

# **Uber Supply–Demand Gap Analysis**

## Insights Report

### **1. Summary**

This report presents key insights derived from the analysis of Uber ride request data to identify supply–demand gaps affecting ride fulfillment. Using Excel dashboards, SQL queries, and Python-based exploratory data analysis (EDA), the study highlights critical time periods and pickup locations where ride demand exceeds available supply.

### **2. Dataset Overview**

The dataset contains Uber ride request records including pickup location, request time, ride status, driver availability, and derived unmet demand indicators. Key variables such as request hour and pickup point were used to analyze operational inefficiencies.

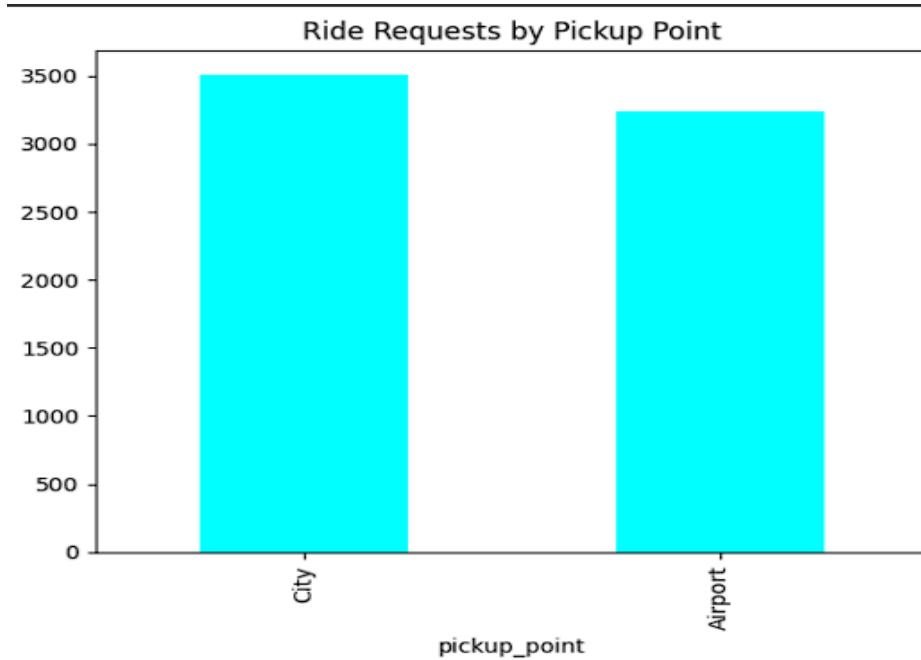
### **3. Tools & Methodology**

- **Excel:** Data cleaning and dashboard visualization
- **SQL:** Aggregation and querying for demand insights
- **Python:** EDA using Pandas, Matplotlib, and Seaborn

### **4. Key Visual Insights**

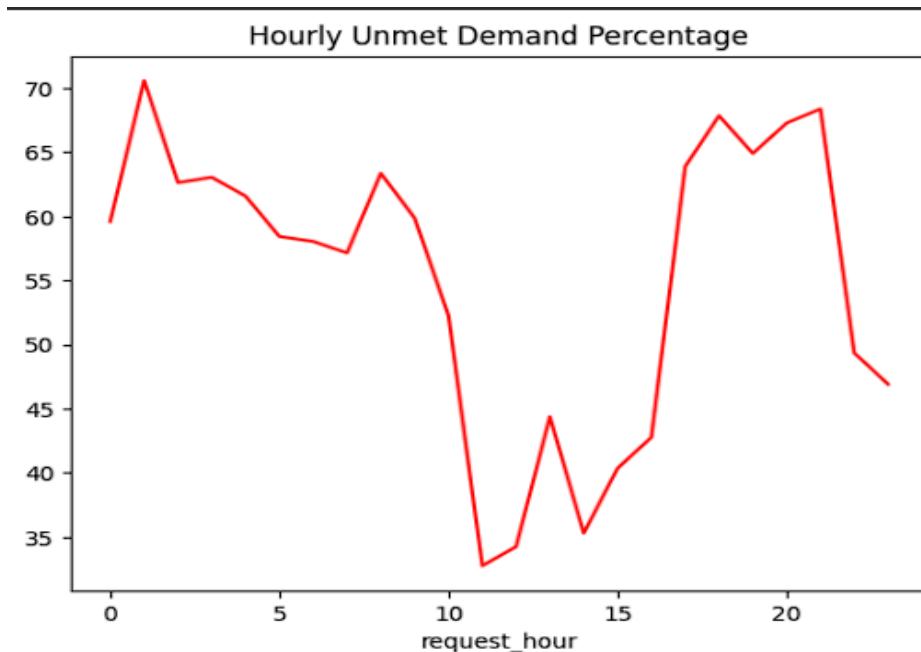
#### 4.1 Insight 1: Ride Requests by Pickup Point

The City records a higher number of ride requests compared to the Airport, indicating stronger overall demand in urban areas.



