GearUp

A Peer-to-Peer Rental/Selling Platform

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Introduction

Our project was aimed at creating a simple, community-based platform for users to rent or sell their vehicles directly to other users. Providing users with a simple User Interface and easy navigation across the website, we aimed to ensure the website was a convenient option for renting/selling vehicles.

Background

We found renting/ selling vehicles or looking vehicles was a big hassle and a very time-consuming activity. Motivated by the success of peer-to-peer services, GearUP merges this concept with user-friendly technology for a seamless and easy renting/selling process. The PERN stack was chosen because it is strong and flexible for building scalable web applications.

Project Specifications

Technology Used:

Front-End: React.js

Back-End: Node.js

Database: PostgreSQL

Tables:

Customer							
Customer_id	customername	password	email	created_at	updated_at	Phone_number	address

Stores user information such as login credentials, contact details, and timestamps for account creation and updates.

Vehicle_post							
Vehicle_number	customer_id	Vehicle_name	Vehicle_type	Vehicle_brand	Vehicle_year	Vehicle_color	Vehicle_description
address	Listing_type	Vehicle_features	Vehicle_image	Created_at	available	Price_per_day	

Contains details about vehicles listed for rental, including descriptions, features, availability, and pricing.

Booking							
Booking_id	Customer_id	Owner_id	Total_cost	Booking_status	Created_at	Start_date	End_date
Total_price							

Tracks rental bookings, including details like customer, owner, rental duration, and total cost.

Review						
Comment_id	Customer_id	Vehicle_id	Comment_text	Created_at	Customer_name	rating

Stores reviews and ratings for vehicles posted by customers after rentals.

Message					
Message_id	Conversation_id	Sender_id	Receiver_id	message	Created_at

Holds individual chat messages exchanged between users during live conversations.

Conversation			
Conversation_id	members	Created_at	Updated_at

Manages conversation threads, linking messages between users.

Notifications			
Notification_id	Sender_id	Receiver_id	Notification_message

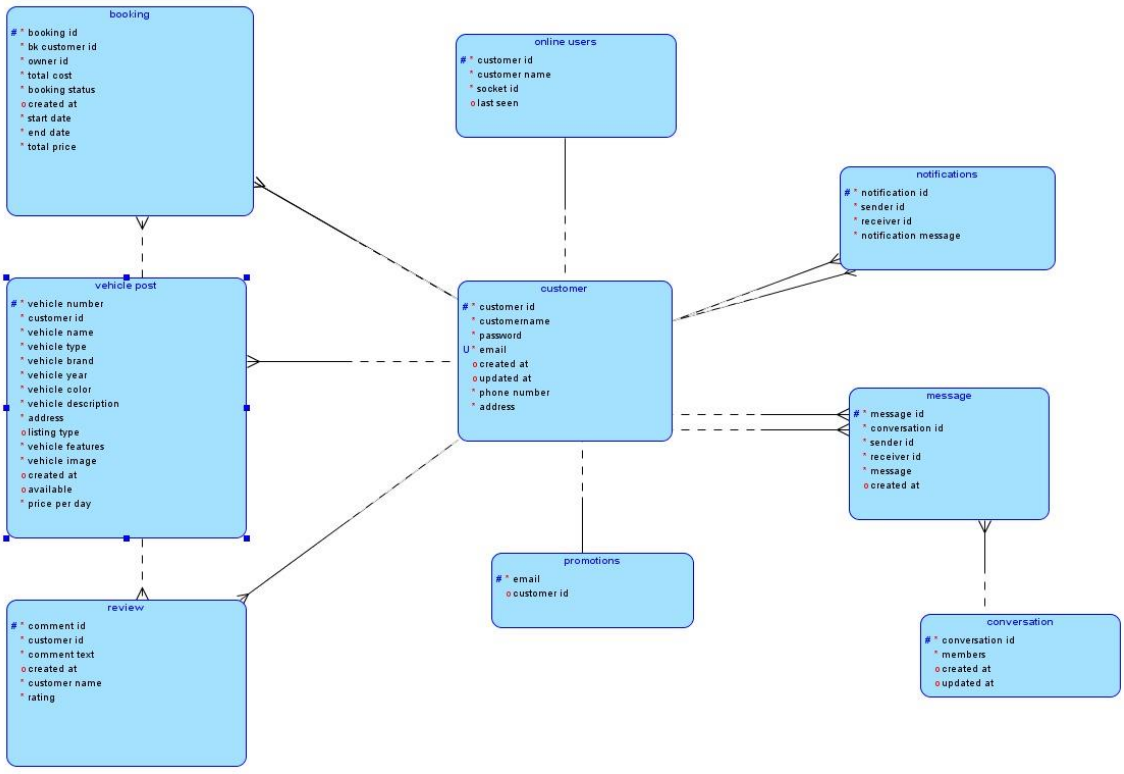
Logs notifications sent between users, such as booking updates or message alerts.

