

Flight Booking:





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ABSTRACT

This project presents a comprehensive flight booking management system designed to streamline the process of booking flights for users, flight management for companies, and administrative oversight. The system incorporates three primary roles: User, Company, and Admin. Users can register, login, search for flights, book or cancel reservations, view their profile and bookings, and log out. Companies are provided functionalities to register, login, manage flights through CRUD operations, view bookings, and log out. The Admin role oversees the approval of companies by accepting or rejecting requests, manages users and flight details, and ensures smooth operation of the system. This platform is designed to enhance the efficiency of flight booking processes while maintaining administrative control, making it a robust solution for both customers and service providers.

Keywords : Flight booking, User management, CRUD operations, Company registration, Admin control

INTRODUCTION

The Flight Booking Management System is an innovative platform designed to simplify and enhance the flight booking experience for users while providing effective management tools for airlines and administrative oversight. This system is structured around three key roles: User, Company, and Admin.


Users have the ability to register and log in, enabling them to search for flights, make bookings, cancel reservations, view their profiles, and manage their booking history. Companies can register, log in, and utilize various functionalities, including managing flights through Create, Read, Update, and Delete (CRUD) operations and viewing their booking records.

The Admin role is essential for ensuring the system's integrity and smooth operation. Admins oversee the approval process for new companies, manage user accounts, and maintain flight details, thereby ensuring a seamless experience for all parties involved.



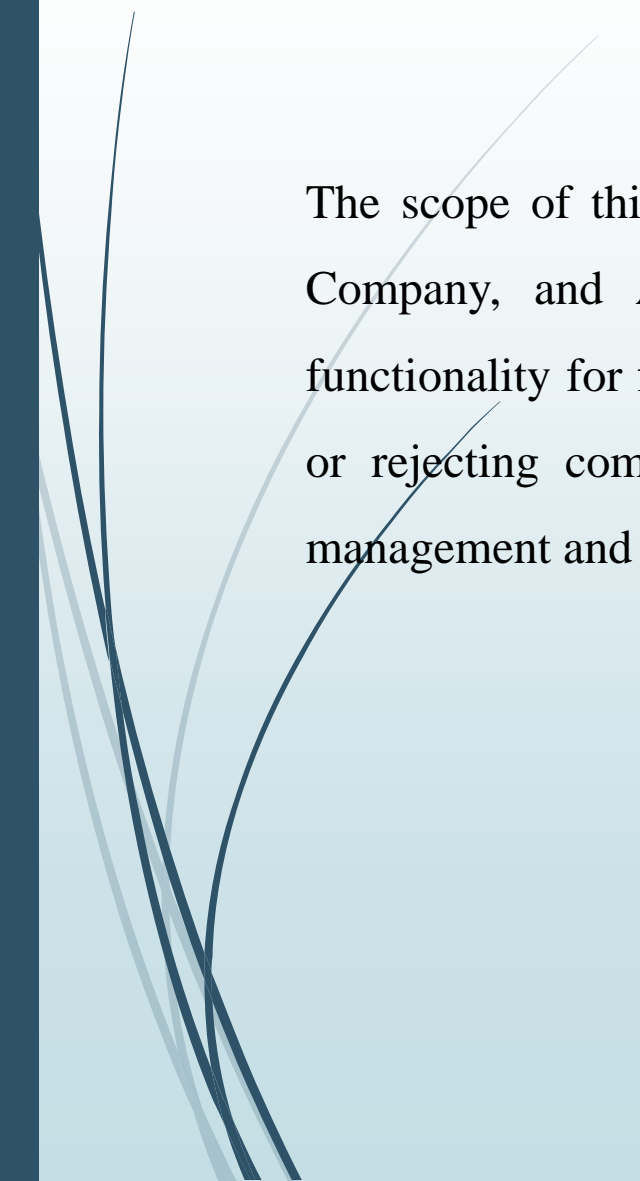
Objective:

The objective of the project is to develop a comprehensive flight booking system with distinct roles for users, companies, and administrators. Users can search, book, and manage flights, while companies handle flight listings and bookings. Administrators oversee company approvals, user management, and flight monitoring, ensuring an efficient and secure platform for all stakeholders.





Scope:



The scope of this project is to develop a comprehensive flight booking system with three roles: User, Company, and Admin. Users can manage flight bookings and profiles. Companies have CRUD functionality for flights and can view bookings. Admins oversee platform operations, including approving or rejecting companies, viewing users, and managing flights. The system ensures streamlined flight management and user interaction.

LITERATURE SURVEY

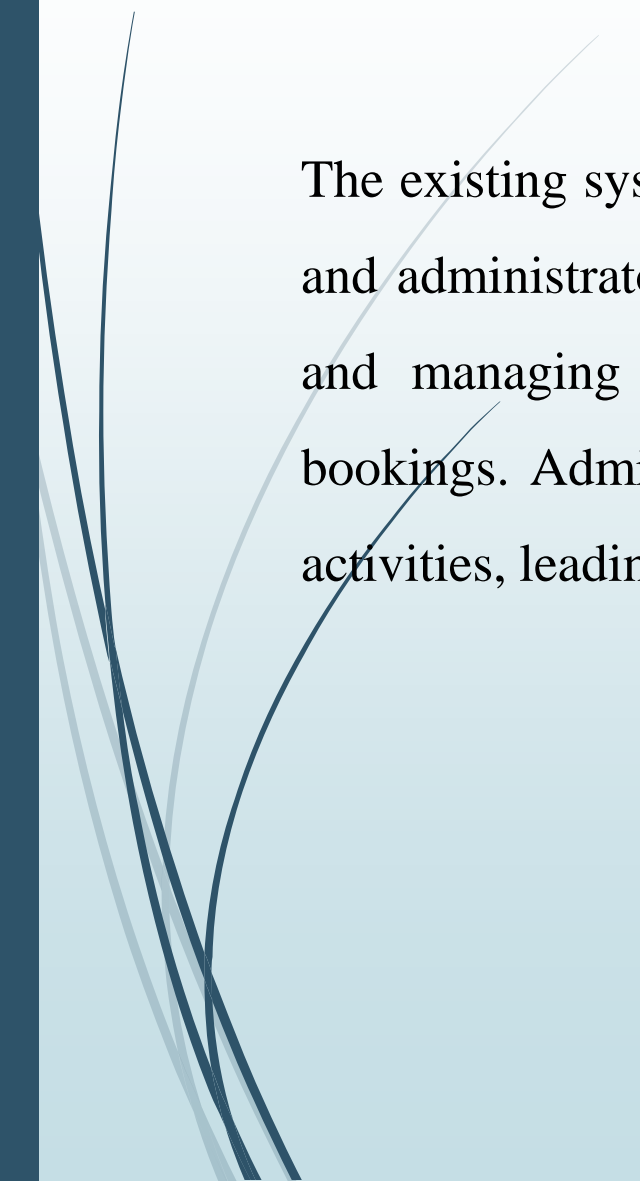
S. NO	year	Authors	Title	Outcomes
1.	2022	Kumar, A., & Sharma, S.	Emerging Trends in Flight Booking Systems: A Review	AI integration has improved personalized customer experiences, with mobile-first platforms providing easier access to flight bookings.
2.	2021	Zhang, L., Xu, S., & Huang, W.	Block chain Applications in Airline Ticketing Systems: Enhancing Transparency and Security	Blockchain improves the transparency and security of booking transactions, reducing fraud and ensuring tamper-proof records

LITERATURE SURVEY

S. NO	year	Authors	Title	Outcomes
3.	2020	Patel,M.,&Gupta,R	Artificial Intelligence-Powered Customer Service in Airlines: Enhancing Booking and Post-Booking Experiences	AI-powered systems, like chat bots, improve customer engagement and enhance the booking and post-booking experience.
4.	2019	Smith, P., & Johnson, T.	The Impact of Mobile Applications on Airline Booking Systems: Convenience vs. Data Security	Mobile apps have streamlined the flight booking process, offering enhanced convenience and engagement for travelers.



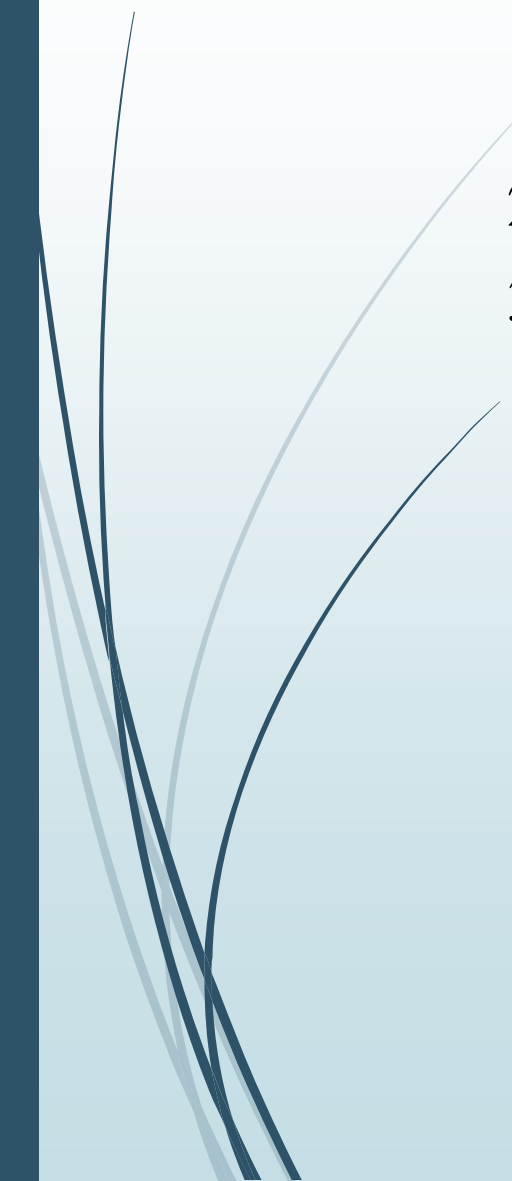
EXISTING METHOD



The existing system for flight management lacks an integrated platform where users, companies, and administrators can seamlessly interact. Users face difficulties in booking, canceling flights, and managing profiles, while companies struggle to efficiently manage flights and view bookings. Admins lack proper control over accepting/rejecting companies and monitoring user activities, leading to inefficiencies and scattered functionalities.

