

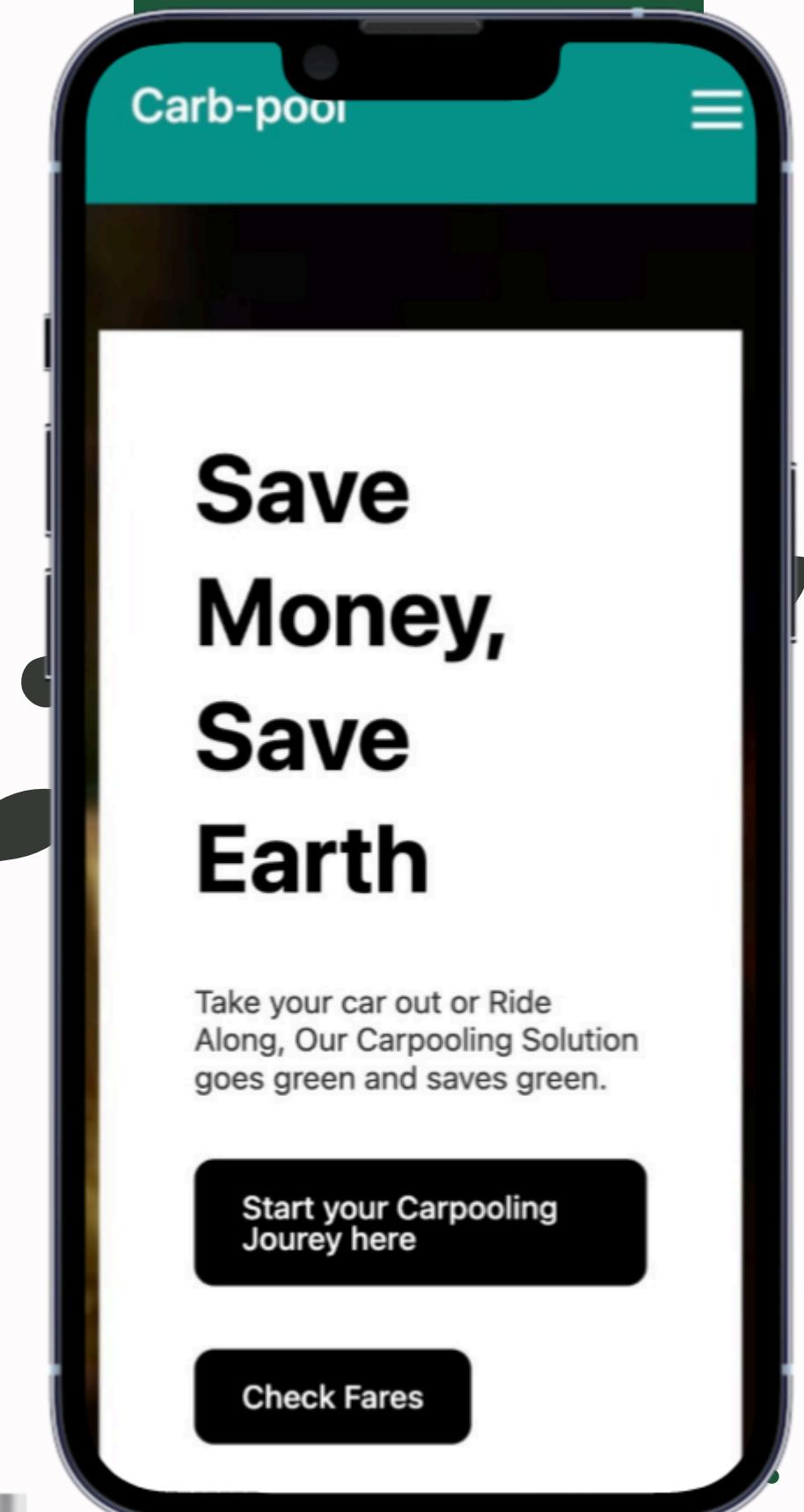
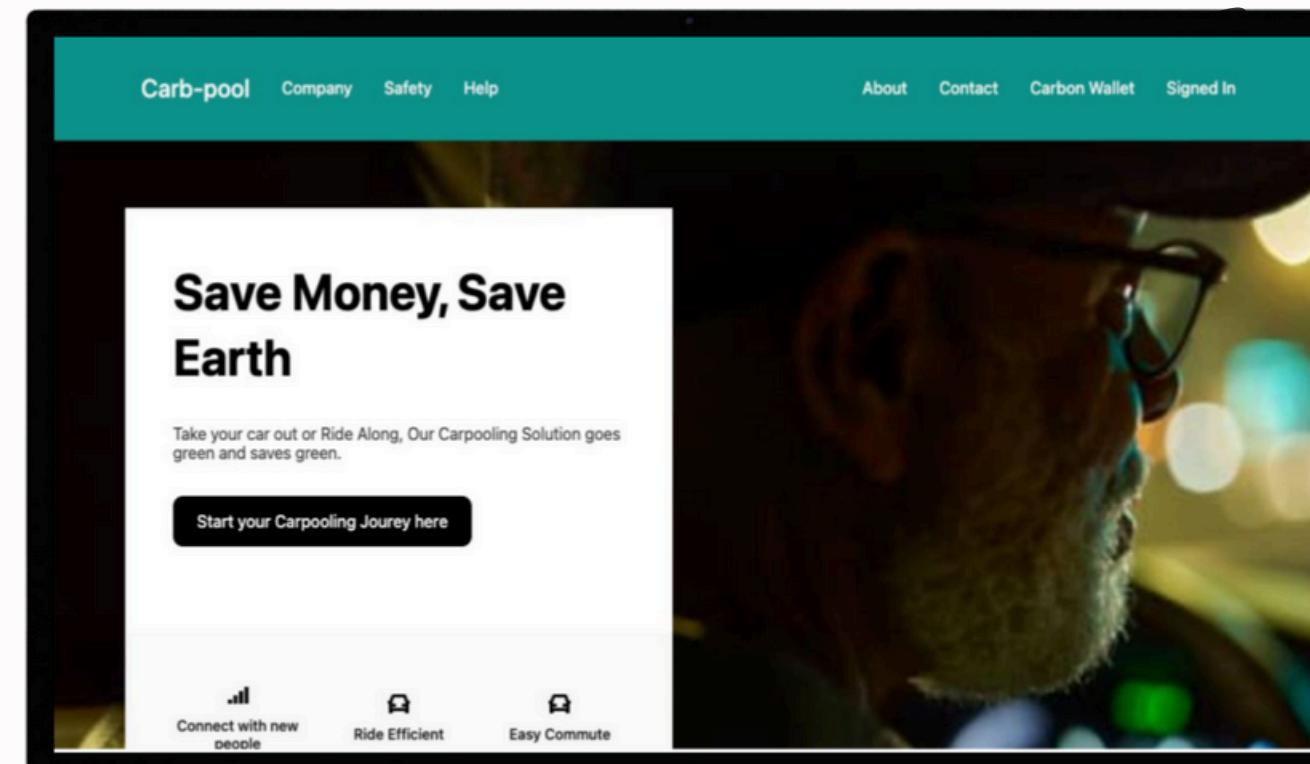


