
Design Document

for

Route Mate

Version 1.3

Prepared by

Group 8:

Palagiri Tousif Ahamad	220744
Tamidala Venkata Sai Pawan	221120
Chanukya Reddy	
Vetcha Pankaj Nath	221188
Sudhamandu Sai Nikhil	221095
Mohammed Anas	220654
Himanshu Shekhar	220454
Swayamsidh Pradhan	221117
Kawaljeet Singh	220514
Anya Rajan	220191
Daksh Kumar Singh	220322

Group Name: Access_denied

atousif22@iitk.ac.in
venkatasai22@iitk.ac.in
vpankaj22@iitk.ac.in
ssain22@iitk.ac.in
mohdanas22@iitk.ac.in
shimanshu22@iitk.ac.in
spradhan22@iitk.ac.in
kawaljeets22@iitk.ac.in
anyarajan22@iitk.ac.in
dakshks22@iitk.ac.in

Course: CS253

Mentor TA: *Sumit*

Date: 09-02-2024

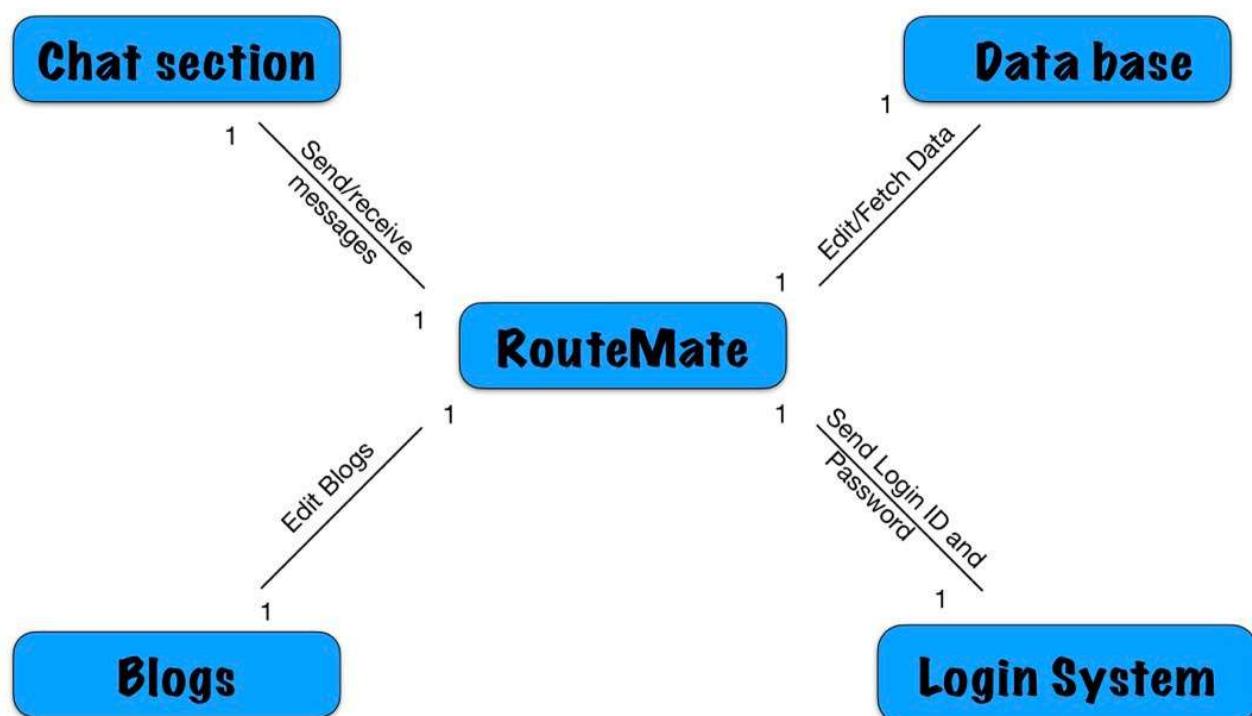
CONTENTS.....	II
REVISIONS.....	III
1 CONTEXT DESIGN.....	1
1.1 CONTEXT MODEL.....	1
1.2 HUMAN INTERFACE DESIGN.....	2
2 ARCHITECTURE DESIGN.....	9
3 OBJECT-ORIENTED DESIGN.....	11
3.1 USE CASE DIAGRAM.....	11
3.2 CLASS DIAGRAM.....	15
3.3 SEQUENCE DIAGRAM	16
3.4 STATE DIAGRAM	21
4 PROJECT PLAN.....	25
APPENDIX A - GROUP LOG.....	28

Revisions

Version	Primary Author(s)	Description of Version	Date Completed
1.1	All team	First Draft	30/01/24
1.2	All team	Second Draft	06/02/24
1.3	All team	Final Draft	08/02/24