Promotions	
email	Customer_id

Tracks promotional email subscriptions for users.

Online_users			
Customer_id	Customer_name	Socket_id	Last_seen

Keeps track of currently active users, their socket IDs, and last seen status for real-time features.



Solution Design

Website Features:

- Allows users to login/ signup

- Users can list their vehicles with detailed descriptions
- Users can book vehicles
- Users can view their listings/ bookings
- Allows filtered searches for vehicles
- Real-time chat between users
- Comments for individual listings

We used React.js to create the front-end of the website having color scheme of blue / white with an option of dark mode. For the back-end Node.js was used for interacting with database and performing any other functions. Socket programming was used to enable real-time chat.

Implementation & Testing Phase

Implementation:

- Backend API with Node.js for handling data operations.
- PostgreSQL database for storing user, vehicle, and chat data.
- React.js for responsive and interactive UI.

Testing:

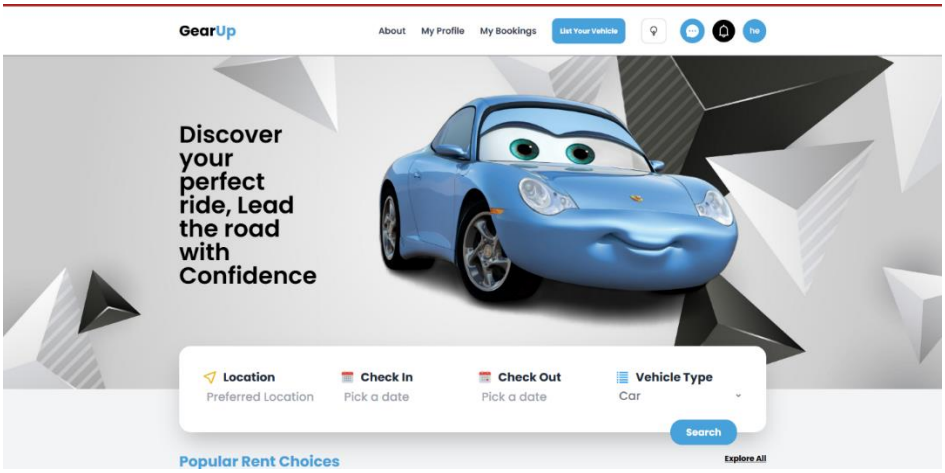
- Functional testing for APIs and user flows.
- UI/UX testing for responsiveness and accessibility.
- Database stress tests to ensure scalability.

How to run:

- Install Postgress, node.js
- Copy the database schema from db.sql file in src, server folder and run it on Postgress
- Update database details in database.js and server.js
- Open two termnals, one for client folder, another for server folder
- In client terminal, use ‘npm install’ command to install dependencies and ‘npm run dev’ to start the front-end
- In server terminal, use ‘npm install’ to install dependencies and ‘npm start’ to start back-end

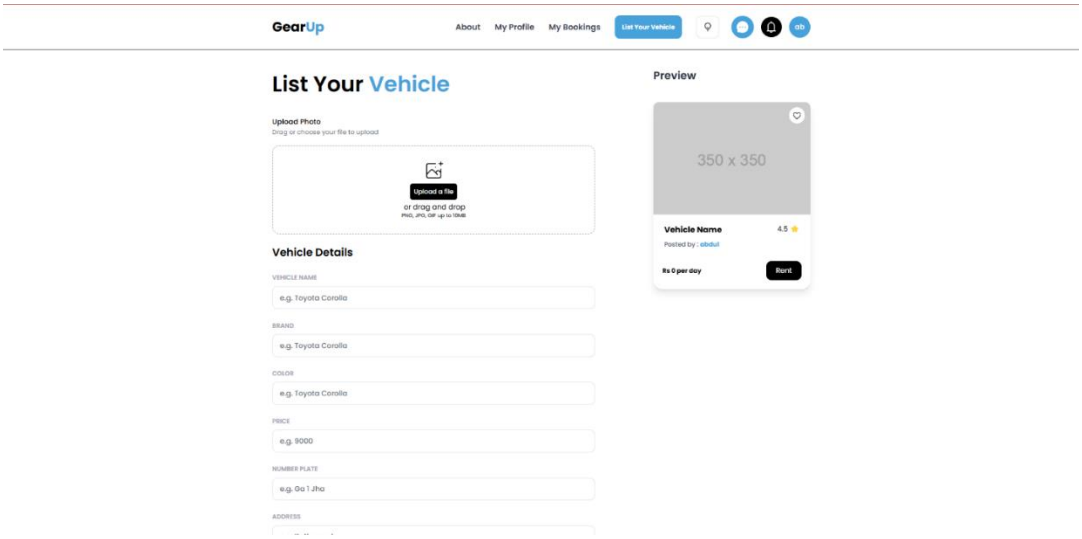
Results

Starting Screen:

