

**A  
Project Report  
On**

**Samaan  
BTech-IT, Sem VI**

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## **CANDIDATE'S DECLARATION**

We declare that 6<sup>th</sup> semester report entitled “Samaan” is our own work conducted under the supervision of the guide Prof. Kunal J Sahitya.

We further declare that to the best of our knowledge the report for B.Tech. VI semester does not contain part of the work which has been submitted either in this or any other university without proper citation.

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## **ABSTRACT**

The project Samaan is a peer-to-peer package delivery platform designed to connect individuals who wish to send packages with travellers (carriers) who have spare space in their vehicles. Unlike traditional courier services, Samaan offers a cost-effective, flexible, and user-friendly alternative by leveraging a community-driven logistics model. Developed using React.js for the frontend and Spring Boot for the backend, the platform incorporates real-time communication via WebSockets and stores data using MongoDB. The project follows Agile methodology to ensure iterative development, user feedback incorporation, and scalability. While the current implementation focuses on core delivery operations and communication, future enhancements such as live GPS tracking, AI-based trip matching, and multilingual support are proposed to further improve the user experience and reach. Samaan demonstrates the potential of decentralized logistics to reduce delivery costs and bridge gaps in existing package transport systems.

### **Key Features**

- Role-based authentication for senders and carriers
- Trip creation, search, and booking system
- Real-time chat using WebSockets
- Interactive dashboards for both user roles
- Secure data handling with JWT and MongoDB

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## **1. Introduction**

### **1.1 Project Details**

Samaan is a full-stack package delivery platform that facilitates seamless connections between senders and carriers. It enables users to schedule package deliveries, search for available trips, and engage in real-time chat with carriers. The platform ensures secure transactions and a streamlined process for booking and tracking deliveries.

### **1.2 Purpose**

The purpose of Samaan is to provide a digital solution for individuals and businesses looking to send packages conveniently. It aims to:

- Connect senders with carriers who have available space in their vehicles.
- Offer a cost-effective and efficient way to transport goods.
- Provide real-time chat and notifications for better coordination.
- Improve the logistics and delivery process for users.

### **1.3 Scope**

Samaan covers the following functionalities:

- User authentication (Sender and Carrier roles).
- Trip creation and search based on origin, destination, and date.
- Cost estimation for package delivery.
- One-on-one chat between sender and carrier.
- Real-time notifications for new messages.

Out of Scope:

- Direct payment integration (handled externally).
- Insurance or liability coverage for package safety.

## **1.4 Objective**

The objective of Samaan is to create a reliable and user-friendly package delivery platform that allows individuals to transport packages using available space in carriers' vehicles. It ensures:

- Transparency in trip availability.
- Secure communication between senders and carriers.
- Efficient trip management and tracking.

## **1.5 Technology and Literature Review**

Technology Stack:

- Frontend: React.js (for a dynamic and responsive user interface)
- Backend: Java Spring Boot (for handling business logic)
- Database: MongoDB (for efficient data storage and retrieval)
- WebSocket: Used for real-time chat communication
- Hosting: Render (Frontend), Render (Backend)

Literature Review:

Existing logistics solutions focus primarily on traditional courier services, which can be costly and inflexible. Samaan introduces a peer-to-peer delivery model, reducing costs and improving efficiency. Studies show that decentralized logistics models can significantly reduce delivery time and operational expenses.

## **2. Project Management**

### **2.1 Feasibility Study**

#### 2.1.1 Technical Feasibility

Samaan is technically feasible as it leverages modern web technologies like React.js, Spring Boot, and MongoDB. The architecture ensures scalability, performance, and security.

#### 2.1.2 Time Schedule Feasibility

An iterative agile approach is followed, ensuring incremental feature development:

- Phase 1: Requirement gathering & system design
- Phase 2: Backend & frontend development
- Phase 3: WebSocket integration for real-time chat
- Phase 4: Testing & deployment

#### 2.1.3 Operational Feasibility

The platform is user-friendly, requiring minimal training. Features like automated trip searches, real-time chat, and intuitive UI ensure smooth operation.

#### 2.1.4 Implementation Feasibility

Samaan can be deployed in phases, allowing initial testing with a limited user base before a full-scale rollout.

### **2.2 Project Planning**

#### 2.2.1 Project Development Approach

An Agile development methodology is followed, allowing continuous feedback and rapid iterations.

#### 2.2.2 Project Plan

- Week 1-2: Requirement analysis, UI/UX design
- Week 3-5: Backend and database setup
- Week 6-8: Frontend development and API integration
- Week 9-10: WebSocket-based chat implementation
- Week 11: Testing and bug fixes
- Week 12: Deployment and feedback

#### 2.2.3 Milestones and Deliverables

- Milestone 1: Completion of database setup and backend APIs
- Milestone 2: Frontend UI implementation
- Milestone 3: Integration of WebSocket chat
- Milestone 4: System testing and deployment

#### 2.2.4 Roles and Responsibilities

- Frontend Developer: UI development using React.js
- Backend Developer: API and database management with Spring Boot & MongoDB
- Tester: Ensures system functionality and bug fixing
- Project Manager: Coordinates task and ensures timely delivery

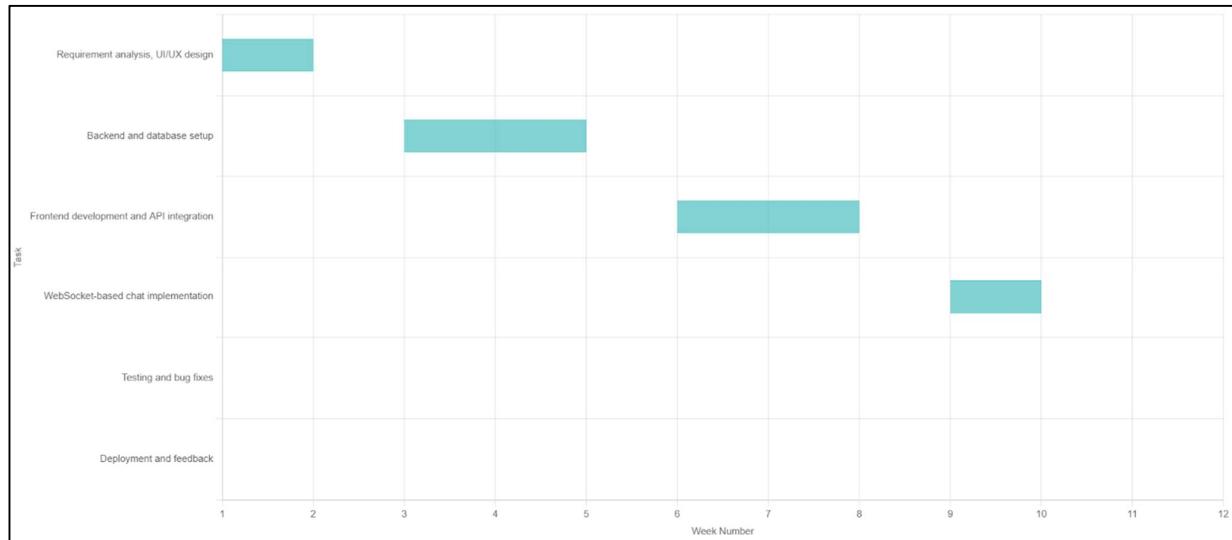
#### 2.2.5 Group Dependencies

The frontend and backend teams work in parallel, with dependencies on API development and database integration.

## 2.3 Project Scheduling

### Project Scheduling Chart :-

A Gantt chart is used to visualize project progress, ensuring efficient time management.



**Figure 2.1 Scheduling**

### **3. System Requirement Study**

#### **3.1 Study of Current System**

Traditional package delivery systems rely on dedicated logistics companies, leading to high costs and delays. Current courier services lack flexible and cost-effective peer-to-peer delivery options.

#### **3.2 Problems and Weaknesses of System**

- High shipping costs for small deliveries.
- Inefficiency in utilizing available transport space.
- Lack of direct communication between senders and carriers.

#### **3.3 User Characteristics**

- Senders: Individuals or businesses looking to transport packages.
- Carriers: Vehicle owners willing to carry extra packages.
- Admins: Manage user registrations and monitor activity.

#### **3.4 Hardware and Software Requirements**

Hardware:

- Processor: Intel Core i3 or higher
- RAM: 4GB minimum
- Storage: 50GB free space

Software:

- Backend: Java Spring Boot
- Frontend: React.js
- Database: MongoDB
- Server: Render (backend hosting), Render (frontend hosting)

## **3.5 Constraints**

### 3.5.1 Regulatory Policies

- Compliance with privacy regulations (e.g., GDPR).
- Ensuring user data protection.