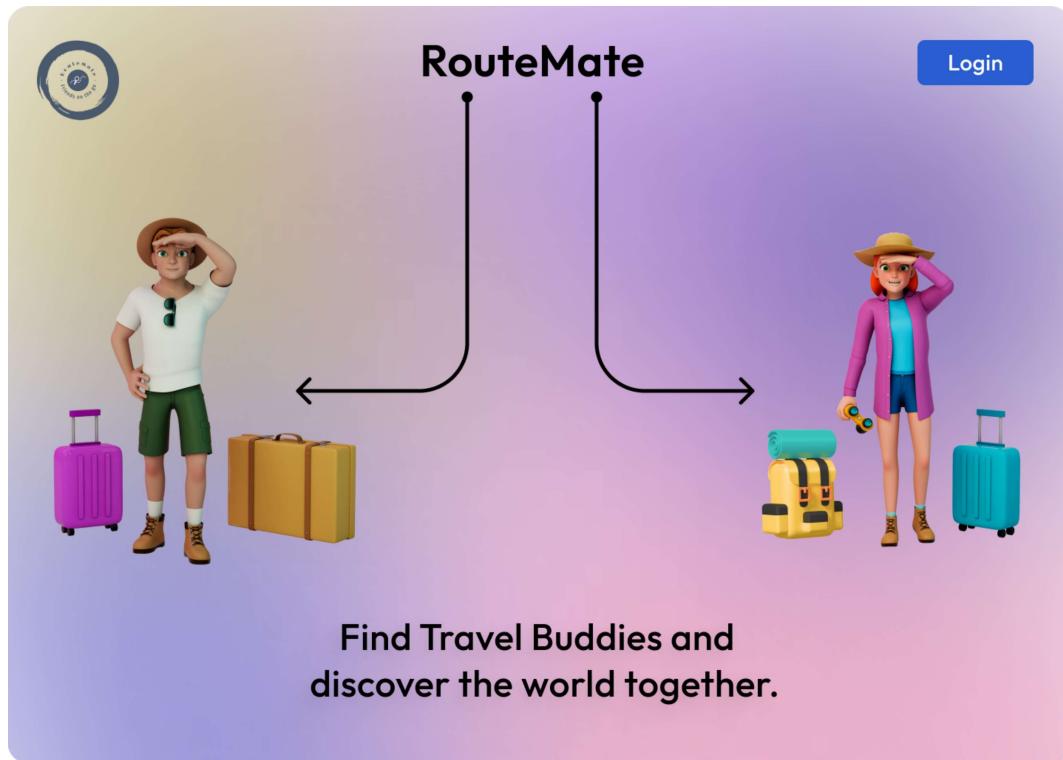
1 Context Design

1.1 Context Model

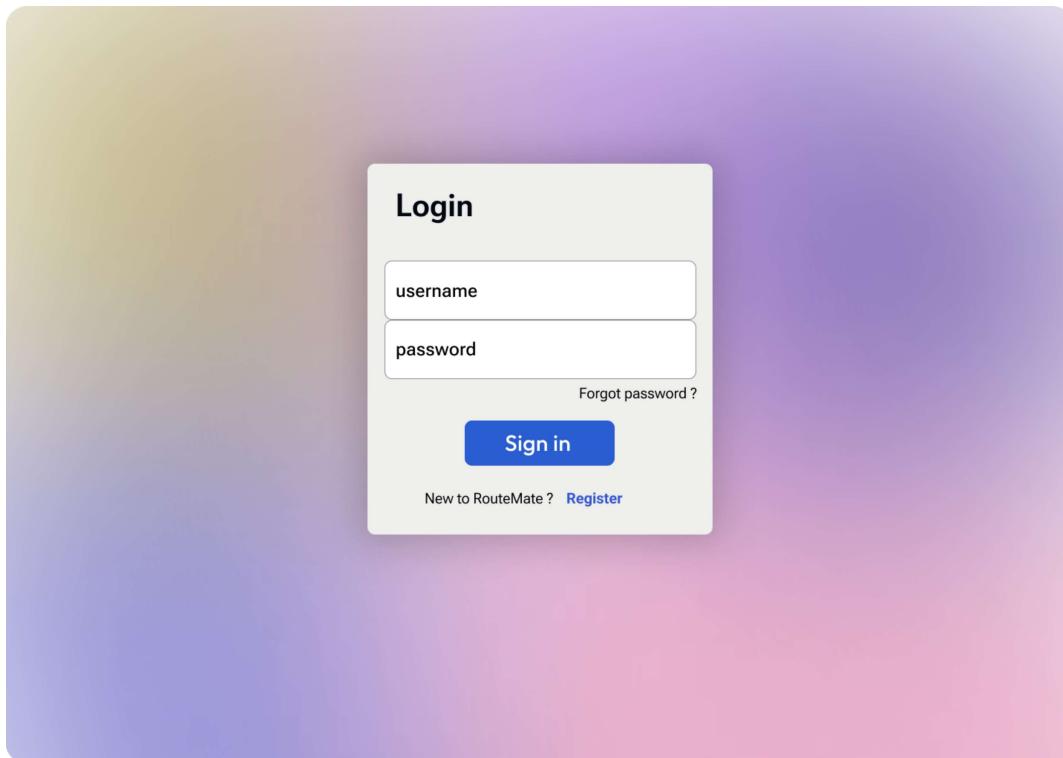


1.2 Human Interface Design

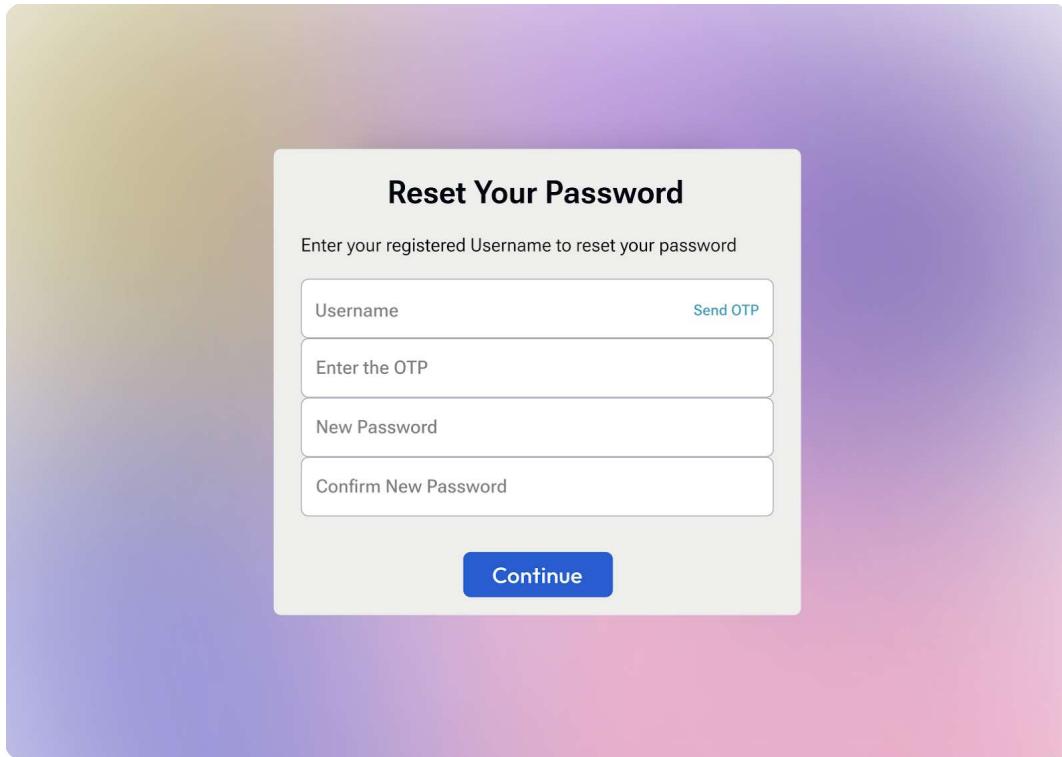
1. Home page



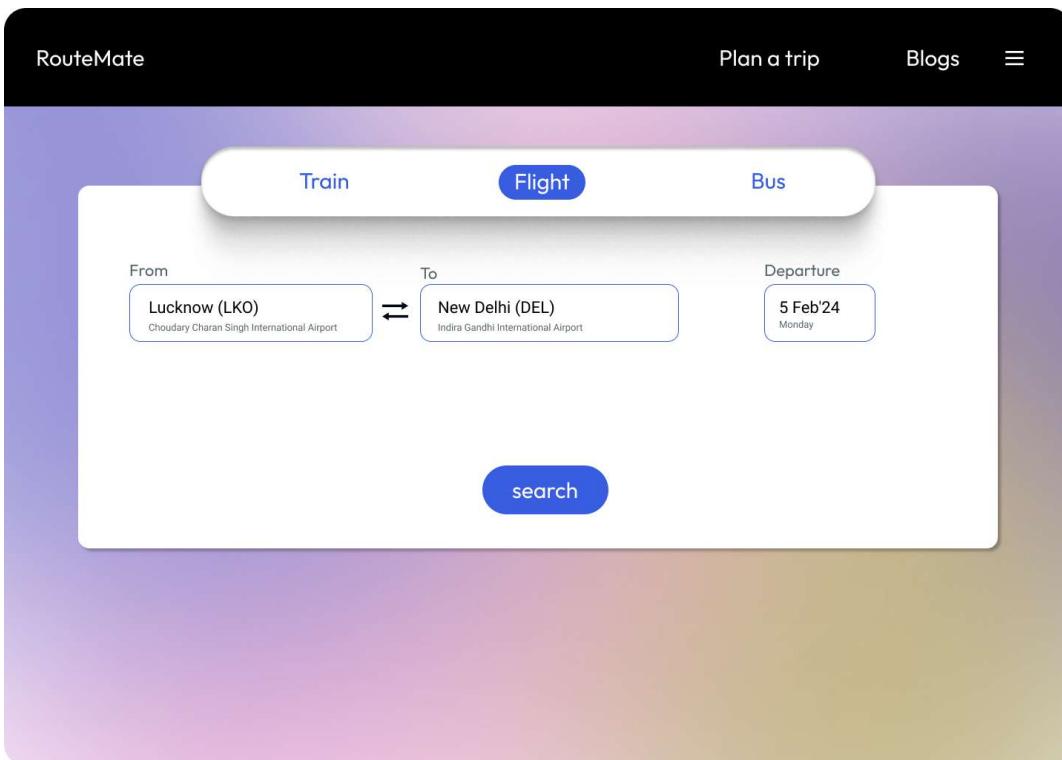
2. Login page



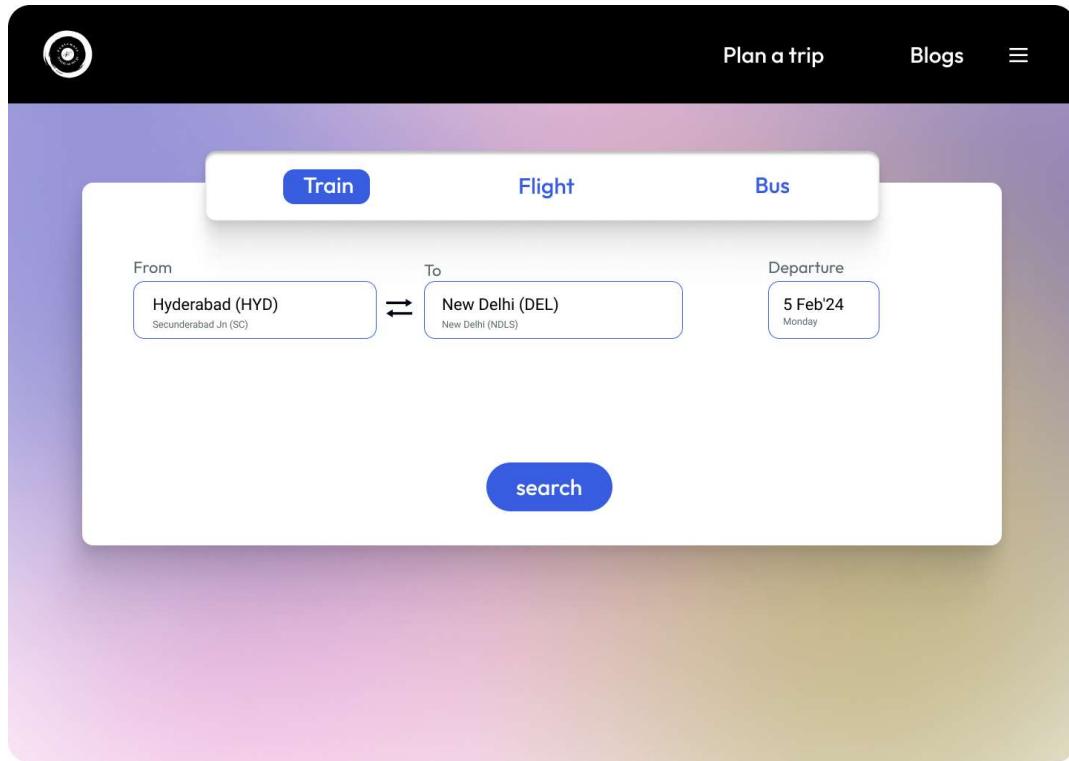
3.Forgot Password page



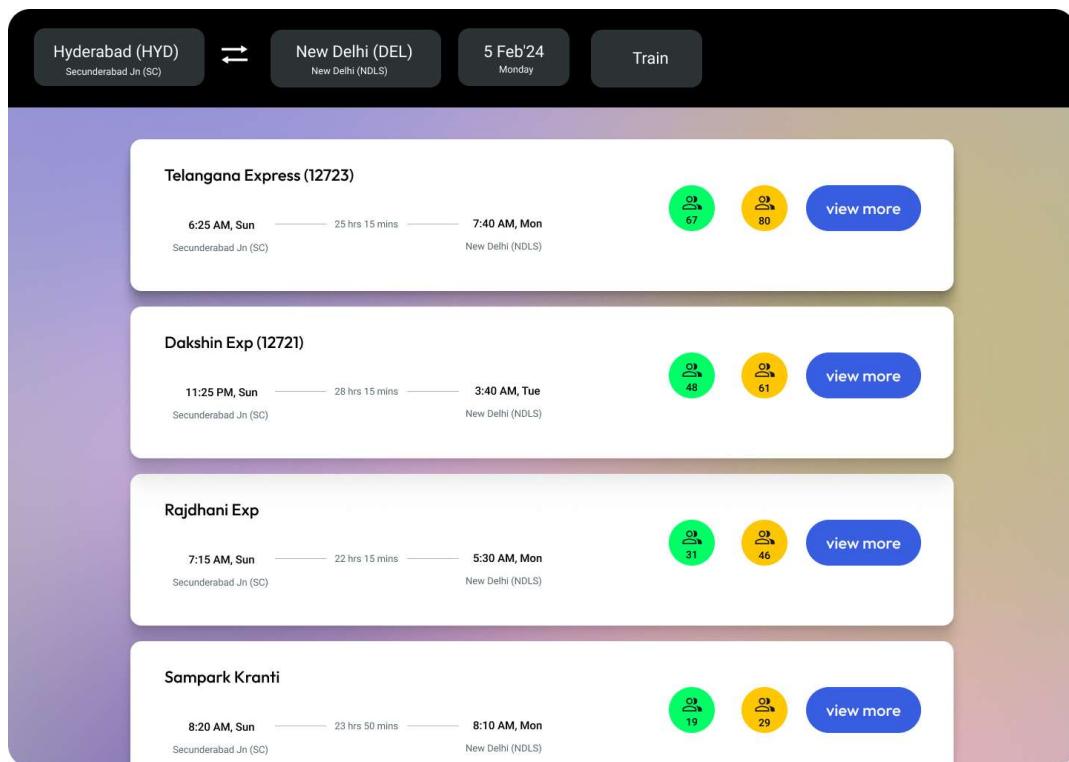
4.Flight-options



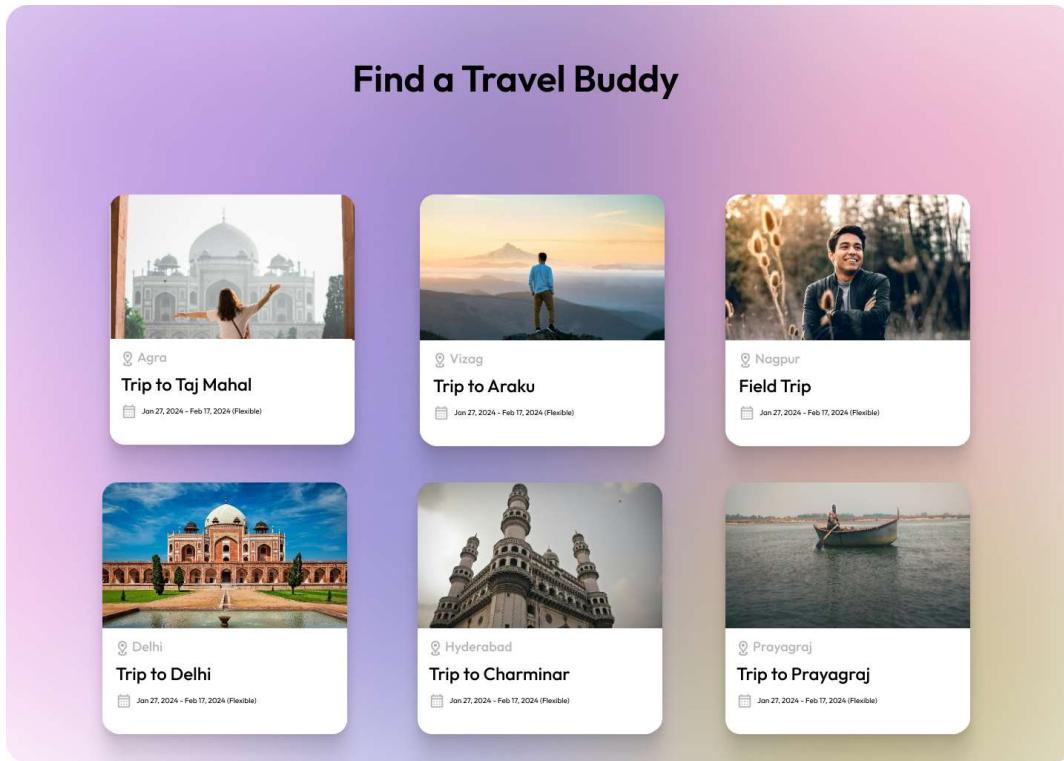
5. Train-options



6. Trains-list page



7. Available trips



8. New Trip planner

The image shows a mobile application interface titled "Plan a new trip". It features several input fields and a sidebar for adding places to visit.

- Where to?**: A text input field containing "Agra".
- Tentative dates**: A date range selector showing "Start date: 25th March 2024" and "End date: 27th March 2024".
- Approximate Budget**: A text input field containing "2500".
- Description...**: A text area containing the following text:

We are a group of 10 friends who are planning to visit Ayodhya for our upcoming winter holidays.

dates are flexible
please joining group before 1st march so we can book train tickets
- Add places to visit**: A sidebar with a "+" button and a list of five items:
 - Agra fort
 - Taj Mahal
 - Mughal heritage walk
 - Taj nature walk
 - Fatehpur Sikri
 - Mehtab Bagh
- Submit**: A black button at the bottom right.