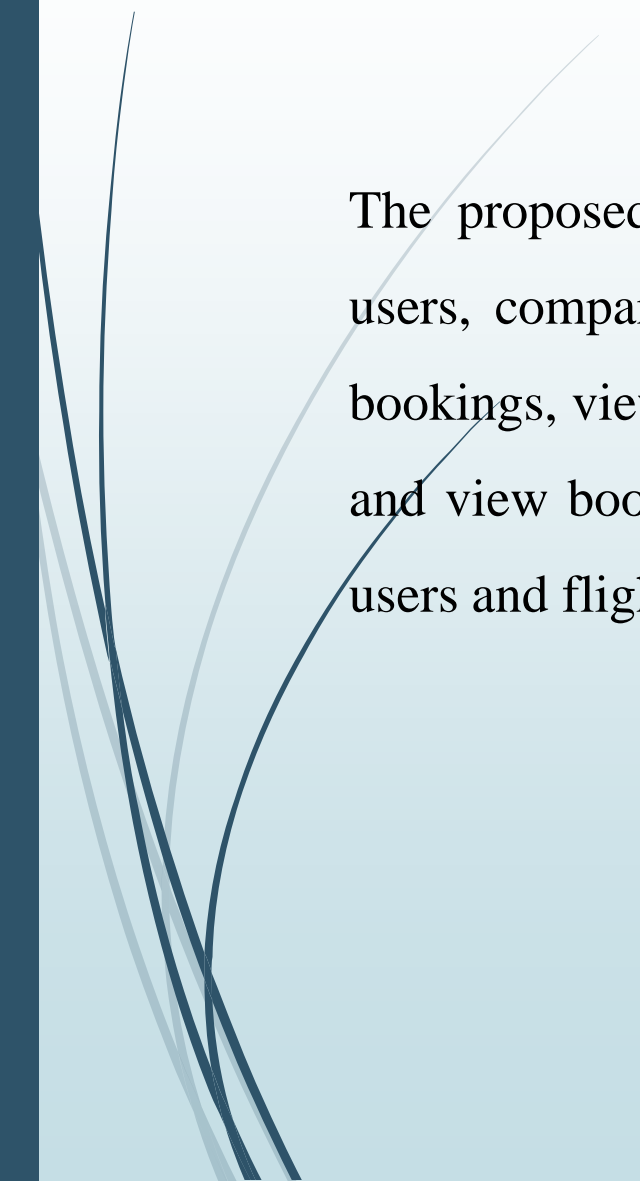


DISADVANTAGES

- 
1. Limited User Control for Canceling Flights
 2. Admin Overload in Company Verification
 3. Scalability Challenges for CRUD Operations
 4. Security Risks in Authentication
 5. No Automated User Support



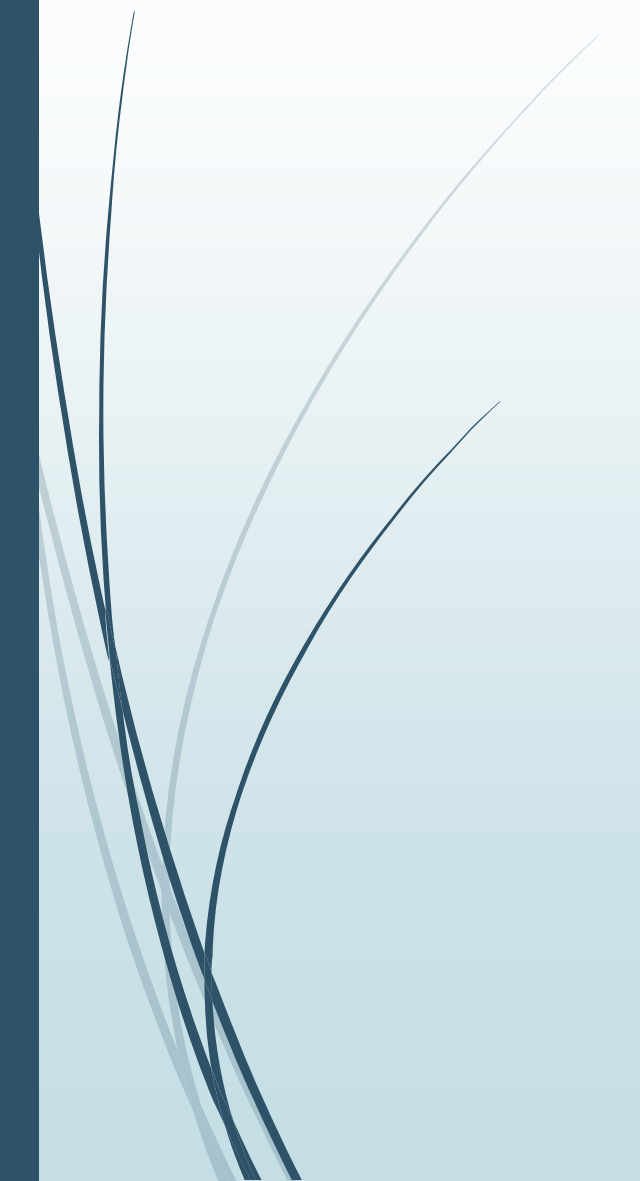
PROPOSED SYSTEM



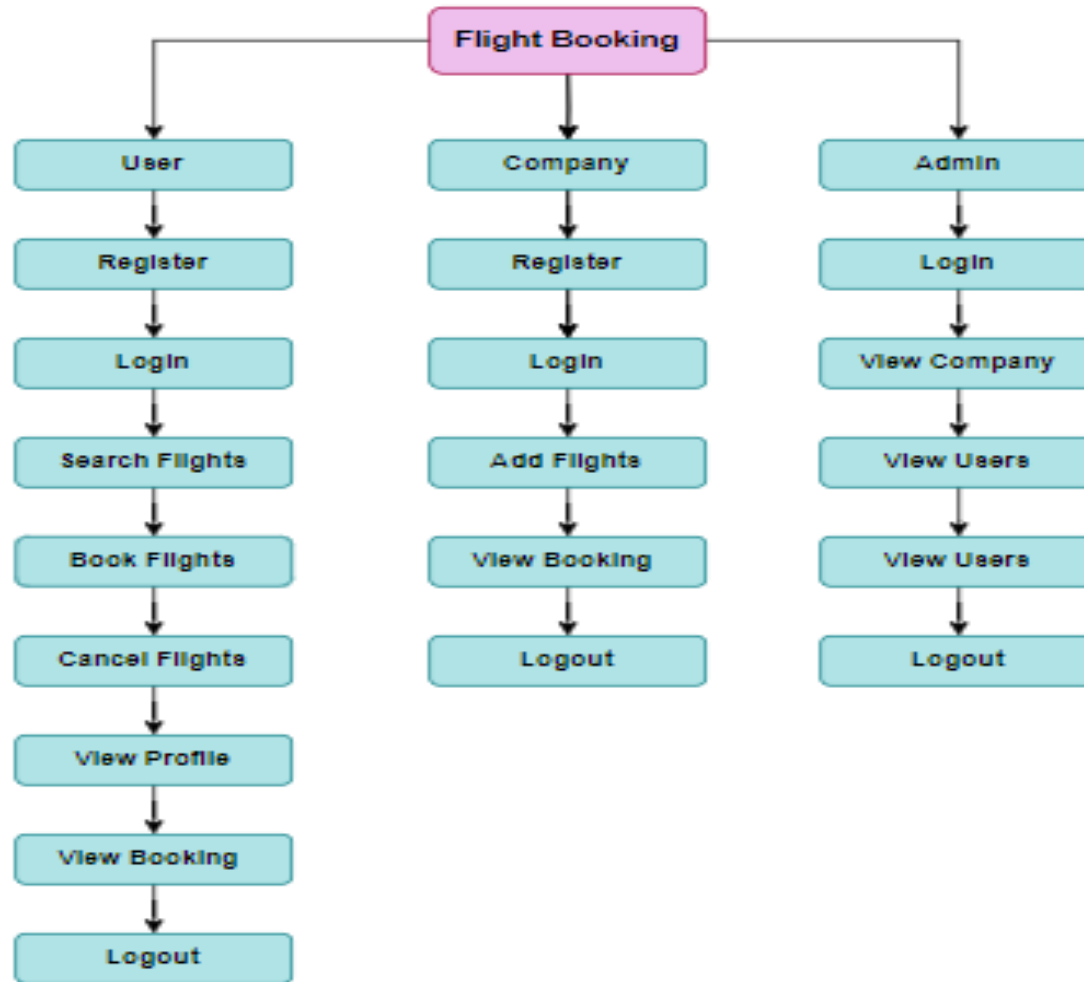
The proposed system is an online flight management platform offering functionalities for users, companies, and an admin. Users can register, login, search and book flights, cancel bookings, view profiles, and bookings. Companies can manage flights using CRUD operations and view bookings. Admins oversee the platform by accepting/rejecting companies, viewing users and flights, ensuring smooth system management.



