



Uber Supply- Demand Gap Analysis

*An Exploratory Data Analysis on Ride
Request Patterns*

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Project Overview

Objective:

- To analyze ride request data from Uber to identify patterns in supply-demand gaps and suggest data-driven solutions.

Tools Used:

- Python (Pandas, Seaborn, Matplotlib)
- SQL
- Jupyter Notebook



Dataset Summary

Data Source: Uber Ride Request Data (CSV format)

Key Columns:

- request_id, timestamp, pickup_point, status, driver_id
- Time Period: Specific day-based hourly data
- Total Requests Analyzed: ~6,757

Key Insights – Demand-Supply Gap



OBSERVATION 1:

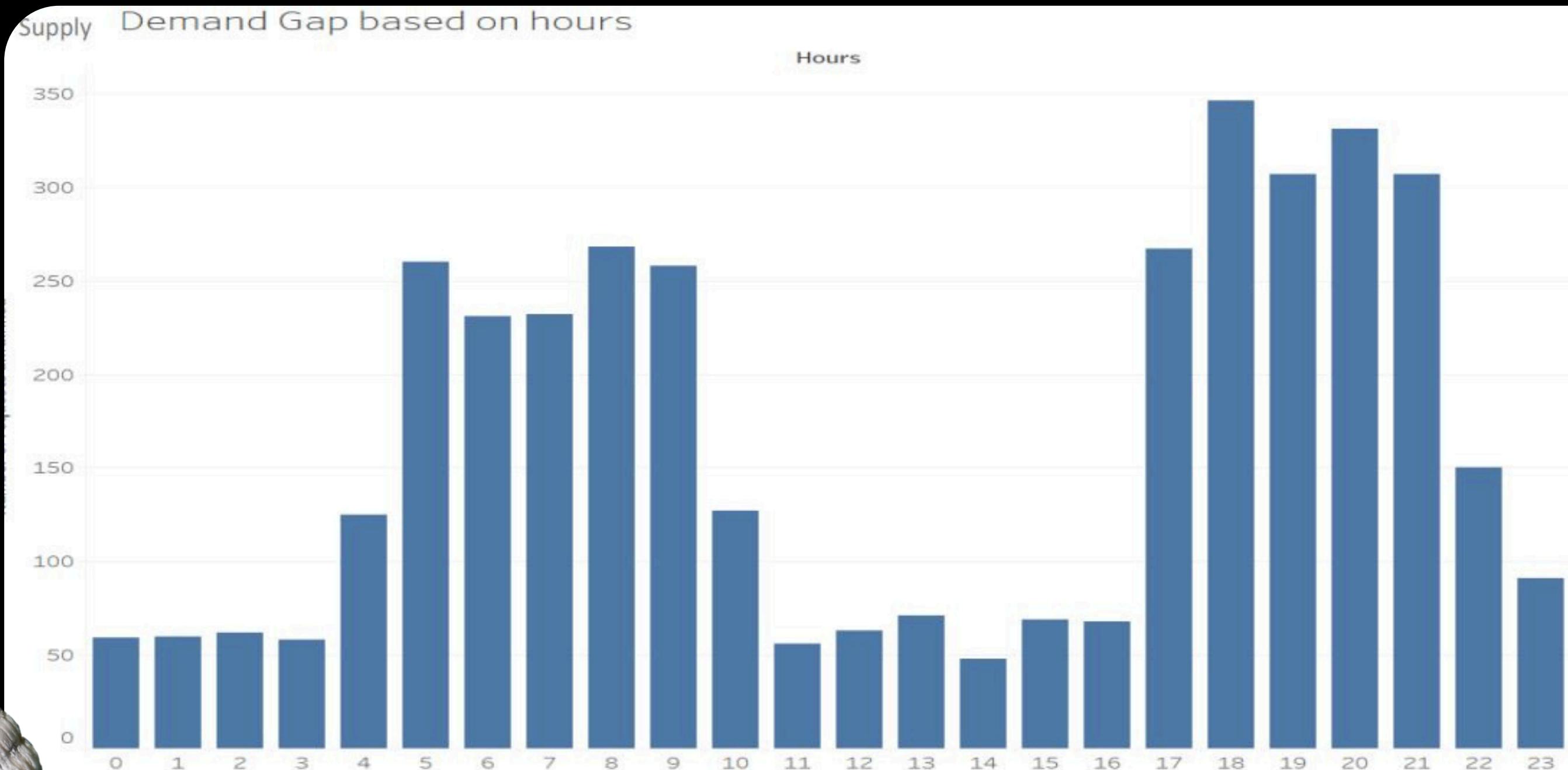
Significant supply-demand gap exists from Airport to City during:

- Late Night (11 PM – 3 AM)
- Early Morning (4 AM – 7 AM)