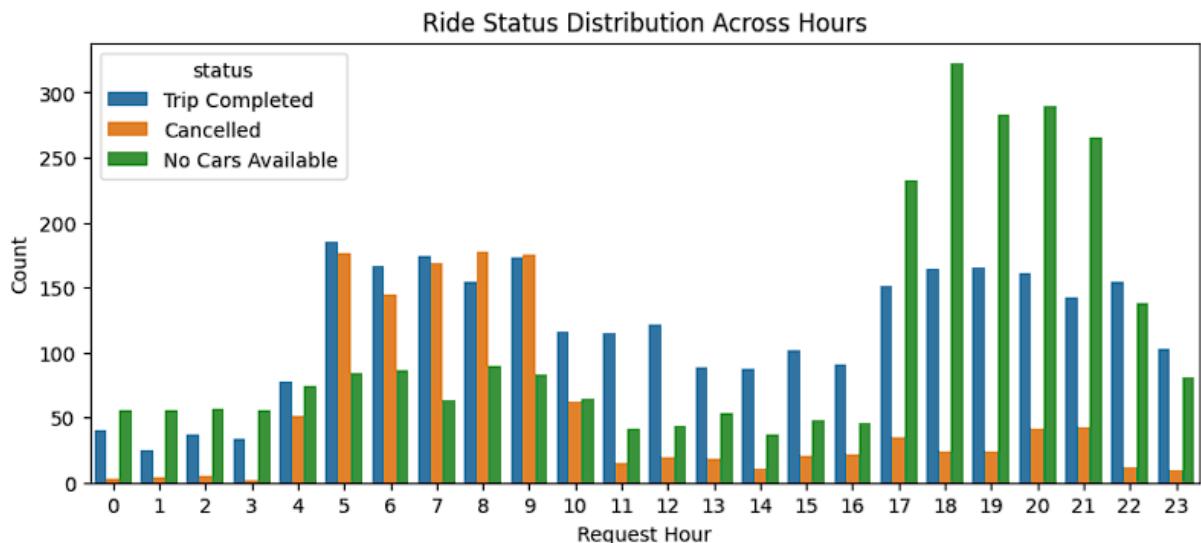
#### 4.2 Insight 2: Hourly Unmet Demand Percentage

Certain peak hours experience a high percentage of unmet demand, showing that driver supply is insufficient when demand is highest.



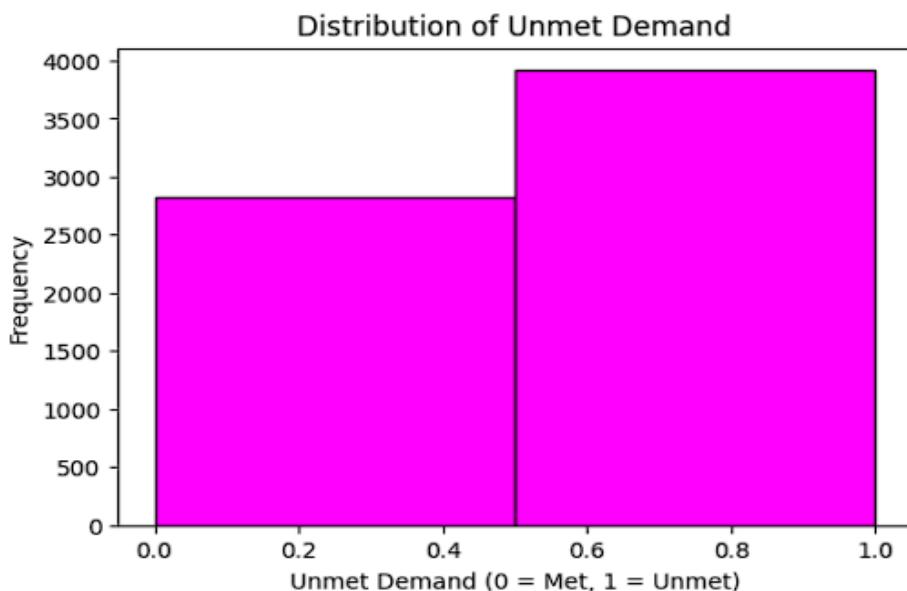
#### 4.3 Insight 3: Ride Status by *Ride Status by Hour*

Ride requests increase during specific morning and evening hours, indicating peak demand periods driven by commuter and travel activity.



