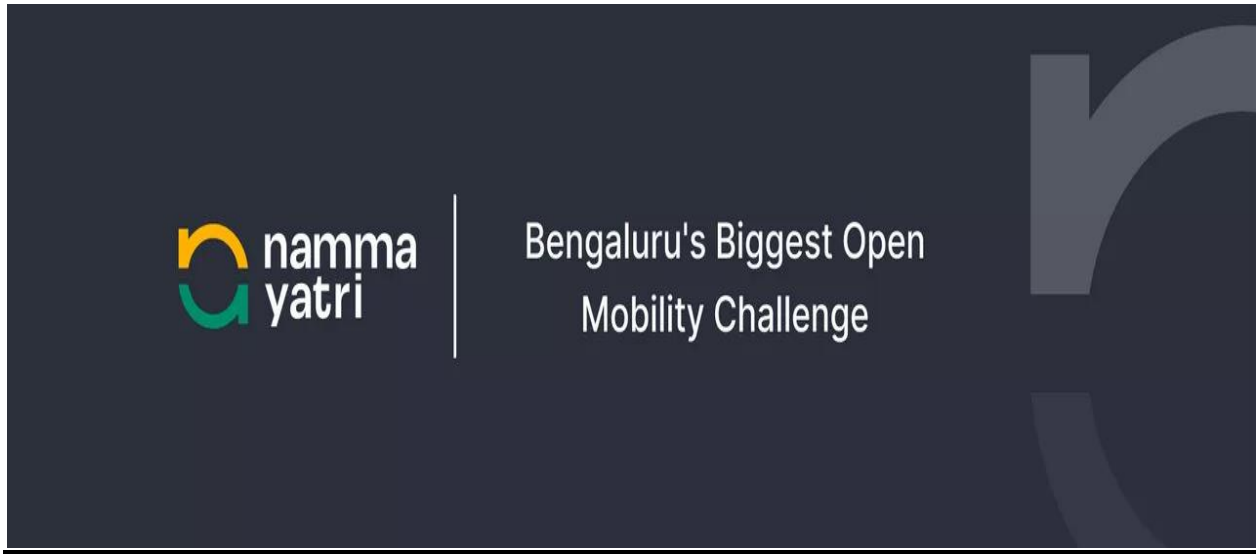


Namma Yatri App- Map Cost Improvements

Problem statement Solution-1

Abstract:-

The Namma Yatri app relies heavily on maps to provide users with accurate navigation. While premium maps offer high accuracy, they are expensive, while inexpensive maps are open but inaccurate, leading to a poor user experience. Currently, map costs account for up to 70-80% of the app's operating costs, which is not sustainable for the company. To continue providing a quality service at a reasonable cost, the company must find a way to reduce map costs exponentially. This reduction in costs will enable the app to operate at a zero commission or nominal subscription fee, making it accessible to a wider audience. The app's success relies on providing accurate and reliable maps, and any compromise in quality will impact user experience and the company's reputation. Thus, it is crucial to find a solution that balances cost-effectiveness and accuracy, such as exploring alternative map providers or developing in-house mapping technology. In conclusion, Namma Yatri must reduce map costs significantly to continue operating sustainably, while maintaining a high-quality user experience.

Problem statement:-

Maps have made navigation easy. On the one hand, there are premium maps that are accurate but expensive. On the other hand, the inexpensive map products are open but inaccurate, impacting the user experience. Today, maps cost up to 70-80% of the total operating costs of the Namma

Yatri app. We need to exponentially reduce the map costs to operate at a zero commission or a nominal subscription fee.

