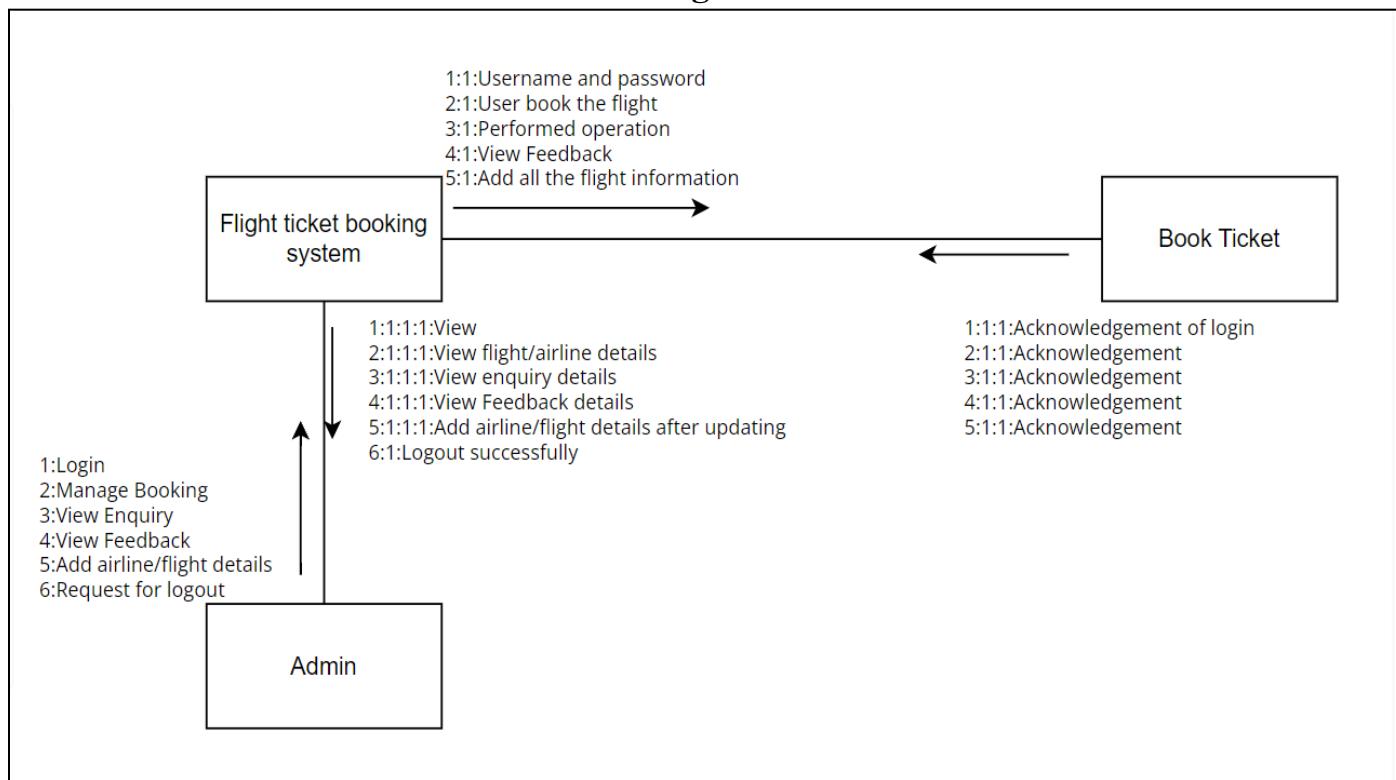
## Sequence Diagram for Admin



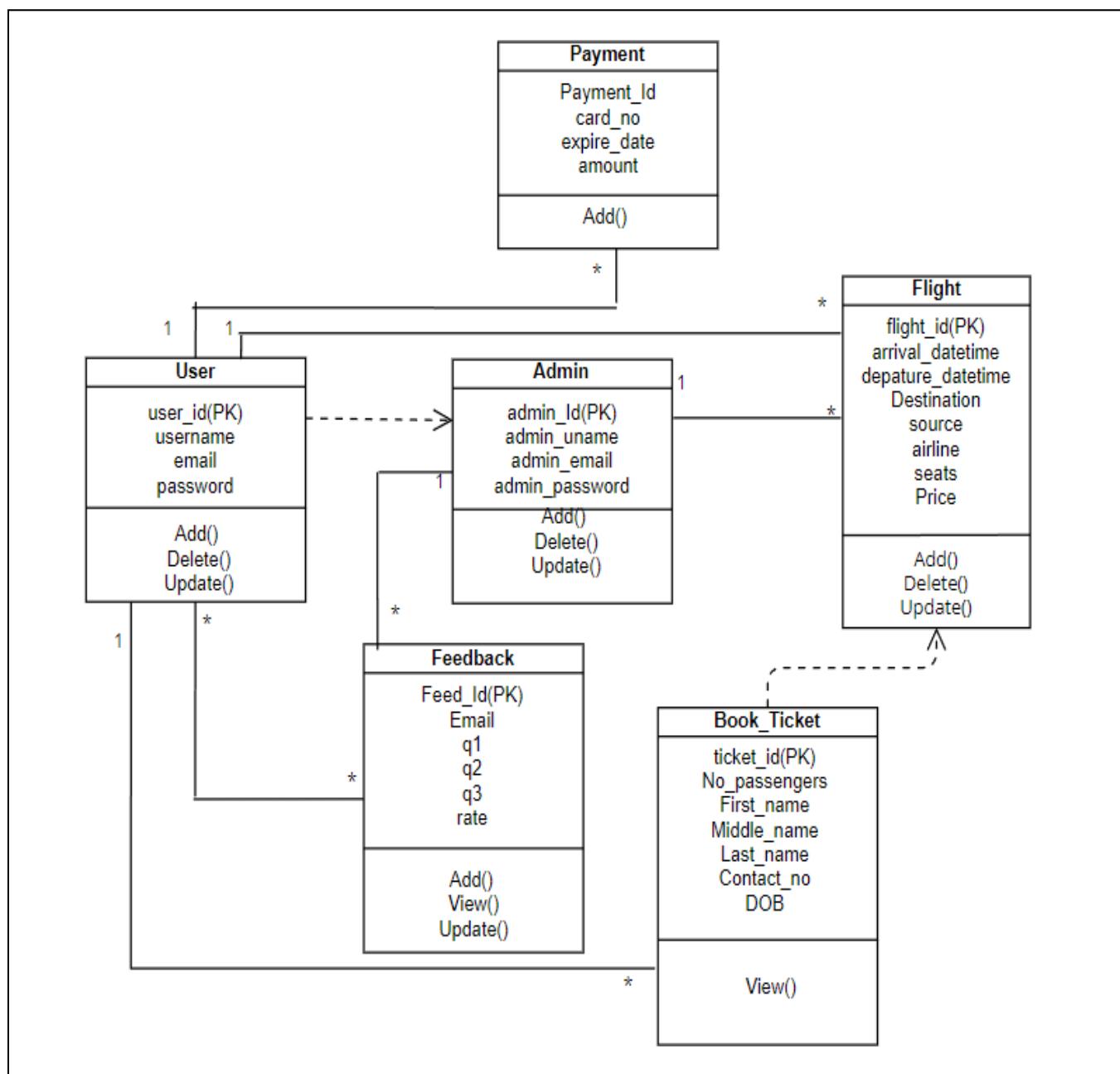
## Collaboration Diagram for User



## Collaboration Diagram for Admin



## Class Diagram



# USER PAGE DESIGN

## User Home page:

The screenshot shows the user home page of an online flight booking system. At the top, there is a navigation bar with links: Home, My Flights, Tickets, Feedback, and About. On the right side of the header, there is a user profile icon labeled "riya1234" and a "Logout" link. Below the header, the main content area features a logo with a stylized airplane and the text "Online Flight Booking". A search form is centered, with tabs for "ROUND TRIP" and "ONE WAY". The search fields include "From" (Departure), "To" (Arrival), "Depart" (dd-mm-yyyy) and "Return" (dd-mm-yyyy) date inputs, a "Class" dropdown set to "Economy", and a "Passenger" count input set to "1". A green "Search Flights" button is located at the bottom right of the search form.

## User Table details page:

The screenshot shows the user table details page, which is identical in layout to the home page. It features the same header with "riya1234" and "Logout" links. The main content area includes the "Online Flight Booking" logo and a search form. In this instance, the "From" field is set to "Jaipur" and the "To" field is set to "Agra". The "Depart" date is "27-11-2023". The "Passenger" count is still "1". The "Search Flights" button is present at the bottom right.