9. Trip details

Trip to Agra

Kanpur , Uttar pradesh

Agra , Uttar pradesh

25th March 2024 - 27th March 2024 (Flexible)

Trip details

We are a group of 10 friends who are planning to visit Ayodhya for our upcoming winter holidays.

dates are flexible
please joining group before 1st march so we can book train tickets

Places to Visit

- Agra fort
- Taj Mahal
- Mehtab Bagh
- Mughal Heritage Walk
- Taj Nature Walk
- Fatehpur Sikri

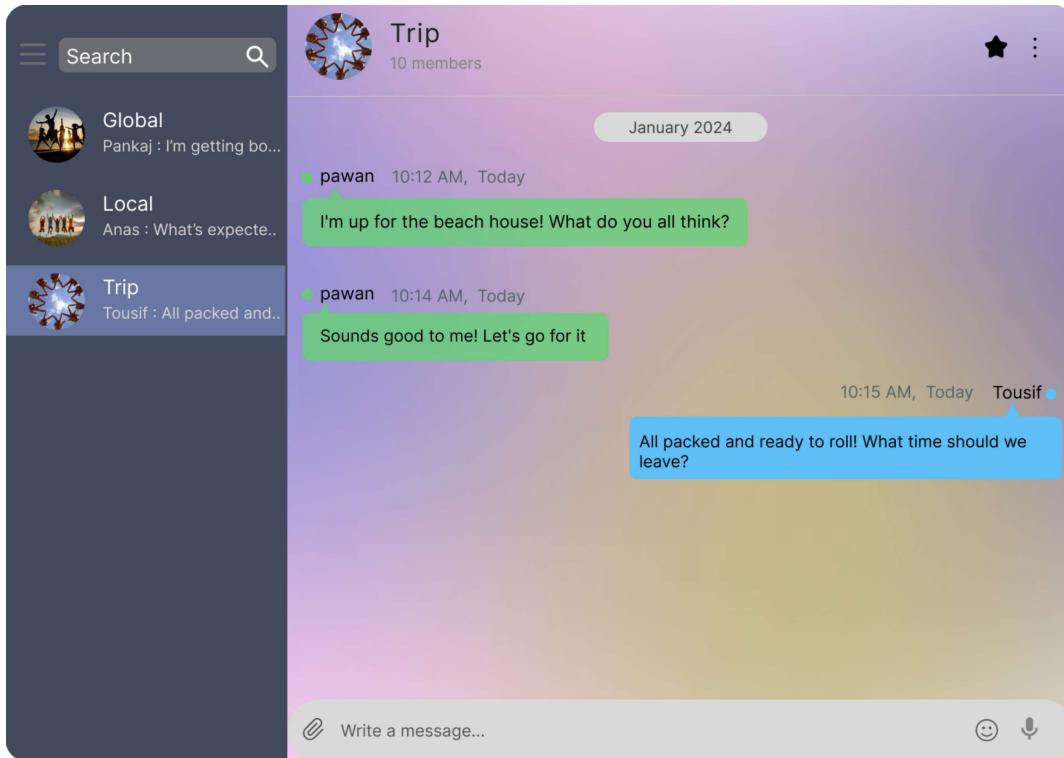
Budget Around 2500 rupees

Trip created by

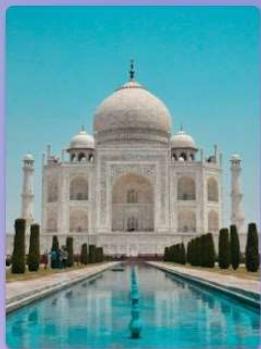
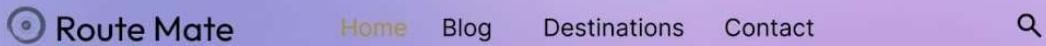


Join Trip

10. Chat box



11.Blog



Day 1: The Majestic Taj Mahal

No visit to Agra is complete without witnessing the ethereal beauty of the Taj Mahal. Built by the Mughal Emperor Shah Jahan in memory of his beloved wife Mumtaz Mahal, this UNESCO World Heritage Site is an architectural masterpiece. As the first light of dawn bathes the ivory-white mausoleum, the marble comes alive with hues of pink and gold, creating a mesmerizing spectacle.

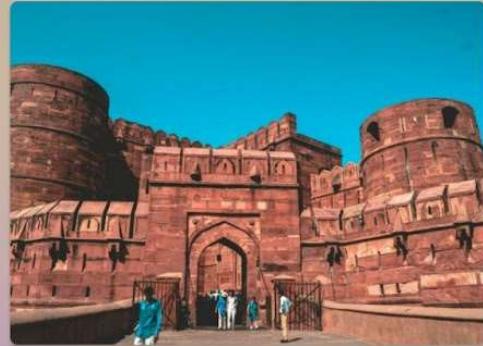
Pro Tip: To avoid the crowds, plan an early morning visit to witness the Taj Mahal at sunrise. Don't forget to capture the magical moments as the sun-kissed dome reflects in the pristine waters of the Yamuna River.

by Anya

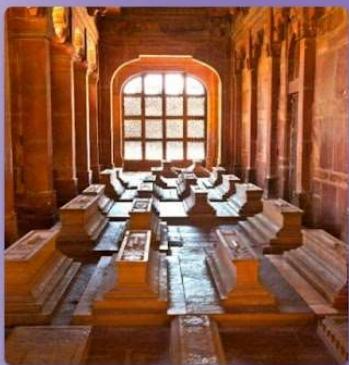
Day 2: A Walk Through Agra Fort

The Agra Fort, another UNESCO World Heritage Site, stands tall as a testament to the grandeur of the Mughal Empire. Built by Emperor Akbar, this red sandstone fortress houses palaces, mosques, and audience halls that provide a glimpse into the opulent lifestyle of the Mughal rulers.

Suggestion: Engage a local guide to unravel the stories behind the intricately designed Diwan-i-Khas, Jahangir Mahal, and the Sheesh Mahal within the Agra Fort. The historical anecdotes and architectural insights will enrich your experience.



by Swayam



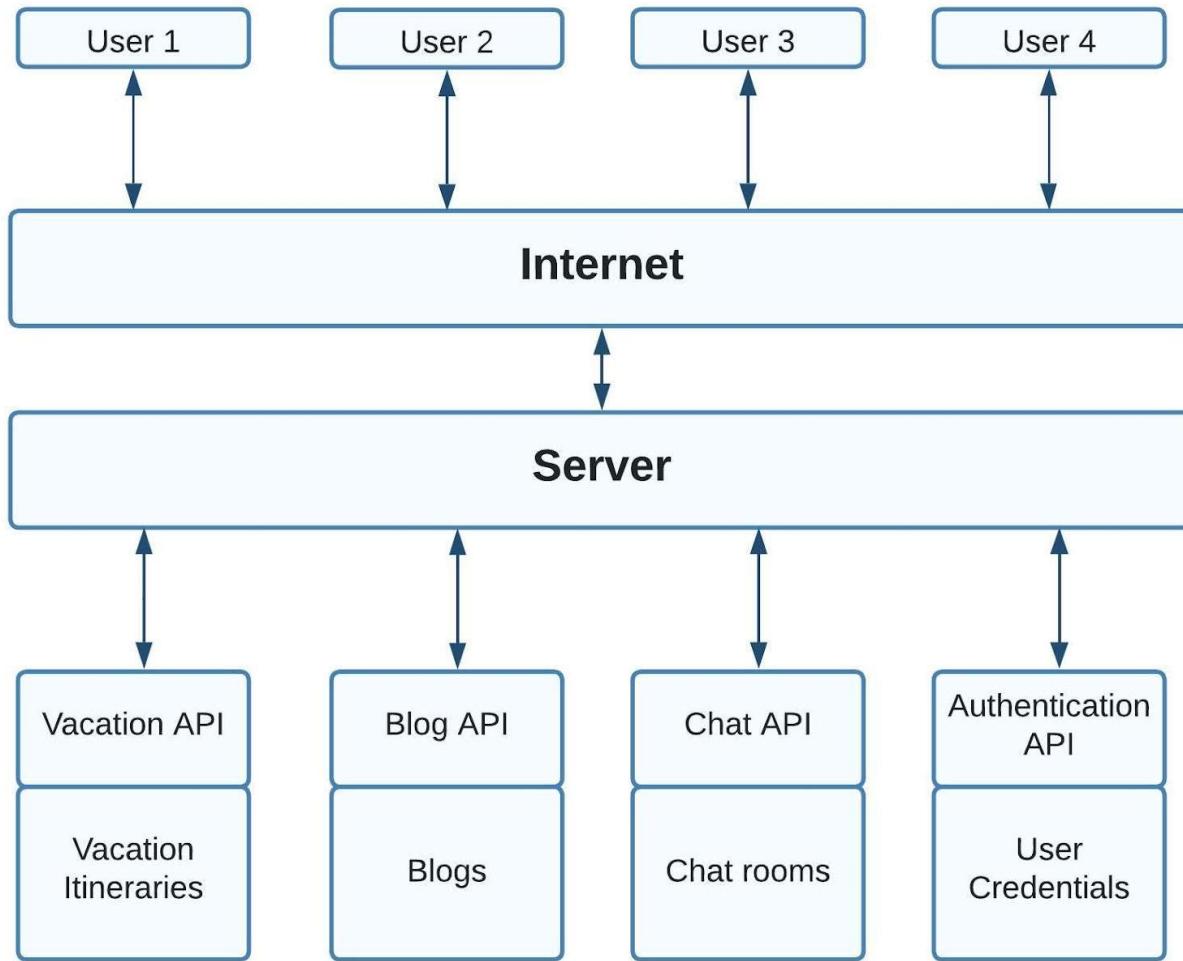
Day 3: Exploring Fatehpur Sikri

A short drive from Agra takes you to Fatehpur Sikri, an abandoned city that served as the capital of the Mughal Empire for a short period. The well-preserved structures, including the Buland Darwaza and the Jama Masjid, showcase the architectural prowess of the Mughals.

Recommendation: Plan a day trip to Fatehpur Sikri to explore its unique blend of Mughal and Persian architecture. The serene ambiance and historical significance make it a compelling addition to your Agra itinerary.

by pankaj

2 Architecture Design



RouteMate is designed around a robust **Client-Server architecture** to facilitate efficient communication, data exchange, and resource management across distributed environments.

Communication:

Communication between clients and servers is facilitated through standard network protocols, ensuring reliable and secure data exchange. The project uses **HTTP, HTTPS, WS**.

Components:

- **Client:**

- The client component represents the end-user interface, responsible for initiating requests and presenting results.
- It handles tasks such as user input, interface rendering, and local processing.

- **Server:**

- The server component hosts the core functionality of the system, providing services, processing requests, and managing resources.
- It handles tasks such as data storage, business logic execution, and response generation.

Request-Response Model:

The Project follows a request-response model, where clients send requests to servers, and servers process these requests and send back responses. Requests may include tasks such as retrieving data, updating records, or executing operations, while responses provide the outcome of these actions.

Why Client-Server Architecture:

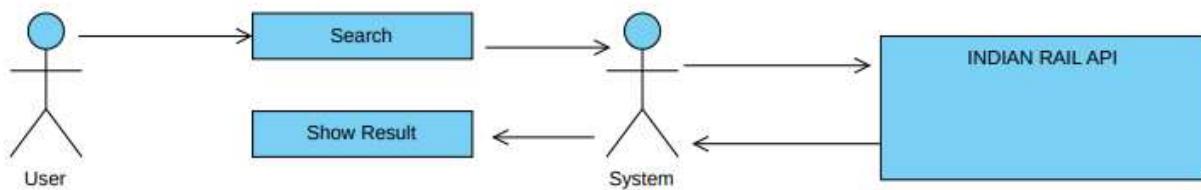
This software's primary objective is to facilitate connections among users with similar travel plans. Essential to this purpose is the centralized accessibility of user details on a server, enabling clients to submit diverse requests, each of which is processed at designated endpoints. Leveraging a client-server architecture is deemed optimal for efficiently managing these tasks.

3 Object Oriented Design

3.1 Use Case Diagrams

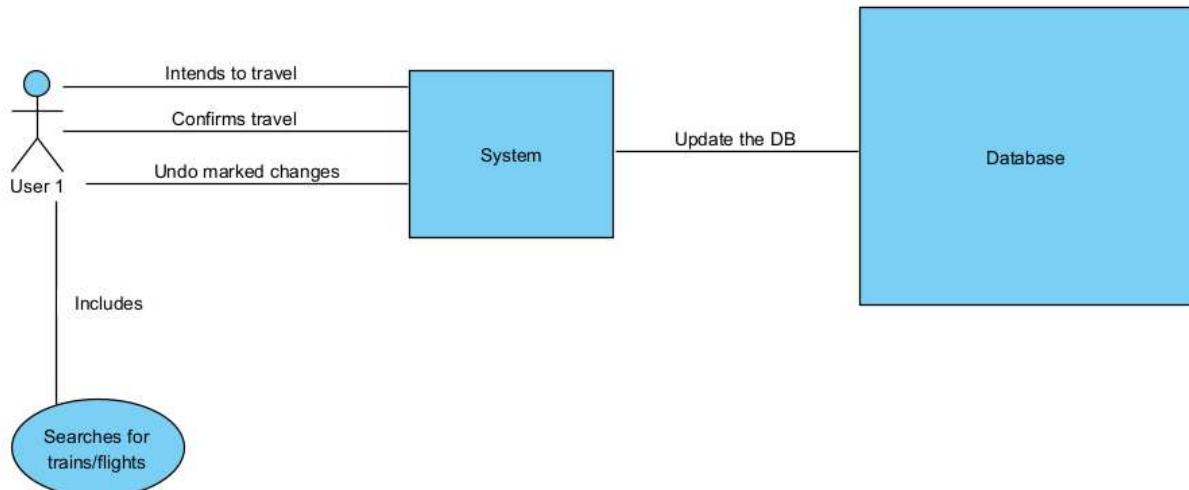
3.1.1 Search : Use Case - 1

- To enable the user to search for various trains/flights based on their preferences.