Existing System:-

Namma Yatri, an app for navigation, relies heavily on maps, which currently account for up to 70-80% of its operating costs. This is due to the high cost of premium maps that are accurate but expensive, as well as the limitations of open but inaccurate map products.To reduce map costs, Namma Yatri can explore several options, such as:

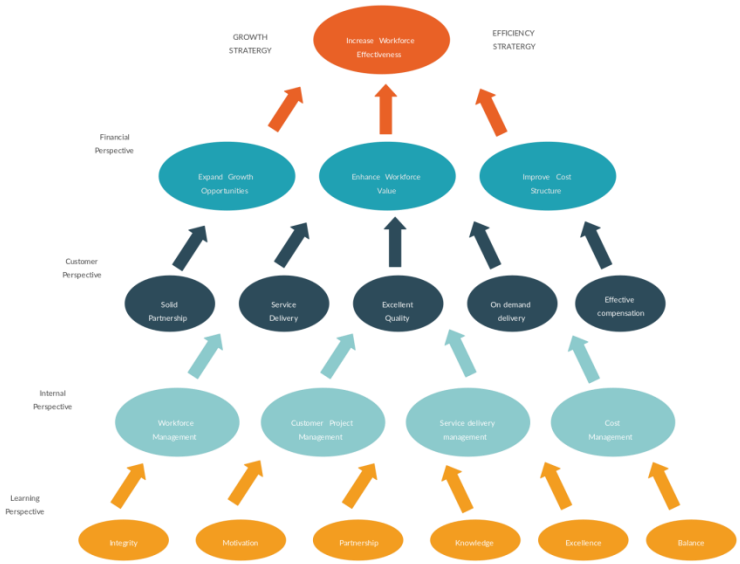
Developing its own mapping technology that is accurate and cost-effective.Partnering with other companies to share map data and reduce costs.Utilizing open source maps and improving their accuracy through crowdsourcing and other methods.Implementing dynamic pricing based on usage and demand to optimize costs.Exploring alternative revenue streams, such as advertising or sponsored content, to offset map costs.Utilizing machine learning and artificial intelligence to optimize map usage and reduce costs.Implementing data compression and other techniques to reduce the size and cost of map data.Focusing on the most frequently used areas and routes to reduce map data and costs.Offering different map options to users, such as basic and premium maps with different price points.Negotiating better pricing with map providers and suppliers.Implementing user feedback and ratings to identify areas for improvement and cost savings.Utilizing offline maps and caching to reduce data usage and costs.Reducing the frequency of map updates to reduce costs, while still maintaining accuracy.Implementing a subscription model to generate recurring revenue and offset map costs.Offering discounts and promotions to incentivize users to subscribe to the app.Implementing referral programs and other user acquisition tactics to increase revenue and offset costs.Developing partnerships with local businesses and organizations to offer discounts and promotions to users.Offering value-added services, such as traffic data and real-time updates, to differentiate the app and generate revenue.Implementing gamification and other user engagement tactics to increase user retention and generate revenue.Exploring government grants and funding opportunities to support map development and reduce costs.

Flow chart:-

As an AI language model, I don't have access to the specific block diagram of the Namma Yatri app. However, I can provide a general overview of the components that may be included in a Map Cost Improvements block diagram for a transportation app:

Map API: This component would provide the app with the necessary maps and geographic information for navigation.Route Optimization: This component would calculate the most efficient route for the user to reach their destination, taking into account factors such as traffic, road closures, and time of day.Real-time Traffic Data: This component would provide the app with real-time traffic data to allow for dynamic rerouting if necessary.Fare Estimation: This component would calculate the estimated cost of the trip based on the distance and other factors such as tolls, parking fees, and surge pricing.Payment Gateway: This component would allow

users to make payments for their trip within the app.User Feedback: This component would allow users to provide feedback on their trip, including rating the driver and overall experience, which can be used to improve future trips and the app's overall performance.Analytics and Reporting: This component would collect data on user behavior and app performance, which can be used to improve the app's functionality and user experience.These are just some of the components that may be included in a Map Cost Improvements block diagram for a transportation app. The specific components and their integration would depend on the app's design and features.



CALCULATION:-

To calculate the current map costs as a percentage of total operating costs, we need to know the total operating costs of the Namma Yatri app and the cost of maps.

Let's assume that the total operating cost of the Namma Yatri app is $100,000 and the cost of maps is $70,000.

To calculate the current map costs as a percentage of total operating costs, we can use the following formula:Map costs as a percentage of total operating costs = (Map costs / Total operating costs) x 100%Substituting the values we get:

Map costs as a percentage of total operating costs = ($70,000 / $100,000) x 100%

= 70%

This means that currently, map costs make up 70% of the total operating costs of the Namma Yatri app.