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Technovate 2023

CARB-POOL

Move Together, Share Your Footprints



Our Team



Jasleen Gill

ML Developer



Shivam Sheth

Frontend
Developer



Kashish Gandhi

ML Developer



Krishi Jain

Backend
Developer

PROBLEM STATEMENT

The increasing traffic congestion and environmental concerns in urban areas necessitate an innovative carpooling solution. Our goal is to develop a data-driven carpooling platform that leverages AI/ML algorithms to efficiently connect commuters, optimize routes, and reduce traffic congestion. This platform should address challenges such as matching compatible users, calculating fares, predicting peak demand, ensuring safety, enabling transparent cost-sharing, and incentivizing carpooling during high-demand times.



30%

Reduce Carbon Emissions



Tech Stacks

According to studies, each car in a carpooling system takes up to 11 vehicles off the road. This cuts yearly pollution by 13 metric tons. In India, if carpooling done correctly, one single car will take around 25 automobiles off the road.



Overview

01



End to end recommendation algorithm which takes into account all preferences and prioritises safety.

02



Effective fare distribution and calculation using Linear Regression

03



Predicting demand during peak hours using ARIMA

04



Route Optimization using Travelling Sales Man Algorithm

Overview

05



Using Human in the Loop
Reinforcement Learning to give
safety rating to each user

In case a user is underage, the
system automatically sends trip
tracking links to their emergency
contacts via text message.