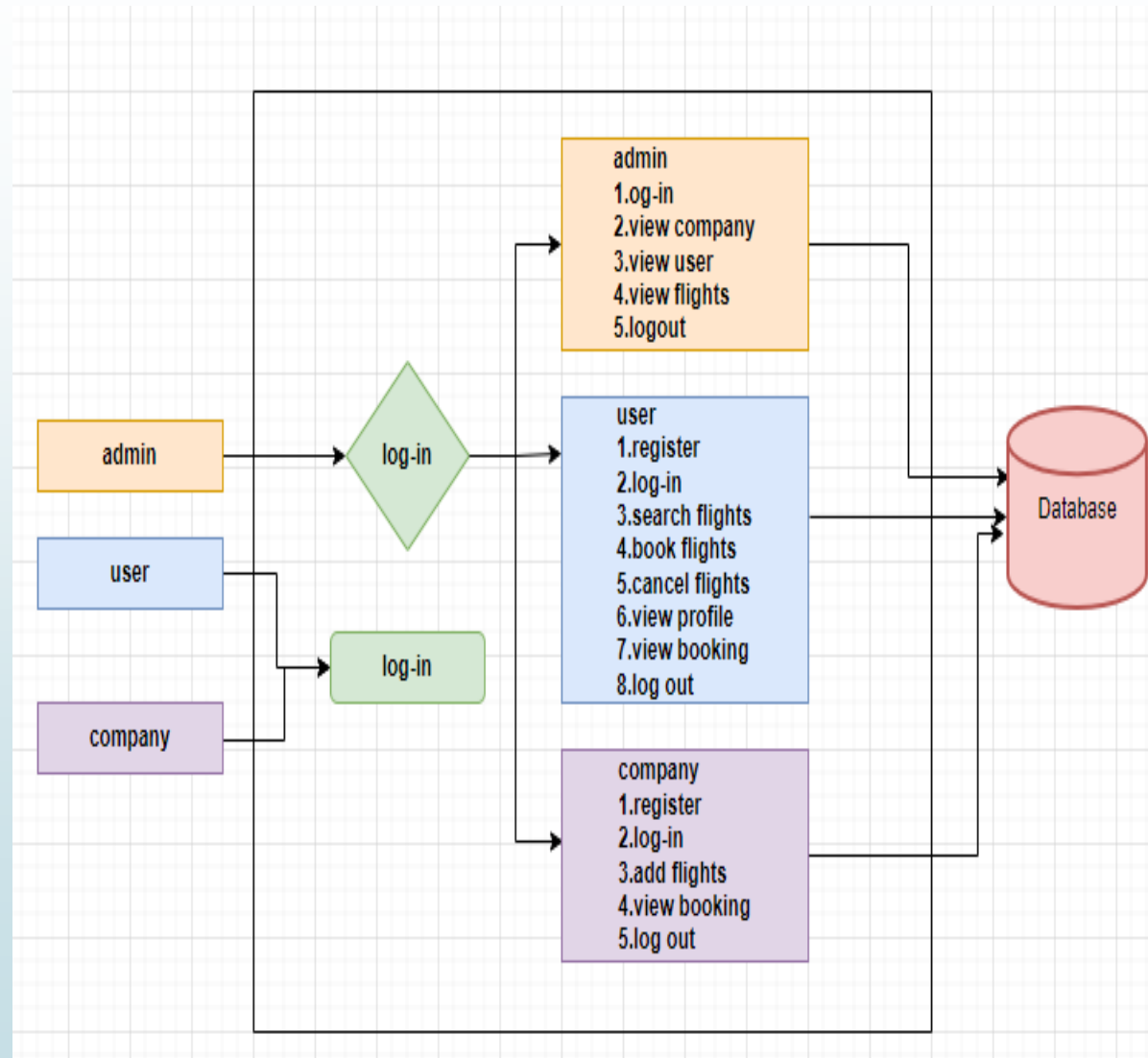
ADVANTAGES

- 
1. User Convenience
 2. Efficient Flight Management
 3. Admin Control and Monitoring
 4. Scalability
 5. Booking Transparency

PROJECT FLOW



ARCHITECTURE





Implementation:

1. User Module:

Register: User registration with personal details.

Login: Secure login for users to access their account.

Search Flights: Users can search for available flights.

Book Flights: Users can book available flights.

Cancel Flights: Users can cancel their booked flights.

View Profile: Users can view and edit their personal details.

View Bookings: Users can view their flight booking history.

Logout: Secure logout to end the session.



2. Company Module:

Register: Company registration with necessary business details.

Login: Secure login for companies to access their dashboard.

Add Flights (CRUD): Companies can create, read, update, and delete flights.

View Bookings: Companies can view all bookings made for their flights.

Logout: Secure logout for the company.



3. Admin Module:

Login: Admin access to manage the system.

View Company: Admin can view company details and accept/reject company registration.

View Users: Admin can view registered users and their details.

View Flights: Admin can view all flights registered by companies.

Logout: Secure logout for the admin.



HARDWARE & SOFTWARE REQUIREMENTS

HARDWARE REQUIREMENTS:

- **Processor** **I3/Intel Processor**
- **RAM** **4GB (min)**
- **Hard Disk** **160GB**

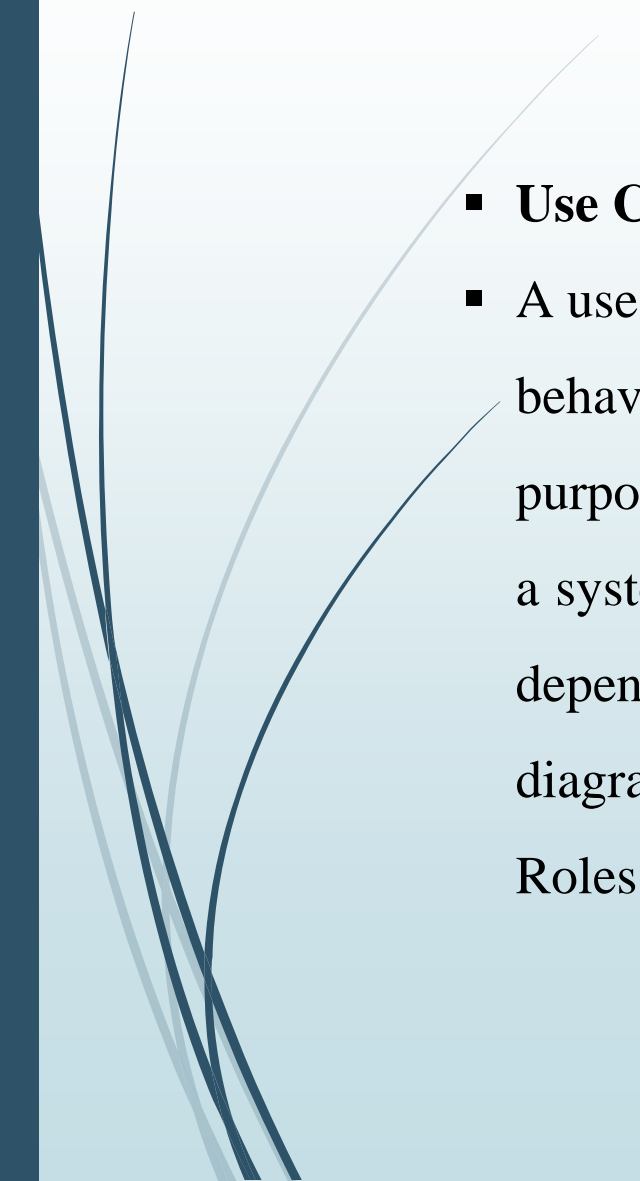


SOFTWARE SYSTEM CONFIGURATION:

- Operating System : Windows 7/8/10
- Server side Script : Express js
- Programming Language : Type Script
- IDE/Workbench : VS Code
- Database : Mongo db
- Clint Side : React Js



UML DIAGRAMS

- **Use Case Diagram:**
 - A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted.
- 



UML DIAGRAMS

- **Component Diagram:**

A component diagram, also known as a UML component diagram, describes the organization and wiring of the physical components in a system. Component diagrams are often drawn to help model implementation details and double-check that every aspect of the system's required functions is covered by planned development

