AI to compare the ride fares from all the ride-hailing apps

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Abstract

As the ride-hailing industry expands, the multitude of available services poses a significant challenge for consumers seeking the most cost-effective transportation options. This ML based application addresses this challenge by offering a comprehensive solution to compare ride fares from all major ride-hailing services in real-time. The app aims to streamline the decision-making process for users, empowering them to make informed choices based on transparent pricing and personalized preferences.

I. Introduction

The rapid expansion of the ride-hailing industry has transformed urban mobility, offering consumers convenient access to transportation services. However, navigating the multitude of ride-hailing options presents significant challenges for users, including opaque pricing structures, fluctuating fares, and the need to switch between multiple apps for fare comparison. Additionally, users often encounter difficulties in discerning the true cost of rides due to hidden fees, surge pricing, and promotional offers. Also, a larger number of users of cab-hailing platforms are now facing instances of drivers cancelling trips after finding the destination, the mode of payment for the fare, or a combination of both. Ensuring the safety of riders and drivers is also a major concern for ride-hailing companies. Some ride-hailing companies have been criticized for not doing enough to protect riders.

In this context, an AI based application which integrates the fare rates from all the ride hailing app for a particular destination of the customers choice, which also include proper feedbacks and rating as given by previous customers can help in deciding the proper ride with access to a wide range of ride options and pricing information. Fare estimates are updated in real-time to reflect current pricing and surge conditions. Users can set price alerts for specific routes or times and receive notifications when fares drop or surge pricing ends, enabling them to book rides at the most favorable rates.

Also, we focus on to cover all the prominent places where users are likely to hire for a ride rather than limiting to metropolitan cities in India. For this, we will have to;

Develop APIs or integration modules to connect with all major ride-hailing services to fetch real-time ride fare data. Implement data aggregation mechanisms to consolidate fare information from multiple sources into a centralized database. Develop algorithms to calculate and compare ride fares from different ride-hailing services based on user inputs and real-time data. Implement logic to handle dynamic pricing factors such as surge pricing, distance-based fares, and time-

based charges. Train machine learning models to predict fare fluctuations, surge pricing events, and user preferences based on historical ride data and external factors (e.g., time of day, traffic conditions). Integrate machine learning algorithms to enhance the accuracy of fare predictions and provide personalized recommendations to users. Develop notification mechanisms to deliver alerts in real-time via push notifications or in-app messages. Implement robust security measures to protect user data, including encryption, authentication, and secure data storage practices, and much more.

In order to precisely forecast future fare changes, machine learning algorithms can examine past fare data, user preferences, and outside variables (such the time of day, day of the week, and weather). This assists customers in choosing the optimum time to schedule rides in order to receive the greatest deals. Machine learning algorithms can provide consumers with individualized recommendations based on their budget and riding choices by evaluating user behavior, preferences, and historical booking data. By utilizing past data, current events, and external influences, machine learning algorithms are able to predict future demand for ride-hailing services. This helps ride-hailing service providers optimize their operations and allocate resources more efficiently. Machine learning algorithms enable the app to learn and adapt over time based on user interactions, feedback, and changing market conditions. This allows the app to continuously improve its fare comparison accuracy, recommendation quality, and overall performance.

II. Problem statement

- In summary, we are trying to create a platform which integrates all the ride hailing apps so that user can compare between the fare prices without having to navigating through different apps.
- The ratings and feedbacks related to each of those ride hailing apps shall also be displayed so the user can have a secured journey.
- Additionally, we plan to put this technology into use everywhere there is at least one ride-hailing service.

III. Market/Customer/Business Need Assessment

Consumers are constantly searching for affordable alternatives to get about. There is a need for a tool that assists consumers in real-time fare comparison to identify the most affordable transport options, given the volatility of costs across various ride-hailing services and the variations in surge pricing situations. Because ride-hailing services frequently use dynamic pricing algorithms, it can be difficult to determine how much a ride will actually cost. In order for customers to make educated judgments and prevent unforeseen costs, there must be openness and clarity regarding fare estimations.

Switching between multiple ride-hailing apps to compare fares is time-consuming and inefficient. A centralized app that aggregates fare information from various providers streamlines the process, saving users time and effort in finding the best-priced rides. A ride fare comparison app improves the user experience by providing a user-friendly interface, real-time updates, and customizable features, which makes it simpler and more pleasurable for users to find and book rides that suit their needs.
Consumers place a high importance on dependability and transparency in regards to the caliber of drivers. Through the use of a trip fare comparison app, passengers may evaluate potential drivers' professionalism, civility, and driving abilities prior to scheduling a journey, with ratings and reviews based on past experiences. This feedback system guarantees a good user experience and contributes to the development of trust and confidence in the service. In order to help other users make educated decisions and improve the overall safety and quality of the service, customers can offer their comments on a variety of ride-related topics, including cleanliness, punctuality, and vehicle condition.