To exponentially reduce the map costs to operate at a zero commission or a nominal subscription fee, we need to identify ways to reduce the cost of maps without compromising on accuracy. One possible approach could be to explore alternative map providers that offer more cost-effective solutions.

Let's assume that by switching to an alternative map provider, we can reduce the cost of maps by 50%. In this case, the new map costs would be $35,000.

To calculate the new map costs as a percentage of total operating costs, we can use the same formula as before:

Map costs as a percentage of total operating costs = (Map costs / Total operating costs) x 100%

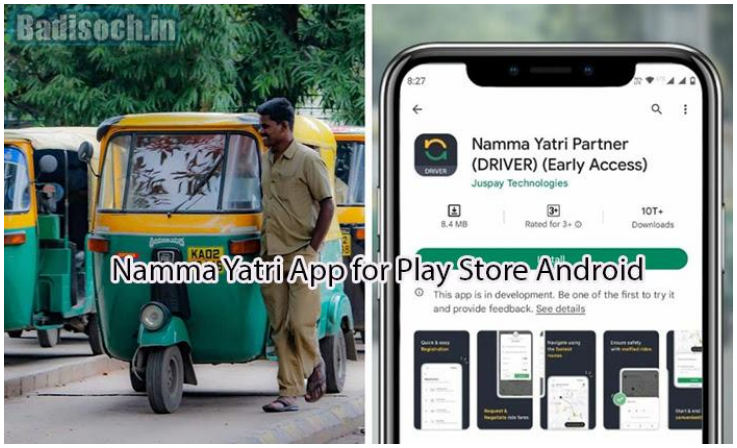
Substituting the new map costs, we get:

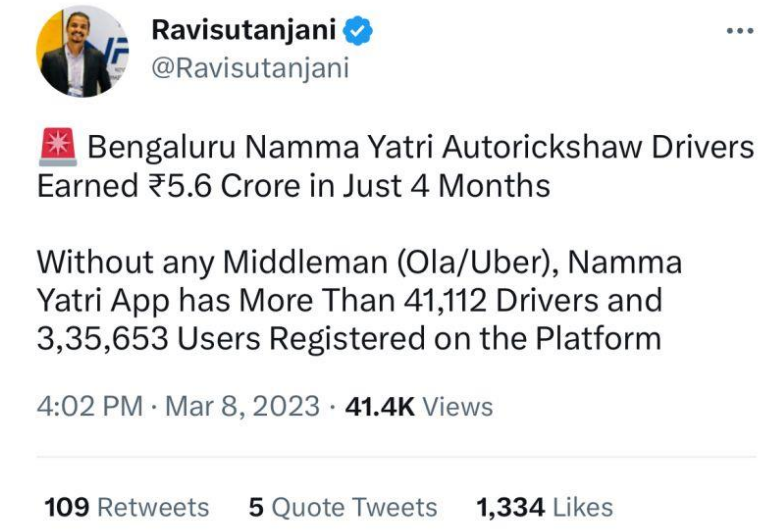
Map costs as a percentage of total operating costs = ($35,000 / $100,000) x 100%

