Uber vs Lyft Fare Comparison and Analysis

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Dataset: Uber and Lyft Dataset – Boston, MA (Kaggle)

Overview

This project explores ride-sharing behaviors in Boston, MA, by comparing Uber and Lyft services using a public dataset from Kaggle. We aim to understand fare pricing differences, trip duration trends, and temporal demand patterns for both services. Our analysis employs both Tableau for interactive visualizations and predictive modeling techniques in Python.

Research Questions

1. **How do Uber and Lyft fares compare across different regions?**
    - We used bar charts to display the average fare across Boston neighborhoods, segmented by ride-sharing service.
    - The map visualization reveals geographical trends in pricing hotspots for both companies.
2. **What are the average trip durations for Uber vs Lyft, and how do they vary by time of day?**
    - Line charts track average trip durations across each hour of the day.
3. **Do Uber or Lyft have more demand during specific hours (e.g., rush hour)?**
    - A heat map visualizes the volume of rides per hour.
    - We observed noticeable peaks during early-morning commutes and late-night periods. Uber held more demand than Lyft.

Tableau Dashboards

We developed two Tableau stories to visualize the dataset and address our core research questions.

Story 1: Fare Comparison and Regional Analysis

- Dashboard reflects the bar chart and map interactively. Featuring a dynamic filter to pinpoint what service had higher usage.
- Bar chart comparing average Uber and Lyft fares by region.
- Heat map highlighting demand levels by hour, giving insight into peak and off-peak usage.
- A leaderboard-style table ranks the highest and lowest fare regions.

- Scatterplot to drive home the prices of Lyft were higher than Uber and the direct correlation of pricing vs. distance.

Story 2: Trip Duration and Time-of-Day Analysis

- Dashboard reflects the line chart, map, and bar chart of services by style.
- Line chart showing the change in average trip duration throughout the day.
- Interactive map of Boston displaying fare distribution by service.

Both stories utilize a consistent, clean color theme for clarity and professional presentation.

Predictive Modeling

To be completed by ML team

GitHub Repository Structure

To be completed as a team

Team Roles & Contributions

Team Member	Primary Role	Secondary Role
Revano Harahap	Data Cleaning & Preprocessing	Model Assistance
Val Sanhueza	Predictive Modeling	Data Cleaning Support
Georgina Young	Tableau Visualizations (Fares & Duration)	Dashboard Integration
Dominique Kelsey	Tableau Visualizations (Demand Analysis)	Dashboard Integration