06

07



Users are getting carbon
credits after every ride which
incentivizes carpooling

Chat with your co-passengers
before the ride



08

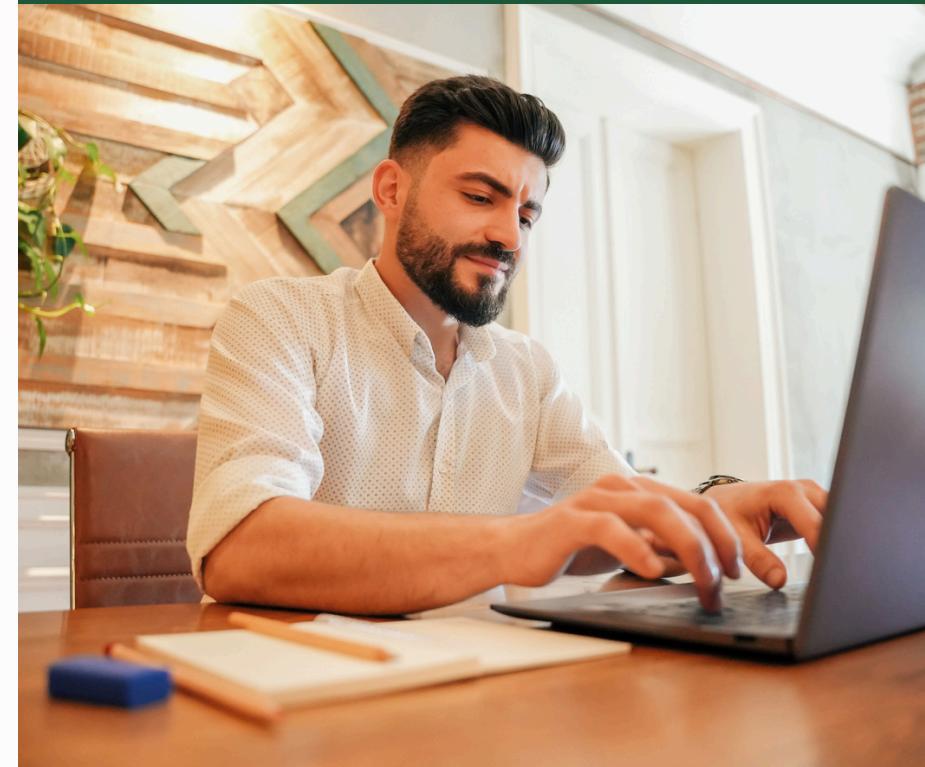
Target Audience

Target Audience #1



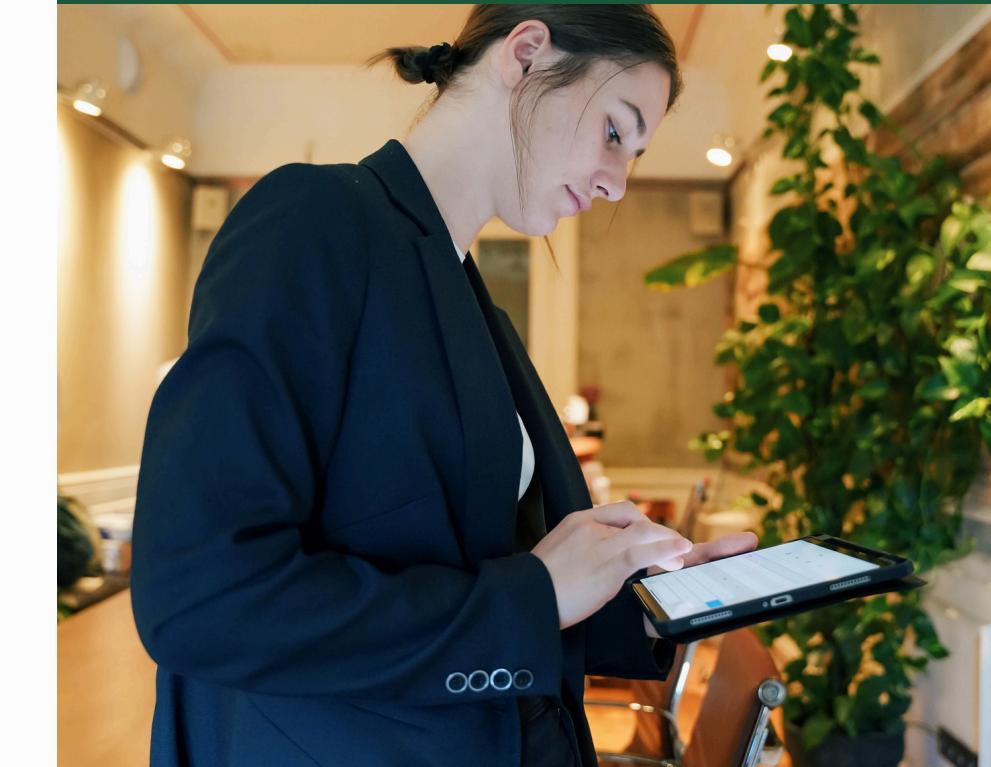
Daily Commuters

Target Audience #2



Environmental Enthusiasts

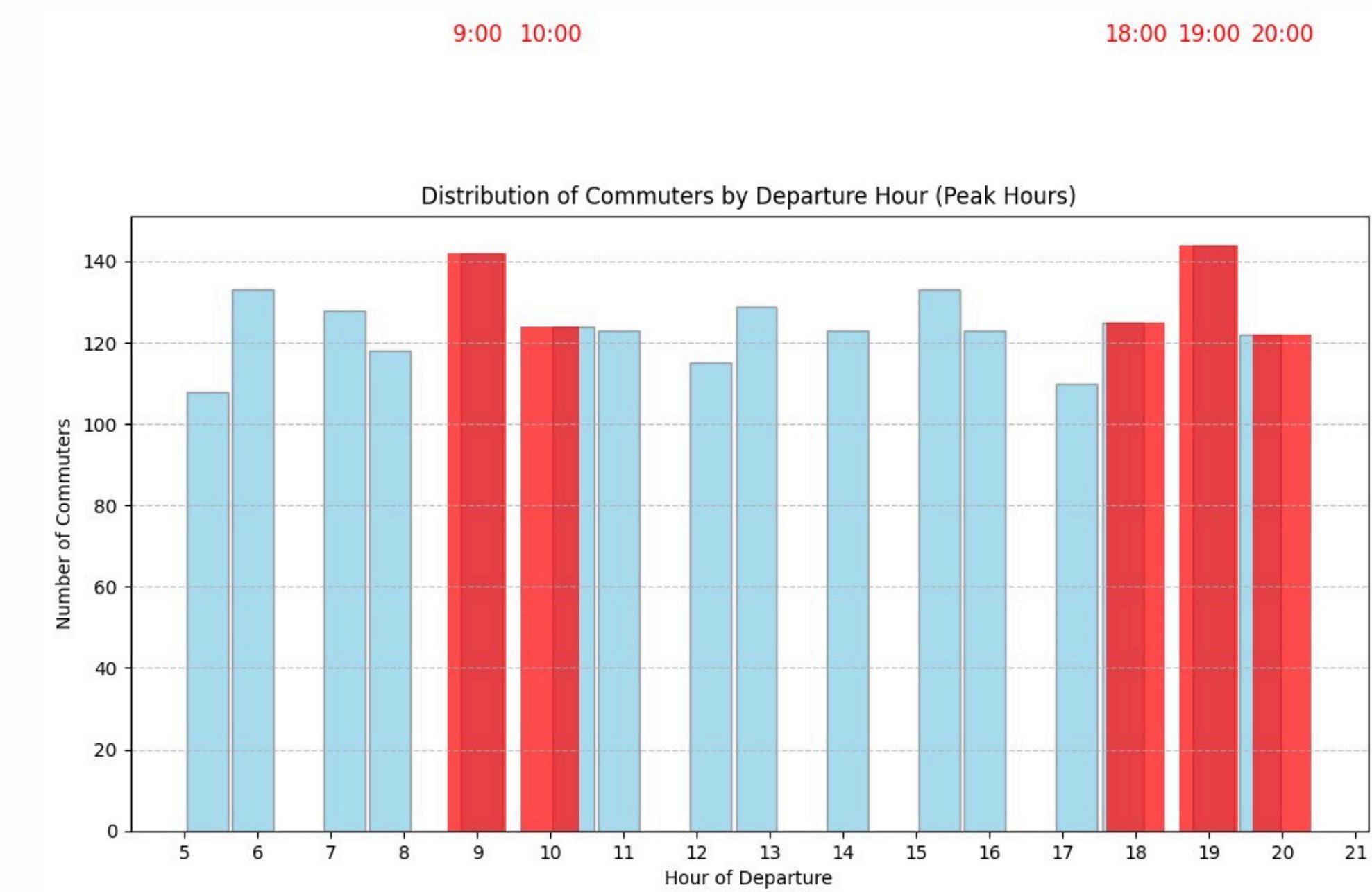
Target Audience #3



Cooporate Organizations & Government

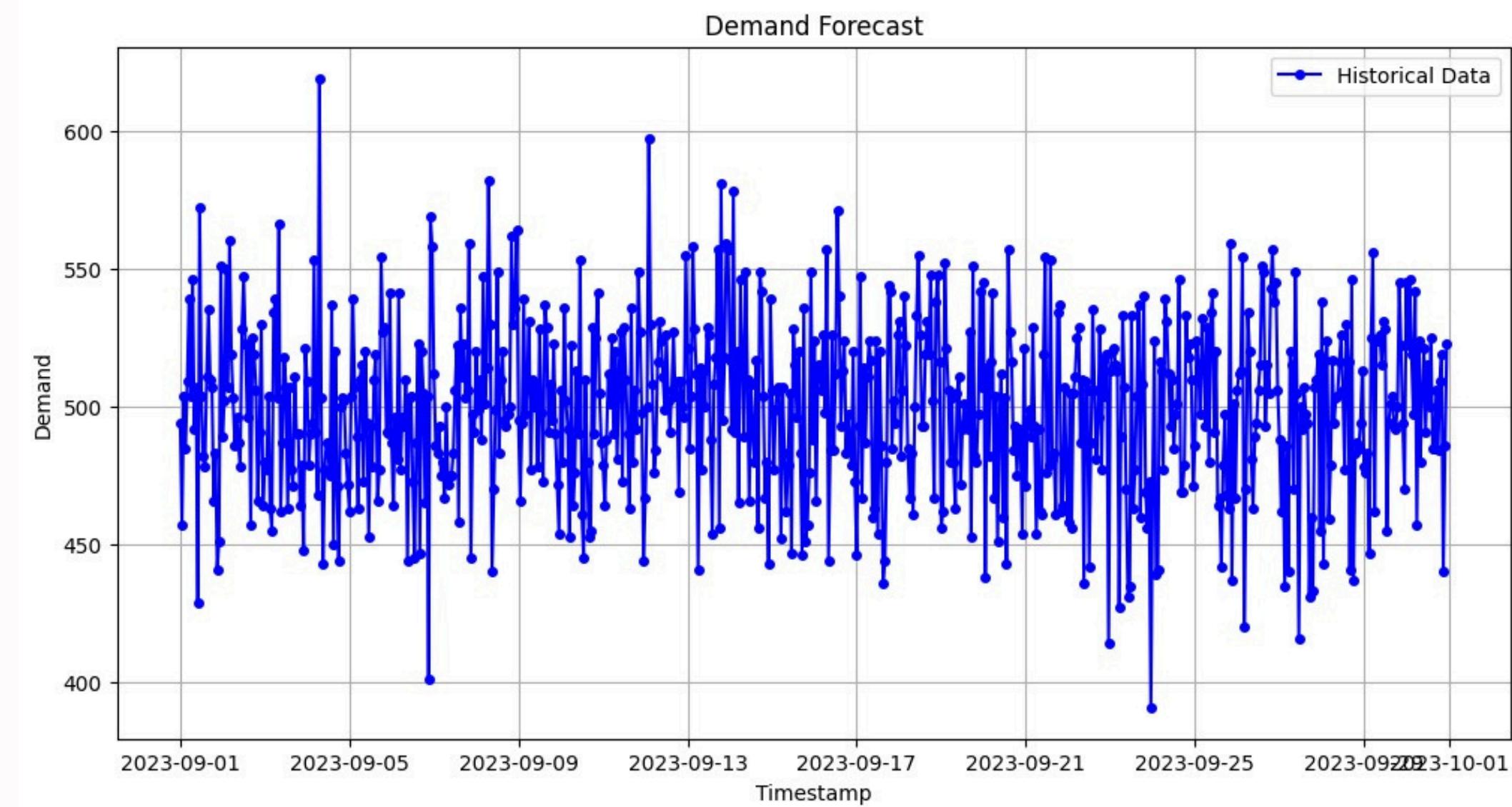
EXPLORATORY DATA ANALYSIS

Analyzing Commuter Behavior: A Data-Driven Examination of Peak Hour Travel Trends and Their Implications on Traffic Management Strategies

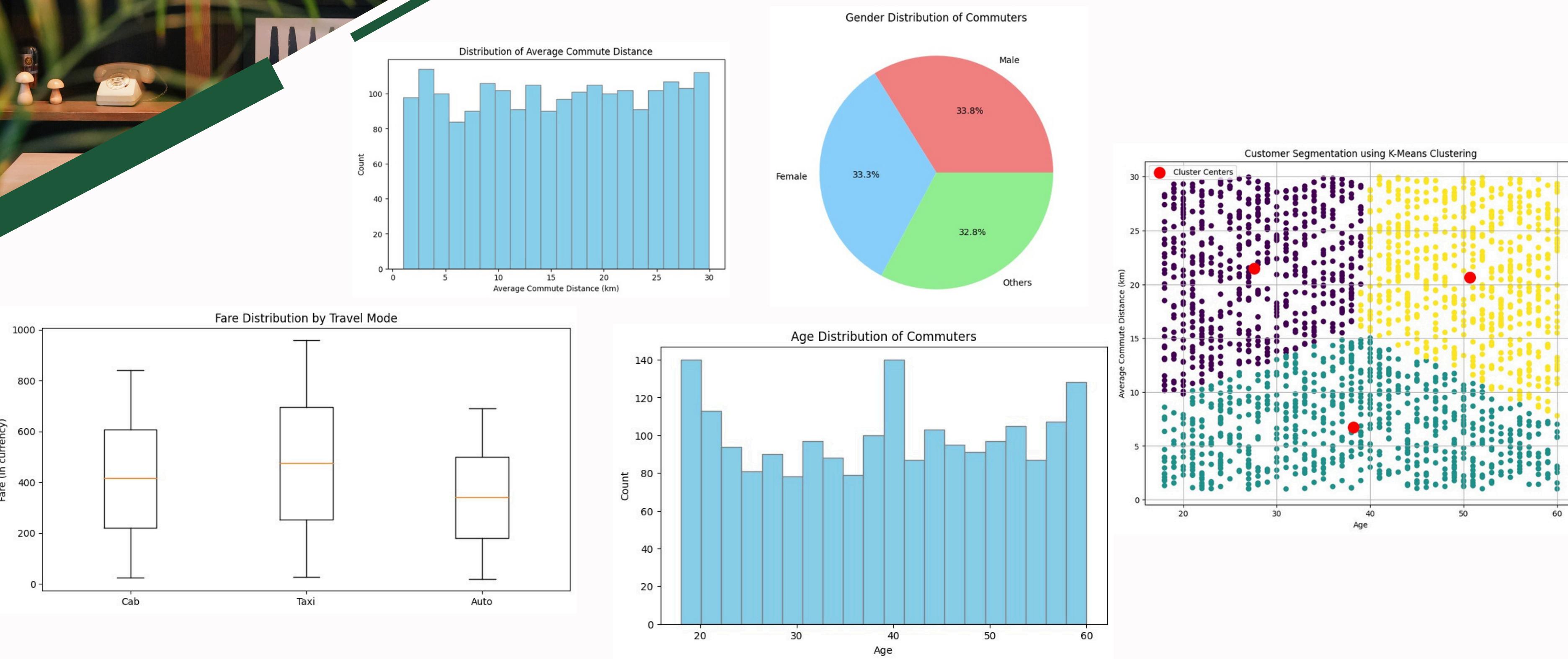


EXPLORATORY DATA ANALYSIS

ARIMA was harnessed to create a demand forecast graph by analyzing historical commuter data and using it to predict future demand patterns during peak hours. ARIMA's predictions were then translated into the demand forecast graph, guiding peak-hour management and resource allocation in our transportation system.



EXPLORATORY DATA ANALYSIS



User Flow

Introducing the Carpool app, a cutting-edge solution designed to revolutionize your daily commute. Our platform leverages the power of AI and machine learning to connect like-minded commuters, optimize routes, reduce carbon footprints, and transform the way you travel. Say goodbye to traffic woes and hello to convenient, eco-friendly ridesharing. Welcome to a smarter, greener, and more efficient way of getting from A to B.

You are invited to our pool party!



Our commitment to your safety

Each of our security features and the rules in our Community Guidelines help create a safe environment for our users. With Robust identification algorithms, we provide a safe and stress-free ride to all our users and their family.