IV. Target specifications

The proposed platform would empower users to make informed decisions by providing real-time fare updates, pricing breakdowns, and personalized recommendations tailored to individual preferences. Additionally, leveraging advanced technologies such as machine learning can enhance the platform's performance by predicting fare fluctuations, surge pricing events, and user preferences. These are individuals who use ride-hailing services for their daily commute to work, school, or other regular destinations. They value cost-effective transportation options and seek ways to minimize commuting expenses while ensuring convenience and reliability. Also, tourists and visitors to urban areas often use ride-hailing services as a convenient and reliable mode of transportation for exploring the city and reaching tourist attractions. They appreciate transparency in fare pricing and may rely on the app to navigate unfamiliar locations and avoid overpaying for rides. Also, that customers who are price-sensitive and actively seek ways to save money on transportation expenses. They may be willing to switch between different ride-hailing services to find the most affordable fares and appreciate the transparency and cost-saving features offered by the app.

V. External search

The sources which I referred for analyzing the need of such a system are,

- https://economictimes.indiatimes.com/news/india/cancellations-rise-users-feel-taxi-apps-taking-them-for-a-ride/articleshow/106875385.cms?from=mdr
- https://www.linkedin.com/pulse/ride-hailing-sharing-main-product-features-challenges-wizinsights/
- https://medium.com/@sulaimm.tagline/the-challenges-and-solutions-in-implementing-taxi-booking-apps-in-developing-countries-b3a54fd8fa9d

VI. Benchmarking

Prominent ride hailing apps such as, Uber, Ola, Redbus, IXIGO, RedTaxi provides the services. RideGuru; a global ride fare comparison app that aggregates fares from various ride-hailing services, including those available in India, where users can compare prices and book rides through the RideGuru app already exists. But is limited to certain locations. By extending the services to many additional cities and places, and by implementing more business features, we attempt to improvise on this.

VII. Applicable constraints

- API Access and Integration
- Third-Party Data Usage
- Network Connectivity
- Device Compatibility
- Fare Pricing Fluctuations
- Geographical Coverage
- Performance and Scalability

VIII. Applicable regulations

- Data Protection Regulations
- Consumer Protection Laws
- Transportation Regulations
- Geolocation and Privacy Laws
- Health and Safety Regulations
- Telecommunications Regulations