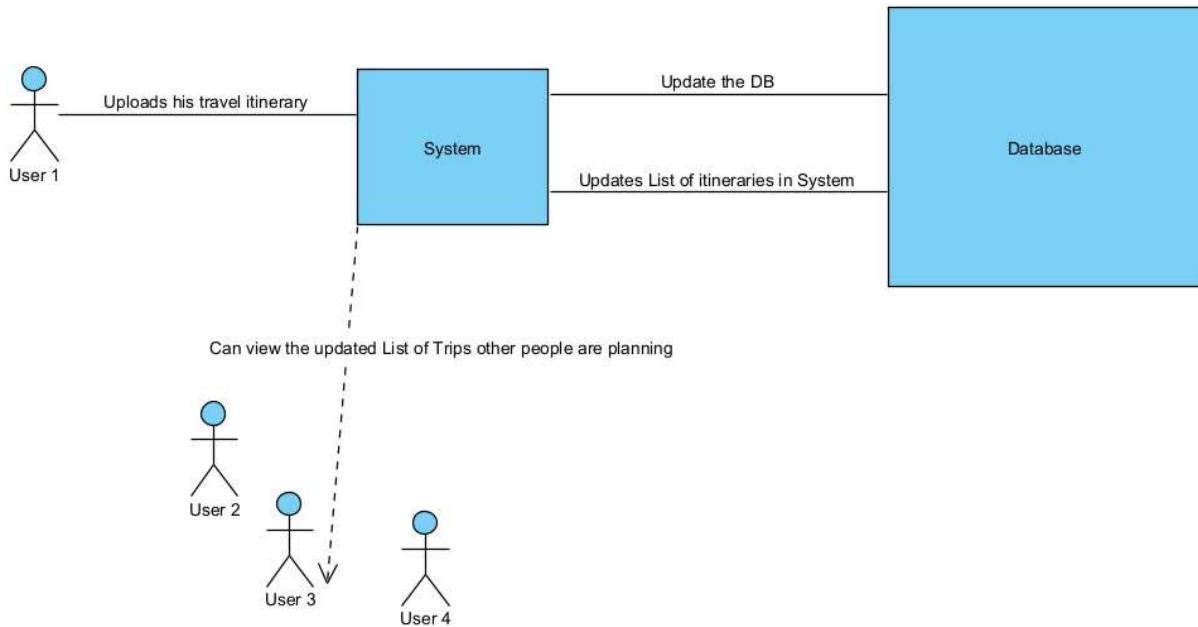
3.1.2 Confirm Booking : Use Case - 2

- Users select a train or flight and can either confirm their travel on the chosen option or express their intention to travel on it. Users also have an option to remove their marked plans.



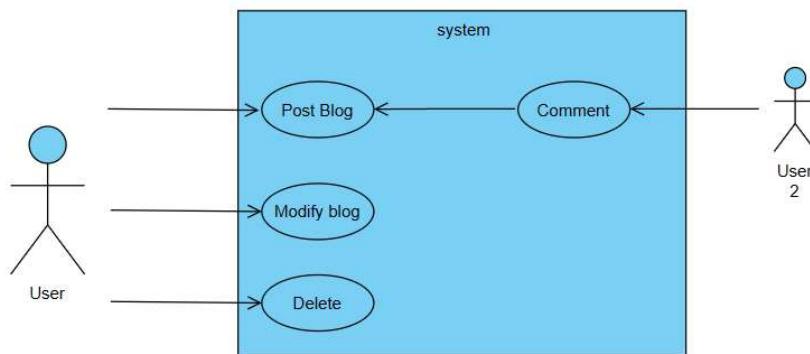
3.1.3 Travel Itinerary : Use Case - 3

- If a user intends to organize a trip and wishes to invite others to join, they can upload their itinerary on the website.



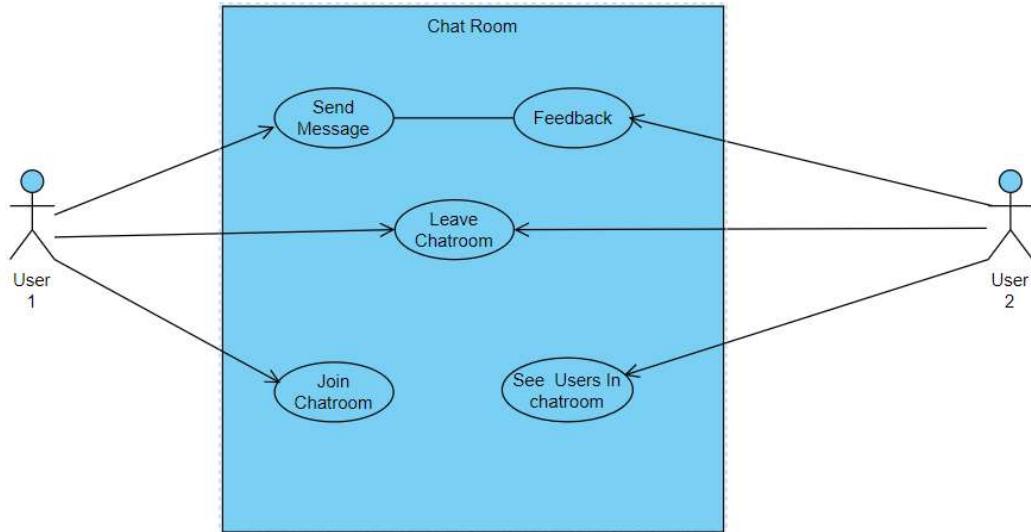
3.1.4 Manage and View Blogs : Use Case - 4

- The blog feature enables users to create, publish, and explore travel-related content within the travel app. Admins have moderation capabilities to ensure content adherence to site policies.



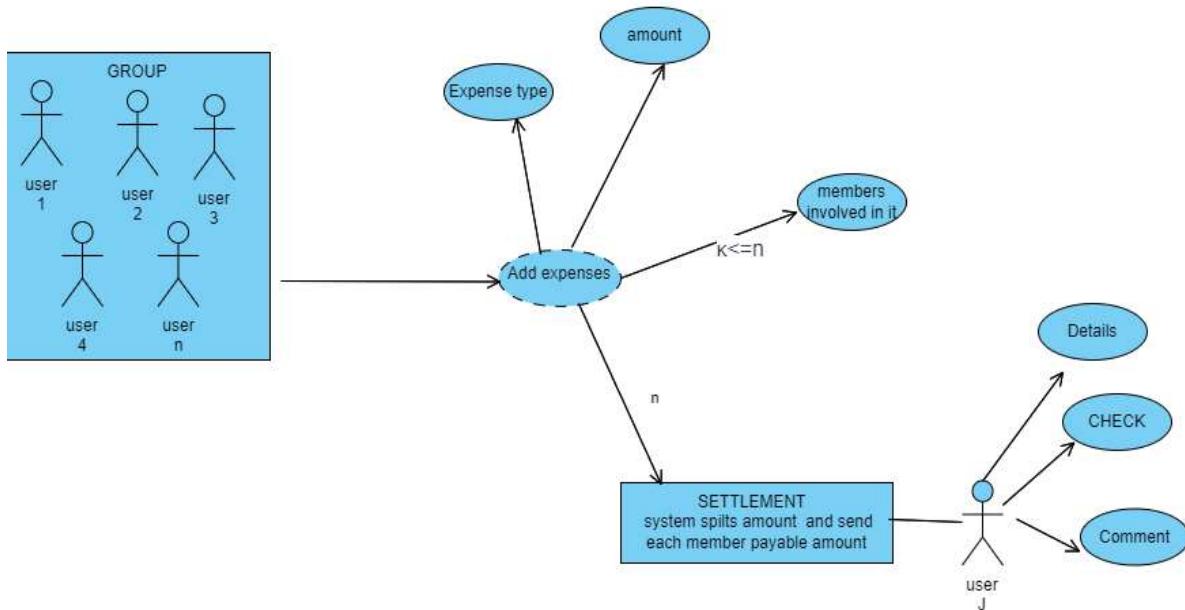
3.1.5 Chat room : Use Case - 5

- This use case is triggered when two or more people connect to go on a journey together and choose to form a chat room for the same on the site.



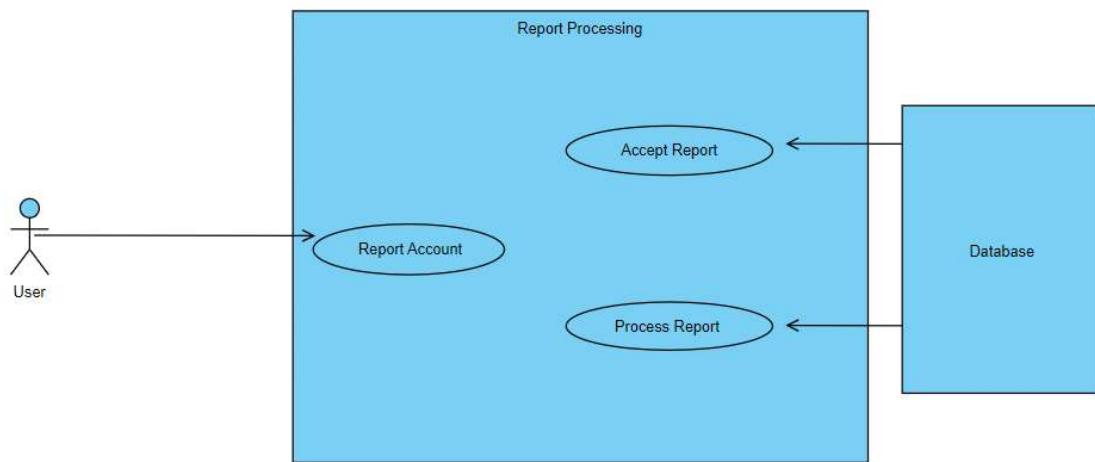
3.1.6 Group Expense Manager : Use Case - 6

- The Group Expense Manager allows users to efficiently split all the expenses of their journey equally and maintain a comprehensive record of their expenses.



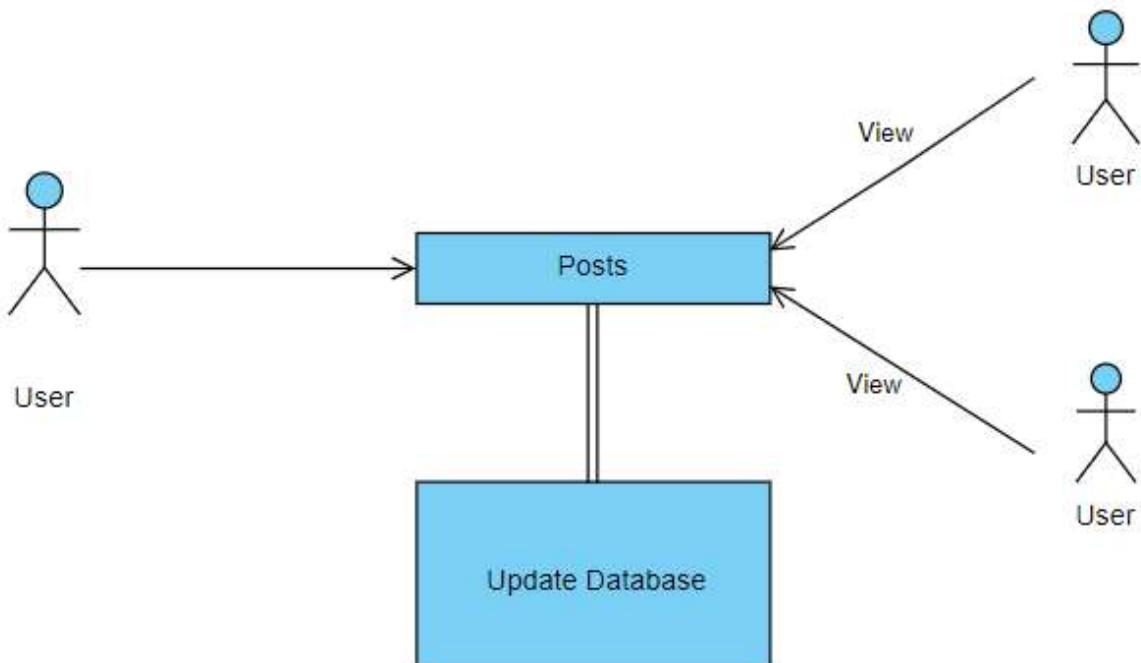
3.1.7 Report : Use Case - 7

- Users can report other users .