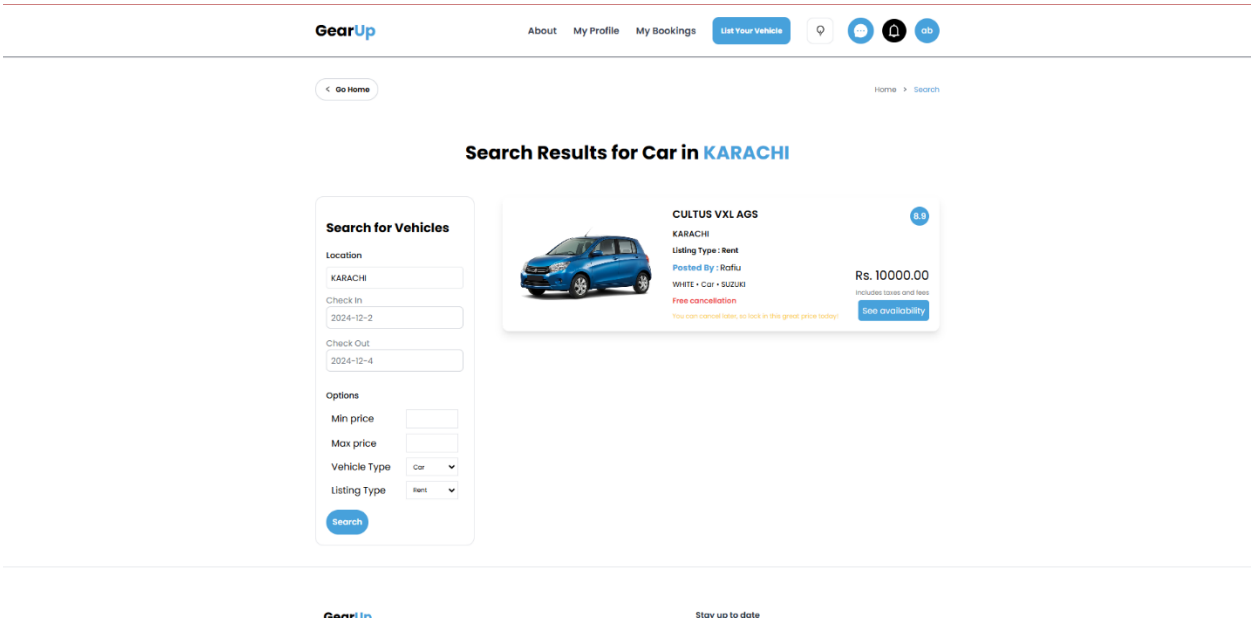


Login/ Signup Page:

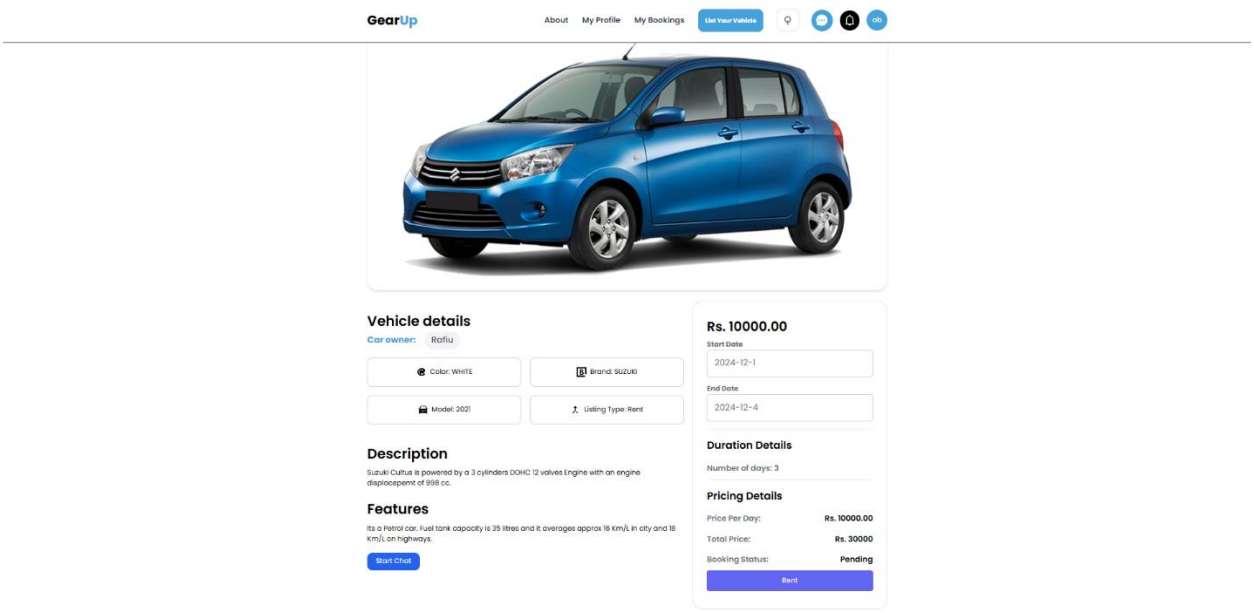
Adding a Listing:



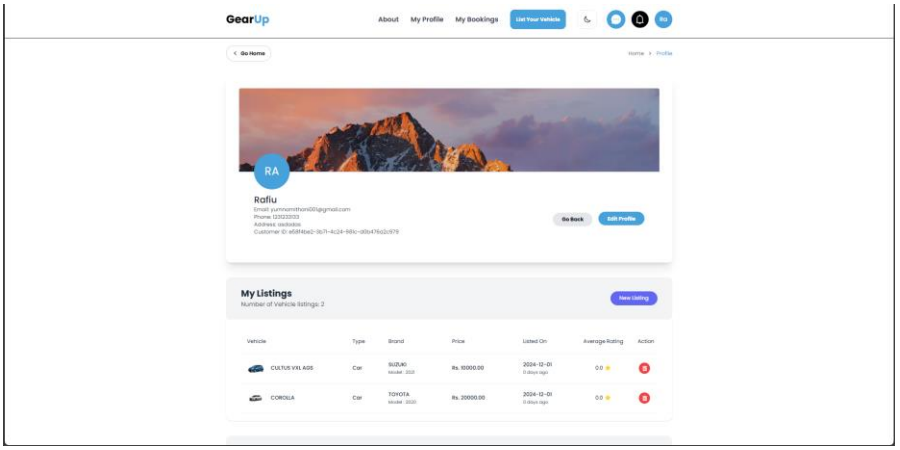
Filtered Searching:



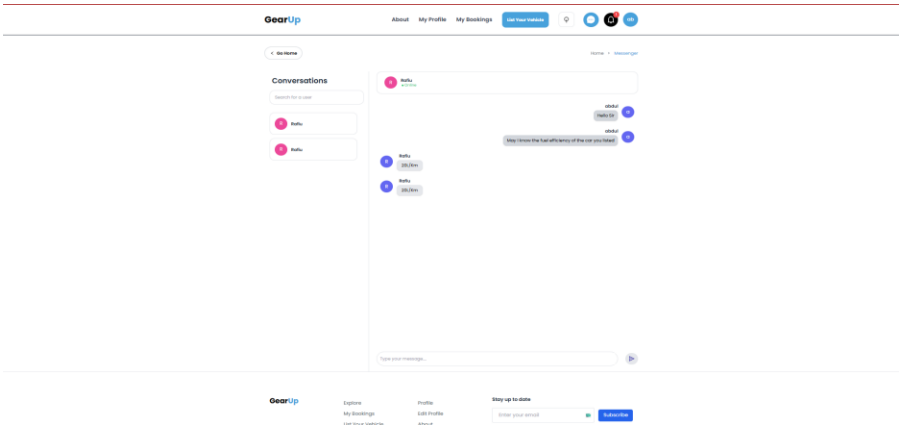
Adding Booking:



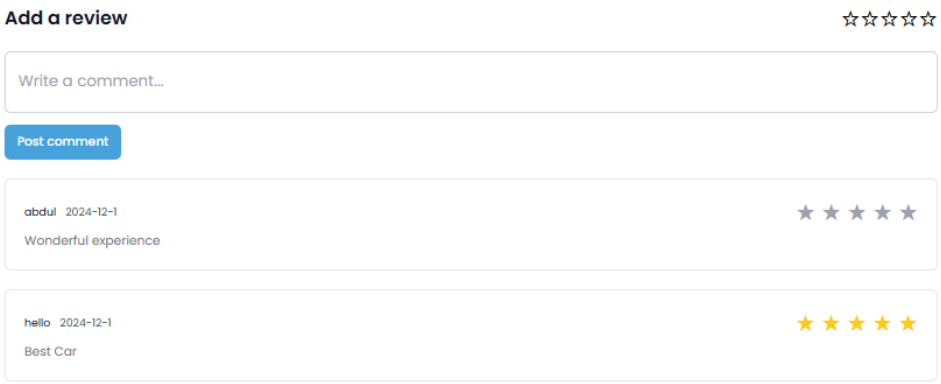
Profile View:



Live Chat:



Comments:



Conclusion

GearUP manages to offer a easy-to-use and efficient alternative for renting/selling cars, providing a platform that helps directly connect sellers and buyers. The platform allows for a streamlined process in listing, communication, and booking of vehicles.