IX. Business model

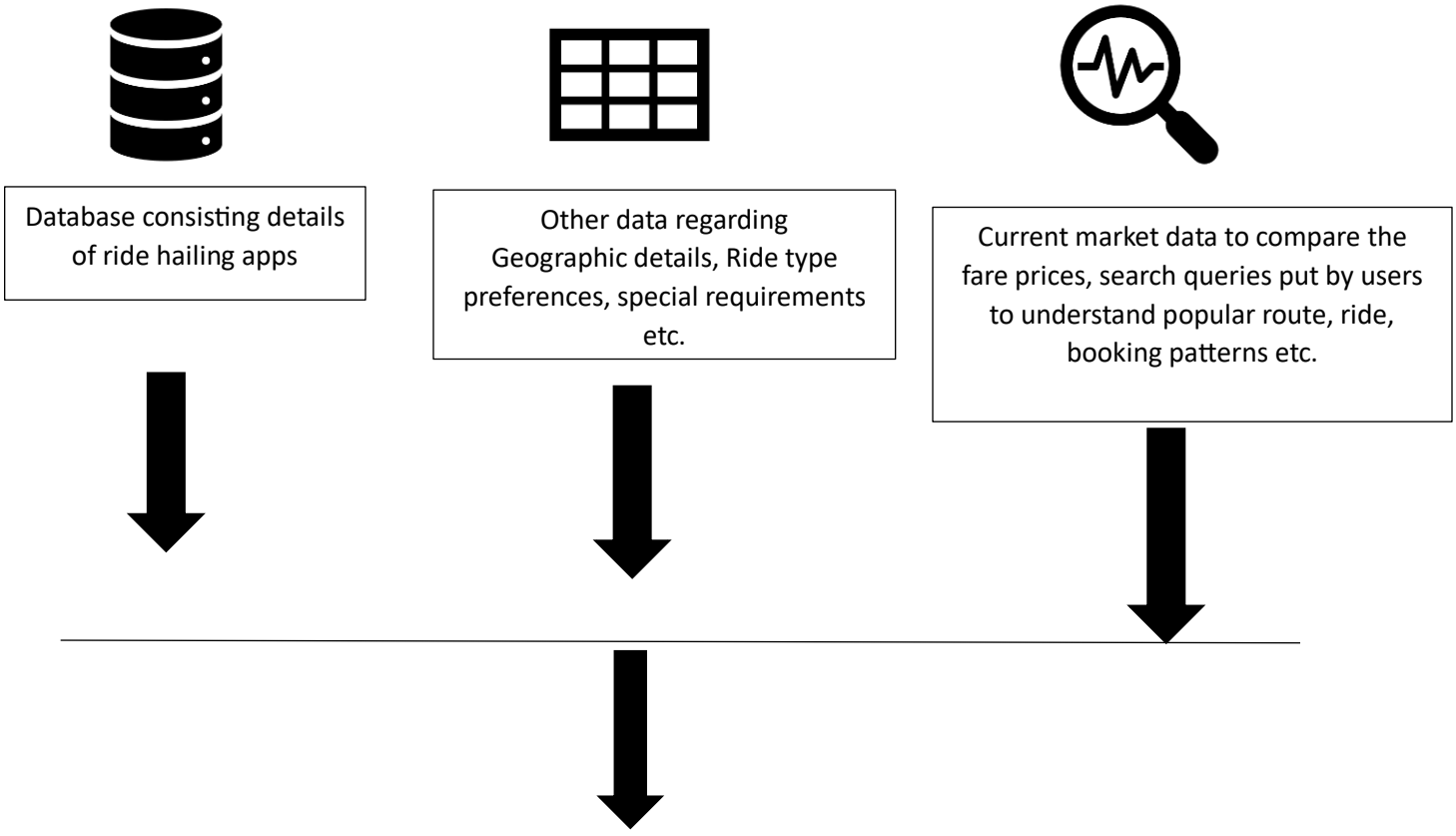
Premium Features or Subscription Plans; Offering premium features or subscription plans with additional benefits, such as ad-free browsing, access to advanced fare comparison tools, offer priority customer support for premium users, with faster response times and dedicated support channels to address any inquiries, issues, or assistance requests, provide access to exclusive deals, discounts, and promotional offers from ride-hailing services and partner businesses available only to premium users. Introduce an offline mode feature for premium users, allowing them to access fare comparison information and plan their rides even when they are offline or in areas with limited internet connectivity. Integrate with loyalty programs offered by ride-hailing services or partner businesses, allowing premium users to earn rewards, points, or cashback incentives for using the app and booking rides.

Advertising Revenue: Offer advertising space within the app to ride-hailing service providers, local businesses, or other relevant advertisers. This can include banner ads, sponsored listings, or promotional offers targeted to users based on their location and travel preferences. Also, can include ads from the restaurants which come within the journey route. Can also include on route food delivery from the nearby restaurants once the ride booking is done. This can be done in collaboration with the restaurants.

Transaction Fees: Charge a small transaction fee for each ride booked through the app. This fee can be deducted from the total fare amount or added as a separate service charge.

Partnerships and Sponsorships: Forge partnerships with ride-hailing services, travel-related businesses, or other relevant stakeholders to offer co-branded promotions, sponsored content, or exclusive deals to app users.

X. Final Product Prototype

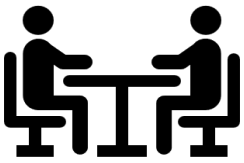


In app; Data preprocessing, Feature engineering, Machine learning modelling; model training, choosing appropriate algorithm, model evaluation, model validation, arriving at the results.

Customers

Deciding through the results provided

Monetization; through transaction fees, partnerships and sponsors, commissions from ride hailing apps, premium subscriptions, ad revenues.



Customer reviews, ratings and feedback gets updated on the app

Conclusion

In conclusion, the development of a ride fare comparison app involves a comprehensive process that encompasses data collection, preprocessing, machine learning modeling, and integration with user interfaces to provide valuable insights and features to users. By leveraging historical ride data, user feedback, and machine learning algorithms, the app can offer accurate fare comparisons, personalized recommendations, and real-time insights to help users make informed decisions about their transportation needs. The machine learning modeling part plays a crucial role in this process by training predictive models to perform tasks such as fare prediction, demand forecasting, and user behavior analysis. Through careful selection of algorithms, feature engineering, model training, and evaluation, the app can deliver accurate predictions and actionable insights to users, enhancing their overall experience and satisfaction.