## User Flight list page:

The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/book_flight.php`. The page title is "FLIGHTS FROM: Jaipur to Agra". The main content is a table with one row of flight information:

Airline	Departure	Arrival	Status	Fare	Buy
Air India	2023-11-27 05:00:00	2023-11-27 07:00:00	Not yet Departed	\$ 5000	<input checked="" type="checkbox"/>

At the bottom of the page, there is a footer with the text "Online Flight Booking" and a logo.

## User ticket booking page:

The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/book_flight.php`. The page title is "PASSENGER DETAILS". The form fields include:

- Firstname: Anil
- MiddleName: P
- Lastname: Singh
- Contact No: 7489821022
- DOB: 27-07-1998 (with a calendar dropdown open)
- Proceed button

The calendar dropdown shows the month of July 1998, with the date 27 highlighted. Other dates are shown in a grid format.

## User payment page:

The screenshot shows a payment interface titled "PAY INVOICE". At the top, there's a header with "Home", "My Flights", "Tickets", "Feedback", "About", a user profile icon "riya1234", and a "Logout" link. Below the header is the main "PAY INVOICE" section. It features a "Accepted Cards" section with icons for VISA, MASTERCARD, AMERICAN EXPRESS, DISCOVER, and stripe. Below this are fields for "Card number" (containing "3467823456789235"), "Expiration" (containing "07/28"), and "CVV" (with a placeholder "The 3 digit code on back of the card.."). A "Pay" button with a lock icon is at the bottom. A tooltip for the CVV field says "The 3 digit code on back of the card..".

## User flight status page:

The screenshot shows a flight status page titled "FLIGHT STATUS". At the top, there's a header with "localhost/OnlineFlightBooking-PHP/my\_flights.php", a search bar, and a user profile icon "riya1234" with a "Logout" link. Below the header is the main "FLIGHT STATUS" section. It displays a flight route from "Jaipur" to "Agra". The departure time is listed as "05:00" and the arrival time as "07:00". The departure date is "2023-11-27" and the arrival date is "2023-11-27". A green airplane icon is positioned between the two cities. To the right of the arrival time, there's a blue box containing the text "Not yet Departed".

## User view ticket page:

The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/ticket.php`. The page title is "E-TICKETS". On the left, there's a flight summary card for "ECONOMY CLASS". The flight details are as follows:

ALINE	FROM	TO	
AIR INDIA	JAIPUR	AGRA	
PASSENGER		BOARD TIME	
ANIL P SINGH		12:45	
DEPARTURE	ARRIVAL	GATE	SEAT
2023-11-27 05:00	2023-11-27 07:00	A22	21B

To the right of the flight details is a graphic of an airplane and a boarding pass, with the text "Thank you for choosing us. Please be at the gate at boarding time". Above this graphic is a red button labeled "Cancel Ticket" and a blue button labeled "Print Ticket". At the top of the page, there are navigation links: Home, My Flights, Tickets, Feedback, About, and a user profile section with "riya1234" and "Logout".

