

Uber Supply Demand Gap

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1. Dataset Overview

The dataset contains Uber ride request records.

It includes fields like:

- Request and Drop timestamps
- Pickup point (Airport / City)
- Trip status (Completed, Cancelled, No Cars Available)
- Driver ID (if assigned)
- Time slot and request type derived from timestamp

This analysis focuses on identifying **demand-supply gaps, cancellations, lost revenue, and operational inefficiencies.**

2. SQL Insights Summary

From SQL queries:

- **Top time slots with max requests:** Evening and early morning
- **Most cancelled requests:** At Airport
- **Fulfillment rate:** City pickups performed better (70%+) than Airport (~45%)
- **No cars available:** Peak in 5–9 AM and 5–9 PM slots
- **Cancellation ratio:** Highest at Airport in early morning slots
- **Trip completion rate:** Max during mid-day and late night
- **Driver availability:** Varies by time slot; city sees higher availability

3. Python-Based EDA Insights

Chart 1: Trip Requests by Hour

Shows overall hourly distribution of requests

Insight: Demand peaks in **early morning (5–9 AM)** and **evening (5–9 PM)**.

Chart 2: Status by Hour

Breakdown of completed, cancelled, and failed trips by hour

Insight:

- Most trips are completed during mid-day and late night.
- **High cancellations** and **No Cars Available** during early office hours.

Chart 3: Status by Pickup Point

Compares trip outcomes from **Airport vs City**

Insight:

- Airport sees more cancellations.
- City has higher **trip completion** success.

Chart 4: Cancellation % by Pickup Point

Insight:

Airport has a significantly **higher cancellation rate (~55%)** compared to the City (~30%).

Chart 5: Estimated Lost Revenue by Hour

(Assuming ₹100 lost per unserved request)

Insight:

- Uber **loses maximum revenue** during **8 AM and 6 PM**
- Main cause: No drivers available or system failure in assignment.

4. Demand-Supply Gap Analysis

- **Demand consistently exceeds supply** in Airport pickups.
- Early mornings and evenings suffer from **driver shortages**.
- **Fulfillment rate drops below 50%** during peak slots.
- Estimated **revenue loss per day** easily crosses ₹2000–₹3000 during peak hours.

5. Recommendations

1. **Dynamic driver allocation** based on historical peak slots.
2. **Incentivize drivers** to accept rides from Airport.
3. **Reduce cancellations** via early warnings or penalty/reward system.
4. **Improve supply chain** based on hourly demand insights.
5. **Add predictive models** to anticipate when/where demand may spike.

6. Conclusion

This Uber data analysis highlighted that **Airport pickups during peak hours** are the **weakest link**, causing high cancellations and revenue losses.

By improving driver availability and fulfillment rates, Uber can gain better operational control and increase customer satisfaction.