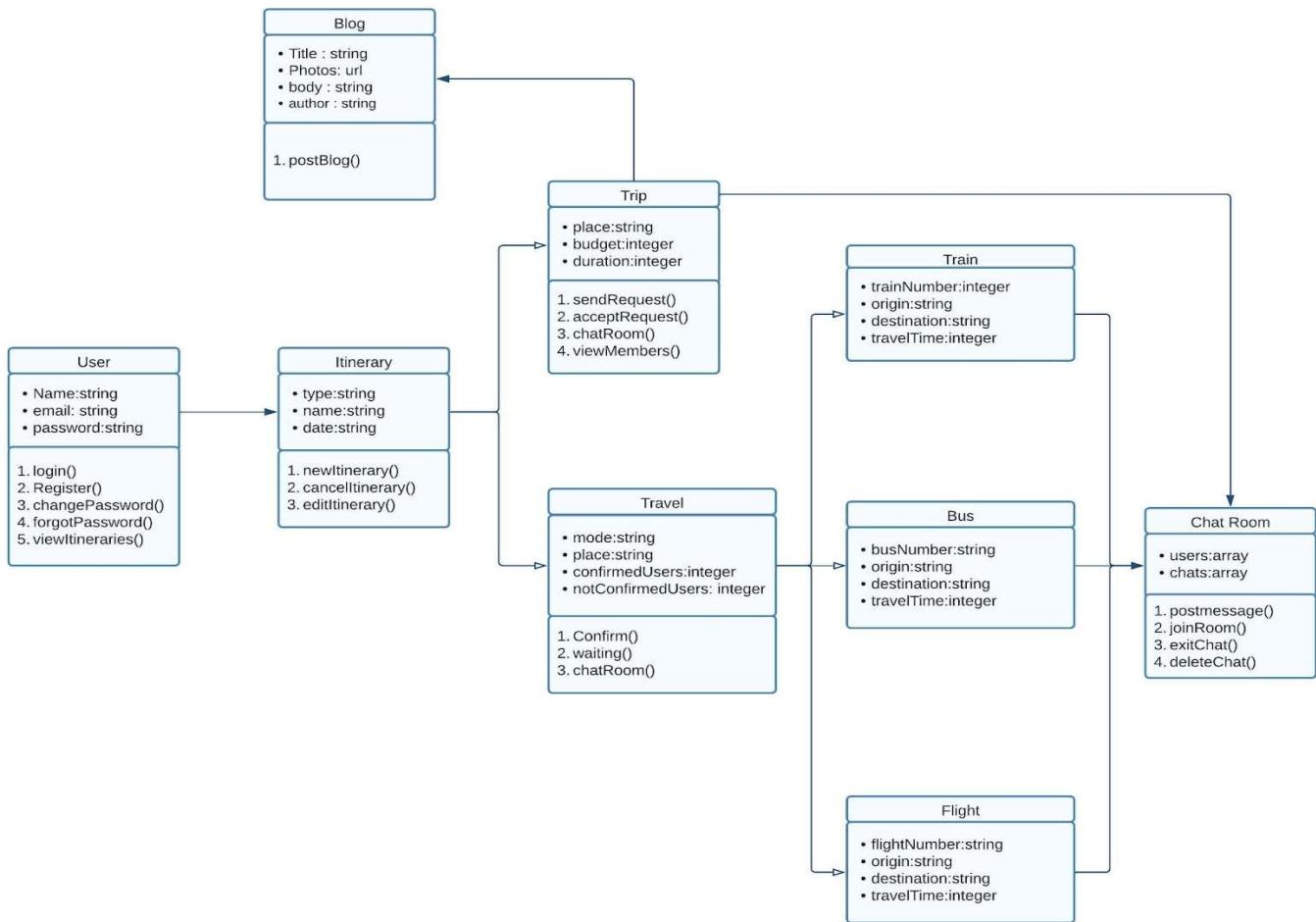


3.1.8 Cabs : Use Case - 8

- To enable the user to post/view other users going to the same airport/station.