### 3.5.2 Hardware Limitations

- The platform is optimized for standard consumer devices.

### 3.5.3 Interfaces to Other Applications

- Integration with third-party authentication services (Google Login).
- Potential API connections for payment processing (future scope).

### 3.5.4 Parallel Operations

- Multiple users should be able to interact with the system concurrently.

### 3.5.5 Higher Order Language Requirements

- Developed using Java Spring Boot and React.js.

### 3.5.6 Reliability Requirements

- 99.9% uptime with backup mechanisms.

### 3.5.7 Safety and Security Considerations

- End-to-end encryption for chat data.
- Secure storage of user credentials.

### **3.6 Assumptions and Dependencies**

- Users will provide accurate information.
- The system will evolve based on feedback.
- Reliable internet connectivity is assumed.

## **4. System Analysis**

### **4.1 Requirements of New System (SRS)**

The new system, Samaan, is designed to facilitate seamless package delivery by connecting senders with carriers. It enables senders to find suitable carriers for their packages while ensuring real-time communication and efficient trip management.

#### **4.1.1 User Requirements**

- Senders should be able to register, search for available trips, and book a carrier for their package.
- Carriers should be able to register, list their trips with available capacity, and manage sender requests.
- The platform should provide a user-friendly interface with intuitive navigation.
- Senders and carriers should have a real-time chat feature to communicate about deliveries.

#### **4.1.2 System Requirements**

##### **Functional Requirements**

- User Authentication: Senders and carriers must log in to access the system.
- Trip Creation and Search:
  - Carriers can create trips by specifying source, destination, date, and available space.
  - Senders can search for trips matching their delivery needs.
- Real-Time Chat: Secure chat functionality for senders and carriers.

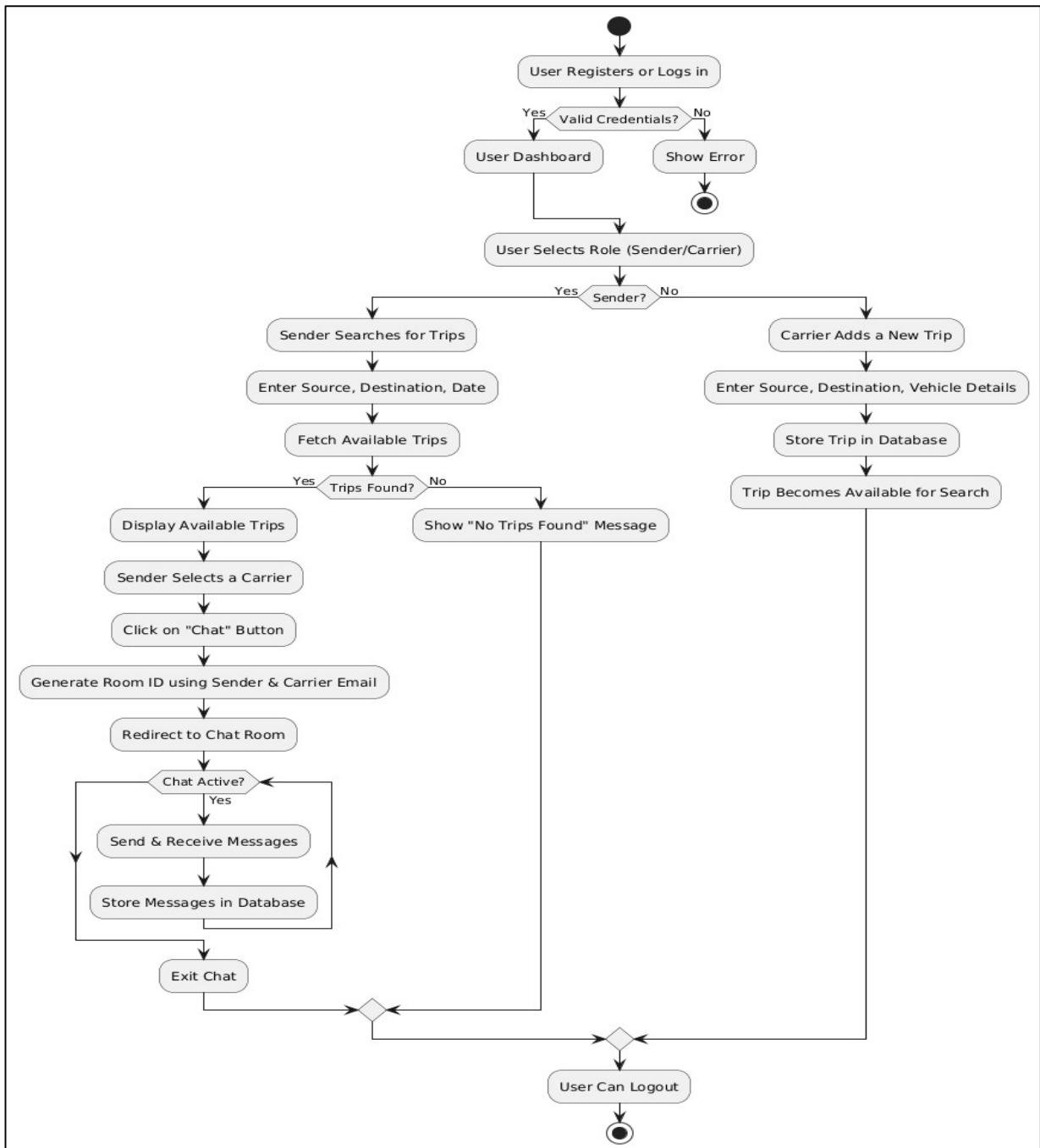
##### **Non-Functional Requirements**

- Security: The system must encrypt user data and messages.
- Scalability: Should support an increasing number of users and deliveries.
- Performance: Messages and trip data should be retrieved in real-time with minimal delays.
- Cross-Platform Accessibility: The system should work efficiently on both mobile and desktop devices.

## **4.2 Features of the New System**

- User Registration and Authentication: Secure signup and login for senders and carriers.
- Trip Posting and Search:
  - Carriers can add trips, specifying their available space.
  - Senders can browse trips that match their package delivery requirements.
- Package Booking System: Senders can request a trip, and carriers can approve or decline requests.
- Real-Time Chat System: Facilitates smooth communication between senders and carriers for better coordination.
- Profile Management: Users can update their personal details and trip preferences.