OBSERVATION 2:

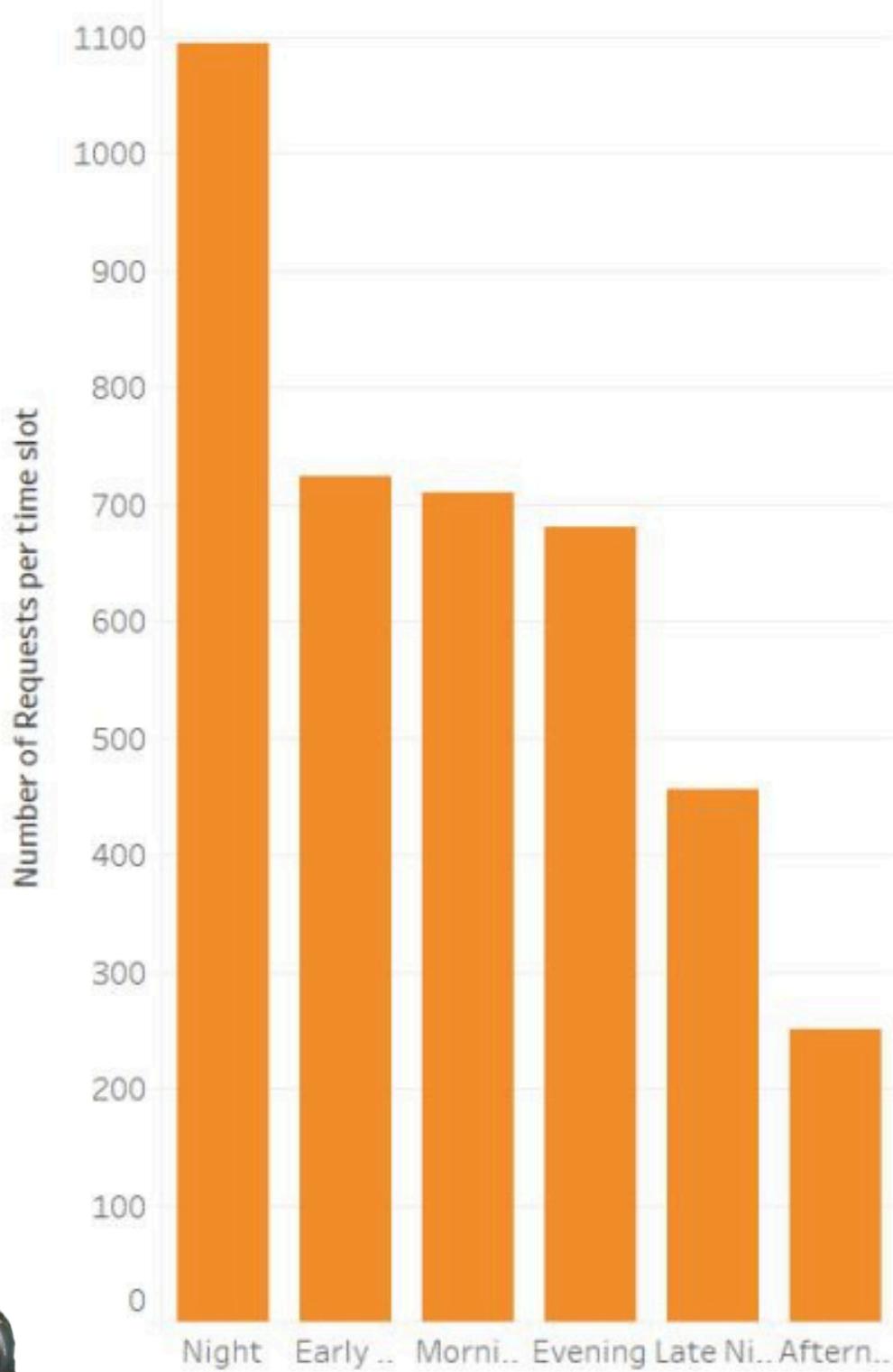
- High ride cancellations in early morning
- High ride unavailability at night