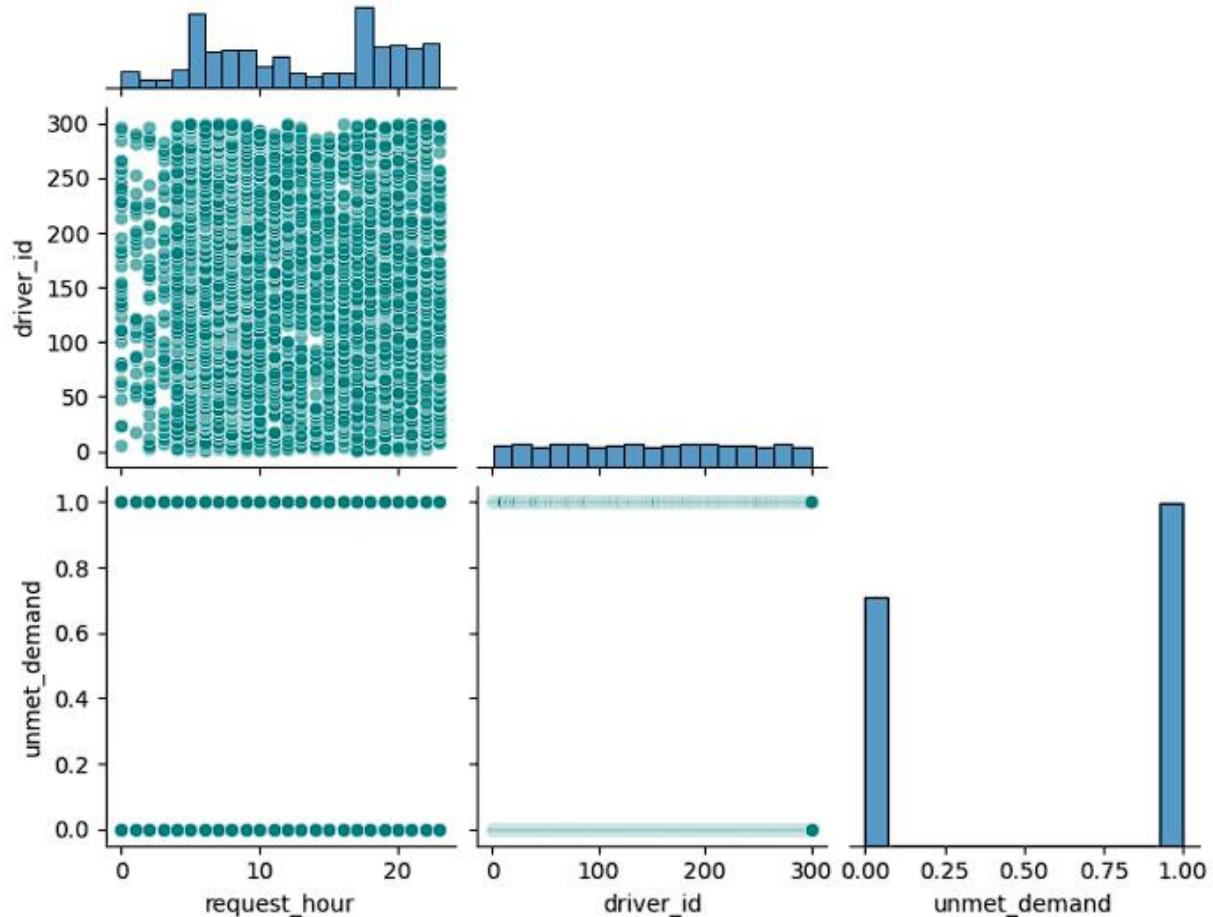
#### 4.4 Insight 4: Distribution of Unmet Demand

Although most ride requests are fulfilled, a significant number remain unmet, confirming the presence of a supply–demand gap.