Registration

Full Name

Shivam Sheth

Username

FreshAvocado

Email

shethshivam123@gmail.com

Phone Number

Gender



Male



Female



Prefer not to say

Register

User Flow

A groundbreaking feature that enhances your carpooling experience. Powered by advanced cosine similarity algorithms, we match you with co-passengers who share your preferences for gender, age, and more. Say goodbye to uncomfortable rides and hello to journeys with like-minded travelers. Enjoy a seamless and tailored commute every time you ride with us. Your preferences matter, and we're here to make your carpooling experience better than ever.

```
▶ recommendations = recommend_carpool_with_rating(  
    df,  
    'Male',  
    (20, 40),  
    'rickshaw',  
    True,  
    '19:45',  
    'By Time',  
    '39 D Avenue, Navi Mumbai',  
    'Street B, Central Mumbai'  
)  
  
print(recommendations[['User ID', 'Name', 'Age', 'Gender', 'Preferred Mode of Travel', 'Time of Departure', 'Specific Address', 'Destination Address']]  
  
[

|     | User ID | Name           | Age | Gender | Preferred Mode of Travel | Time of Departure | Specific Address            | Destination Address      |
|-----|---------|----------------|-----|--------|--------------------------|-------------------|-----------------------------|--------------------------|
| 0   | 1000    | Suresh Rastogi | 35  | Male   | rickshaw                 | 19:44             | 39 D Avenue, Navi Mumbai    | 15 D Avenue, Navi Mumbai |
| 595 | 1595    | Shivansh Reddy | 32  | Male   | Personal Car             | 19:42             | 20 A Street, Central Mumbai | 15 D Avenue, Navi Mumbai |

]
```

User Flow

Our carpooling platform prioritizes user safety through innovative features:

1. Minor Travel Alert: When a minor passenger is detected, our system automatically sends a message with the trip tracking link to their emergency contacts. This ensures parents or guardians are informed and can monitor the journey in real-time.
2. Rating System: After each ride, users have the opportunity to rate their co-passengers based on their experience. This two-way rating system fosters accountability and encourages courteous behavior.
3. Legal Document Verification: Users earn stars based on their ratings and overall behavior. Verifying their Aadhaar and other legal document details further enhances their profile and credibility. More stars signify a responsible and reliable carpooler.

These features create a safer and more accountable carpooling community, instilling trust and confidence among users.

Feedback

Overall Satisfaction

Very Good ▾

Comfort with Fellow Commuters

Very Good ▾

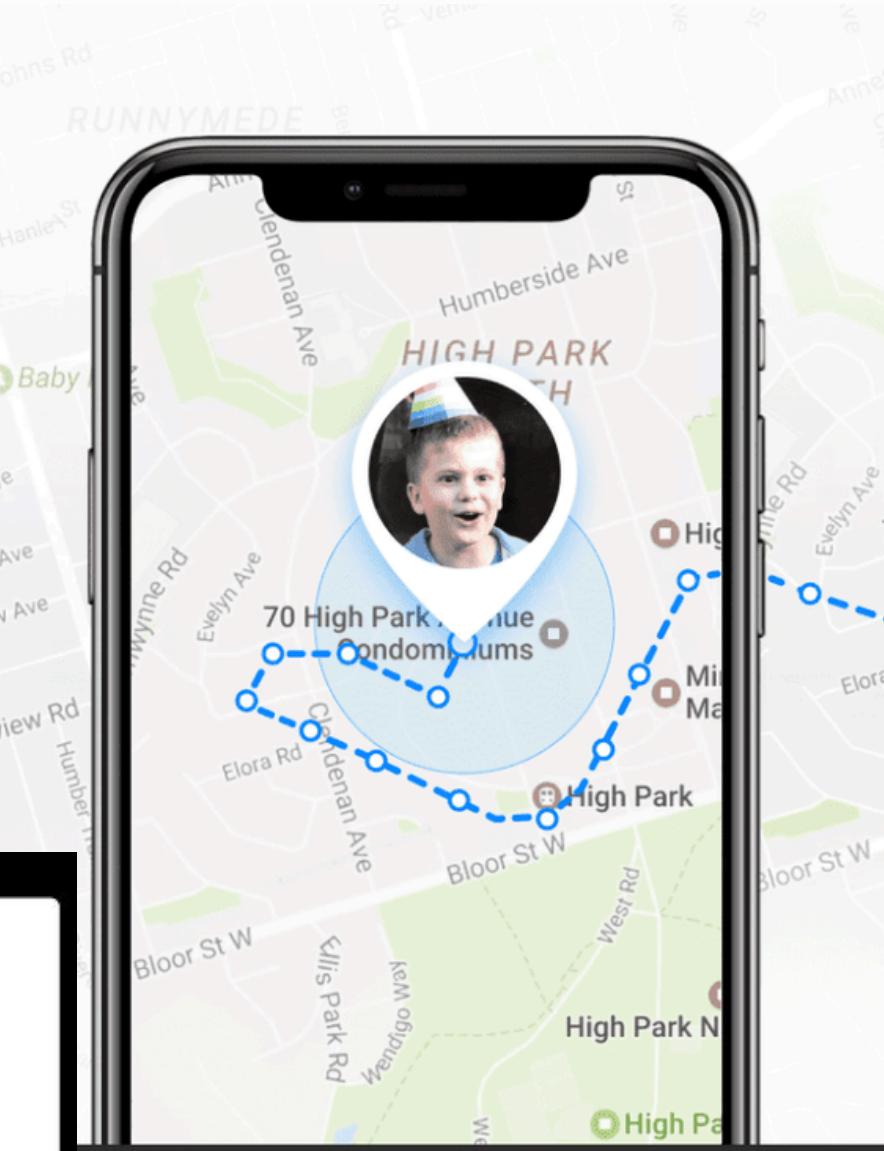
Punctuality

Very Good ▾

Money

Excellent ▾

Submit Feedback



User Flow

Leveraging the computational capabilities of Grasshopper for precise distance measurement between your selected origin and destination points. Our app uses Linear Regression for precise fare estimates. It collects trip data, preprocesses it, selects relevant features, and trains a model to predict fares based on factors like distance and traffic. Real-time predictions ensure users receive accurate and transparent fare estimates, enhancing their experience.