## User feedback page:

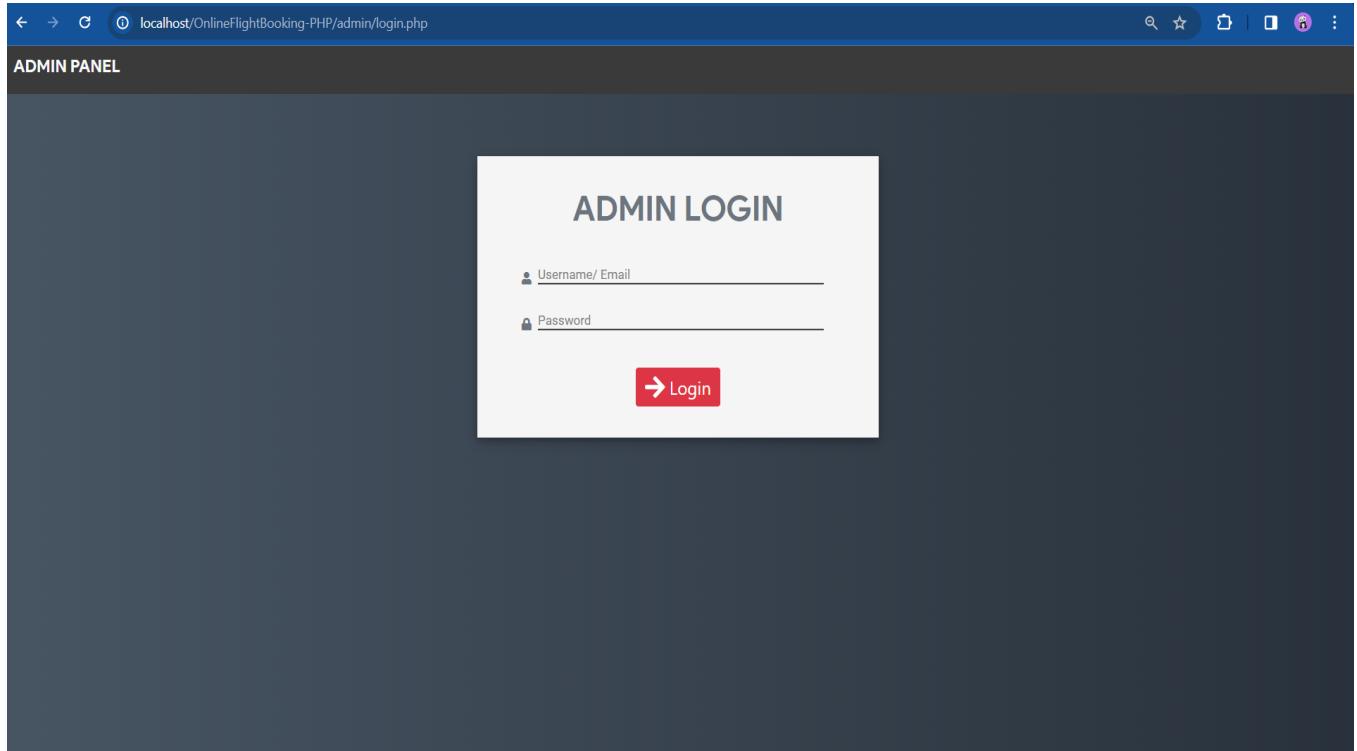
The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/feedback.php`. The page title is "FEEDBACK". The form fields include:

- Email input field
- Text area for "What was your first impression when you entered the website?"
- Text area for "How did you first hear about us?"
- Text area for "Is there anything missing on this page?"
- A five-star rating scale with four stars filled.
- A blue "Send" button with a white arrow icon.

At the bottom of the page is a footer with the "Online Flight Booking" logo and a small icon.