### 4.3 Navigation Chart



**Figure 4.1 Navigation Chart**

## 4.4 Class Diagram

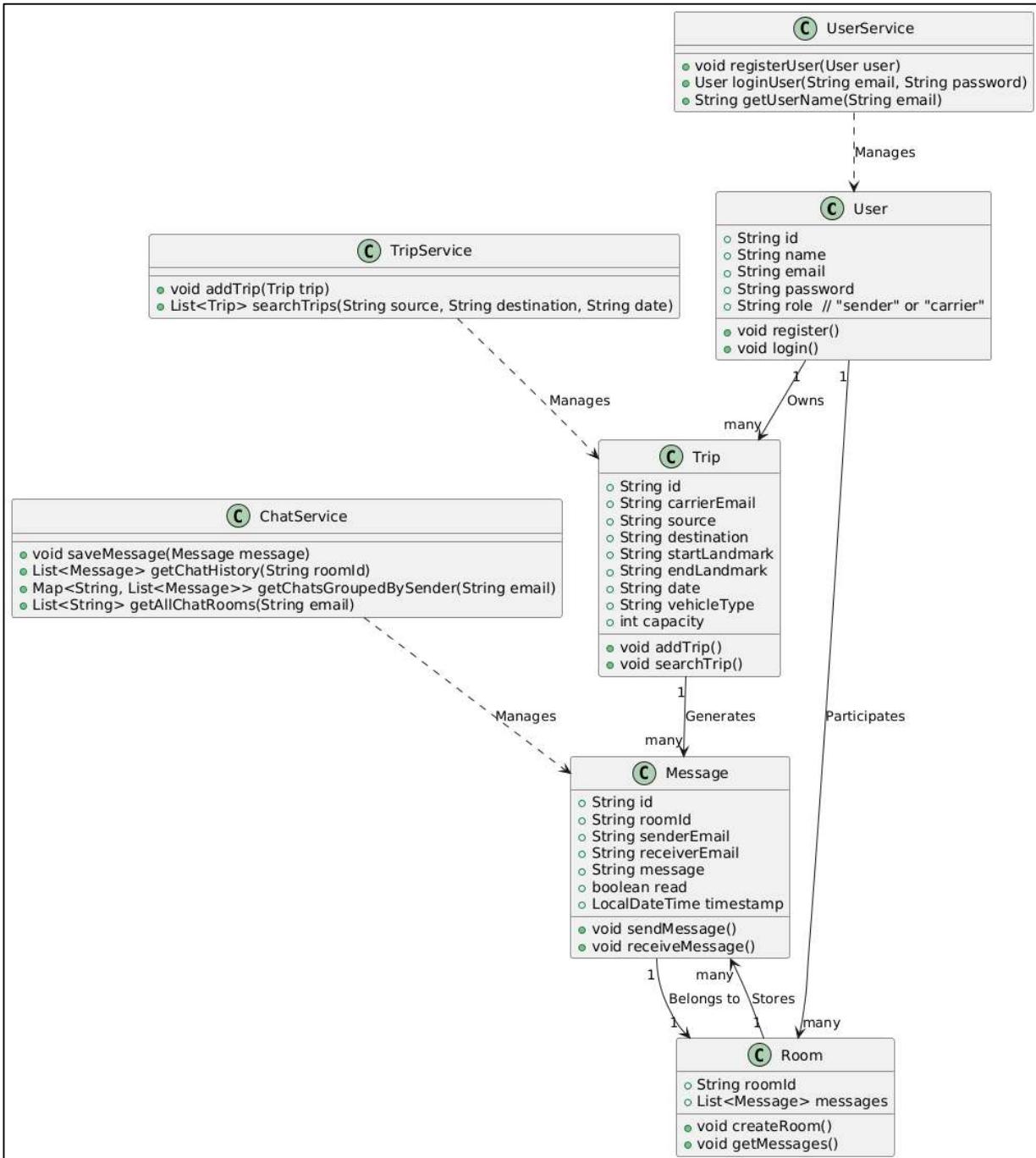


Figure 4.2 Class Diagram

## 4.5 Use Case Diagram

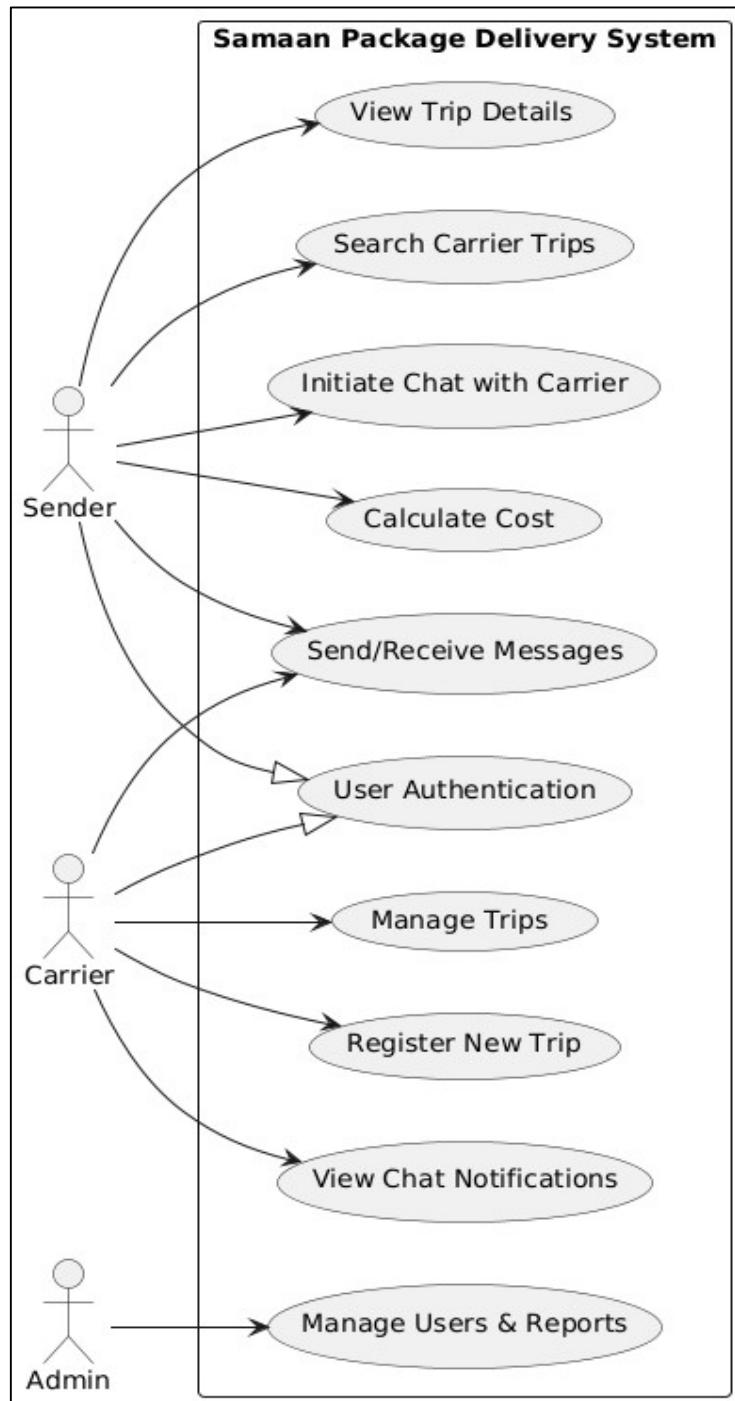


Figure 4.3 Use Case Diagram

## 4.6 Sequence Diagram

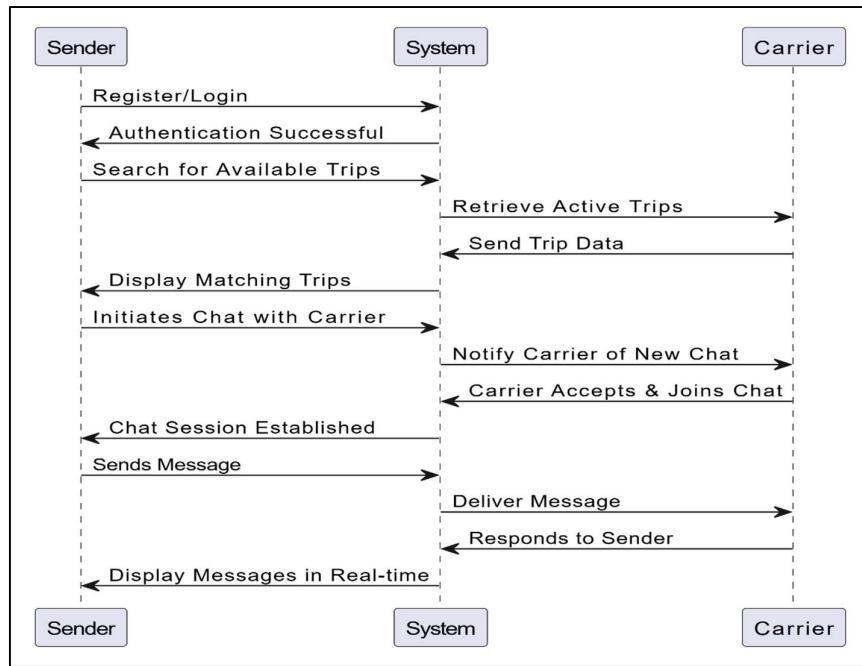


Figure 4.4.1 Sequence Diagram (Add new Trip)

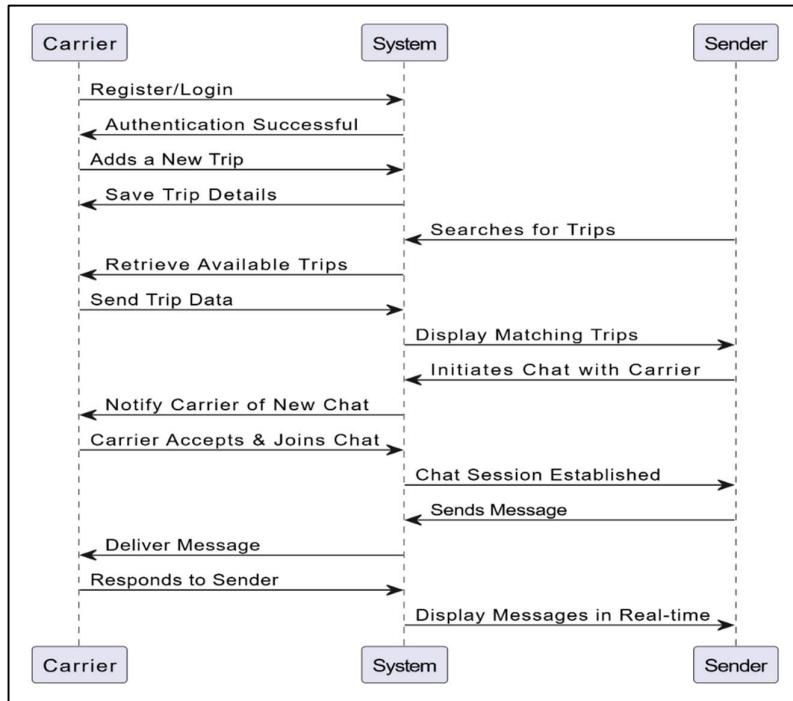


Figure 4.4.2 Sequence Diagram (Chat)

## **5. System Design**

### **5.0 System Architecture Design**

#### **Overview of System Design and Architecture**

Samaan follows the Model-View-Controller (MVC) architecture to ensure modularity, maintainability, and scalability. The system is a full-stack web application developed using React.js (Frontend) and Spring Boot (Backend) with MongoDB as the database. It also utilizes WebSockets for real-time chat functionality between senders and carriers.

