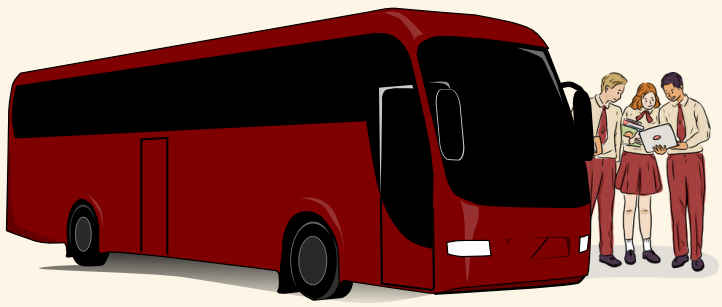
PackTravel 2.0: Enhancing Your Carpooling Experience

The Future of Shared Travel



PackTravel is an innovative web application designed to connect individuals looking to share rides, reduce travel costs, and enhance the commuting experience. Our mission is to foster a community that prioritizes cost-effective and eco-friendly travel options.

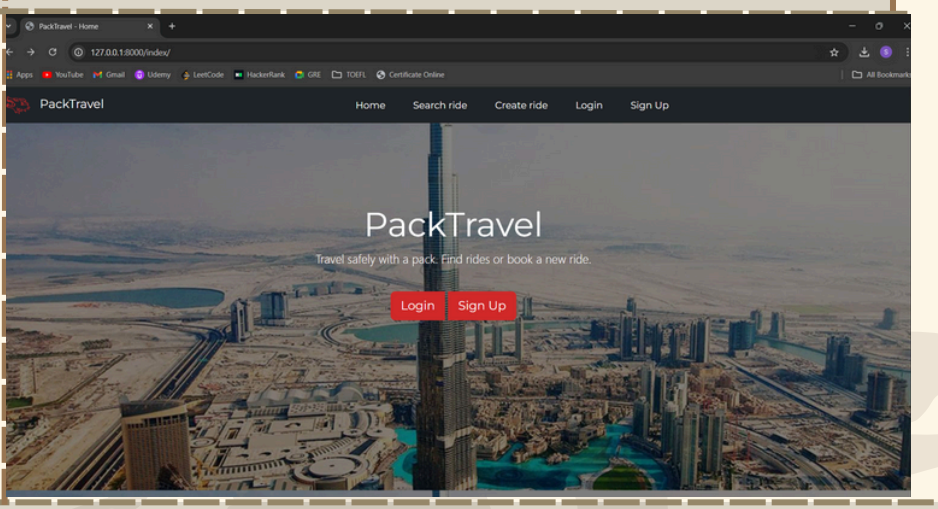
SCAN ME

TECH STACK

CSS HTML JS B

TEST CASE ADDITIONS

1. Verify that attempts to log in with incorrect credentials return an appropriate error message.
2. Ensure users can log out successfully and are redirected to the correct page afterward.
3. Verify that users can rate and review rides, and that this feedback is stored and displayed correctly.



OBJECTIVES

REDUCE TRAVEL COSTS

PackTravel aims to help users lower their commuting expenses by promoting shared rides. Whether it's carpooling with personal vehicles, sharing a taxi, or organizing a bus ride, the application makes it easier for travelers to connect with others, cutting down on individual transportation costs while promoting eco-friendly travel.

IMPROVE RIDE COORDINATION

he app simplifies the process of organizing and joining shared rides by offering features like ride creation, ride requests, and a dedicated forum for each trip. This helps users manage logistics and communicate effectively with others in the ride group, ensuring smooth coordination for both drivers and passengers.

LEVERAGE TECHNOLOGY FOR ROUTE AND FARE OPTIMIZATION

Integration with Google Maps allows users to view routes, distance, and duration of trips, making it easier to plan commutes. Additionally, the machine learning-powered cab fare estimation tool helps users get accurate fare predictions based on time and date, enabling more informed decisions when selecting transportation options.

ENHANCE USER EXPERIENCE

The project is designed to make the overall user experience more intuitive and streamlined. Users can quickly create rides, send requests, accept or decline passengers, and receive notifications when their ride reaches full capacity. The app is tailored to reduce friction in ride management, ensuring that both ride owners and riders enjoy a seamless experience.

ENABLE SCALABILITY

PackTravel is built with scalability in mind. By designing the backend as stateless RESTful APIs and implementing horizontal scaling with MongoDB, the system can handle increasing loads of data and users. Integrating features like content delivery networks (CDNs) and message queues ensures that PackTravel can scale efficiently as the user base grows, offering faster load times and better system performance.