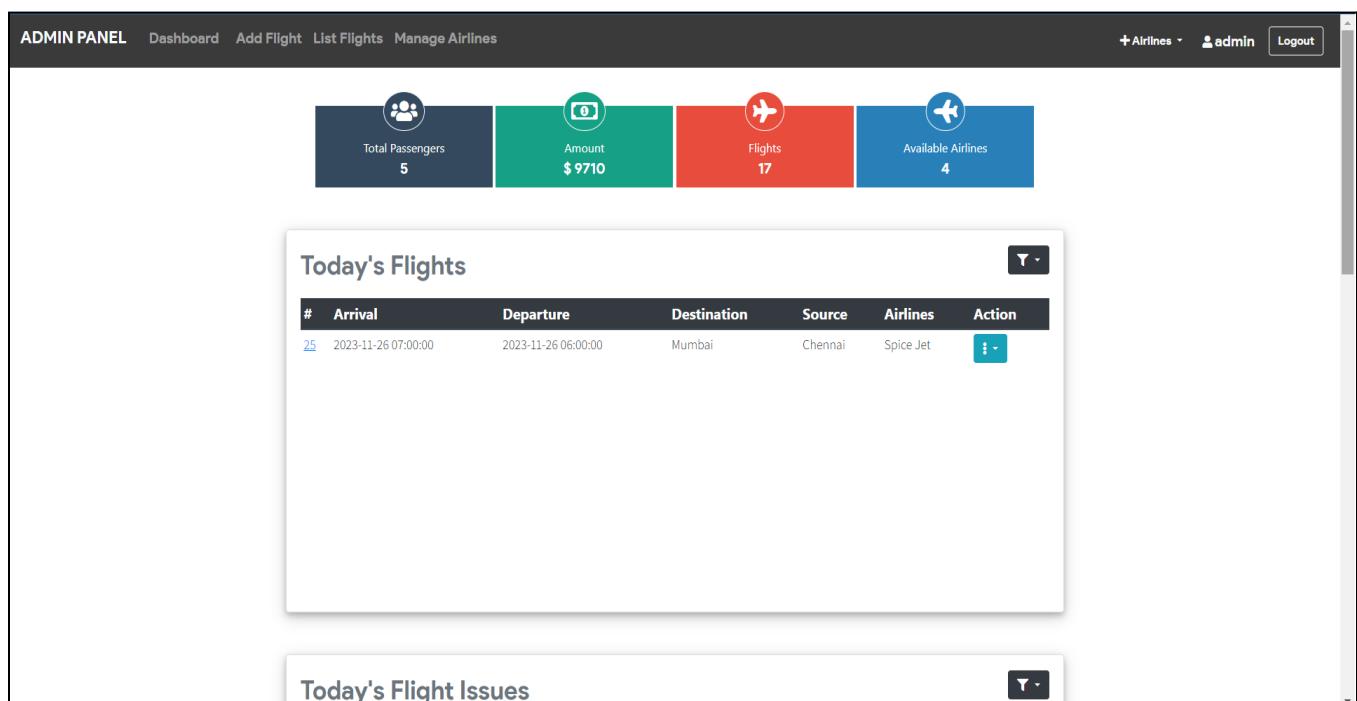
# ADMIN PAGE DESIGN

## Admin login page:



The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/admin/login.php`. The title bar says "ADMIN PANEL". The main content area is titled "ADMIN LOGIN" and contains two input fields: "Username/ Email" and "Password", followed by a red "Login" button.

## Admin dashboard:



The screenshot shows the Admin Dashboard. The top navigation bar includes links for "Dashboard", "Add Flight", "List Flights", "Manage Airlines", and user information for "admin". Below the navigation is a row of four cards: "Total Passengers 5", "Amount \$ 9710", "Flights 17", and "Available Airlines 4". The main content area is titled "Today's Flights" and displays a table with one row of flight information: # 25, Arrival 2023-11-26 07:00:00, Departure 2023-11-26 06:00:00, Destination Mumbai, Source Chennai, Airlines Spice Jet, and Action (a dropdown menu). At the bottom is a section titled "Today's Flight Issues".

## Admin can add an airline:

The screenshot shows the Admin Panel interface. At the top, there's a navigation bar with links: ADMIN PANEL, Dashboard, Add Flight, List Flights, Manage Airlines, +Airlines, admin, and Logout. Below the navigation is a dashboard section with four cards: Total Passengers (5), Amount (\$ 9710), Flights (17), and Available Airlines (4). To the right, a modal window titled 'Add Airline' is open, containing fields for 'Airlines Name' and 'Total Seats', with a 'Submit' button at the bottom. A large button labeled 'Today's Flights' is centered below the dashboard.

## Admin can remove an airline:

The screenshot shows the Admin Panel interface with the 'Airlines List' table. The table has columns: #, Name, Seats, and Action. It lists four airlines: Air India (100 seats), Indigo (150 seats), Spice Jet (200 seats), and Jet Airways (200 seats). Each row has a red trash icon in the 'Action' column. The table is titled 'AIRLINES LIST'.

#	Name	Seats	Action
1	Air India	100	
2	Indigo	150	
3	Spice Jet	200	
4	Jet Airways	200	

## Admin can add flight:

The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/admin/flight.php`. The page title is "ADMIN PANEL". The main content area has a heading "ADD FLIGHT DETAILS". It contains fields for "DEPARTURE" (date: 27-11-2023, time: 05:00), "ARRIVAL" (date: 27-11-2023, time: 07:00), "Source" (Jaipur), "Destination" (Agra), "Duration" (2 hr), "Price" (5000), and "Airline" (Air India). A green "Proceed" button with a right-pointing arrow is at the bottom.

## Admin can view updated flight list and cancel flight:

The screenshot shows a web browser window with the URL `localhost/OnlineFlightBooking-PHP/admin/all_flights.php`. The page title is "ADMIN PANEL". The main content area has a heading "FLIGHT LIST" and a table with the following data:

ID	Arrival	Departure	Source	Destination	Airline	Seats	Price	Action
26	2023-11-27 07:00:00	2023-11-27 05:00:00	Jaipur	Agra	Air India	100	\$ 5000	
25	2023-11-26 07:00:00	2023-11-26 06:00:00	Chennai	Mumbai	Spice Jet	198	\$ 4000	
24	2023-11-25 19:00:00	2023-11-25 17:30:00	Jaipur	New	Air India	99	\$ 6000	
23	2023-11-25 19:40:00	2023-11-25 18:40:00	Agra	New	Jet Airways	196	\$ 3000	
22	2023-11-28 18:30:00	2023-11-28 17:00:00	New	Mumbai	Indigo	150	\$ 6000	