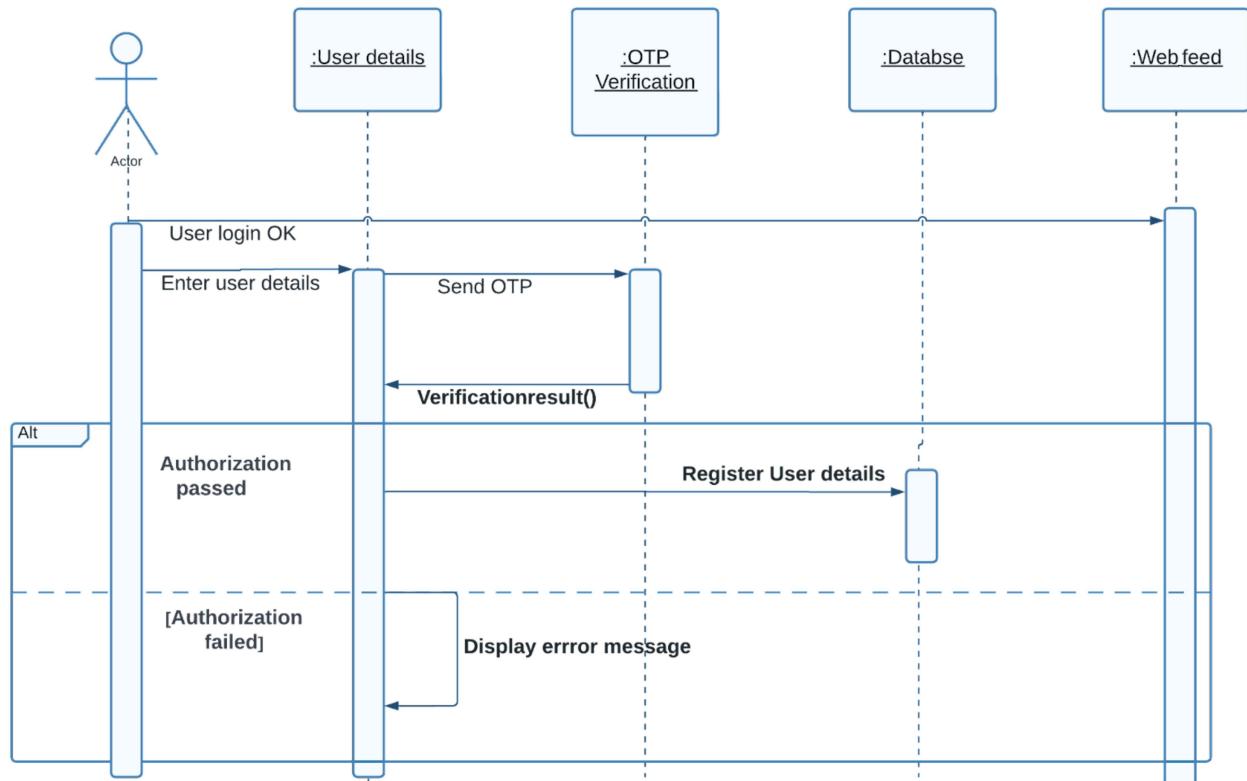


3.2 Class Diagrams

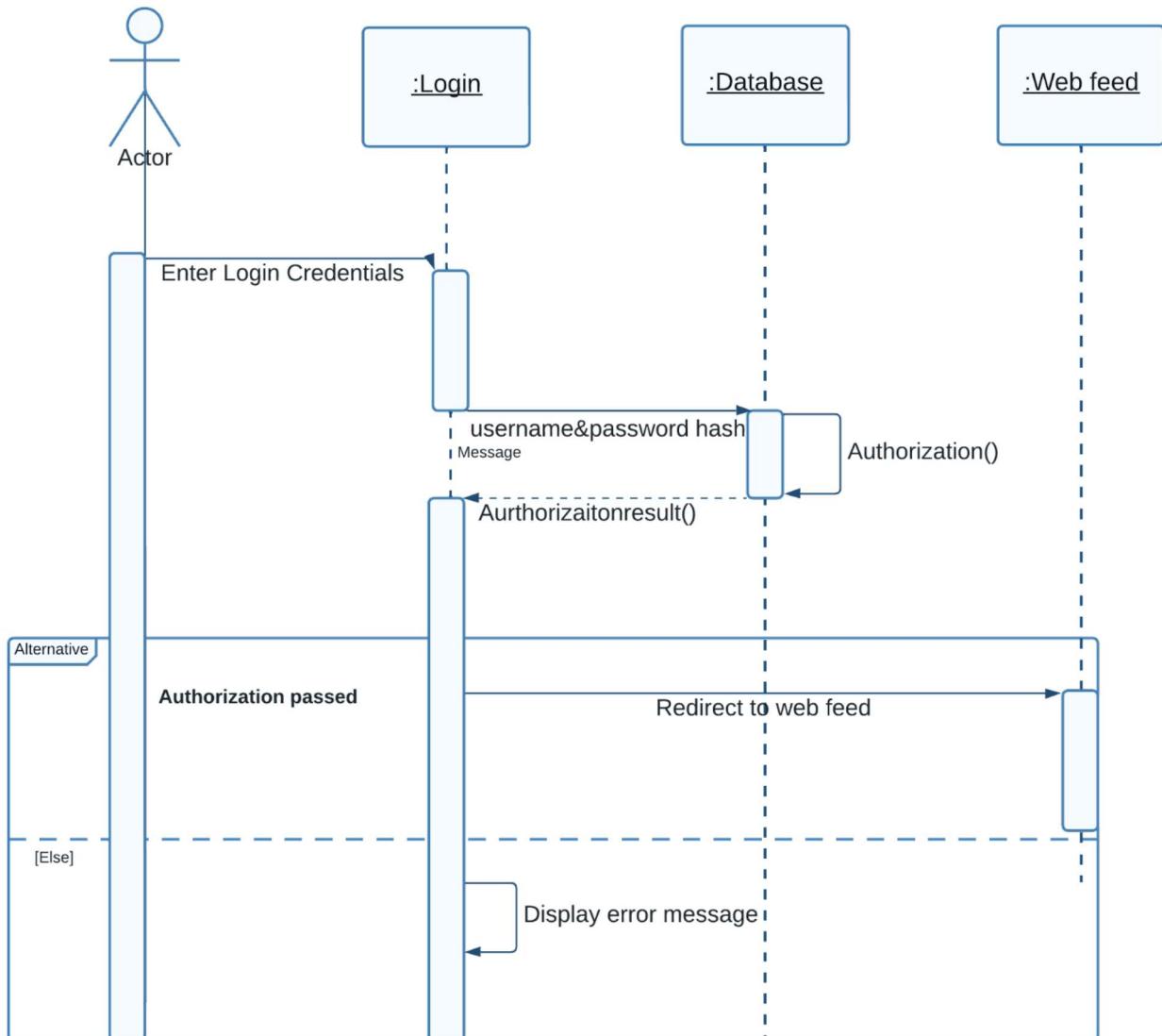


3.3 Sequence Diagrams

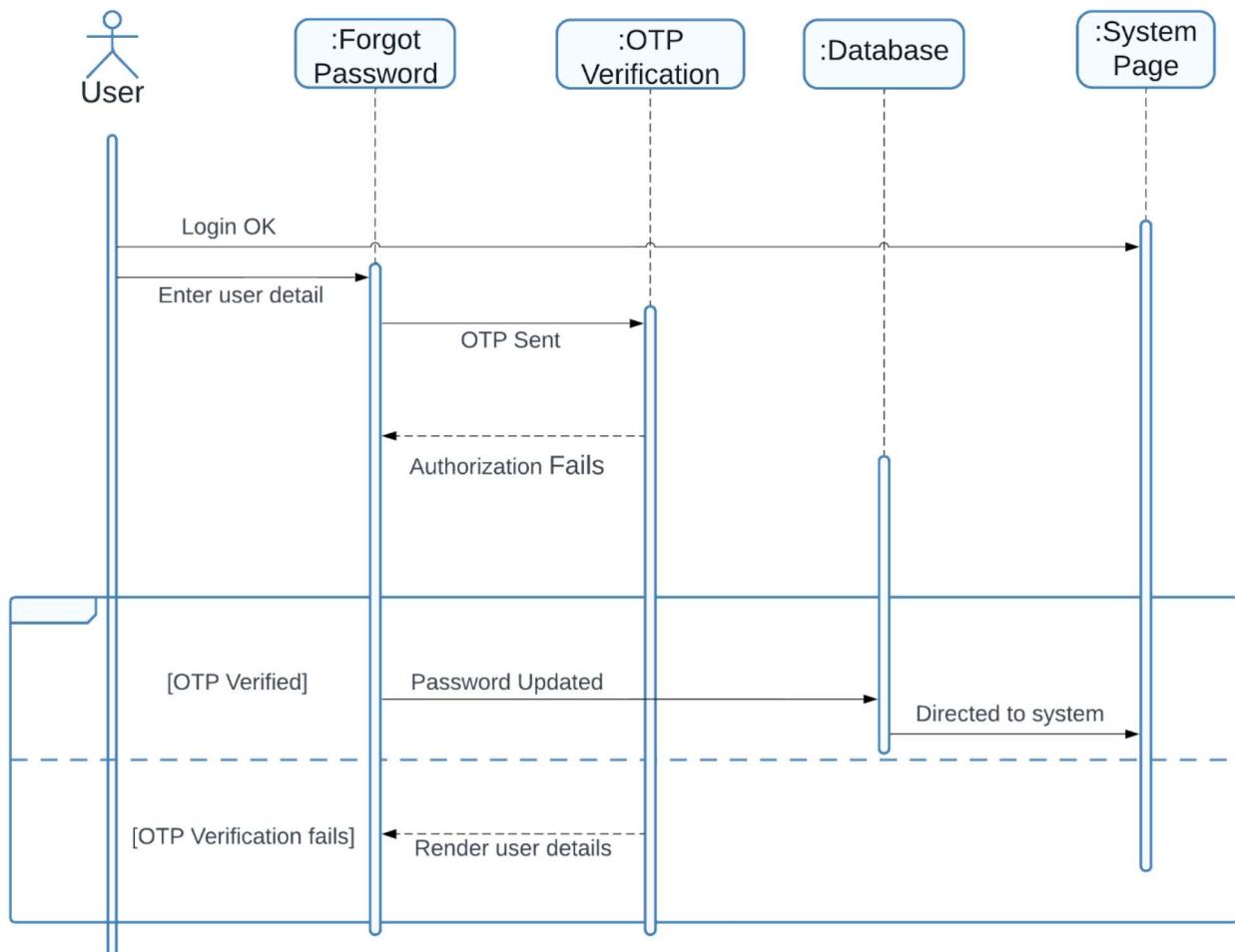
3.3.1 Register Page



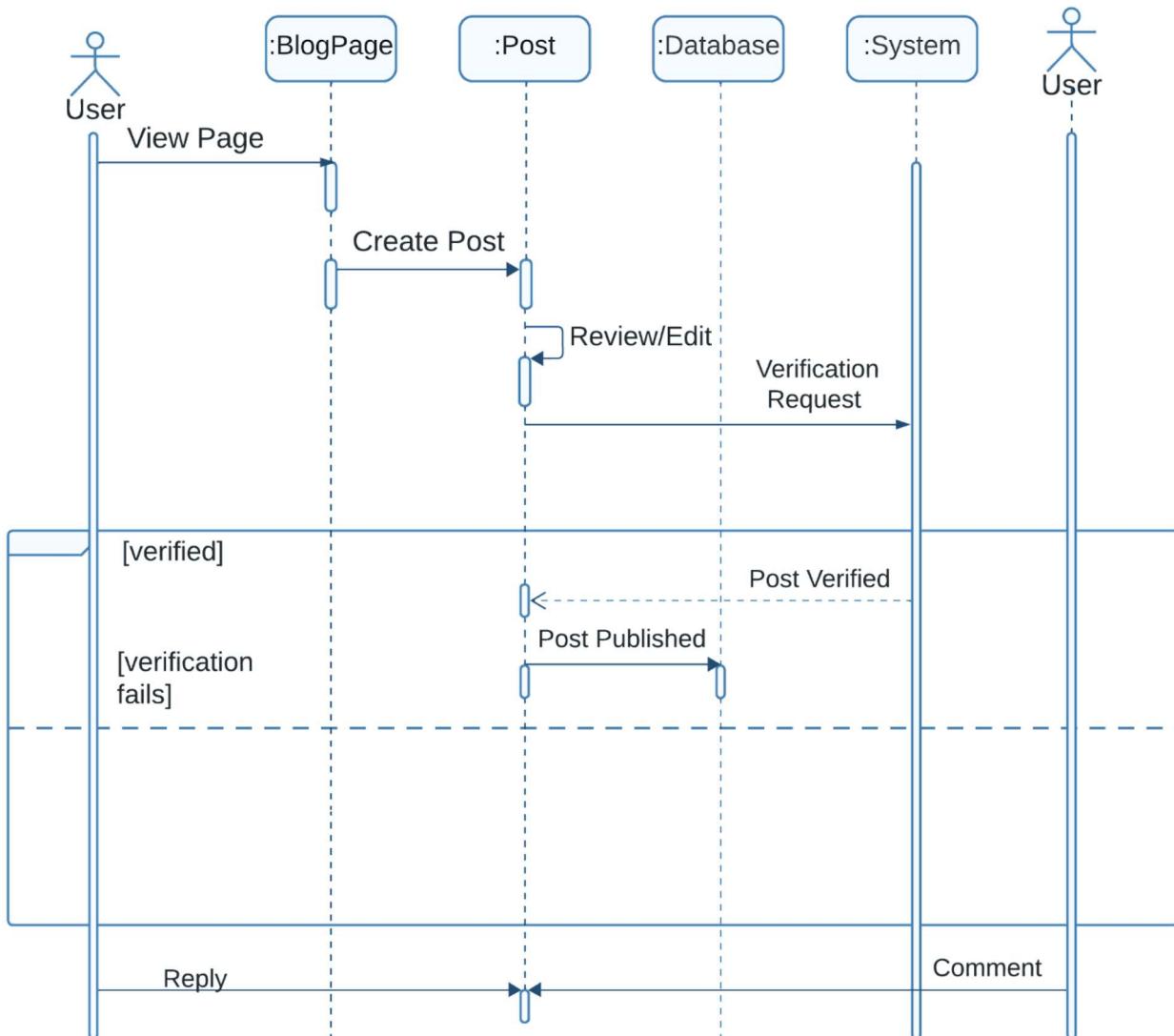
3.3.2 Login Page



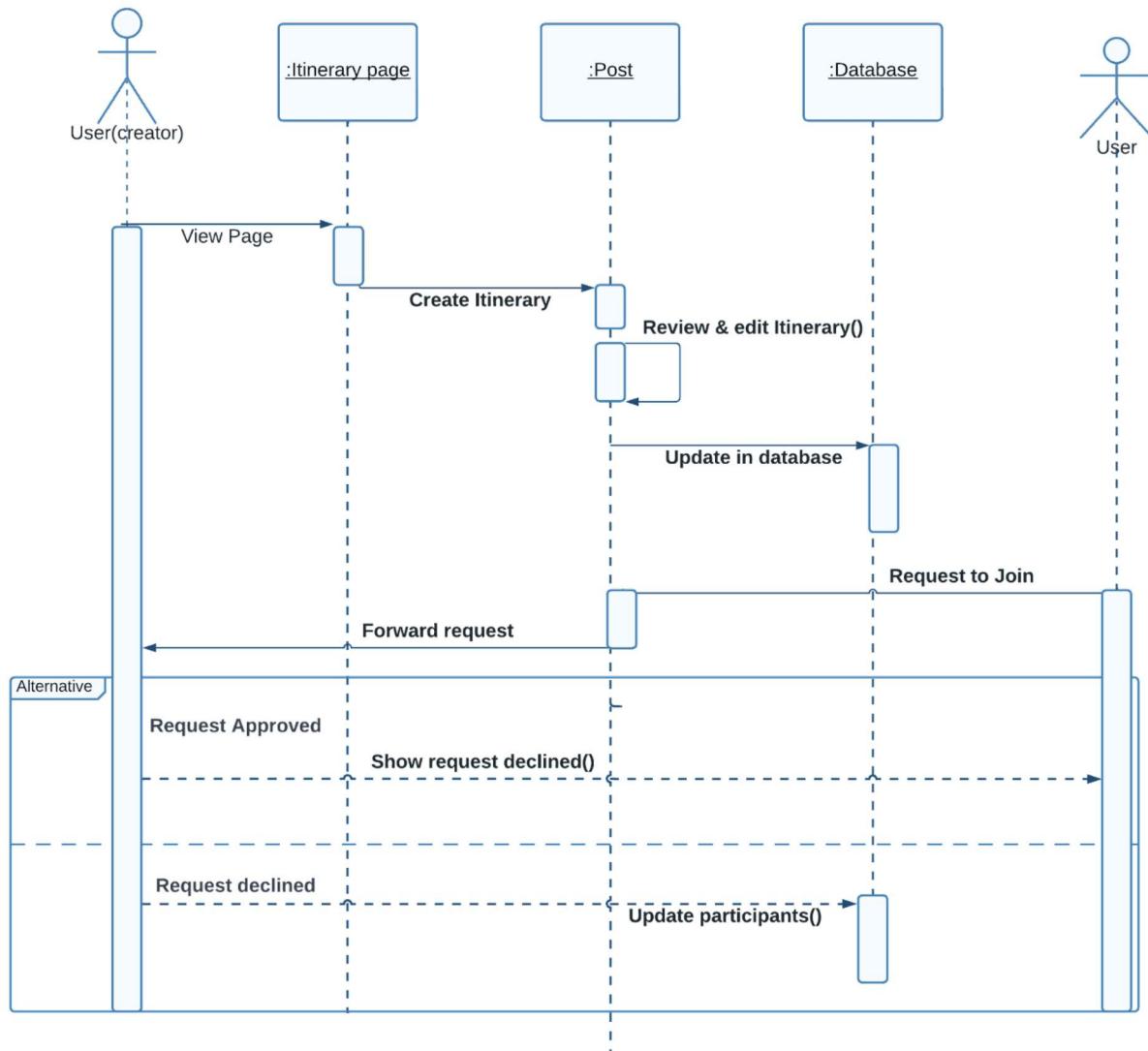
3.3.3 Forgot Password



3.3.4 Blog

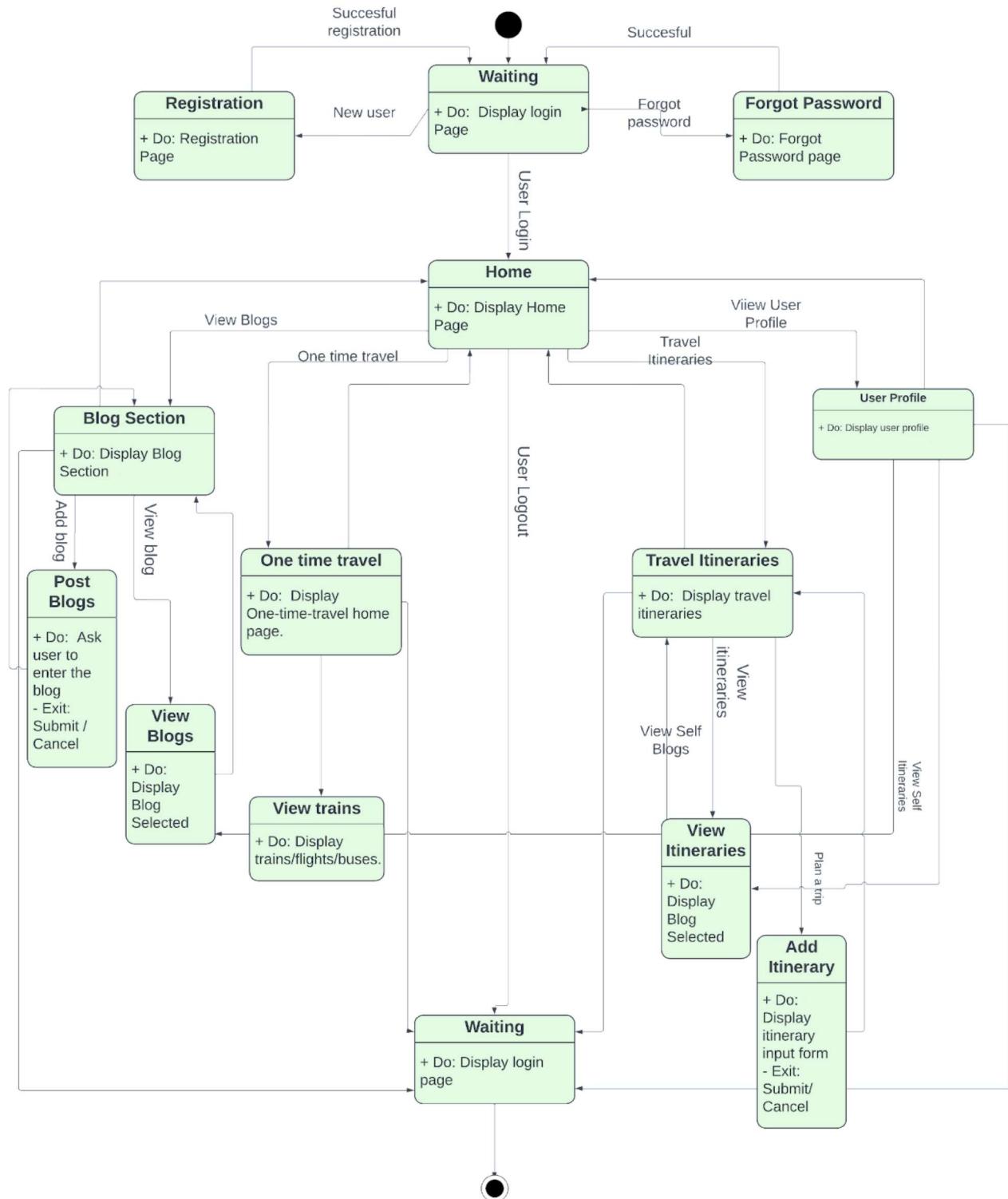


3.3.5 Travel Itinerary

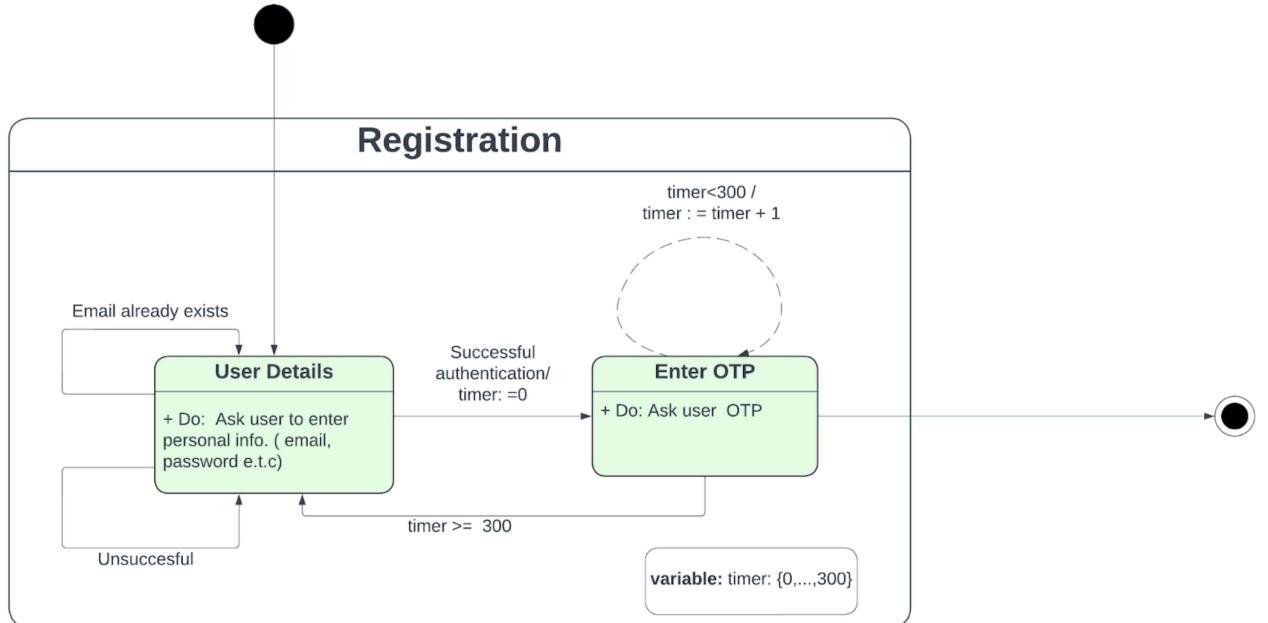


3.4 State Diagrams

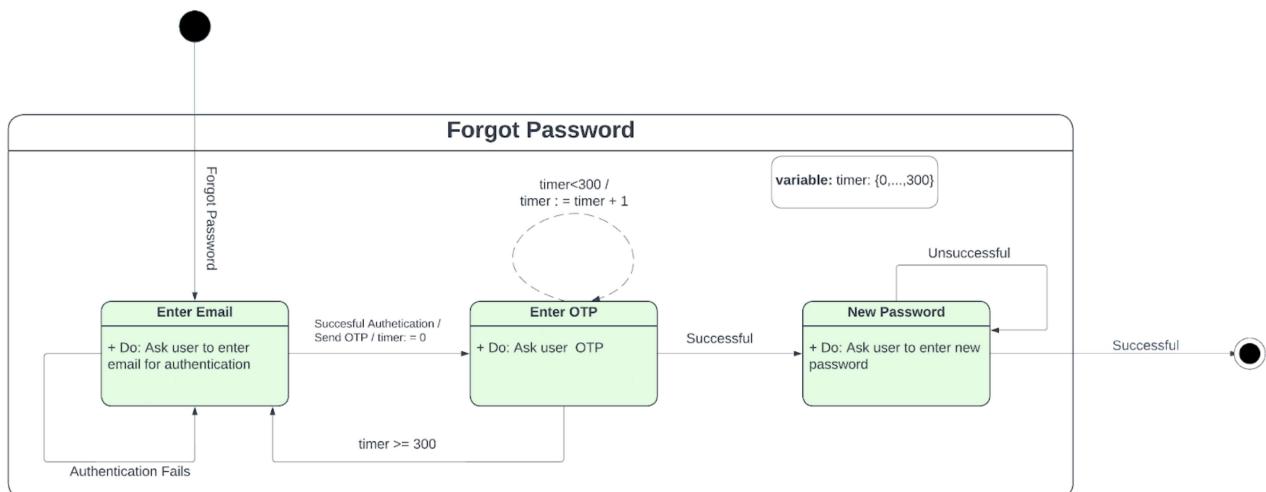
3.4.1 Overall diagram



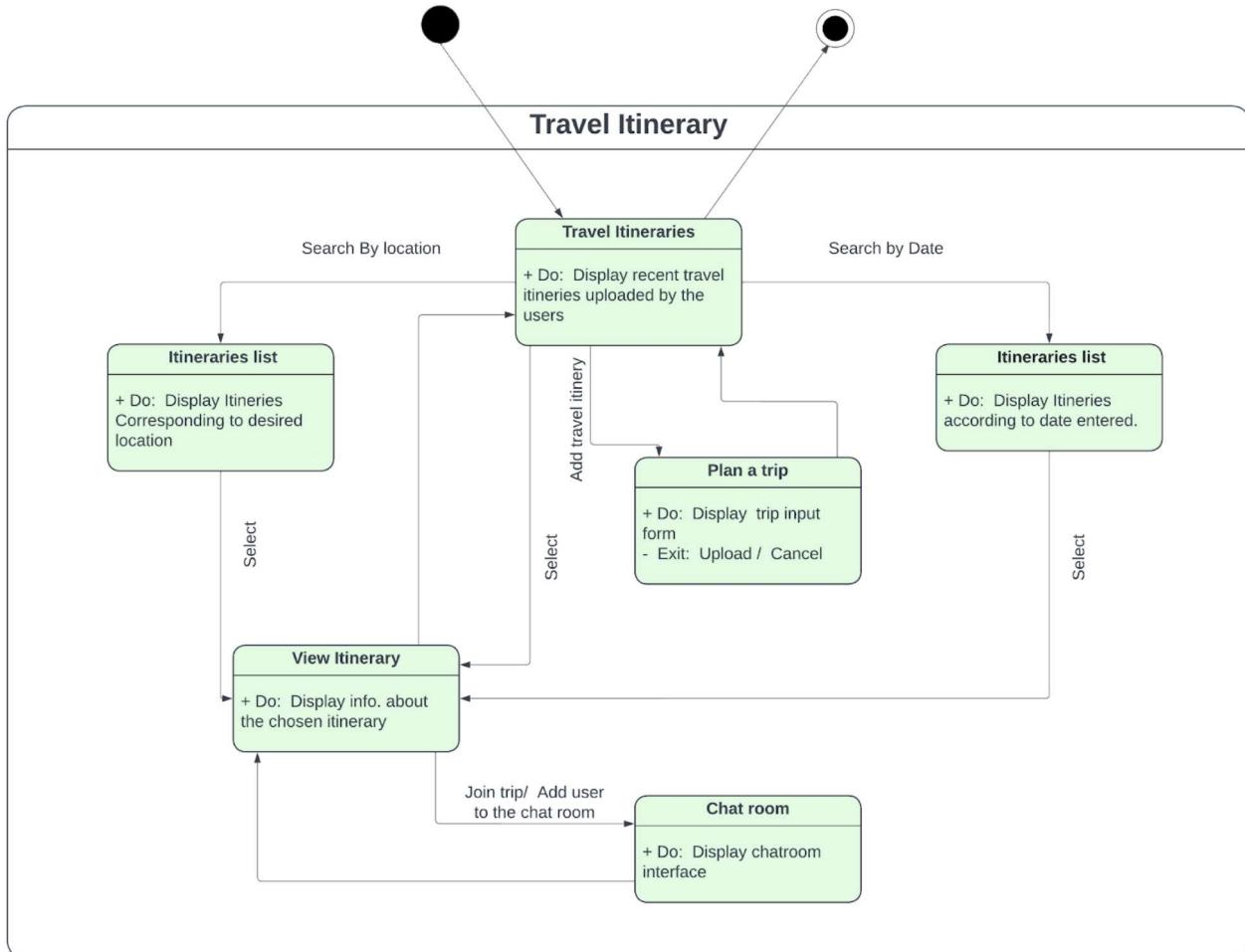
3.4.2 Registration



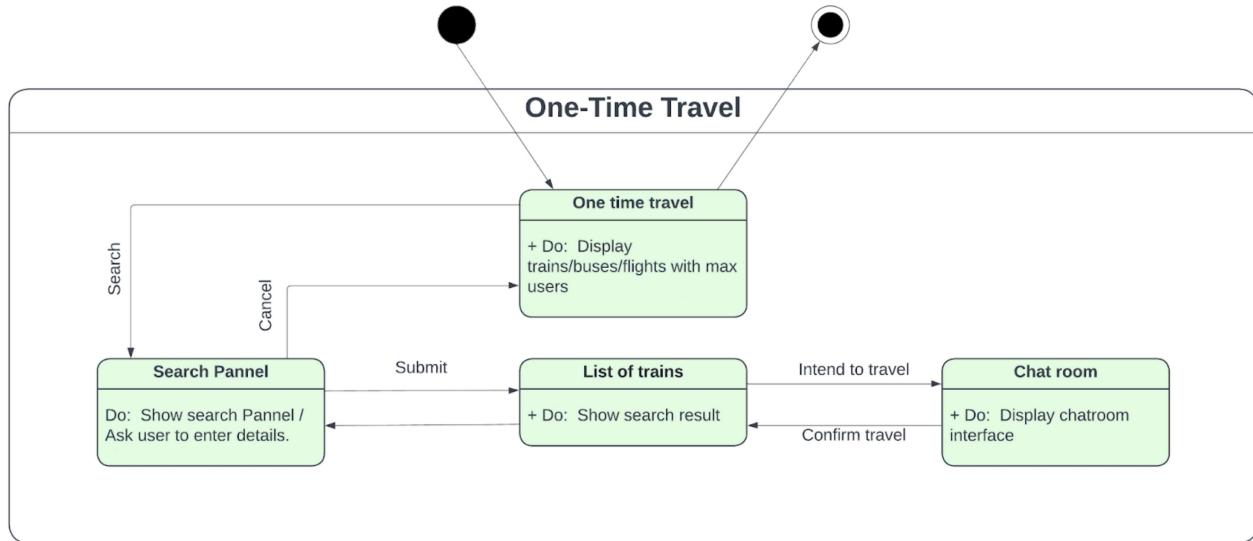
3.4.3 Forgot Password



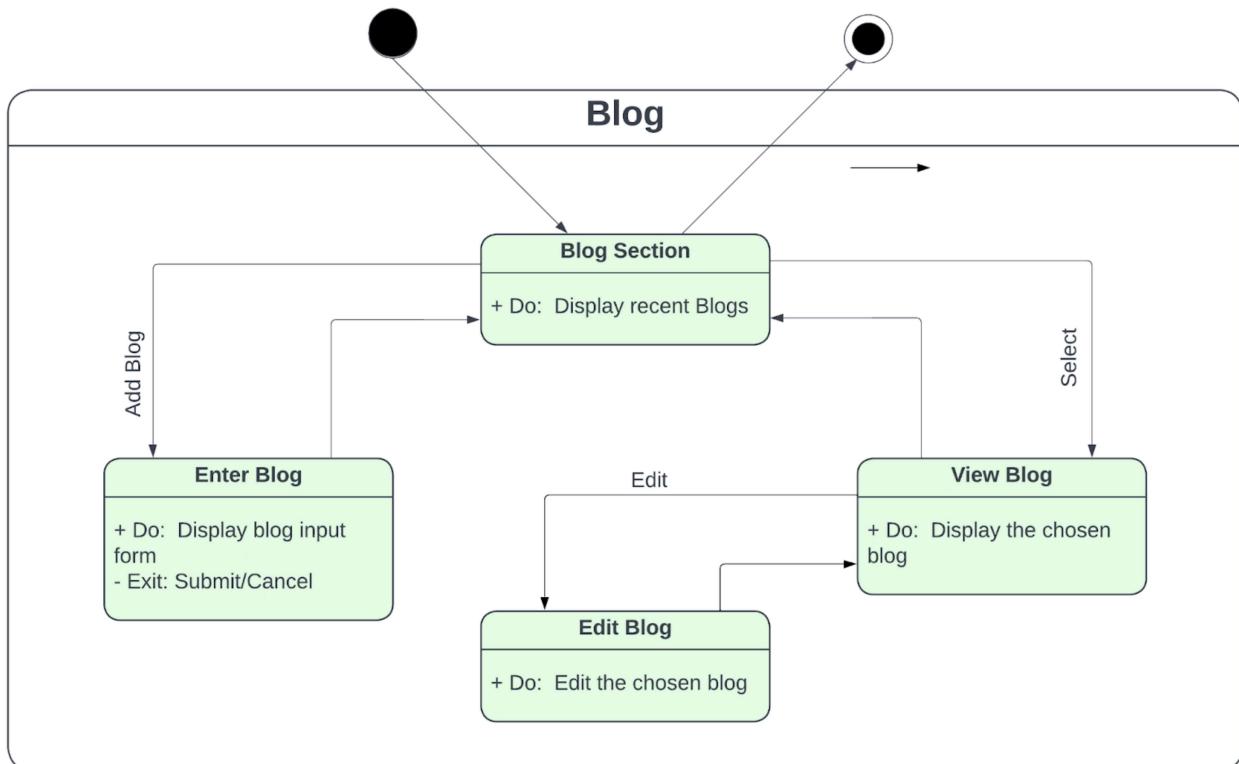
3.4.4 Travel Itineraries



3.4.5 One-Time Travel



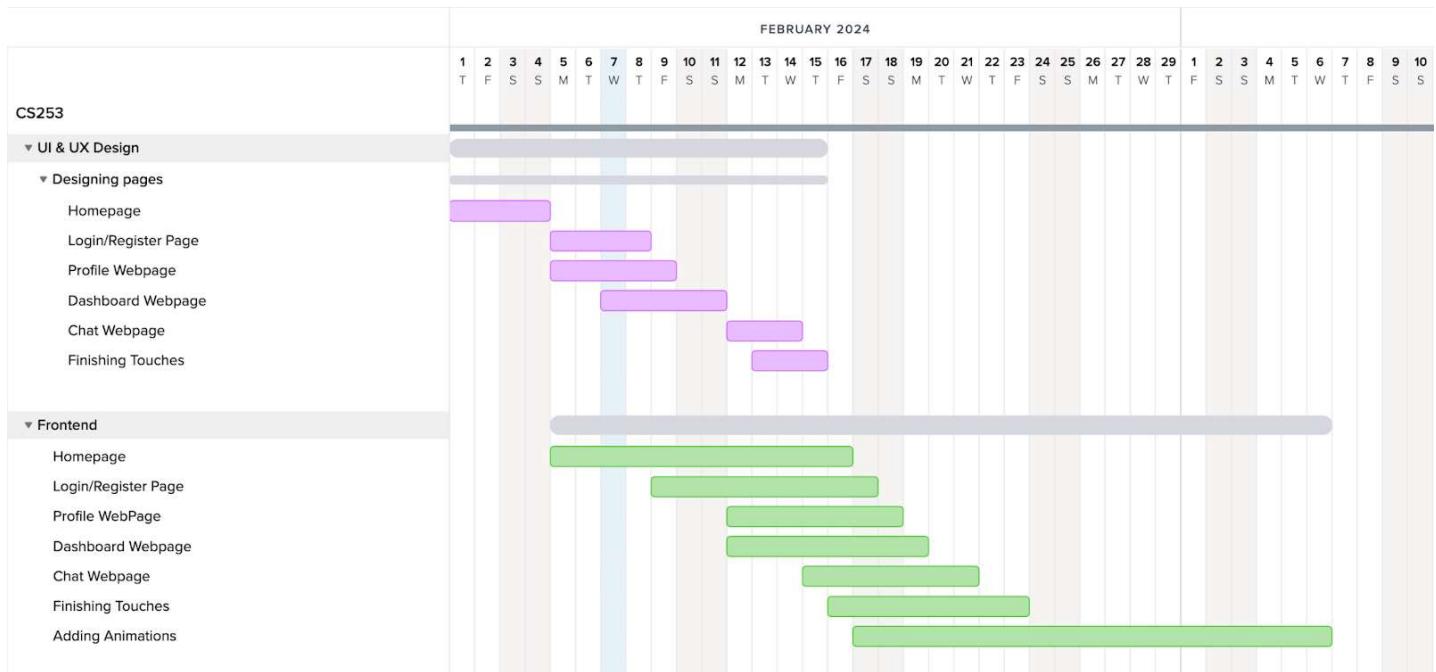
3.4.6 Blog



4 Project Plan

Project Planning :

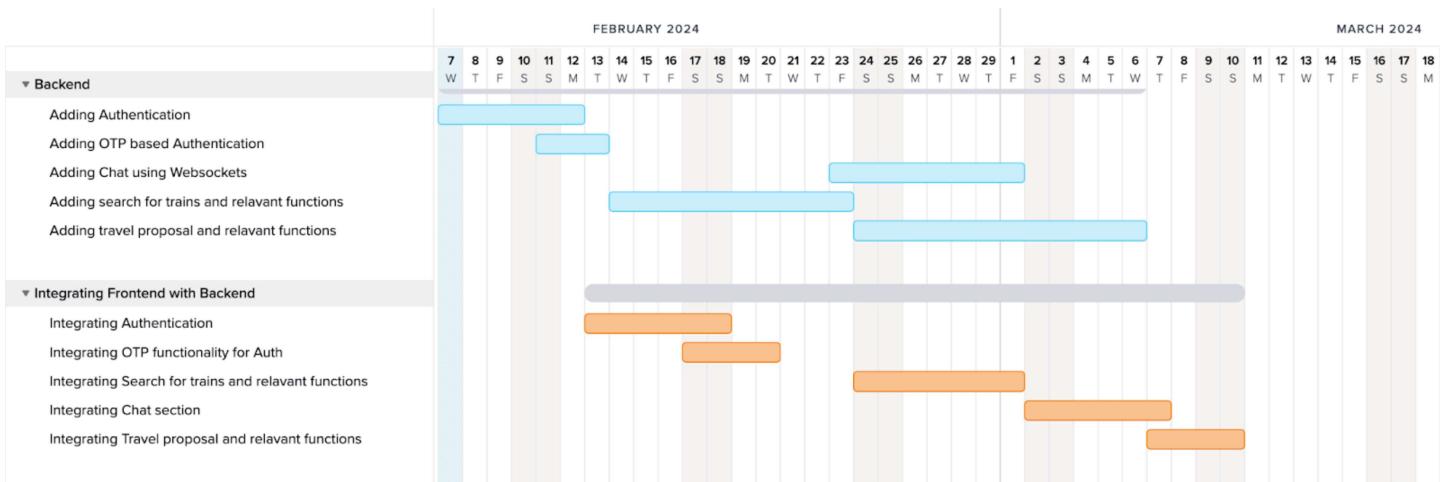
