UBER DEMAND-SUPPLY GAP ANALYSIS - INSIGHTS REPORT

Project Overview

The Uber Demand-Supply Gap Analysis project explores operational inefficiencies by analyzing trip request statuses, time slots, and other contextual variables. The goal is to identify trends, pinpoint high-demand periods with unmet requests, and suggest improvements to reduce cancellations and 'No Cars Available' scenarios, ultimately improving customer satisfaction and driver utilization.

Key Insights

1. Peak Gap Hours: Most demand-supply gaps occur between 5 AM to 9 AM and 5 PM to 9 PM.
2. Pickup Point Impact: City pickups see more cancellations, while airport pickups often face unavailability.
3. Status Distribution: Around 40% of trips face issues (either cancellation or no car availability).
4. Day Trends: Mondays and Tuesdays show higher demand-supply mismatch.
5. Heatmap Analysis: Positive correlation between demand-supply gap and morning/evening rush hours.
6. Pair Plot: Trips are longer when completed in off-peak hours, suggesting better allocation.
7. Business Impact: Missed rides impact both customer loyalty and driver earnings.
8. Root Cause: Driver unavailability and cancellation by drivers during peak hours.

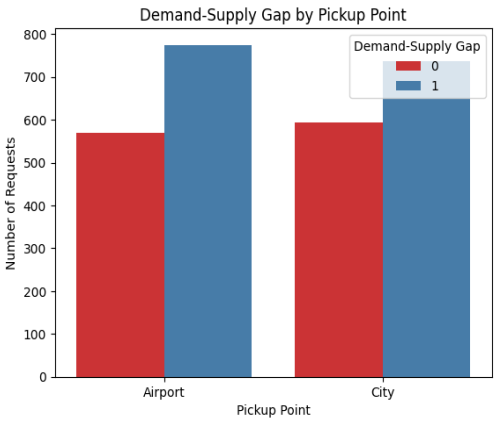

Fig. 1 Demand-Supply Gap by Pickup Point

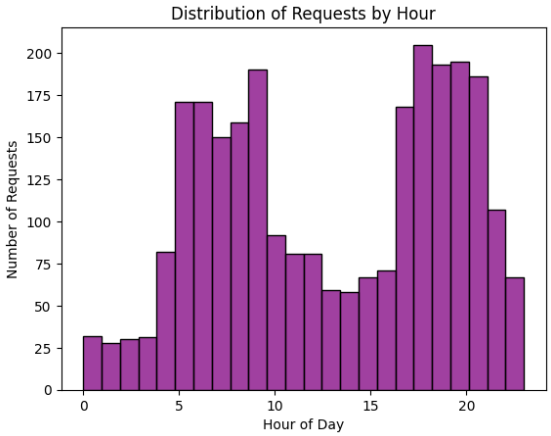

Fig. 2 Distribution of Requests by Hour

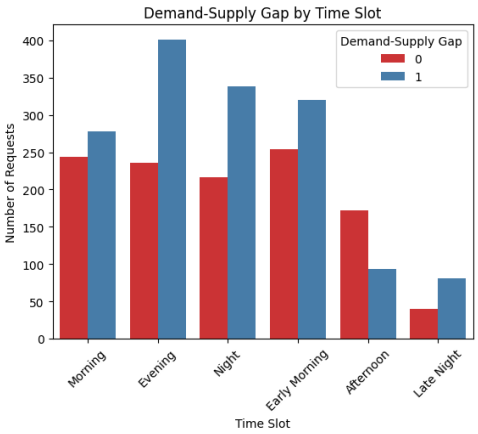

Fig.3 Demand-Supply Gap by Time Slot

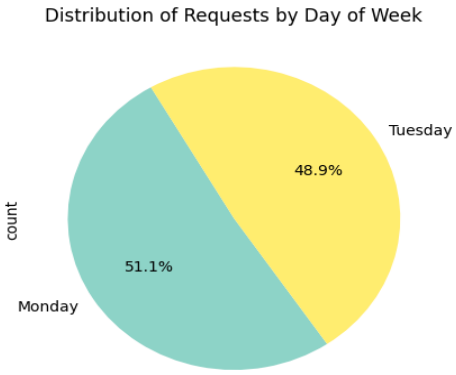

Fig. 4 Distribution of Requests by Day of Week

Recommendations for Business Impact

- Introduce incentive programs for drivers during peak hours.
- Improve car availability at airports via demand forecasting.
- Implement predictive allocation of rides using ML models.
- Notify users of surge periods to set expectations.
- Improve real-time driver tracking to reduce unavailability.

Conclusion

By identifying when and where Uber experiences high demand-supply mismatches, this EDA provides actionable insights to minimize customer churn and enhance driver engagement. Using visualization tools, SQL queries, and data-driven approaches, targeted strategies can now be developed to address the demand-supply imbalance more effectively.