## TESTING

Test Case ID	1
Title	Correct Registration Details
Input	Username, Email, Password
Description	<ol style="list-style-type: none"><li>1. Open the website</li><li>2. Click on register</li><li>3. Enter valid details</li><li>4. Press the complete button</li></ol>
Expected Outcome	Successfully registered
Result	PASS

Test Case ID	2
Title	Empty Registration Details
Input	Username, Email, Password
Description	<ol style="list-style-type: none"><li>1. Open the website</li><li>2. Click on register</li><li>3. Leave any one of the fields empty</li><li>4. Press the complete button</li></ol>
Expected Outcome	Error “Please fill out required field”
Result	PASS

Test Case ID	3
Title	Valid Login
Input	Username/ Email, Password
Description	<ol style="list-style-type: none"> <li>1. Open the website</li> <li>2. Click on login</li> <li>3. Enter a valid mail ID/username, and password</li> <li>4. Press the login button</li> </ol>
Expected Outcome	Successful Login
Result	PASS

Test Case ID	4
Title	Invalid password
Input	Username/ Email, Password
Description	<ol style="list-style-type: none"> <li>1. Open the website</li> <li>2. Click on login</li> <li>3. Enter a valid mail ID/username but invalid password</li> <li>4. Press the login button</li> </ol>
Expected Outcome	Error “Wrong password”
Result	PASS

Test Case ID	5
Title	Invalid Email ID/ Username
Input	Username/ Email, Password
Description	<ol style="list-style-type: none"> <li>1. Open the website</li> <li>2. Click on login</li> <li>3. Enter Invalid Email ID/ username and password</li> <li>4. Press the login button</li> </ol>
Expected Outcome	Error “Invalid Credentials”
Result	PASS

Test Case ID	6
Title	Empty Login Details
Input	Username / Email, Password
Description	<ol style="list-style-type: none"> <li>1. Open the website</li> <li>2. Click on login</li> <li>3. Leave all the fields empty</li> <li>4. Press the login button</li> </ol>
Expected Outcome	Error “Please fill out required field”
Result	PASS

Test Case ID	7
Title	Valid Ticket Booking
Input	No.of passengers, First name, Middle name, Last name, Contact no. and DOB
Description	<ol style="list-style-type: none"> <li>1. Open the website and login</li> <li>2. Search for flight</li> <li>3. Press on buy button</li> <li>4. Enter the details and press on the proceed button</li> </ol>
Expected Outcome	Successful booking
Result	PASS

Test Case ID	8
Title	Empty Ticket Booking
Input	No.of passengers, First name, Middle name, Last name, Contact no. and DOB
Description	<ol style="list-style-type: none"> <li>1. Open the website and login</li> <li>2. Search for flight</li> <li>3. Press on buy button</li> <li>4. Enter the details and press on the proceed button</li> </ol>
Expected Outcome	Error “Please fill out required field”
Result	PASS

## **POST IMPLEMENTATION REVIEW**

- The website is self-maintained.
- The Admin can access, add, view, delete airlines and cancel flights.
- There is no need to provide post-implementation support.

## **FUTURE ENHANCEMENTS**

- The system needs a fully functional, secure, authorized payment gateway to be integrated.
- Employing AI-powered chatbots for customer support to handle queries, provide assistance with bookings, and offer instant responses to common questions.
- Include Google's O-Auth authentication system.
- Enhancing payment options by integrating digital wallets or cryptocurrencies for secure and convenient transactions.
- Integrate the confirmation mailing functionality so that after booking tickets a confirmation mail is sent to the user's mail id.
- The user interface of the system can be improved.

## **BIBLIOGRAPHY**

### **Web reference**

- <https://www.studocu.com/row/document/iqra-university/bachelor-of-computer-science/srs-airline-management-system/8695767?origin=home-recent-1>
- <https://www.scribd.com/document/478455921/Air-Ticket-Reservation-System-SRS>
- <https://creately.com/diagram/example/iid8qkkq2/airline-reservation-system-er-diagram-classic>
- <https://creately.com/diagram/example/hk2rjxf11/sequence-diagram-for-online-bookingsystem>
- <https://www.slideshare.net/VikasSingh958/srs-on-airline-reservation-system>