Entire document work has been shared among the team members for smooth workflow. Front-end side of the application is developed using React.js and the component work is distributed as



UI/UX Design: Kawaljeet, Sai Nikhil, Pankaj, Mohammed Anas are going to work on UI/UX design using tools like figma, plugins and some other tools.

Front end:

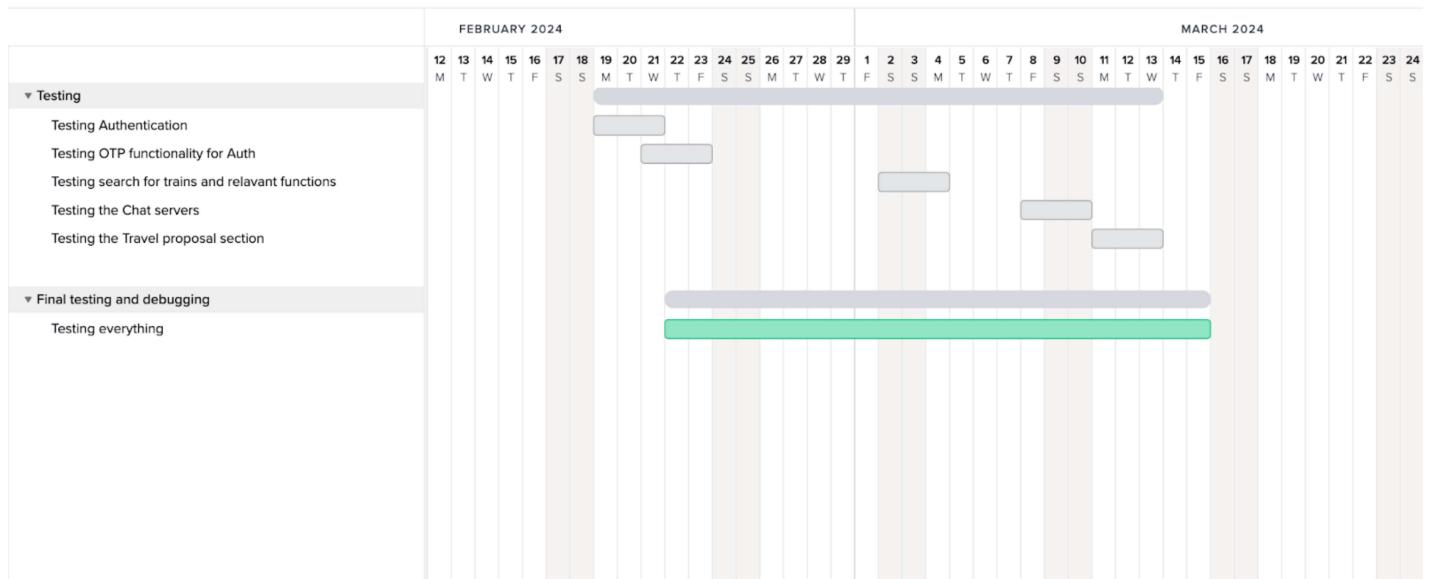
- Login/Register page : Daksh, Himanshu
- Homepage : Swayamsidh, Anya Rajan
- Profile Webpage : Sai Nikhil,
- Travel/Trips Webpage : Sai Nikhil, Daksh
- Dashboard Webpage : Anya Rajan, Pankaj
- Chat Webpage : Mohammed Anas



Backend development is done using Node.js and express.js server with various libraries like passport.js for authentication, nodemailer for sending OTPs etc. PostgreSQL is used for database management. The work has been distributed equally among the team as

Backend:

- Chat functionality using Websockets : Tousif
- Authentication and authorization : Pawan Chanukya
- Train search and relevant functions : Kavaljeet, Swayamsidh
- Trip planning and relevant functions : Pankaj, Himanshu



After completing the initial version of the software, there is a dedicated testing time to identify the bugs in the program and rectify them. During this time the software will be subjected to various corner cases and any errors observed will be rectified.

Appendix A - Group Log

SNo	Date	Agenda	Duration	Members Attended
1	28-01-2024	Divided the tasks among ourselves	60 min	10
2	30-01-2024	Prepared initial draft	90 min	10
3	02-02-2024	Discusses the changes to be made in the initial draft and started working on it	60 min	10
4	06-02-2024	Prepared the second draft without the use case diagrams	120 min	10
5	07-02-2024	Prepared use case diagrams	60 min	10
6	08-02-2024	Prepared the final draft of document	60 min	10
7	09-02-2024	Formatted the document	90 min	10