Fare Estimation

Starting Place:
ghatkopar west

Destination Place:
vile parle

Mode of Transport:
Auto ▾

Calculate Fare

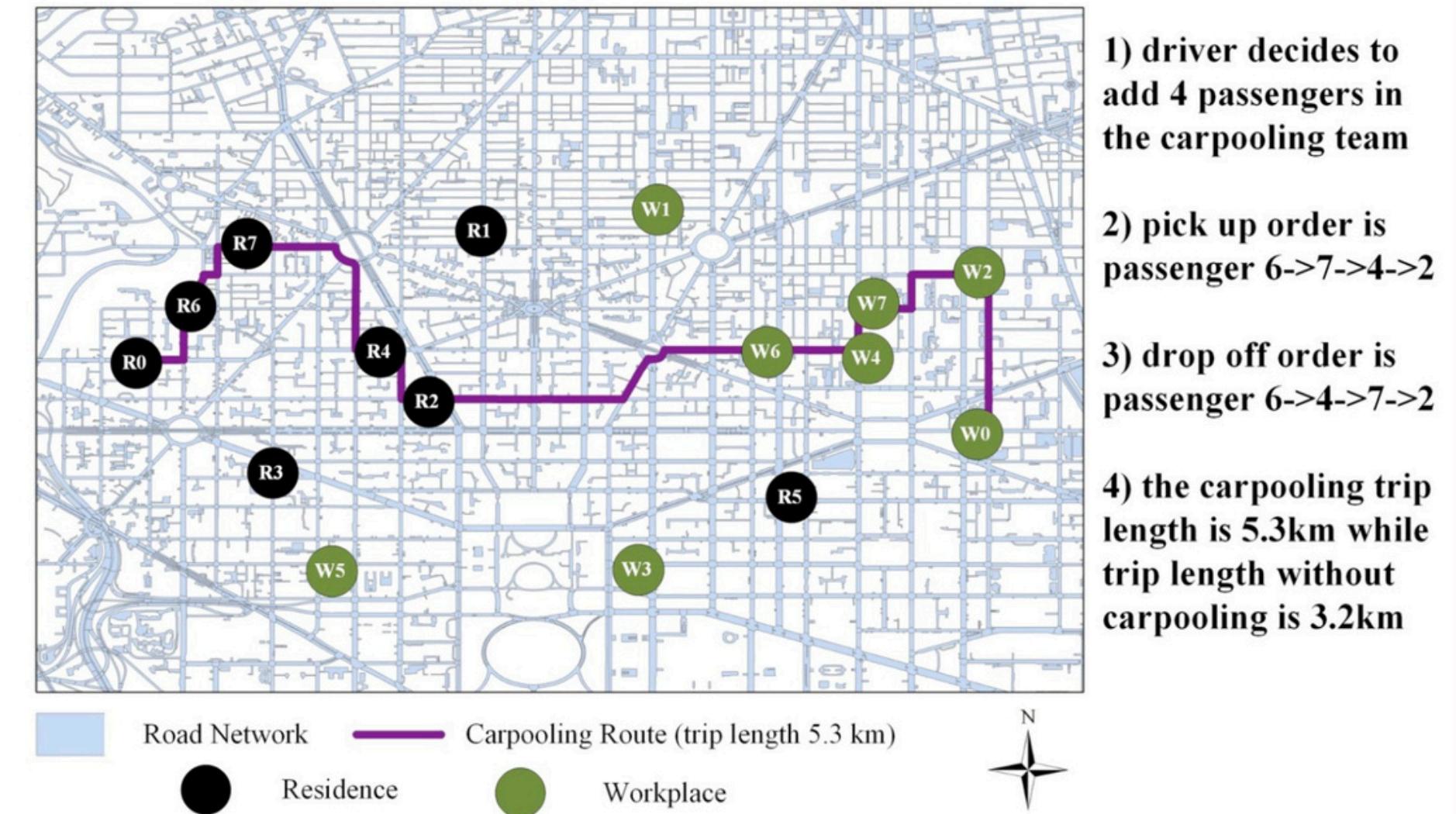
Results

Travel time will take roughly
50.669041666666665 minutes.
The estimated fare is approximately
162.8382228333333 INR.

User Flow

Our carpooling platform employs the Traveling Salesman Problem (TSP) algorithm, a well-established optimization technique. It mathematically determines the most efficient route by considering multiple factors like multiple pick-up and drop-off points, traffic, and distance.

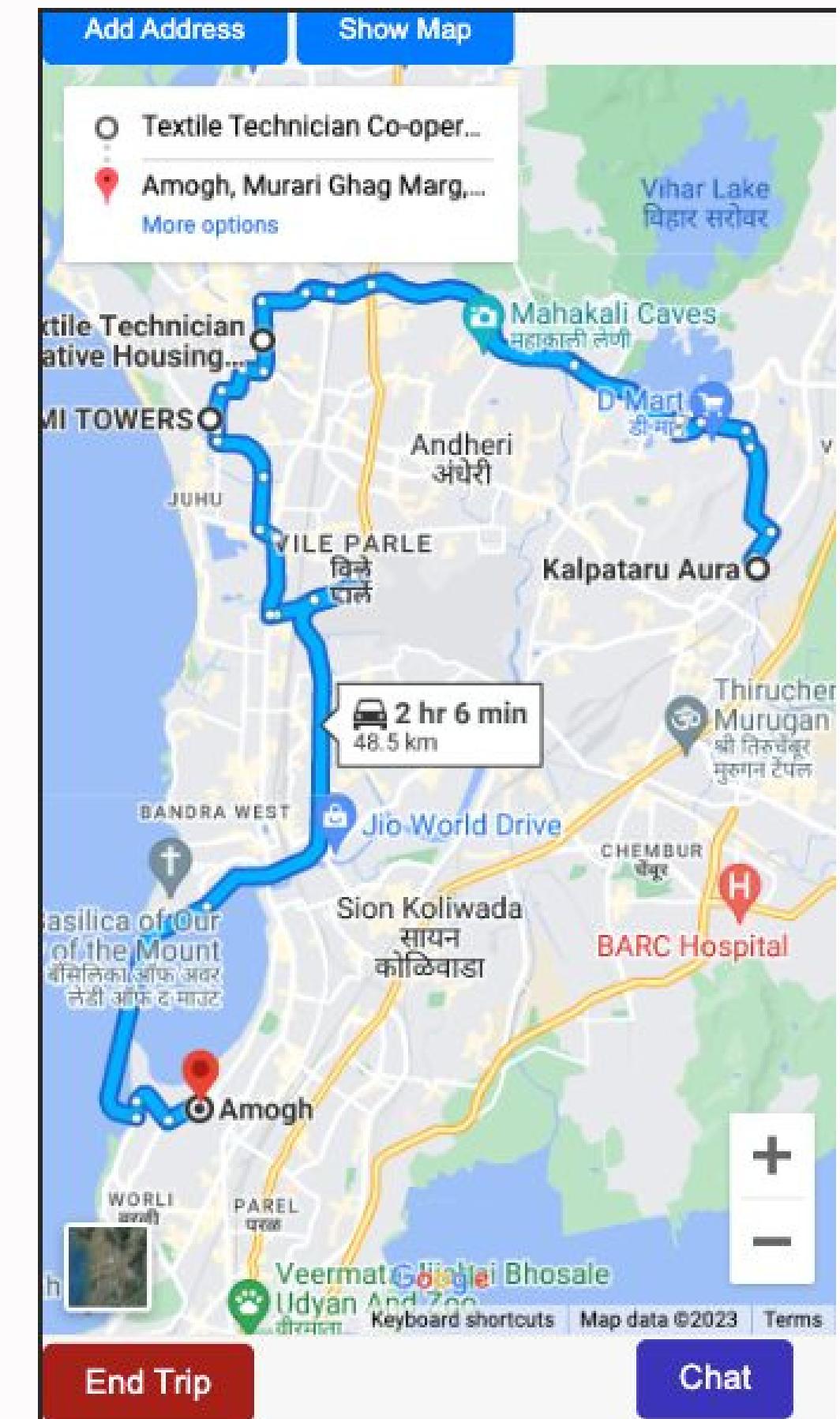
The TSP algorithm calculates the shortest path, minimizing travel time and distance while ensuring all designated stops are covered.