#### **Architecture Breakdown**

- Frontend (View Layer): Developed using React.js, providing an interactive UI and seamless user experience.
- Backend (Controller Layer): Built using Spring Boot, handling authentication, data processing, business logic, and real-time chat functionality.
- Database (Model Layer): Uses MongoDB, ensuring flexible and scalable data storage for user data, trips, and chat history.
- WebSockets: Enables real-time chat between senders and carriers using STOMP over WebSockets.

#### **Key Features of System Architecture**

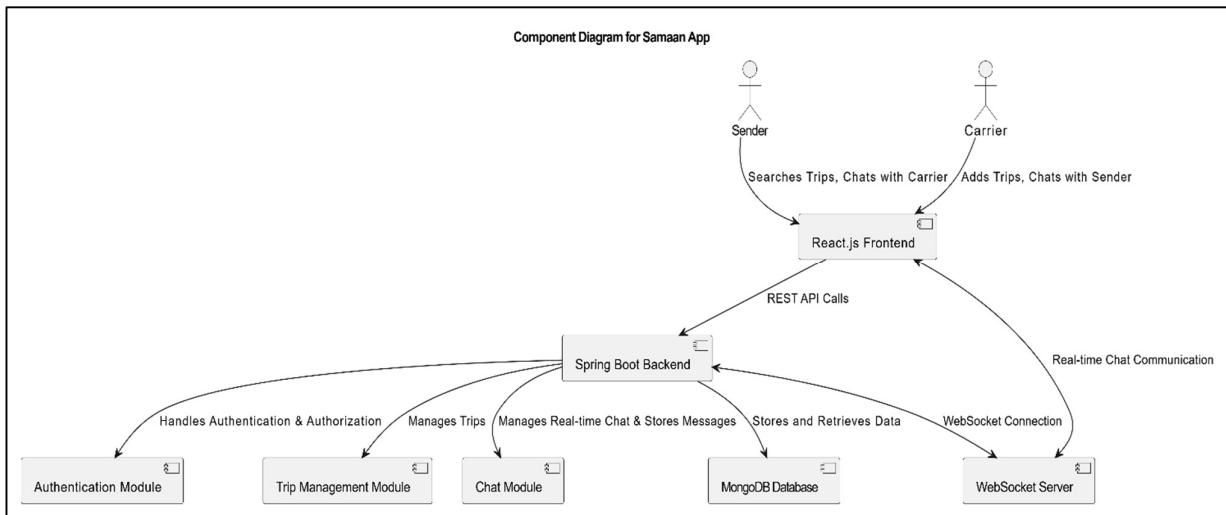
1. Separation of Concerns: The MVC architecture ensures a clear distinction between frontend, backend, and database.
2. Real-Time Communication: Uses WebSockets for instant chat messaging between senders and carriers.
3. Scalability: The backend supports RESTful APIs, allowing seamless future expansions such as mobile app integration.
4. Security: Implements JWT-based authentication to secure user sessions.
5. Performance Optimization: Utilizes caching mechanisms and asynchronous processing to improve system efficiency.
6. Reliability: Spring Boot ensures robust error handling and logging mechanisms for debugging and troubleshooting.

## 5.1 Component Diagram

### Explanation of Components

The Component Diagram represents the logical structure of the system and how different modules interact in Samaan. It consists of:

- Authentication Module: Manages user registration, login, and authentication.
- Trip Management Module: Allows carriers to add, modify, and remove trips while allowing senders to search for trips.
- Chat Module: Enables real-time chat between senders and carriers using WebSockets.
- Notification Module: Sends chat notifications to carriers when a sender initiates a conversation.
- Database Module: Stores user data, trips, chat history, and notifications in MongoDB.



**Figure 5.1 Component Diagram**

### Component Interaction Flow

1. The Frontend interacts with the Backend via REST APIs for authentication, trip search, and chat history retrieval.
2. The Backend processes requests and interacts with different modules.
3. The Chat Module uses WebSockets for real-time messaging.
4. The Database Module stores all data including user information, trips, chat logs, and notifications.

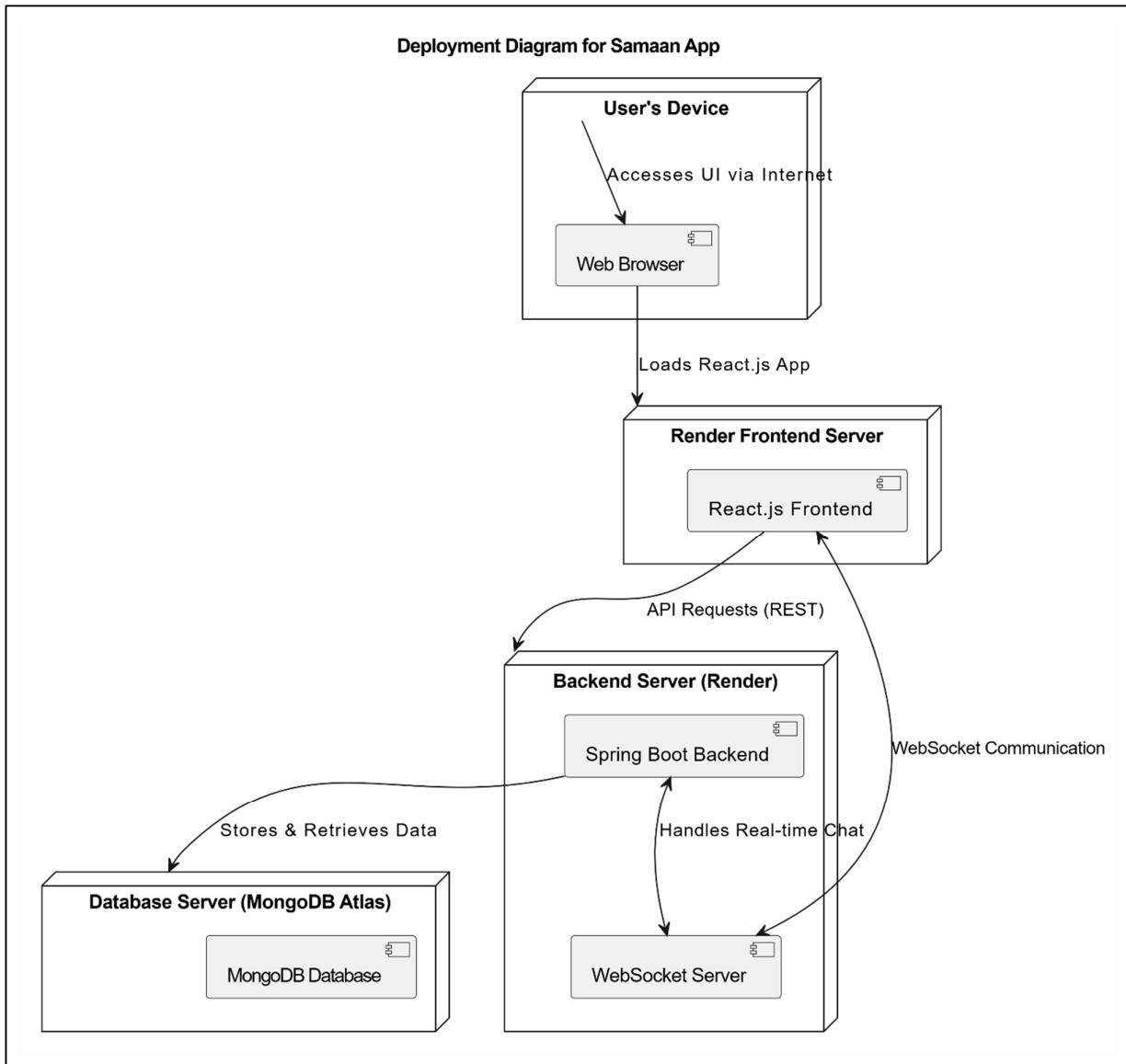
## 5.2 Deployment Diagram

### Deployment Diagram Explanation

The Deployment Diagram illustrates how the software is deployed on cloud infrastructure, ensuring scalability and high availability.