USE CASE DIAGRAMS

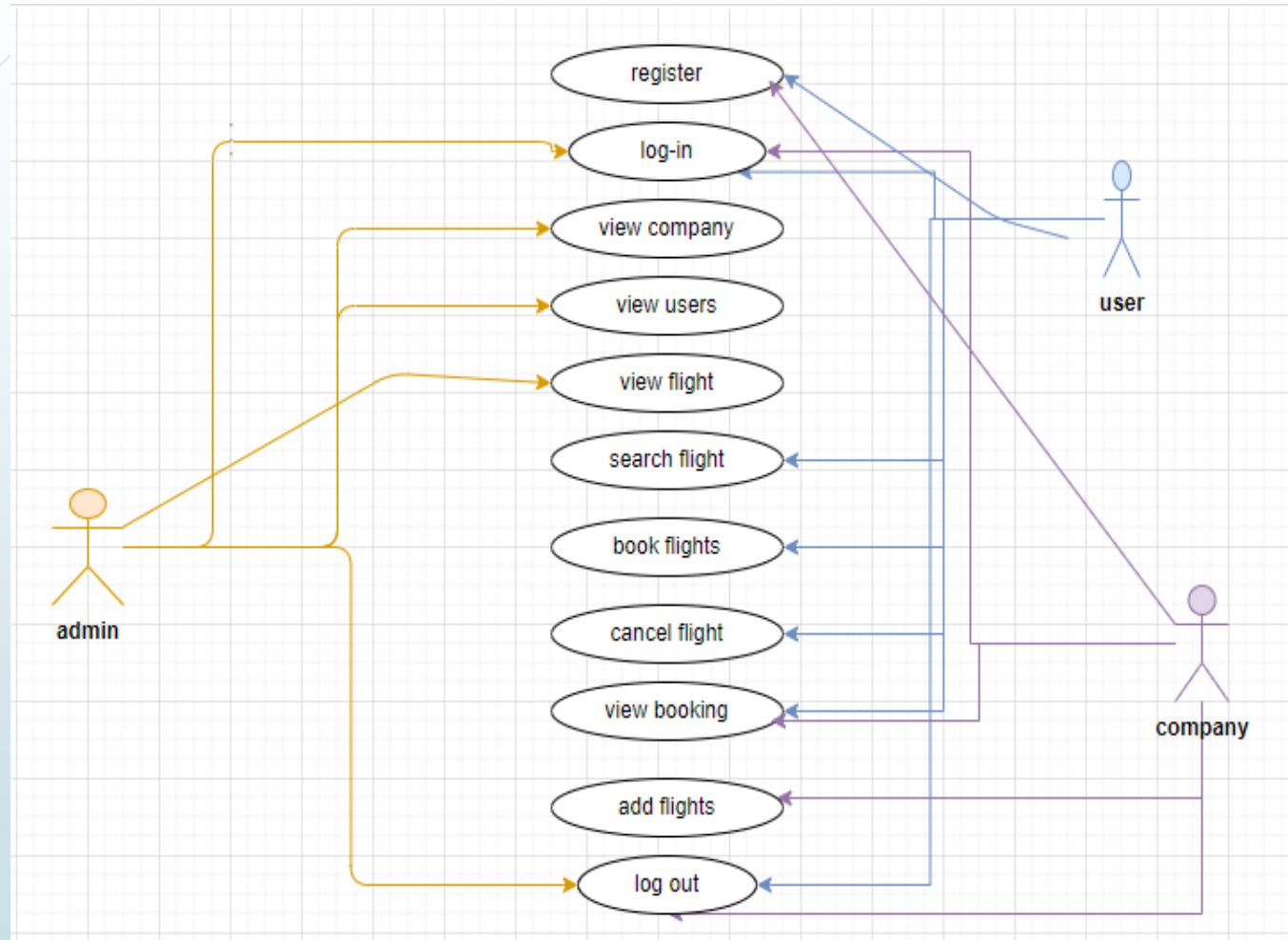


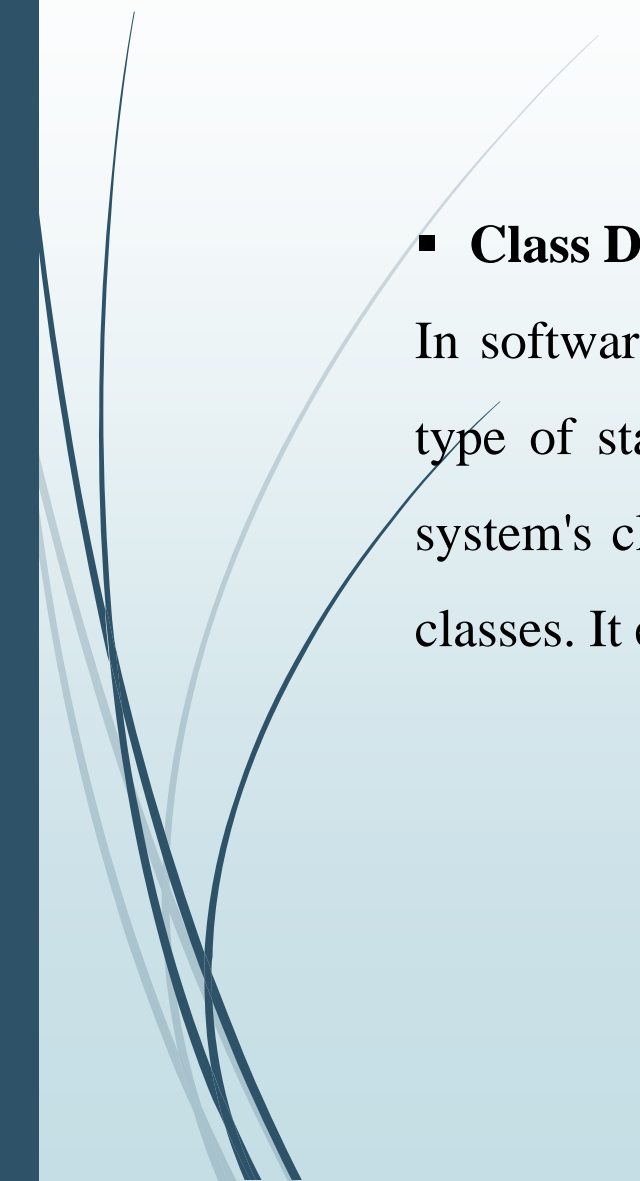
Figure: Use Case Diagram



UML DIAGRAMS

- **Class Diagram:**

In software engineering, a class diagram in the Unified Modelling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among the classes. It explains which class contains information.



CLASS DIAGRAMS

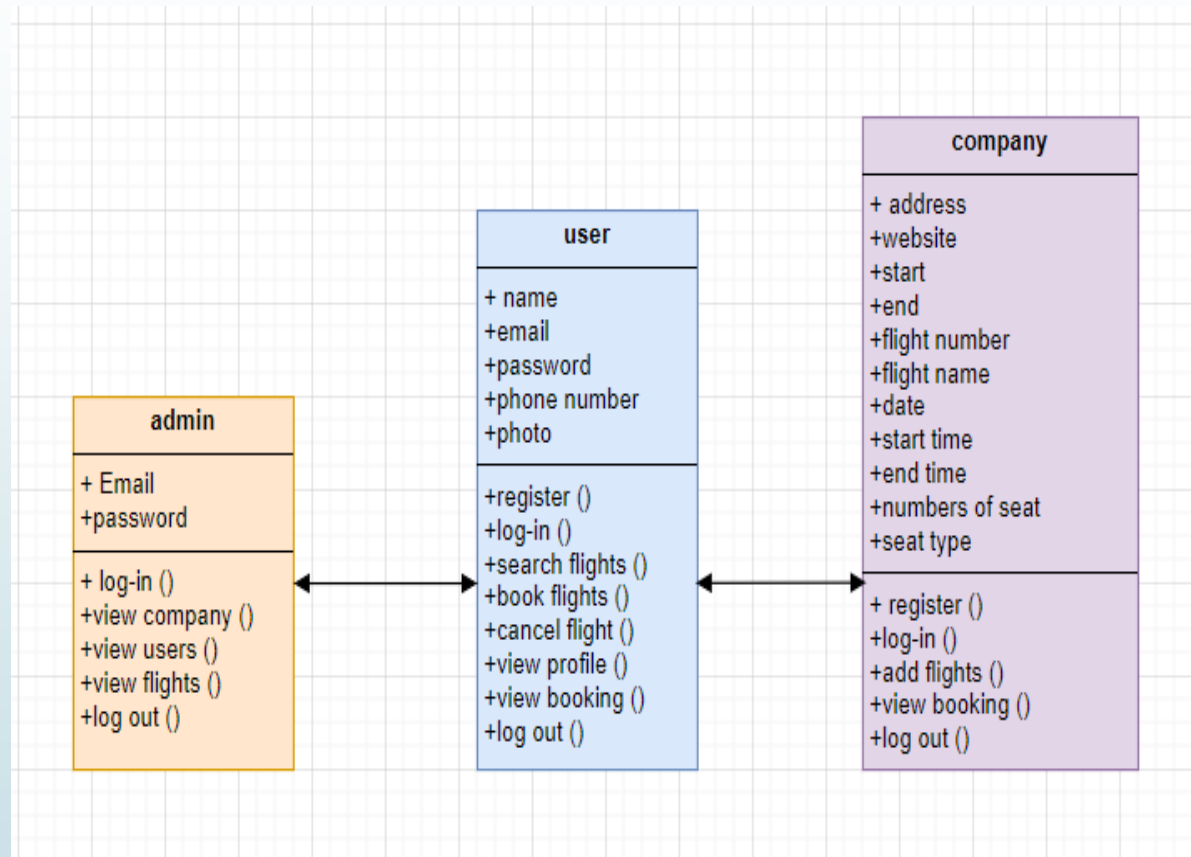


Figure: Class diagram

UML DIAGRAMS

- **Sequence Diagram:**

A sequence diagram in Unified Modelling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams.

SEQUENCES DIAGRAMS

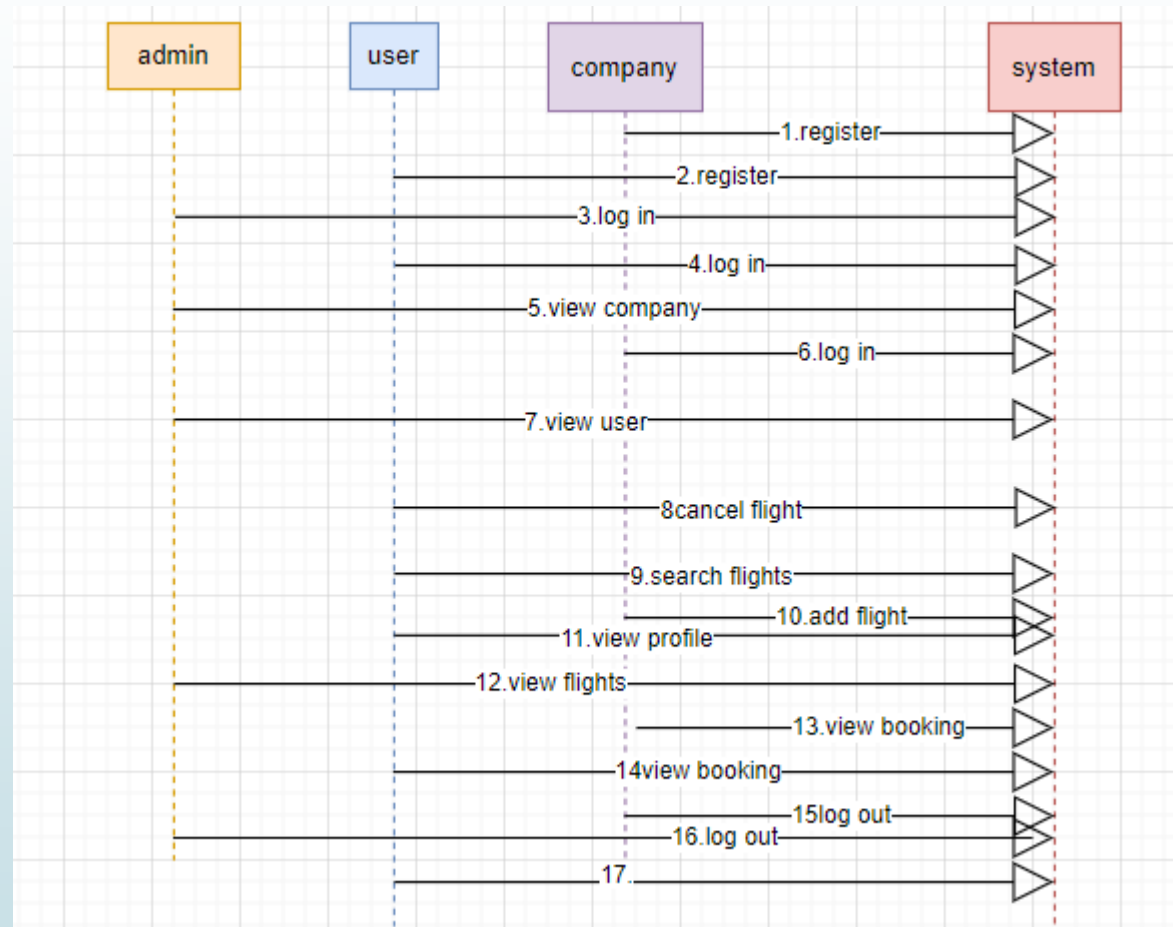


Figure: Sequence diagram

UML DIAGRAMS

- **Deployment Diagram**

Deployment diagram represents the deployment view of a system. It is related to the component diagram. Because the components are deployed using the deployment diagrams. A deployment diagram consists of nodes. Nodes are nothing but physical hardware's used to deploy the application.