DEMAND GAP BASED ON HOURS

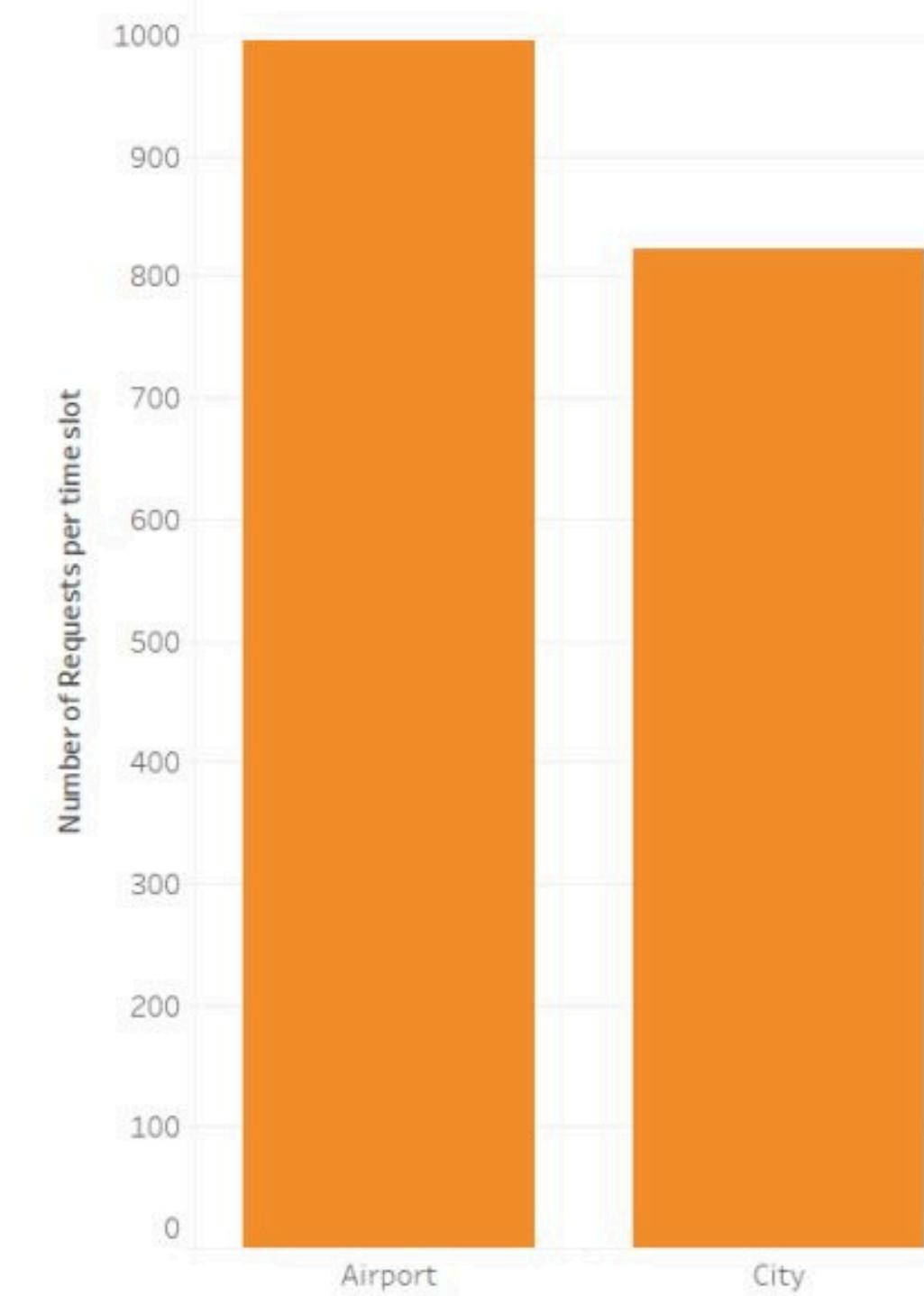
Supply Demand Gap

Time of Day



Supply Demand Gap Based on Pickup point

Pickup point



SUPPLY DEMAND GAP AND GAP BASED ON PICKUP

Frequency of requests in different timeslots with respect to Pickup point and Status

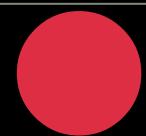


Root Causes Identified



DRIVER
CANCELLATIONS:

PEAK DURING EARLY MORNING,
ESPECIALLY FOR AIRPORT
PICKUPS.



CAB
UNAVAILABILITY:

HIGHEST DURING NIGHT HOURS
(DRIVERS OFFLINE OR INACTIVE).

Recommendations

Dynamic Incentive Model:

- Offer rush-hour pricing incentives for drivers during early morning shifts (esp. 4–7 AM).

Night Shift Coverage:

- Encourage night shift rosters for drivers with extra payouts for odd hours.

Real-time Monitoring Dashboard:

- Build a system to predict shortages and auto-notify idle drivers.

Impact of Recommendations

Expected Outcomes:

- Reduction in ride cancellations and unfulfilled requests
- Increased driver participation during peak-gap hours
- Improved rider experience and operational efficiency



Conclusion

- 📌 Data shows a clear temporal imbalance in demand and supply.
- 📌 Actionable insights can be implemented with targeted driver incentives and operational restructuring.





Final Thought:

*"Solving the right problem
begins with understanding
the data behind it."*



Thank you

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