### Deployment Breakdown

1. Client (User's Device):
  - Users (Senders & Carriers) access the platform via web browsers.
  - The React.js UI is hosted on Render for easy deployment and performance optimization.
2. Application Server (Backend Server):
  - The Spring Boot backend is hosted on Render, handling API requests, authentication, and business logic.
  - WebSocket connections manage real-time messaging between senders and carriers.
3. Database Server:
  - MongoDB Atlas is used as the database service to store:
    - User information (Senders, Carriers).
    - Trip details (source, destination, date).
    - Chat history (message logs, timestamps).
  - Data is accessed via Spring Data MongoDB for efficient database interactions.



**Figure 5.2 Deployment Diagram**

#### Deployment Flow

1. Users access the platform via a web browser.
2. The React.js frontend is hosted on Render and communicates with the backend via REST APIs.
3. The Spring Boot backend on Render handles authentication, trip management, and chat operations.
4. The MongoDB database stores all critical application data, including trips and chat messages.
5. WebSockets handle real-time chat communication between senders and carriers.

## **6.0 Implementation Planning**

This section outlines the implementation strategy for the **Samaan** platform, covering environment setup, module specifications, and coding standards to ensure maintainability, scalability, and efficiency.

### **6.1 Implementation Environment**

The implementation environment defines the system setup required for deployment and execution. **Samaan** is developed as a **multi-user, web-based application** with a **GUI**.

**Table 6.1 Environment Considerations**

Aspect	Implementation Details
System Type	Multi-user
Interface	GUI (Web-based)
Backend	Java Spring Boot (REST API, WebSocket)
Frontend	React.js
Database	MongoDB Atlas
Hosting	Cloud-based (Frontend on Render, Backend on Render, Database on MongoDB Atlas)
Security	User authentication with JWT, Secure WebSockets

#### Why Multi-User GUI?

- Web-based GUI provides accessibility from any device.
- Multi-user system allows senders and carriers to interact concurrently.
- Spring Boot + React ensures scalability and a modern user experience.

## 6.2 Program/Modules Specification

The platform consists of various modules handling different functionalities. Below is an overview of the core modules and their responsibilities.

**Table 6.2 Core Modules**

Module Name	Description	Technologies Used
User Authentication	Manages user login, registration, and authentication (senders & carriers).	Spring Security
Trip Management	Allows carriers to create, update, and delete trips.	Java Spring Boot, MongoDB
Trip Search	Enables senders to search for trips based on source, destination, and date.	React.js, Axios
Chat System	Provides real-time chat between senders and carriers.	WebSockets, MongoDB
Notification System	Sends notifications when a new chat is initiated.	WebSockets
User Dashboard	Provides a personalized dashboard for senders and carriers.	React.js, Redux
Data Security	Ensures encrypted user credentials and secure API calls.	Spring Security

### Module Interaction Flow

1. User registers/logs in → Authentication.
2. Carrier creates a trip → Data is stored in **MongoDB Atlas** via **Spring Boot**.
3. Senders search for trips → Query results are displayed based on source, destination, and date.
4. Sender clicks "Chat" → A chat room is automatically created using the sender's and carrier's email.
5. Carrier gets a notification → WebSocket-based real-time notification.
6. Users exchange messages → Chat messages are stored in MongoDB and delivered via WebSockets.

## 6.3 Coding Standards

Following coding standards ensures **readability, maintainability, and security**.

Backend (Spring Boot - Java) Coding Standards

- Follow Java naming conventions:
  - Classes → PascalCase (e.g., TripService)
  - Variables & Methods → camelCase (e.g., getTripDetails())
  - Constants → UPPER\_CASE\_SNAKE\_CASE (e.g., MAX\_RETRIES)
- Use RESTful API principles:
  - GET /trips/search → Retrieve available trips.
  - POST /trips/add → Create a new trip.
  - PUT /trips/{id} → Update trip details.
  - DELETE /trips/{id} → Delete a trip.
- Spring Boot Best Practices:
  - Use Service Layer to separate business logic from controllers.
  - Implement DTOs (Data Transfer Objects) for API responses.
  - Use JPA/Hibernate for structured database operations.

Frontend (React.js - JavaScript) Coding Standards

- Follow JavaScript naming conventions:
  - Components → PascalCase (e.g., ChatWindow.js)
  - Functions & variables → camelCase (e.g., fetchTripData())
- React Best Practices:
  - Use Functional Components with React Hooks (useState, useEffect).
  - Implement Redux for state management.
  - Use Axios for API calls.

Database Standards (MongoDB + Spring Boot)

- Use document-based schema design for flexibility.
- Use indexes on frequently queried fields (email, tripId) for performance optimization.
- Use a consistent naming convention for collections:
  - users → Stores user details (senders & carriers).
  - trips → Stores trip details.

- messages → Stores chat messages.
- rooms → Stores chat room details.

### Security Standards

- Implement CORS to prevent unauthorized access.
- Use HTTPS for API communication.

### Version Control & Documentation

- GitHub for version control.
- Code reviews before merging new features.
- JSDoc and JavaDocs for function and class documentation.

### Summary of Implementation Plan

- Frontend: React.js, hosted on Render.
- Backend: Spring Boot, hosted on Render.
- Database: MongoDB Atlas for cloud storage.
- Real-time Chat: WebSockets for instant messaging between senders and carriers.
- Security: secure REST APIs.

## **7.0 Testing**

Testing ensures the reliability, security, and performance of Samaan before deployment. This section outlines the testing plan, strategy, methods, and test cases to validate the system.

### **7.1 Testing Plan**

The testing plan defines the scope, objectives, schedule, and responsibilities of testing.

#### Objectives

- Ensure all functionalities work as expected.
- Identify and fix bugs, vulnerabilities, and performance issues.
- Validate user interactions, database integrity, and API responses.
- Ensure cross-browser compatibility for a seamless experience.

#### Testing Scope

- Unit Testing (*Individual modules such as chat, trip search, and user authentication*).
- Integration Testing (*Interaction between chat, trip booking, and database operations*).
- System Testing (*Validates the entire package delivery and chat system*).
- User Acceptance Testing (UAT) (*Final validation by senders and carriers*).

**Table 7.1:- Responsibilities**

<b>Role</b>	<b>Responsibility</b>
Developers	Perform unit testing, fix bugs, and write test cases.
QA Testers	Conduct integration, system, and UAT testing.
End Users (Senders & Carriers)	Perform UAT and provide feedback.

## 7.2 Testing Strategy

The testing strategy defines how different testing phases will be executed.

Types of Testing Used

### 1. Unit Testing

- Tests individual methods, functions, and API endpoints.
- Tools Used: JUnit (Java), Jest (React.js).

### 2. Integration Testing

- Tests how different modules interact (*e.g., sender chatting with the carrier*).
- Tools Used: Postman, Spring Test Framework.

### 3. System Testing

- Validates the entire Samaan system.

Includes:

- Functional Testing – Ensures trip search, chat, and booking work correctly.
- Performance Testing – Measures speed, scalability, and concurrent usage handling.
- Security Testing – Tests authentication, role-based access, and chat security.

### 4. User Acceptance Testing (UAT)

- Conducted by senders and carriers before launch.
- Ensures real-world usability and feedback implementation.

## 7.3 Testing Methods

**Table 7.2 Testing Methods**

Testing Method	Description	Example
Black Box Testing	Tests without knowing the internal code.	Checking if senders can search for carriers and start a chat.
White Box Testing	Tests with internal code knowledge.	Verifying database queries for trip search.
Manual Testing	Testers manually execute test cases.	Checking UI responsiveness of the chat feature.
Automated Testing	Scripts run tests automatically.	Running API tests for chat and trip booking using Postman.

## 7.4 Test Cases

### 7.4.1 Purpose

Each test case ensures a specific feature functions correctly.

### 7.4.2 Required Input

Inputs include user actions, API calls, and database queries.

### 7.4.3 Expected Result

Defines the expected system behaviour for each input.