DEPLOYMENT DIAGRAMS

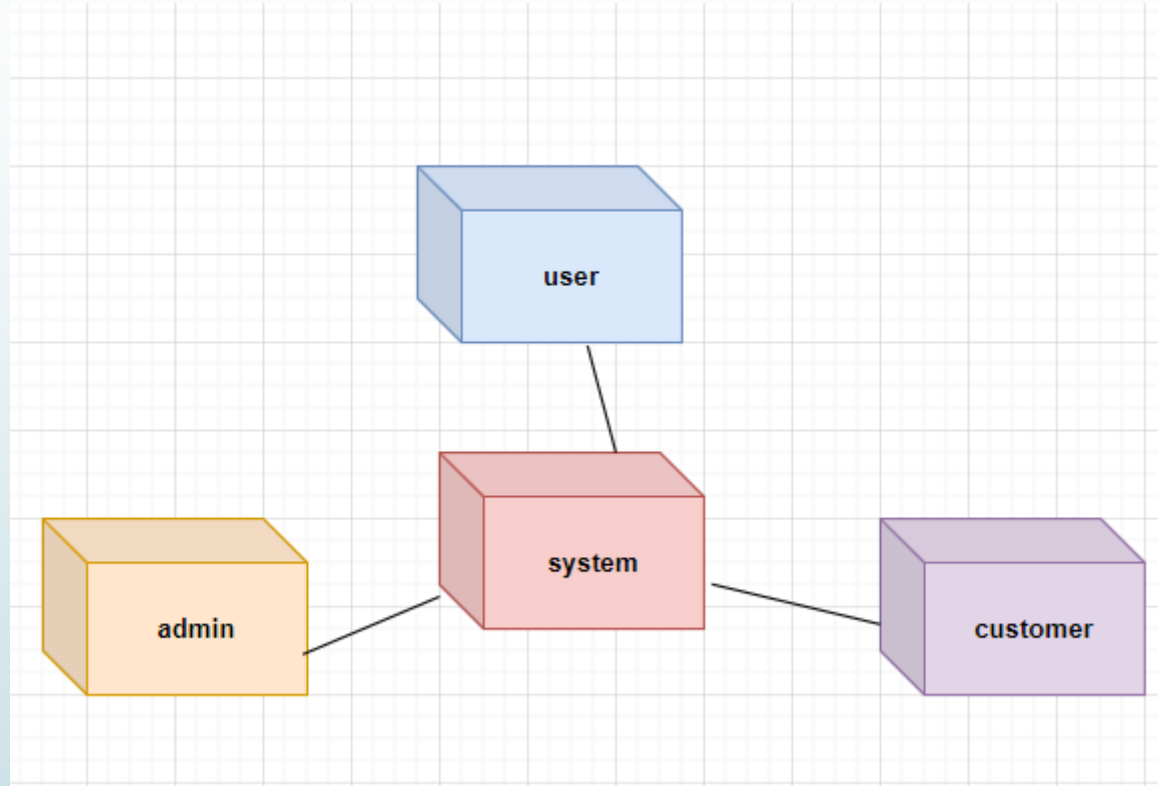


Figure: Deployment diagram

UML DIAGRAMS

- **Activity Diagram:**

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modelling Language, activity diagrams can be used to describe the business and operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

ACTIVITY DIAGRAMS

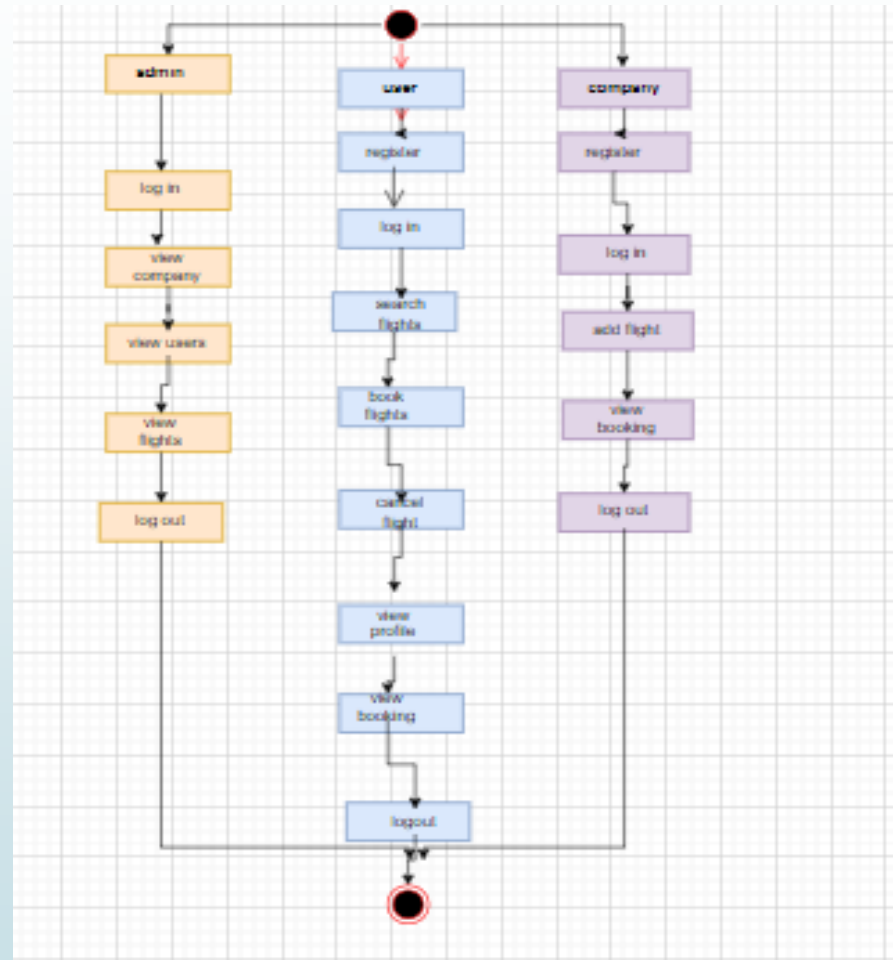


Figure: Activity diagram

UML DIAGRAMS

- **ER Diagram:**
- An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database. The main components of E-R model are: entity set and relationship set.
- An ER diagram shows the relationship among entity sets. An entity set is a group of similar entities and these entities can have attributes. In terms of DBMS, an entity is a table or attribute of a table in database, so by showing relationship among tables and their attributes, ER diagram shows the complete logical structure of a database. Let's have a look at a simple ER diagram to understand this concept.

