

# RIDE FARE FORECASTING REPORT

## **Introduction:**

Uber and Lyft are two popular ride-hailing companies that offer on-demand transportation services through mobile apps. The prices charged by these companies for their services are dynamic and vary based on different factors, such as demand and supply, time of day, distance, and location. Accurate price prediction for these services can be useful for both the customers and the companies. Customers can plan their trips more efficiently, while companies can optimize their pricing strategies to maximize their revenue.

## **Goals:**

The goal of this report is to develop machine learning models for predicting the prices charged by Uber and Lyft for their services. Specifically, we aim to:

- Collect and preprocess data on Uber and Lyft prices from different sources.
- Develop and train machine learning models for predicting the prices of Uber and Lyft services.
- Evaluate the performance of the developed models using different metrics and compare them with existing methods.
- Discuss the limitations of the developed models and suggest possible future improvements.

## **Importance:**

Accurate price prediction for Uber and Lyft services is essential for both the customers and the companies. For customers, accurate price prediction can help them plan their trips more efficiently and save money by avoiding surge pricing. For the companies, accurate price prediction can help them optimize their pricing strategies and maximize their revenue. In addition, accurate price prediction can also improve the overall user experience by reducing uncertainty and increasing transparency.

## **Methodology:**

The methodology for developing machine learning models for Uber and Lyft price prediction can be summarized as follows:

**Data Collection:** Collecting data on Uber and Lyft prices from different sources, such as APIs, web scraping, and data marketplaces.

**Data Preprocessing:** Cleaning and transforming the collected data into a format suitable for machine learning algorithms, such as removing missing values, encoding categorical variables, and scaling numerical variables.

**Feature Engineering:** Extracting and selecting relevant features from the preprocessed data to improve the accuracy of the developed models.

**Model Development:** Developing and training machine learning models, such as linear regression, decision trees, and gradient booster regression using the preprocessed data and selected features.

**Model Evaluation:** Evaluating the performance of the developed models using different metrics, such as mean squared error (MSE), mean absolute error (MAE), and coefficient of determination (R-squared).

**Model Comparison:** Comparing the performance of the developed models with existing methods, such as rule-based methods and time-series forecasting.

Limitations and Future Work: Discussing the limitations of the developed models and suggesting possible future improvements, such as incorporating more data sources, improving feature selection, and exploring more advanced machine learning algorithms.

## **Conclusion:**

In conclusion, developing accurate machine learning models for Uber and Lyft price prediction can provide significant benefits for both the customers and the companies. Accurate price prediction can help customers plan their trips more efficiently and save money, while companies can optimize their pricing strategies and maximize their revenue. The methodology for developing machine learning models for Uber and Lyft price prediction involves collecting and preprocessing data, feature engineering, model development, model evaluation, model comparison, and discussing limitations and future work.