User Flow

This complexity is addressed through various algorithms such as the nearest neighbor, genetic algorithms, or simulated annealing.

The algorithm factors in real-time traffic data and dynamically adjusts routes, optimizing each carpool journey. This ensures an efficient and environmentally friendly travel experience for users, reducing both time and carbon footprint.



User Flow

Our Carpool Chat feature ensures user comfort and safety. Before the ride, users can communicate with their co-passengers via an in-app chat. This facilitates introductions, allows discussion of preferences, and builds a sense of trust among riders. It's a simple yet effective way to create a comfortable and secure carpooling experience for everyone on board.

Carpool Chat

Alice: Hi, everyone!

Bob: Hello!

Carol: We are on the way to your location!

You: how much time?

Bob: We are 2 minutes away from your location.



The image shows a screenshot of a mobile application's chat interface titled "Carpool Chat". The screen displays a conversation between four users: Alice, Bob, Carol, and the current user ("You"). The messages are as follows:
Alice: Hi, everyone!
Bob: Hello!
Carol: We are on the way to your location!
You: how much time?
Bob: We are 2 minutes away from your location.
Below the message list is a text input field with the placeholder "Type your message" and a blue "Send" button. At the bottom of the screen is a red button labeled "End Trip" with a rocket icon.

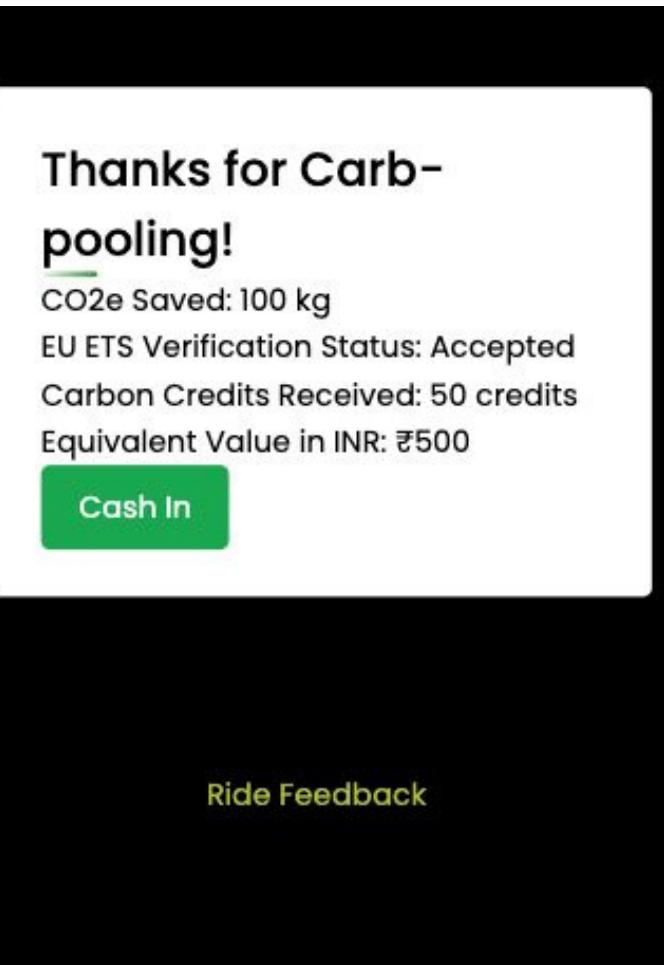
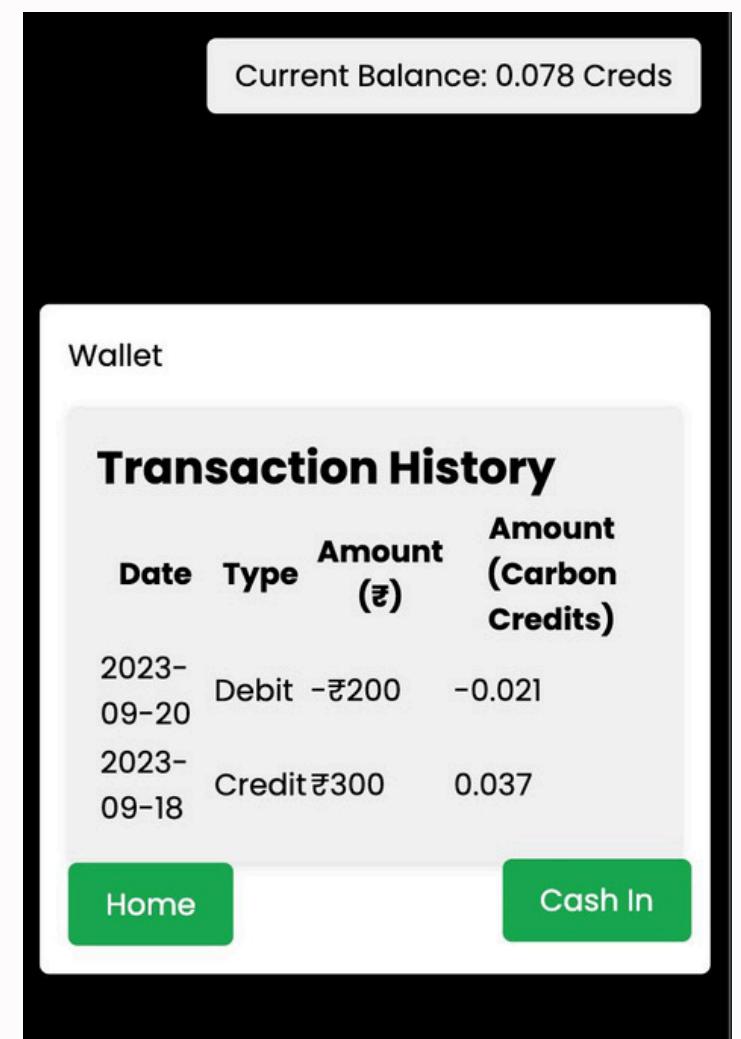
Type your message