ER DIAGRAMS

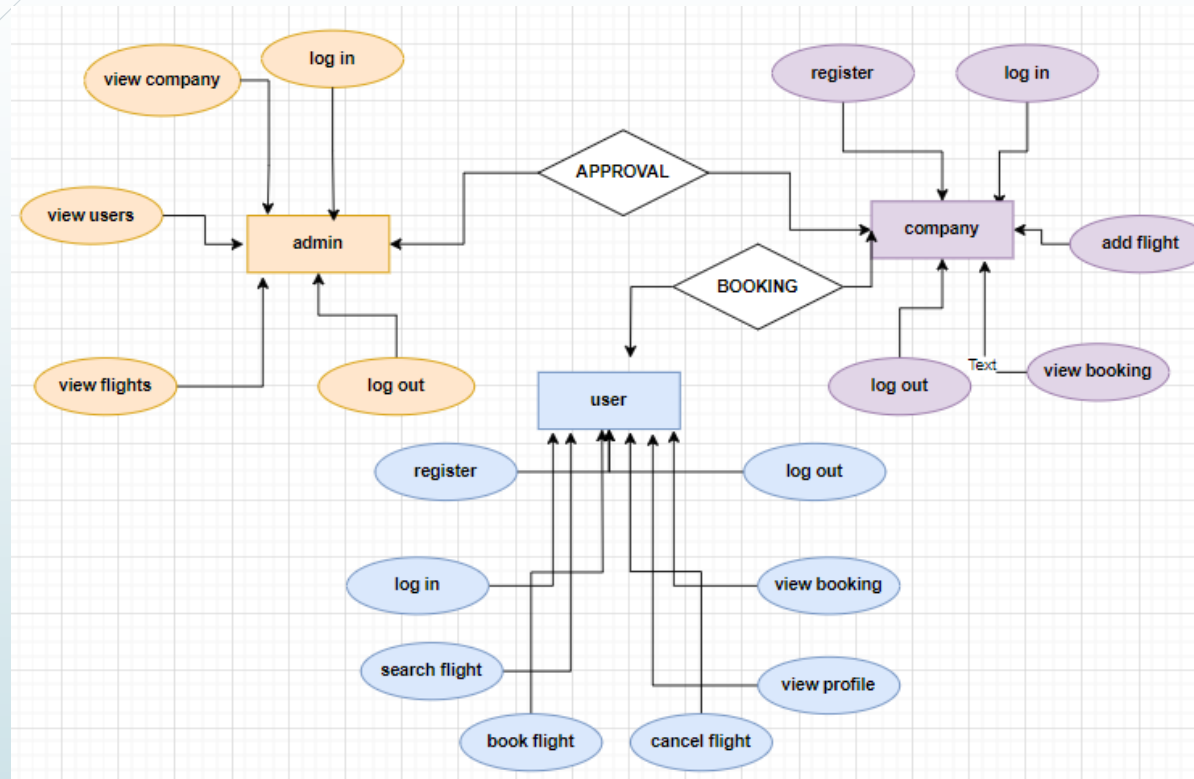


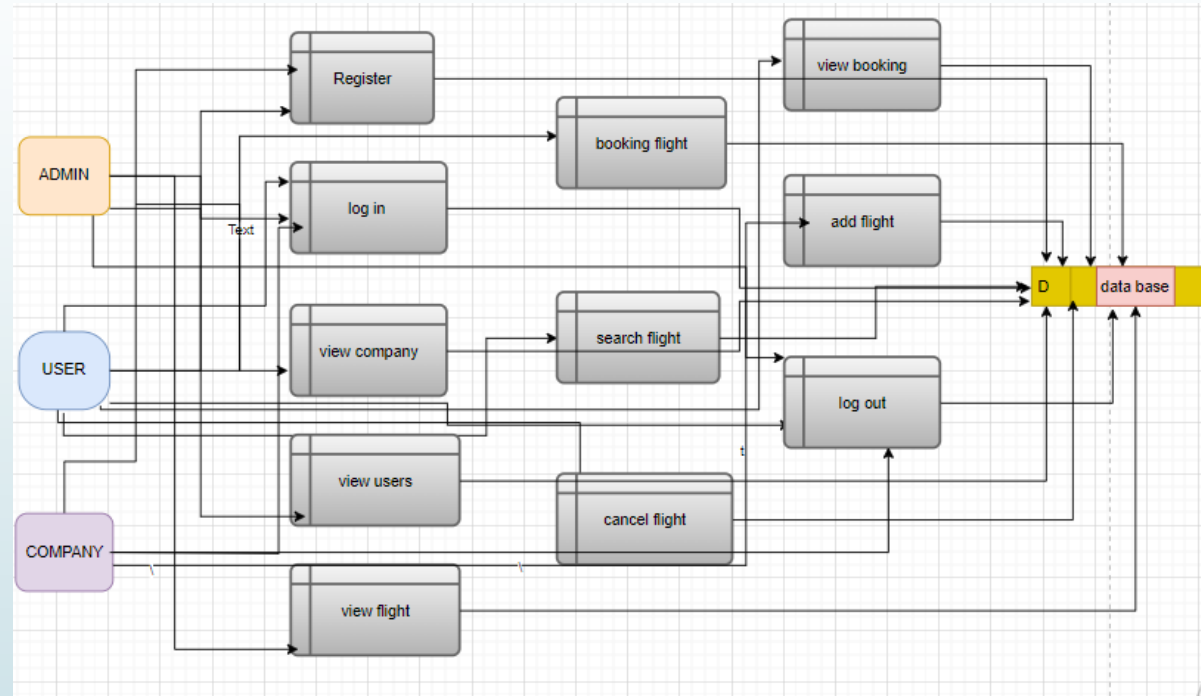
Figure: ER diagram

UML DIAGRAMS

- **DFD Diagram:**

A Data Flow Diagram (DFD) is a traditional way to visualize the information flows within a system. A neat and clear DFD can depict a good amount of the system requirements graphically. It can be manual, automated, or a combination of both. It shows how information enters and leaves the system, what changes the information and where information is stored. The purpose of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communications tool between a systems analyst and any person who plays a part in the system that acts as the starting point for redesigning a system.

DFD DIAGRAMS



FigureLevel-1 diagram

DFD DIAGRAMS

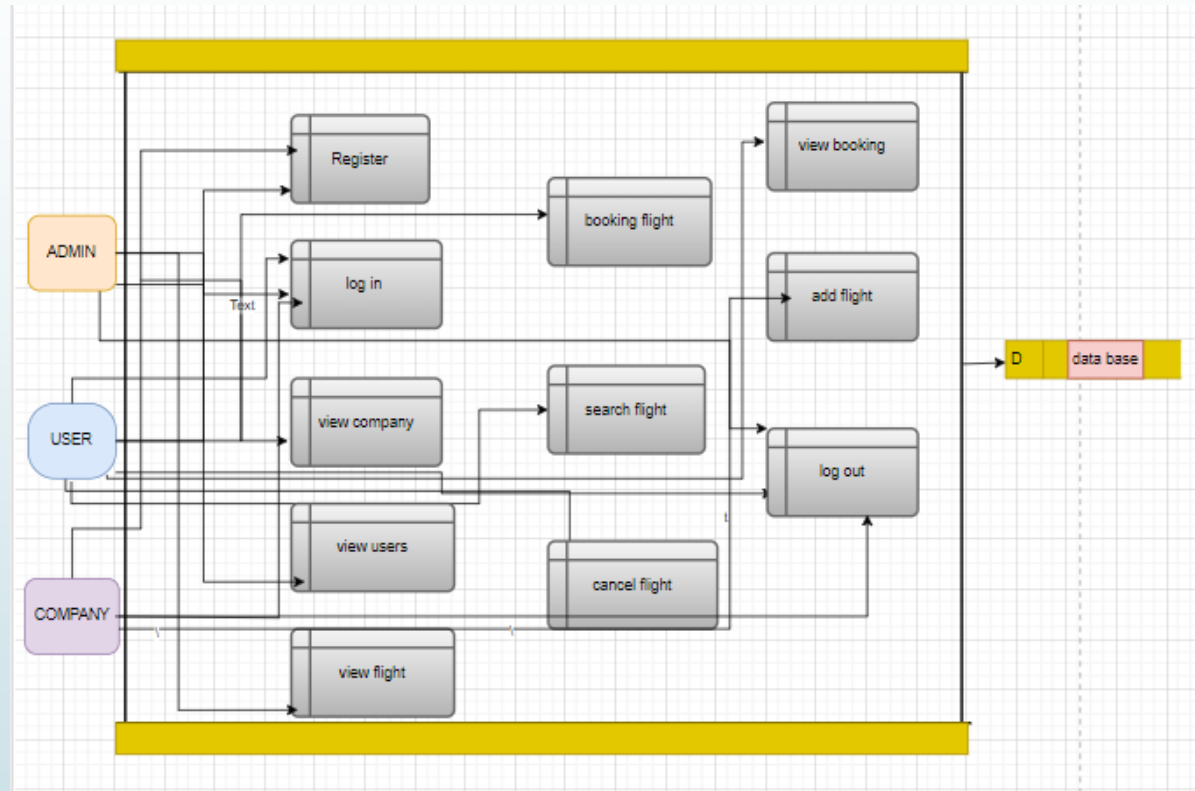


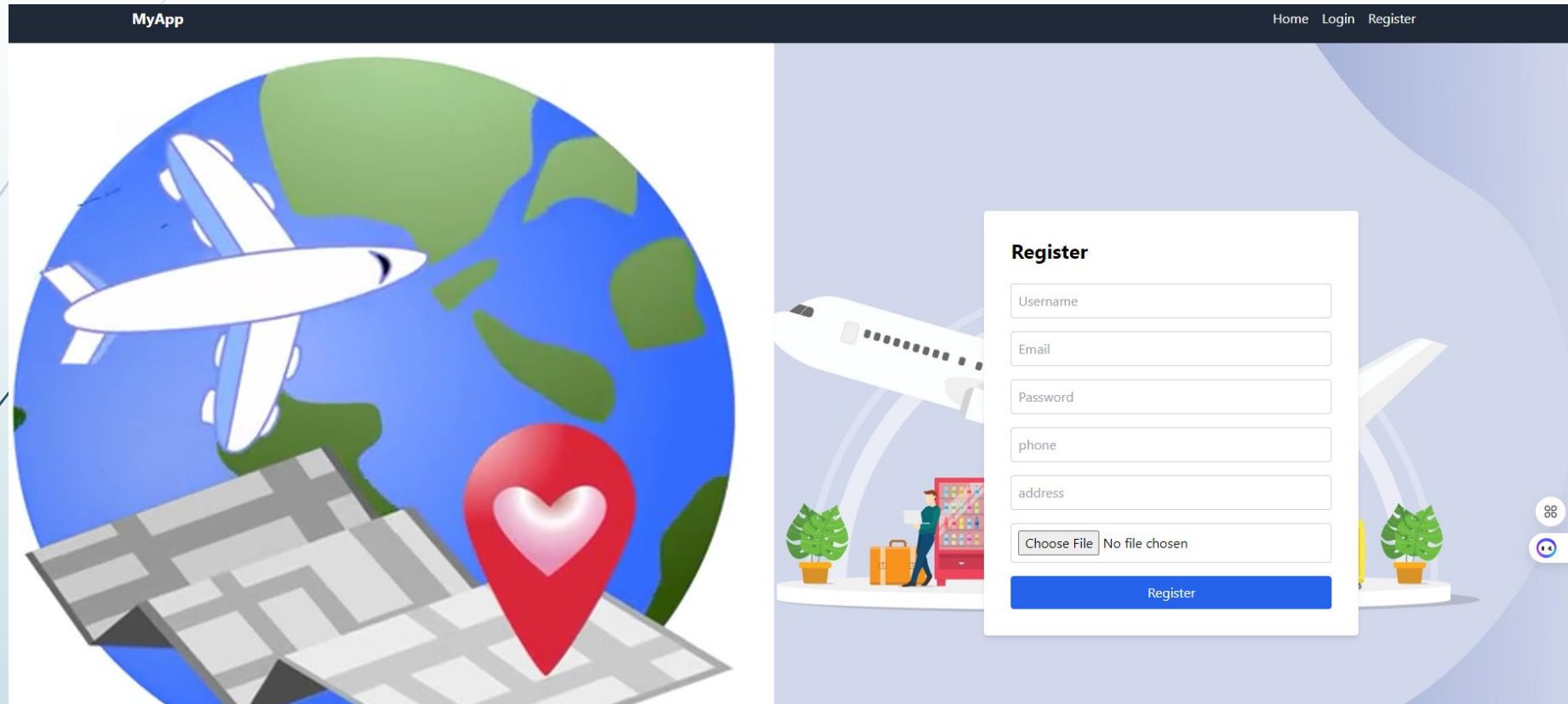
Figure:Level-2 diagram

OUTPUT SCREENS

Home Page: This is the project's landing page.



Customer Registration Page: New customers must create an account on this portal before booking. To do so, they need to fill out the required information for account creation.



The screenshot displays the 'MyApp' customer registration interface. The top navigation bar includes 'MyApp' on the left and 'Home', 'Login', and 'Register' on the right. The main content area is split: the left side features a large graphic of a globe with a white airplane flying over it, and a red location pin with a heart inside is placed on a map in the foreground. The right side contains a 'Register' form with the following fields: 'Username', 'Email', 'Password', 'phone', 'address', and a file upload section with a 'Choose File' button and the text 'No file chosen'. A blue 'Register' button is positioned at the bottom of the form. The background of the right side shows a stylized airport scene with a plane, a person with luggage, and potted plants. On the far right, there are icons for a menu and a user profile.