### Sample Test Cases

#### 1. User Registration Test

**Table 7.3 Registration Test**

Test Case ID	TC-001
Feature	User Registration
Input	New user enters valid details
Expected Output	User successfully registered & redirected to the dashboard
Actual Output	Pass
Status	Pass / Fail

#### 2. Sender Searching for a Trip

**Table 7.4 Search Testing**

Test Case ID	TC-002
Feature	Search for carrier trips
Input	Sender enters source, destination, and date
Expected Output	List of available carriers is displayed
Actual Output	Pass
Status	Pass / Fail

### 3. Chat Initialization & Message Sending

**Table 7.5 Chat Testing**

Test Case ID	TC-003
Feature	Real-time chat between sender and carrier
Input	Sender clicks on "Chat" with a carrier
Expected Output	Chat room is created, messages are sent and received
Actual Output	Pass
Status	Pass / Fail

### 4. Authentication Security Test

**Table 7.6 Authentication Testing**

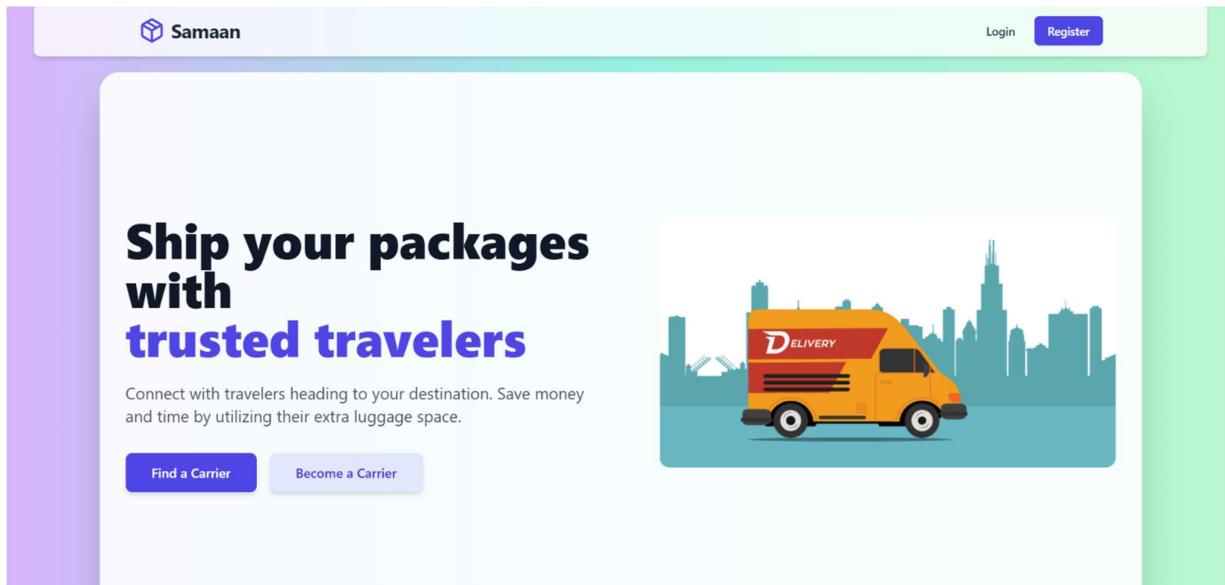
Test Case ID	TC-004
Feature	Unauthorized login attempt
Input	User enters incorrect password 5 times
Expected Output	Account is not allowed to be accessed
Actual Output	Pass
Status	Pass

### Summary of Testing Plan

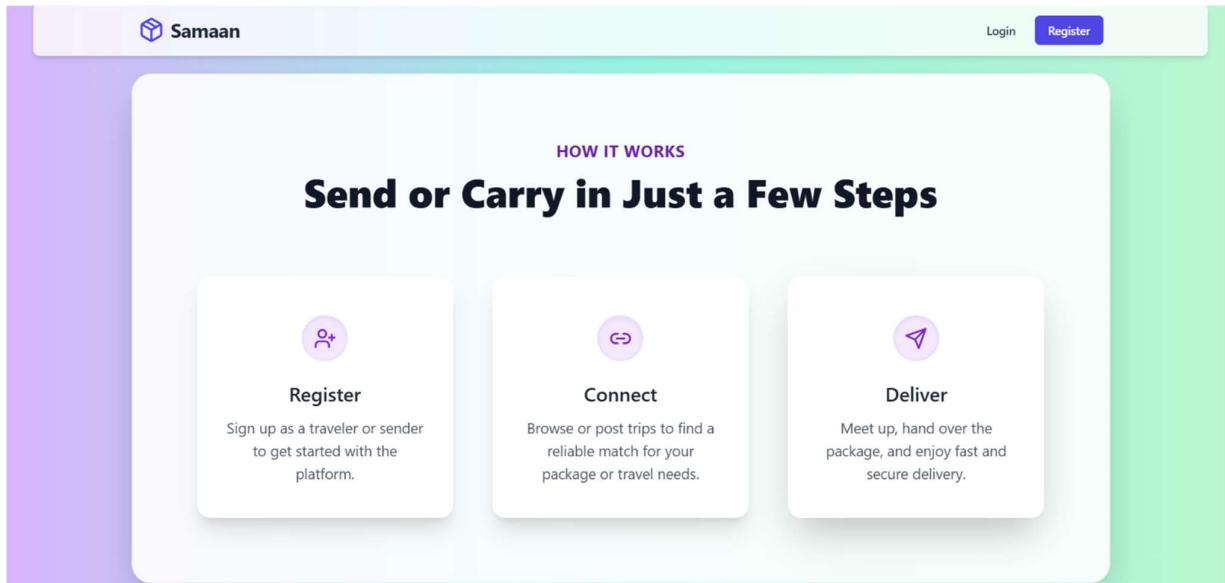
- Unit Testing ensures all components function correctly.
- Integration Testing ensures modules interact properly.
- System Testing validates real-world conditions.
- User Acceptance Testing (UAT) ensures Samaan meets user needs.

## **8.0 User Manual**

### **8.1 Home Page**



**Figure 8.1.0 Home (1)**

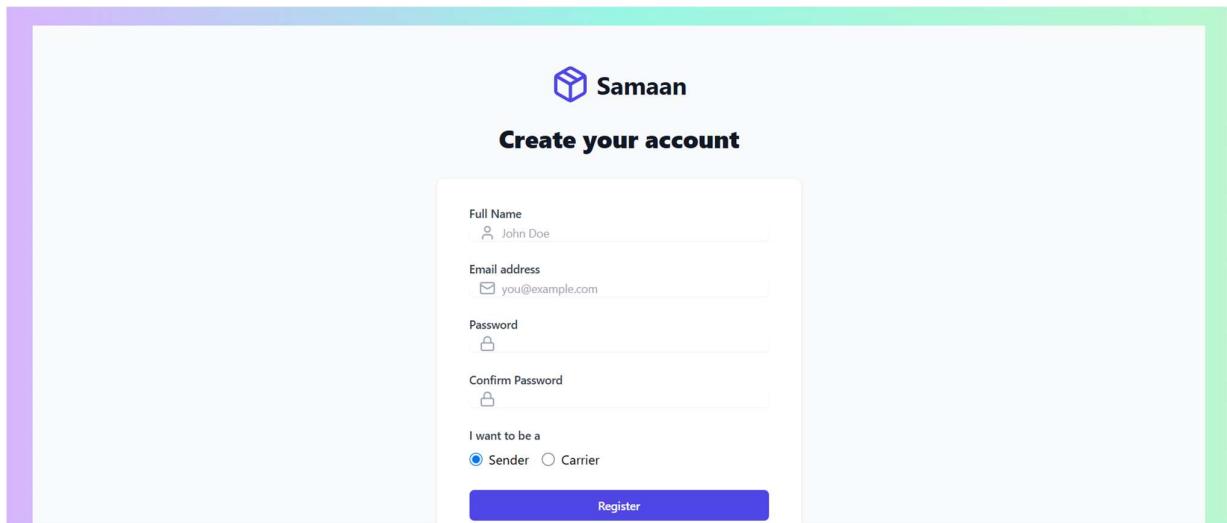


**Figure 8.1.1 Home (2)**

## Description

The homepage of the Samaan application provides users with a clear entry point to the platform. It offers two primary options: "Find a Carrier" for senders looking to ship packages, and "Become a Carrier" for users willing to transport packages. The design emphasizes secure and cost-effective delivery through trusted travellers.