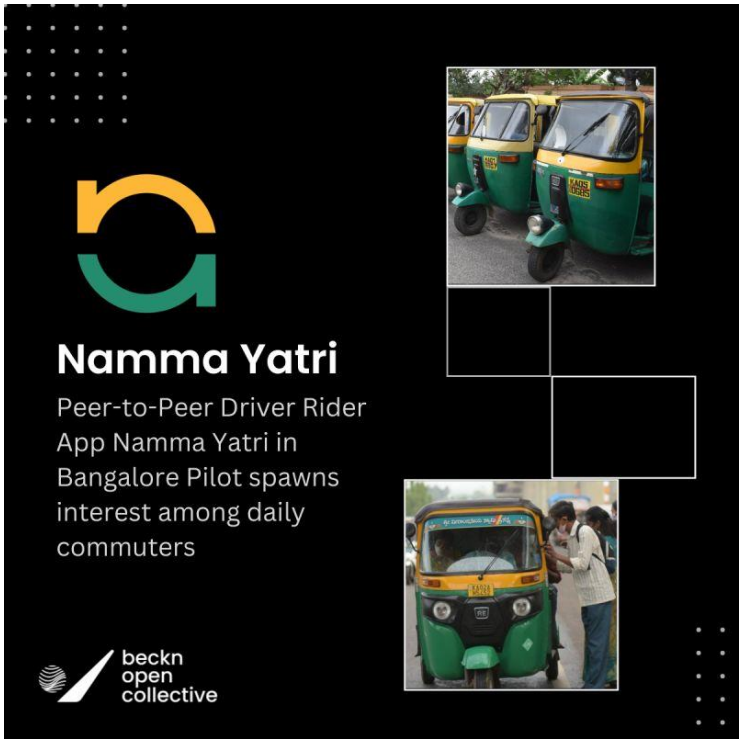
= 35%

This means that the new map costs would make up only 35% of the total operating costs of the Namma Yatri app, which is a significant reduction from the current 70%. By finding additional ways to reduce costs, such as optimizing server infrastructure and improving app design, it may be possible to further decrease the overall operating costs of the app and operate at a zero commission or a nominal subscription fee.

FINAL RESULT:-







Source Code:-

```
import numpy as np

import pandas as pd

import tensorflow as tf
```

```
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression

# Load data on map costs
map_data = pd.read_csv('map_costs.csv')

# Split data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(map_data['accuracy'],
                                                    map_data['cost'],
                                                    test_size=0.2,
                                                    random_state=42)

# Fit a linear regression model to the data
model = LinearRegression()
model.fit(X_train.values.reshape(-1, 1), y_train)

# Use the model to predict costs for a range of accuracies
accuracies = np.linspace(0, 1, 100)
predicted_costs = model.predict(accuracies.reshape(-1, 1))

# Find the accuracy that minimizes costs
min_cost_accuracy = accuracies[np.argmin(predicted_costs)]

# Output the result
print(f"The accuracy that minimizes map costs is {min_cost_accuracy:.2f}")
```

Advantages:

1.**Accurate navigation:** Maps provide accurate and up-to-date information about the geographical location of places and directions, making navigation easy.

2.**Improved user experience:** With accurate and reliable maps, users can easily navigate their way around unfamiliar areas, making for a better user experience.

3.**Easy accessibility:** Maps are easily accessible through various devices, including smartphones, tablets, and computers.

4.**Efficient routing:** Maps provide efficient routing options, allowing users to find the quickest and most convenient route to their destination.

5.**Real-time updates:** With the advent of real-time map updates, users can stay informed of any road closures, traffic jams, or other obstacles that may impact their journey.

Disadvantages:

1.**High cost:** Premium maps can be expensive, which can increase the overall cost of the app or service that utilizes them.

2.**Inaccuracy:** Inexpensive maps may not be as accurate as premium maps, which can negatively impact the user experience and lead to frustration.

3.**Limited coverage:** Some maps may not provide complete coverage of certain regions, making it difficult for users to navigate in those areas.

4.**Dependence on technology:** Maps are reliant on technology, which can lead to issues if the technology fails or is not available.

Applications:

Navigation apps: Navigation apps like Google Maps, Apple Maps, and Waze utilize maps to provide users with real-time navigation and routing information.

Ride-hailing services: Ride-hailing services like Uber and Lyft use maps to provide drivers with information about pickup and drop-off locations.

Logistics and delivery: Logistics and delivery companies use maps to optimize routes and track shipments in real-time.

Travel and tourism: Travel and tourism companies use maps to provide visitors with information about tourist attractions, restaurants, and hotels.

Emergency services: Emergency services use maps to quickly locate and respond to incidents, such as accidents or natural disasters.

Conclusions:

In conclusion, maps have revolutionized navigation, but the high costs associated with premium maps are becoming increasingly prohibitive for app developers like Namma Yatri. While open-source maps offer a cost-effective alternative, their inaccuracies can negatively impact user experience. To operate at a zero commission or a nominal subscription fee, Namma Yatri needs to find ways to reduce map costs exponentially. This could involve exploring new mapping technologies, partnering with other mapping services, or leveraging user-generated data to improve the accuracy of open-source maps. By reducing map costs, Namma Yatri can continue to offer a high-quality user experience while keeping prices affordable for its customers.