MyApp

Home Login Register

Register

Username

Email

Password

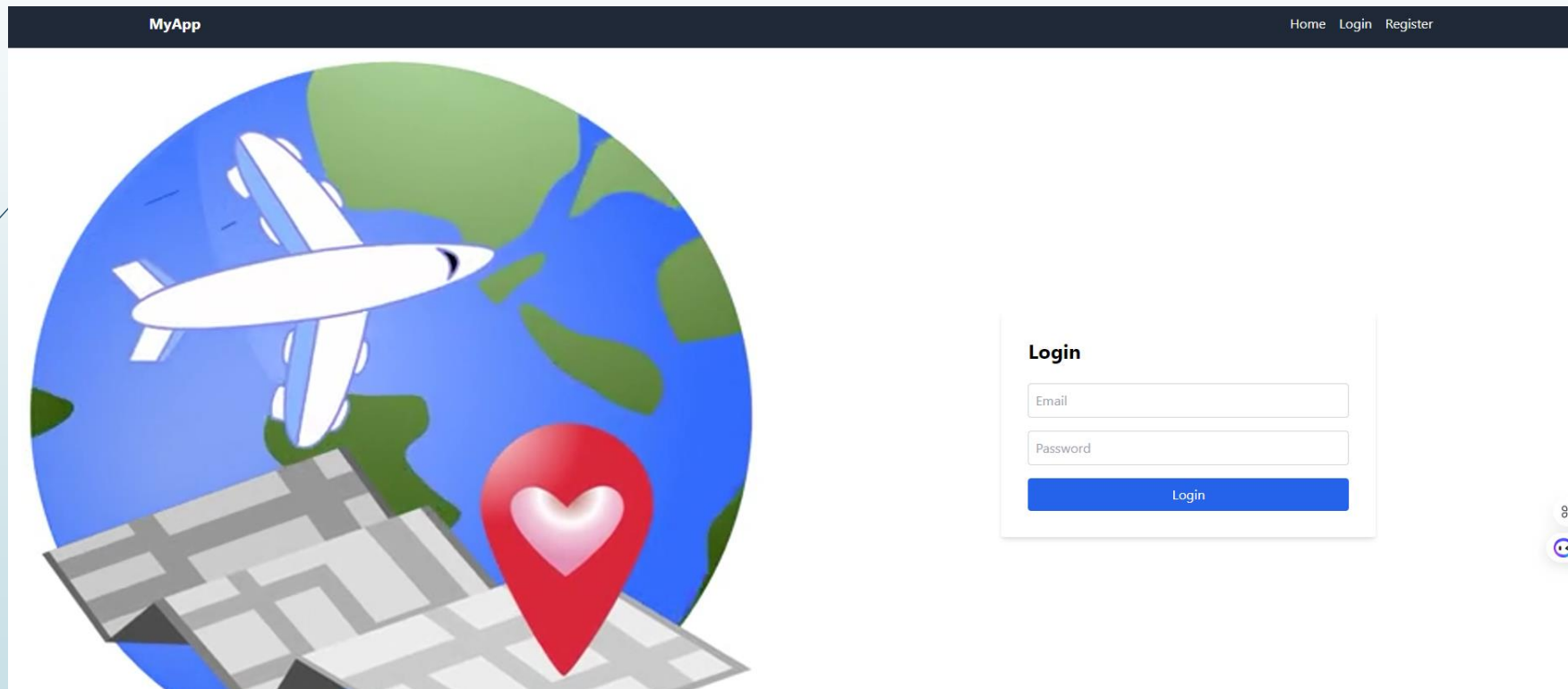
phone

address

Choose File No file chosen

Register

Login Page: Both customers and admins can use this page to access their accounts and perform additional operations after logging in.



Admin Home Page: Company Details - The admin can view the details of registered companies. Company personnel can log in only after admin approval. If the admin rejects the request, the company will not be able to log in."

Admin Panel

Company



Users

Flights

Logout

Company Table



Search by name...

Photo	Name	Email	Mobile	Address	Website	Action
	vinay	ramcharan33@gmail.com	09012345678	sgv	https://chatgpt.com/c/6708ac36-7470-800d-9f6d-7d35cbeb00bb	Approved
	Takeoff	cse@takeoffprojects.com	9874563210	Tirupati	https://ymtsindia.com/	Select Action ▼



View Registered Customer Details: The admin can view the details of registered customers or users.

[Admin Panel](#)

[Company](#)
[Users](#)
[Flights](#)
[Logout](#)

Photo	Name	Email	Mobile	Address
	vinay	ramcharan33@gmail.com	09012345678	sgv
	lalith	ramcharan3@gmail.com	09012345678	sgv

[Previous](#)Page 1 of 1[Next](#)

View Flight Details: The admin can view flight details on this page.

[Admin Panel](#)

Company

Users

Flights

Logout

Flight list

Flight Schedule

Flight Name	Flight No	Start Location	End Location	Start Time	End Time	seat capacity	Available Seats
indigbn	fp123	tirupati	chennai	11:11	12:12	4000	193

View Flight Details: The admin can view flight details on this page.

[Admin Panel](#)

[Company](#)
[Users](#)
[Flights](#)
[Logout](#)


Flight Schedule

Flight Name	Flight No	Start Location	End Location	Start Time	End Time	seat capacity	Available Seats
indiogbn	fp123	tirupati	chennai	11:11	12:12	4000	193

✔ Flight list

X

Company Registration Page: Flight companies can register by filling in their name, email, password, mobile number, address, website, and uploading a photo.



Company Logo

Flights Register Login

Name

Email

Password

Mobile Number

Address

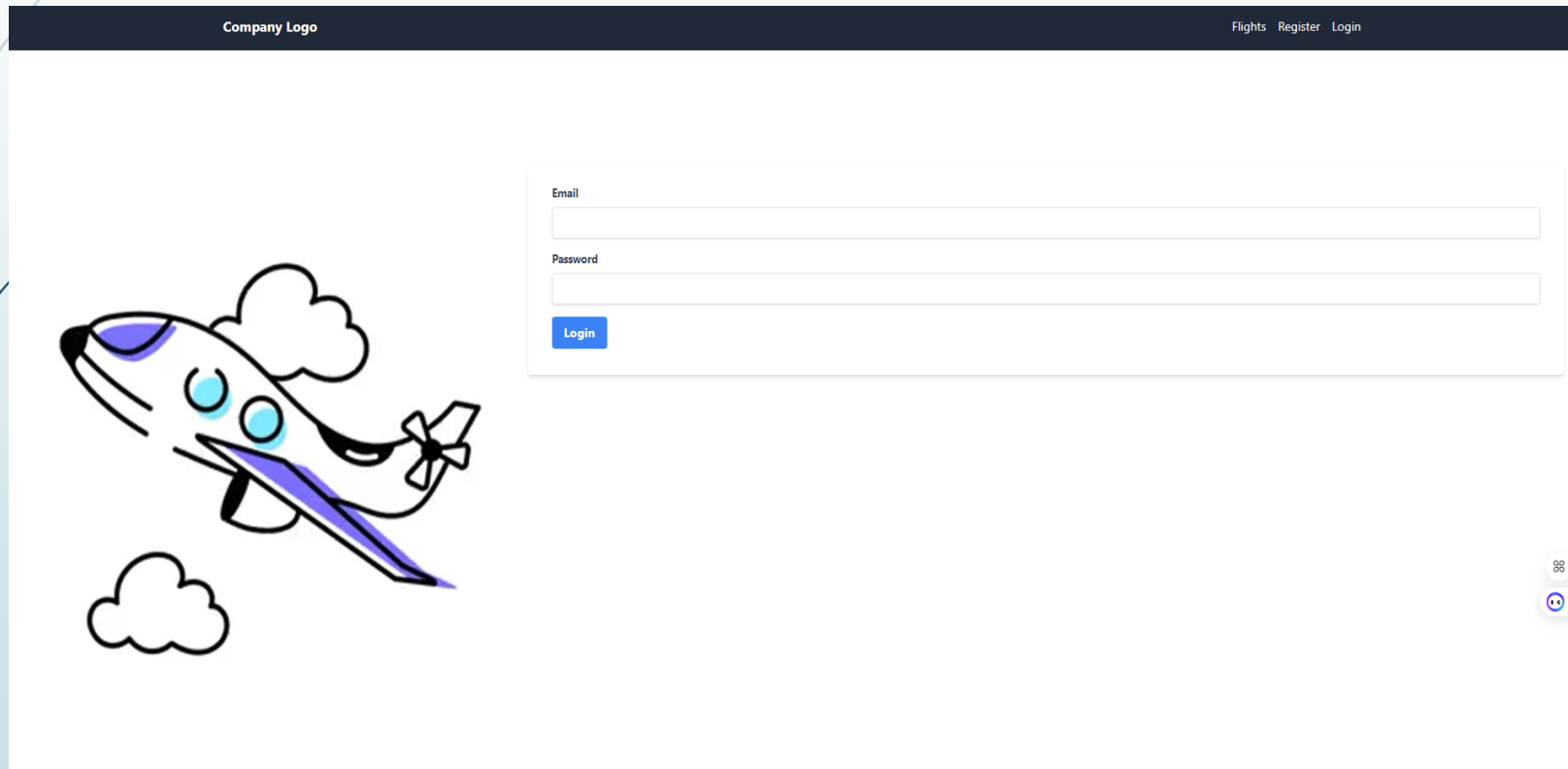
website

Photo

Choose File No file chosen

Register

Company Login Page: A company can log in using its email and password only after receiving approval from the admin.



Company Logo

Flights Register Login

Email

Password

Login

Flight Adding Page: This page allows users to add flight details by entering the name, flight number, departure and arrival locations, start and end times, seat capacity, and price.

[CompanyHomePage](#)

- AddFlights**
- ViewFlights
- ViewBooking
- Logout

Add Flight

Flight Name

Flight No

From Location

To Location

Start Time

End Time

Date

Seat Type

Seat Capacity

Price

Add Flight

View Added Flight Details: Users can view flight details here, and if needed, they can update or delete the flight information.