## 8.2 Register Page

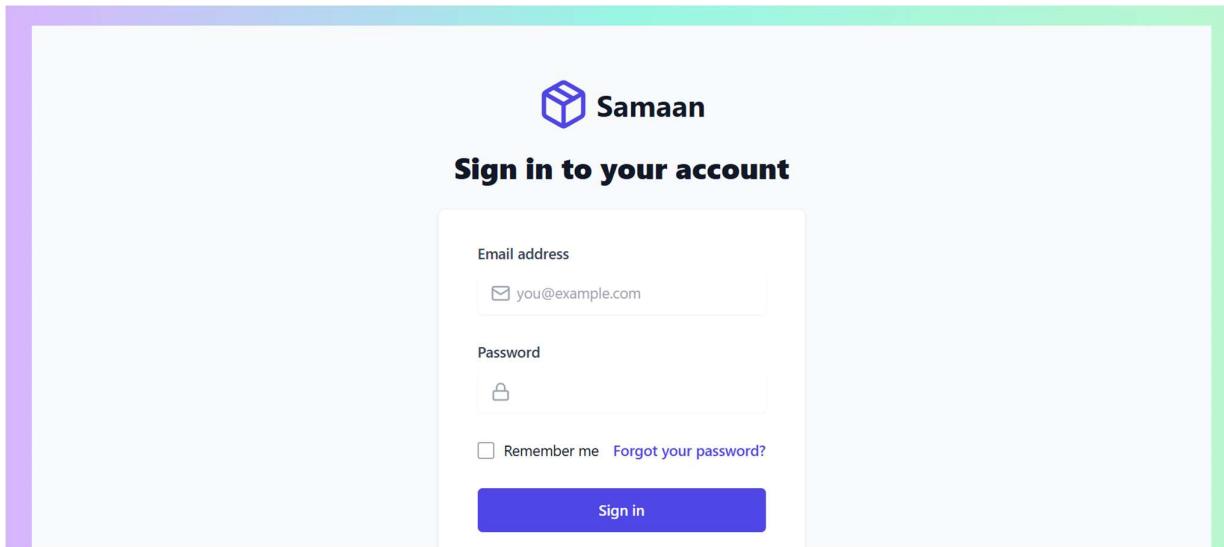


**Figure 8.2 Register**

## Description

The Register Page allows users to create an account by entering their details and clicking the “Register” button to submit the information.

### 8.3 Login Page



**Figure 8.3 Login**

#### Description

The login page allows users to securely access their accounts by entering their registered email and password. After login, users are redirected based on their role (Sender or Carrier) associated with the registered email. After login as sender users are redirected to search carrier page and after login as carrier users are redirected to carrier dashboard page.

## 8.4 Carrier Dashboard page

The dashboard features a header with the Samaan logo and user Preet Brahmbhatt. Below are four summary cards: Total Destinations (2), Upcoming Trips (3), Completed Trips (2), and Pending Trips (4). A table titled 'Your Trips' lists six entries with columns for ID, SOURCE, DESTINATION, DATE, CAPACITY, and STATUS. Actions like 'Mark as Completed' and 'Request Cancel' are available for each trip.

ID	SOURCE	DESTINATION	DATE	CAPACITY	STATUS	ACTIONS
1	Nadiad	Jamnagar	2025-04-08	5	Already Completed!!	
2	Jamnagar	Nadiad	2025-04-11	5	Already Completed!!	
3	Anand	Jamnagar	2025-04-12	5	Cancelled	
4	Jamnagar	Rajkot	2025-04-14	5	No sender selected yet	
5	Ahmedabad	Rajkot	2025-04-16	5	Trip not started yet	
6	Rajkot	Ahmedabad	2025-04-14	5		<button>Mark as Completed</button> <button>Request Cancel</button>

**Figure 8.4.0 Carrier Dashboard**

### Description

This dashboard provides a comprehensive overview of all the trips managed by the carrier. The page displays key statistics at the top in the form of informative cards:

- Total Destinations: Number of unique destination cities covered.
- Upcoming Trips: Number of trips scheduled for future dates.
- Completed Trips: Number of trips that have already been completed.
- Pending Trips: Number of trips yet to be completed or confirmed.

### Your Trips Table

Below the summary cards, a detailed table lists all the trips created by the carrier. Each row in the table shows:

- ID: Trip identification number.
- Source & Destination: Start and end cities of the trip.
- Date: Scheduled date of the trip.
- Capacity: Available package capacity for that trip.
- Status: Current status of the trip. Statuses include:

- Already Completed!! – trip is finished.
- Cancelled – trip was cancelled.
- No sender selected yet – no sender has chosen this trip.
- Trip not started yet – trip is scheduled for a future date.
- Actions: Based on the status and date, the carrier can take specific actions like marking a trip as completed or to request cancellation.
- Chats Button: Allows the carrier to view and respond to chat messages from senders.
- Add New Trip Button: Redirects to a form where the carrier can create and publish a new trip.

## 8.5 Add New Trip Page

The screenshot shows the 'Add New Trip' interface on the Samaan platform. At the top, there's a header with the Samaan logo and a user profile for Preet Brahmhatt. The main form is titled 'Add New Trip' and contains the following fields:

Email	Carrier Name
pr@gmail.com	Preet Brahmhatt
Source	Destination
Anand	Ahmedabad
Start Landmark	End Landmark
sanket chowkdi	palladium mall
Vehicle Type	Capacity (in kg)
car	10
Date	
16-04-2025	<input type="button" value=""/>

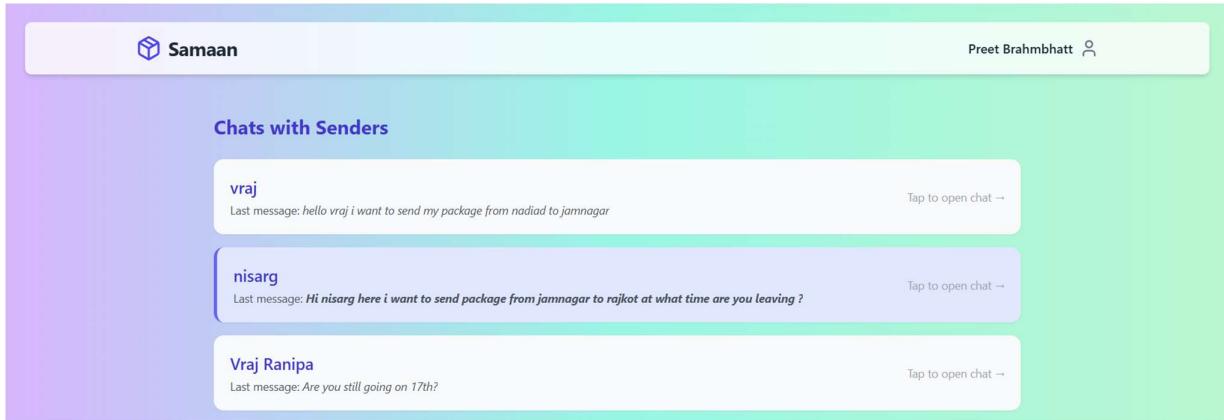
At the bottom right of the form is a blue 'Submit' button.

Figure 8.5 Add New Trip

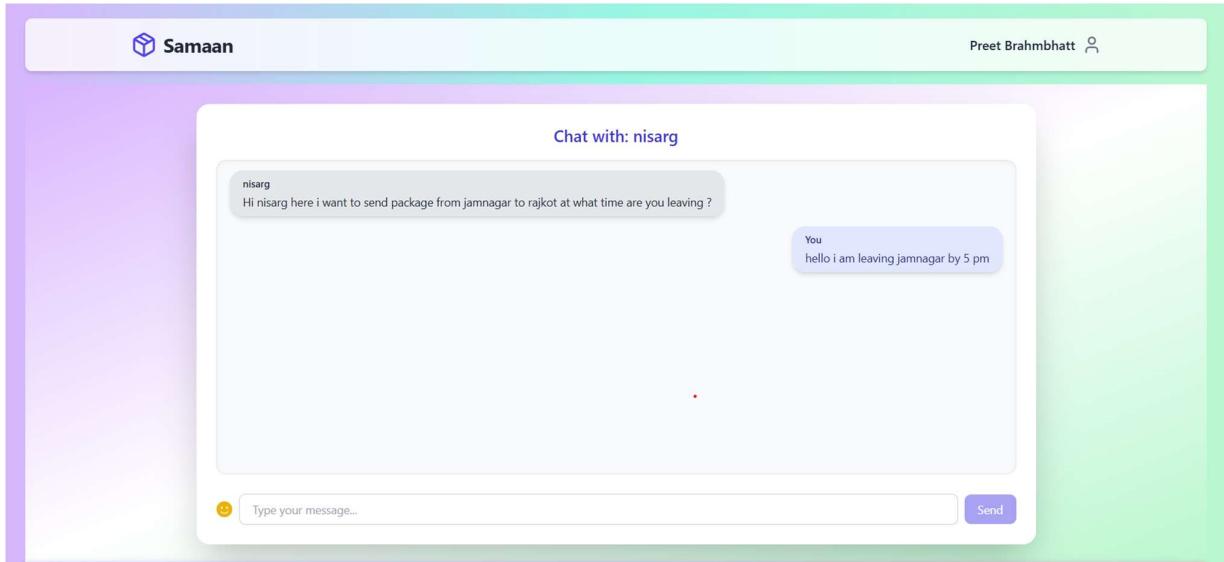
### Description

The Add New Trip form allows carriers to enter trip details including source, destination, vehicle type, capacity, and date. Upon submission, the trip is saved and becomes visible to potential senders searching for delivery options.