Send

End Trip

User Flow

Our platform not only benefits users but also contributes to a sustainable future. After each ride, users receive carbon credits, a tangible reward for reducing their carbon footprint. Carpooling during peak hours earns extra credits, adding an incentive to beat traffic. These valuable carbon credits, sourced from European Union's Emission Trading System, can be cashed in, providing users with an opportunity to earn money while simultaneously benefiting the environment. This innovative approach aligns business profitability with eco-friendliness, making it a win-win for all.



Marketing Campaign

Our upcoming marketing campaign celebrates user loyalty and environmental responsibility. After completing 20 carpool rides, users earn loyalty points for discounts and exclusive offers. Additionally, we encourage them to make a positive impact on the environment by planting a tree and sharing a tagged selfie on social media. In return, users receive carbon credits, acknowledging their contribution to reducing emissions. Join us in promoting sustainable transportation and environmental stewardship. Together, we're driving change for a greener future.

#CarpoolGreen 🌱🚗





BUSINESS MODEL

FREE MODEL

- Recommendations: Personalized ride recommendations based on preferences for free.
- Transparent Fares: Fare calculation based on distance.
- Eco Incentives: Earn carbon credits for eco-friendly rides.
- Safety: Trip tracking links for underage users.
- Chat: Pre-ride chats with co-passengers.
- 30 mins of prebooking.

PRO SUBSCRIPTION

- PER Rs. 500 MONTH**
- Enhanced Recommendations: Advanced recommendations
 - Real-time Updates: Peak demand notifications.
 - AI Optimization: AI-driven route optimization
 - Safety Ratings: Safety ratings
 - Emergency Assistance: Hotline
 - Priority access to instant rides.
 - Early access to new features.
 - Redeem carbon credits for more special discounts and offers.
 - Book even a day in advance to get matched with the best commuters and riders.

Future goals

01

Global Expansion: We plan to expand our services to more regions and countries, making carpooling accessible worldwide.

02

Electric and Eco-Friendly Vehicles: Integrating electric and eco-friendly vehicle options to reduce carbon emissions further.

03

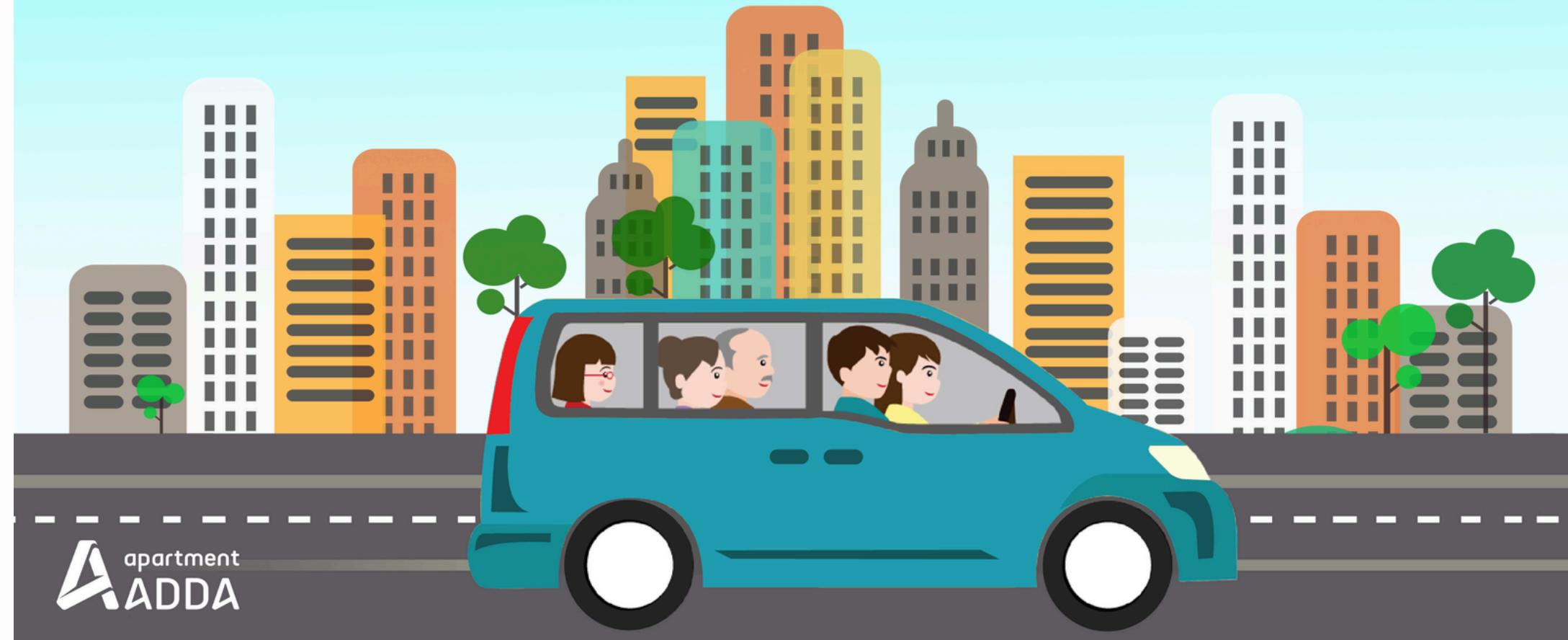
Integration with Public Transit: Seamless integration with public transportation systems for multi-modal commuting.

04

Geofencing: To provide real-time notifications about nearby carpooling to users using geofencing



GREEN LIVING WITH CARPOOLING





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THANK YOU