CompanyHomePage

AddFlights

ViewFlights

ViewBooking

Logout

✓ Flights found

View Flights

Flight Name	Flight No	From	To	Start Time	End Time	Date	Seat Type	Capacity	Price	Status	Actions
indigo10n	fp123	tirupati	chennai	11:11	12:12	2024-10-20T00:00:00.000Z	common	193	4000	active	<button>Update</button> <button>Delete</button>

View Booked Flight Details: Users can view their booked flight details here.

CompanyHomePage

AddFlights

ViewFlights

ViewBooking

Logout


View Bookings

Flight Name	Flight No	From	To	Date	Actions
indigo	fp123	tirupati	chennai	2024-10-20T00:00:00.000Z	Download

After Customer Login: Once logged in, customers can view the flight details as shown below.

SB Flight

LogoutBookingProfile



Search Flights

Start Location

Select start location

End Location

Select end location

Date

dd-mm-yyyy

Search Flights

Available Flights:

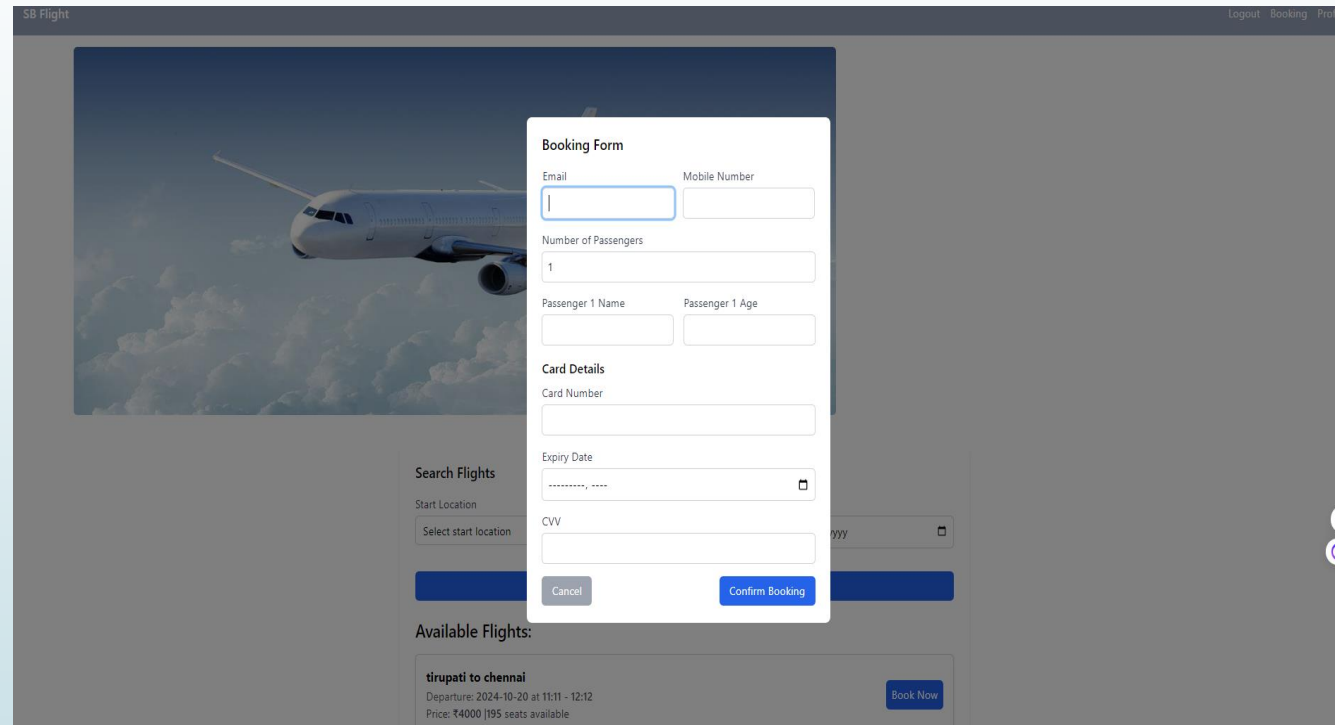
tirupati to chennai

Departure: 2024-10-20 at 11:11 - 12:12

Price: ₹4000 | 195 seats available

Book Now

Flight Booking Form: This form contains the details required for flight booking, allowing customers to reserve their flight seats.



The image shows a web application for flight booking. A modal form titled "Booking Form" is centered on the screen, overlaying a background image of an airplane flying over clouds. The background interface includes a header with "SB Flight" and links for "Logout", "Booking", and "Profile". Below the header, there's a "Search Flights" section with a "Start Location" dropdown and a "Select start location" button. To the right, there's a "Available Flights" section showing a flight from "tirupati to chennai" with a departure time of "2024-10-20 at 11:11 - 12:12" and a price of "₹4000 (195 seats available)". The modal form itself contains the following fields:

- Email** and **Mobile Number** (text input fields)
- Number of Passengers** (text input field with value "1")
- Passenger 1 Name** and **Passenger 1 Age** (text input fields)
- Card Details** section with:
 - Card Number** (text input field)
 - Expiry Date** (text input field with a calendar icon)
 - CVV** (text input field)

At the bottom of the modal, there are two buttons: "Cancel" and "Confirm Booking".

After Booking: Once the ticket is successfully booked, customers can view their booked flight details as shown below.

SB Flight

My Booking Details

Flight Details:

From: tirupati

To: chennai

Date: 10/20/2024

Time: 11:11

Price: 8000

Passenger Details:

Name: Lakshmi - Age: 25 seat:fp123-006

Name: Siri - Age: 16 seat:fp123-007

Cancel Booking

Profile Page and Change Password Page: Customers can view their profile, and if they wish to change their password, they can do so here

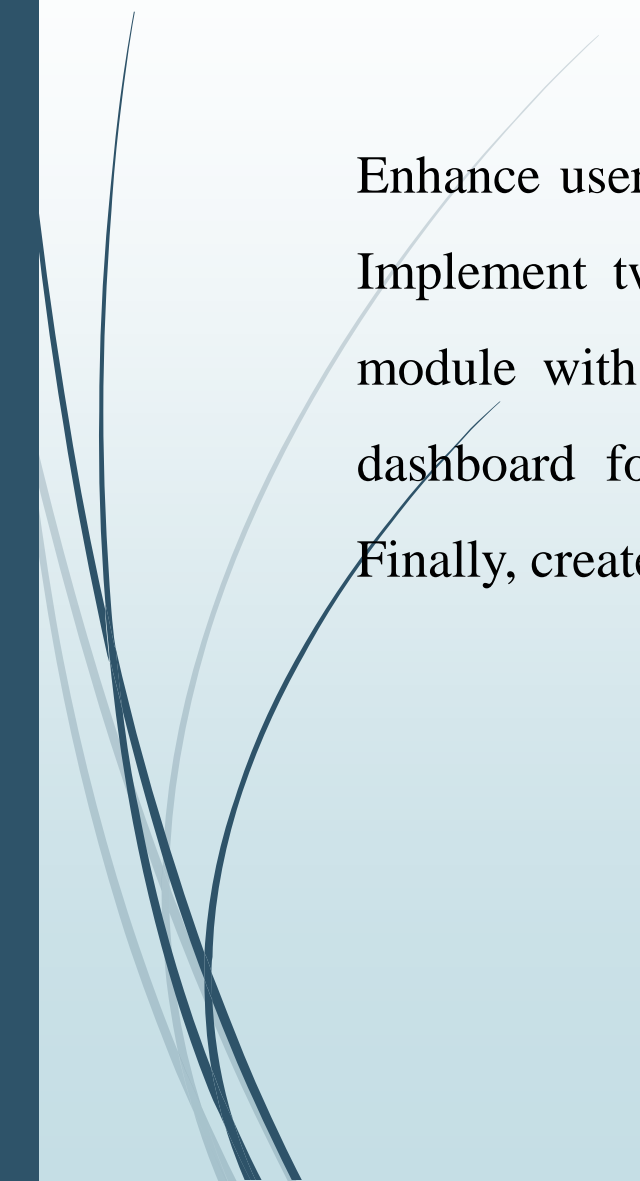
The image displays two screenshots of a web application interface. The top screenshot shows the 'User Profile' page. The page has a dark blue header with 'SB Flight' on the left and 'Logout Booking Profile' on the right. The main content area is white and contains a 'User Profile' section with a circular profile picture of a house, the name 'Lakshmi', email 'lakshmi@gmail.com', phone '9632587410', and location 'Tirupati'. Below this is a blue 'Change Password' button. The bottom screenshot shows the same 'User Profile' page but with a modal form open for changing the password. The modal has a title 'Change Password' and two input fields: 'Old Password' with the placeholder 'Enter your old password' and 'New Password' with the placeholder 'Enter your new password'. At the bottom of the modal are 'Submit' and 'Cancel' buttons. The background of the page is dimmed to a dark grey color when the modal is open.

CONCLUSION

User Module: Register: User registration with personal details. Login: Secure login for users to access their account. Search Flights: Users can search for available flights. Book Flights: Users can book available flights. Cancel Flights: Users can cancel their booked flights. View Profile: Users can view and edit their personal details. View Bookings: Users can view their flight booking history. Logout: Secure logout to end the session. 2. Company Module: Register: Company registration with necessary business details. Login: Secure login for companies to access their dashboard. Add Flights (CRUD): Companies can create, read, update, and delete flights. View Bookings: Companies can view all bookings made for their flights. Logout: Secure logout for the company. 3. Admin Module: Login: Admin access to manage the system. View Company: Admin can view company details and accept/reject company registration. View Users: Admin can view registered users and their details. View Flights: Admin can view all flights registered by companies. Logout: Secure logout for the admin



FUTURE ENHANCEMENT



Enhance user experience with mobile app development and personalized recommendations. Implement two-factor authentication and data encryption for security. Improve the rental module with advanced booking management and pricing analytics. Develop an analytics dashboard for admins, integrate online payment systems, and ensure legal compliance. Finally, create a feedback system for user support and suggestions.

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THANK YOU