METHODOLOGY

- **PLANNING AND SYSTEM ARCHITECTURE**

  The initial phase focused on identifying user needs through market research and surveys to create a ride-sharing solution. The architecture was designed for scalability, utilizing a microservices approach with RESTful APIs for seamless communication between components. MongoDB was chosen for its flexibility and ability to handle large data sets, while the Google Maps API provides critical route visualization and distance calculations.

- **FRONTEND DEVELOPMENT**

  The user interface was developed with a focus on usability and responsiveness. Using HTML, CSS, JavaScript, and Bootstrap, the design allows for quick navigation and easy access to features such as ride creation, joining rides, and searching for routes. User experience was prioritized by implementing intuitive controls, an engaging layout, and smooth animations to enhance interaction with the application.

- **BACKEND AND DATA HANDLING**

  Django served as the backbone for the backend services, handling user authentication, ride logistics, and database interactions. It manages complex business logic while ensuring secure access to user data. Additionally, machine learning algorithms were implemented to analyze historical ride data, enabling accurate fare predictions for cab rides based on various factors like time and date, thereby enhancing user decision-making.

- **TESTING AND CONTINUOUS FEEDBACK**

  The application underwent rigorous testing, with over 130 test cases designed to validate core functionalities and ensure system stability. This phase included unit tests, integration tests, and user acceptance tests. Post-deployment, the team established feedback loops to gather user insights, allowing for ongoing improvements and the development of new features for subsequent versions, such as ride merging and enhanced security measures like two-factor authentication.

KEY UPGRADES IN CURRENT PROJECT

- **ENHANCED RIDE CREATION OPTIONS**

  In the latest version of PackTravel, users are no longer limited to creating a single route for each ride. The platform now supports the ability to create multiple routes, giving users the flexibility to mix and match between bus, cab, and personal vehicle options. This enhancement significantly improves the user experience, making it easier for travelers to plan trips that accommodate their schedules and preferences. Whether users need to switch between transportation modes or find alternate paths to reach a destination, this upgrade ensures that PackTravel can handle complex, multi-route journeys seamlessly.

- **ADVANCED AUTOCOMPLETE FOR SOURCE AND DESTINATION**

  The new version of PackTravel includes an improved autocomplete feature that speeds up the process of entering source and destination points. Drawing from enhanced location data, this feature now makes it easier than ever for users to accurately select their starting and ending locations with minimal effort. The smart autocomplete suggests locations as users type, offering real-time suggestions that are not only faster but also more relevant to the travel routes users tend to take. This upgrade greatly enhances usability, particularly for those unfamiliar with precise addresses or locations, making ride creation smoother and more efficient.

- **MACHINE LEARNING-DRIVEN FARE ESTIMATION**

  One of the most exciting upgrades in PackTravel is the integration of machine learning for cab fare estimation. By analyzing past travel data, ride patterns, and external factors like date and time, the system now provides highly accurate fare predictions for cab rides. This new feature helps users make more informed decisions when selecting travel options, ensuring they can budget their rides more effectively. The machine learning model continually improves with new data, meaning the predictions will only get more precise over time, offering a significant advantage over static fare charts.

- **REAL-TIME NOTIFICATIONS**

  Managing group rides is now more convenient with the addition of real-time email notifications for ride owners. Whenever a ride reaches full capacity, the system automatically sends out an email to the ride owner, ensuring they stay informed without needing to check the status of their ride manually. This automation saves time and reduces the chance of communication lapses, enabling ride owners to focus on other trip logistics. It also creates a seamless experience for users trying to join rides, as the owner can promptly respond to new requests or adjust capacity as needed.

- **USER PREFERANCES**

  Enable users to create and manage their profiles with personal information and travel preferences. This allows users to see their likes and select rides and co-passengers accordingly, enhancing the ride-matching experience.

- **FEEDBACK SYSTEM**

  Create a feedback mechanism that allows users to leave comments on rides after completion. This provides valuable insights into ride quality and encourages continuous improvement of the service.

FUTURE SCOPE

- **MACHINE LEARNING FOR RIDE OPTIMIZATION**

  By leveraging historical data, the system can predict ride demand based on factors like time of day and location, leading to improved user satisfaction and optimized earnings for ride owners through dynamic pricing.

- **RIDE HISTORY**

  By rendering the data collected from the user after a feedback is submitted after a ride is over, functionality of the user being able to see their previous rides can be seen.

- **NOTIFICATION UPDATE**

  Users can see updates about their bookinng and ride status if notifications about bookings accepted etc are given.

GROUP MEMBERS: 1. SUYASH PUSTAKE 2.SHRUTI KULKARNI 3.SHARWARI AKRE