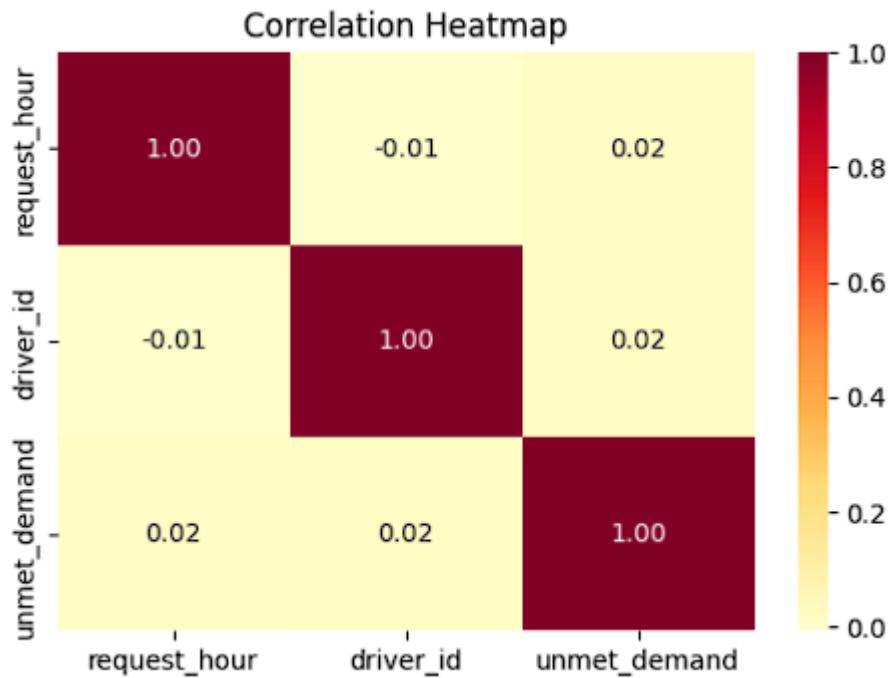
#### 4.5 Insight 5: Pair Plot Analysis

The pair plot shows noticeable variation in unmet demand across different request hours, indicating time-dependent service inefficiencies.



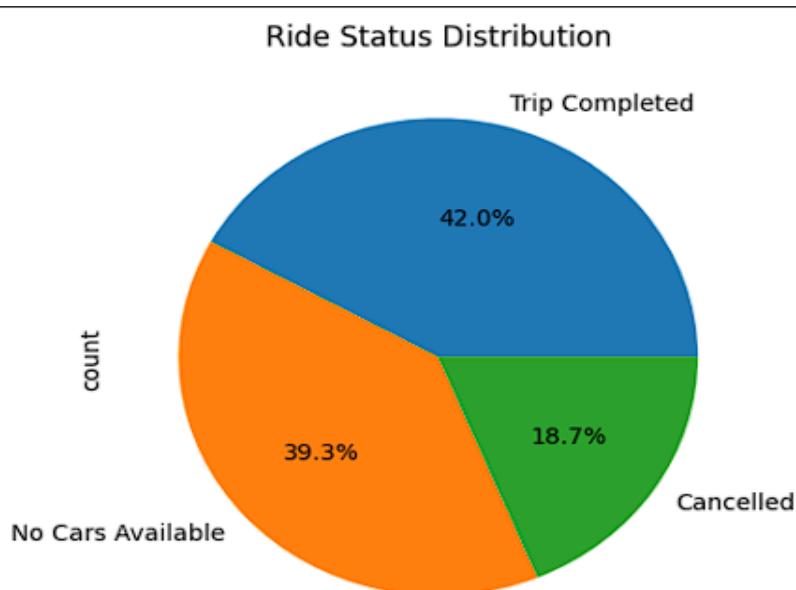
#### 4.6 Insight 6: Correlation Heatmap

The heatmap reveals a clear relationship between request hour and unmet demand, confirming time as a key factor influencing ride fulfillment.



#### 4.7 Insights 7: Ride Status Distribution

While most ride requests are completed successfully, a significant portion results in cancellations or no-car availability, indicating supply-side inefficiencies.



## **5. Business Impact**

Supply–demand imbalances negatively affect customer satisfaction, ride completion rates, and operational efficiency. High unmet demand during peak hours can lead to customer churn and reduced service reliability.

## **6. Recommendations**

- Increase driver availability during peak demand hours
- Introduce targeted incentives for airport pickups
- Use demand forecasting for dynamic driver allocation
- Reduce city-side cancellations through improved matching

## **7. Conclusion**

This analysis highlights critical supply–demand gaps in Uber ride operations using Excel, SQL, and Python-based EDA. Implementing time-based and location-specific strategies can significantly improve ride fulfillment and customer experience.