## 8.6 Sender Chat List



**Figure 8.6.0 Sender Chat List**

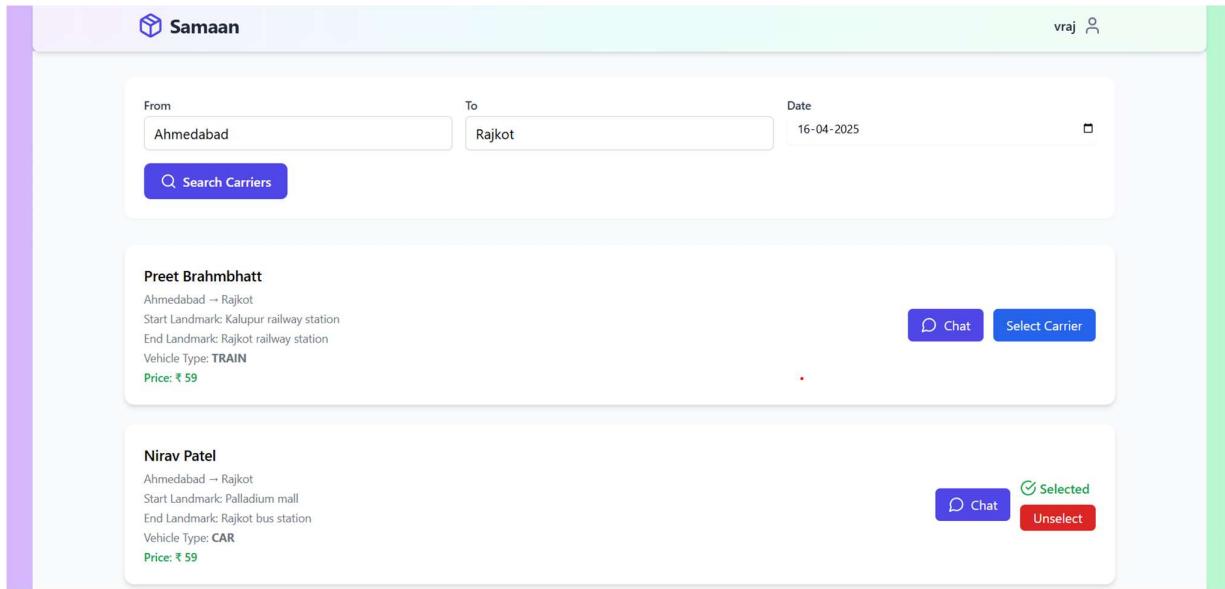


**Figure 8.6.1 Personal Chat**

### Description

This page displays all active chats between the logged in carrier and all the senders who initiated chat. Each chat card shows the sender's name and their most recent message. Carriers can tap on any chat to continue the conversation in real-time.

## 8.7 Search Carrier Page



**Figure 8.7 Search Carrier**

### Description

This page allows the sender to search for available carriers by selecting the source, destination, and date. The sender can view trip details, initiate a chat with the carrier, and select or unselect a carrier for their package.

## 8.8 Sender Dashboard

The screenshot shows the Samaan Sender Dashboard. At the top, there is a header with the Samaan logo and a user profile for 'vraj'. Below the header, a section titled 'Your Selected Trips' displays four trips in a table format. The table columns are: #, Trip ID, Carrier, Source, Destination, Status, and Rating & Feedback.

#	Trip ID	Carrier	Source	Destination	Status	Rating & Feedback
1	#67fce07c38183c4fcf9c7c30	Nirav Patel	Ahmedabad	Rajkot	Pending	<a href="#">Request Cancellation</a>
2	#67fd0a49e557977012c9664b	Preet Brahmbhatt	Rajkot	Ahmedabad	Completed	<p>★★★★★ very nice!</p> <a href="#">Submit Rating &amp; Feedback</a>
3	#67f913c50402430c9a82eb2e	Preet Brahmbhatt	Anand	Jamnagar	Cancelled	
4	#67f0c01462a594419903cc54	Preet Brahmbhatt	Nadiad	Jamnagar	Completed	<p>★★★★★ Very good</p> <p>Feedback Submitted</p>

**Figure 8.8 Sender Dashboard**

### Description

This page displays all the trips selected by the sender, along with their current status (Pending, Completed, or Cancelled). The sender can request cancellations, view trip details, and submit ratings and feedback for completed trips.

## **9.0 Limitations and Future Enhancements**

### **9.1 Limitations**

Despite its robust features, Samaan has some limitations:

- No Package Insurance Feature – The platform connects senders and carriers but does not provide insurance for lost or damaged packages.
- Limited Real-Time Tracking – The system does not include live GPS tracking of packages; carriers only update their status manually.
- No Automated Price Estimation Based on Distance – The price estimation is based on fixed logic rather than real-time distance calculations.
- Basic Notification System – Notifications for new chats and trip updates exist but lack real-time push notification functionality.
- No Multi-Language Support – The app is currently available only in English, limiting accessibility for non-English speakers.

### **9.2 Future Enhancements**

To improve Samaan, the following features can be added:

- Live GPS Tracking – Enable real-time tracking of packages using carrier GPS data.
- Automated Pricing Algorithm – Implement AI-based pricing based on real-time distance and demand.
- Push Notifications – Enhance notifications with real-time push alerts for new messages and trip updates.
- Package Insurance Integration – Offer optional insurance plans for senders to protect their shipments.
- Multi-Language Support – Expand accessibility by adding support for multiple languages.
- Rating & Review System – Allow senders and carriers to rate each other based on their experience.
- AI-Based Trip Matching – Optimize trip suggestions using machine learning to match senders with the best carriers.

## **10.0 Conclusion and Discussion**

### **10.1 Conclusions and Future Enhancement**

Samaan successfully connects senders and carriers, allowing users to search for trips, send packages, and communicate in real-time through a chat system. The platform ensures secure transactions and enhances user experience with a smooth carrier selection process.

While the current implementation is functional and efficient, adding real-time tracking, automated pricing, and better notification features will improve its usability and efficiency.

### **10.2 Discussion**

#### 10.2.1 Self-Analysis of Project Viabilities

**Table 10.1 Self-Analysis of Project Viabilities**

Aspect	Analysis
Technical Feasibility	Built with React.js (frontend) and Spring Boot (backend), ensuring high scalability.
Operational Feasibility	User-friendly interface allows senders to find trips and chat easily with carriers.
Economic Feasibility	No need for complex third-party integrations, reducing costs.
Market Potential	Helps individuals efficiently send packages via independent carriers.

### 10.2.2 Problems Encountered and Possible Solutions

**Table 10.2 Problems Encountered and Possible Solutions**

Problem	Solution
Missing Room ID during chat initialization	Implemented a room generation system based on sender and carrier emails.
Messages not being saved correctly in the database	Ensured correct mapping of sender and carrier emails while saving messages.
Chat system was duplicating messages on UI	Implemented a message filtering mechanism to prevent duplicate display.
Notification delays	Plan to add push notification support in future updates.

### 10.2.3 Summary of Project Work

The project analysed existing package delivery platforms, designed an efficient web-based solution, and implemented key features like trip search, chat functionality, and user authentication using Spring Boot (backend) and React.js (frontend).

The system was rigorously tested to ensure reliability, and future enhancements such as real-time tracking, push notifications, and AI-based trip matching were proposed to improve scalability and user experience.

## **11.0 References**

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Last Accessed on: 15<sup>th</sup> April 2025

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Last Accessed on: 15<sup>th</sup> April 2025

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Retrieved from <https://opencagedata.com>

Last Accessed on: 15<sup>th</sup> April, 2025

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## 6. Roadie

Retried from <https://www.roadie.com/>

Last Accessed on: 15<sup>th</sup> April, 2025

A UPS company offering same-day delivery by matching people who need to send items with drivers already heading that way.