Uber Supply-Demand Gap

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Problem Statement:

Driver Cancellations and Non-Availability of cabs to and from Airport leading to loss of potential revenue.

Business Objective:

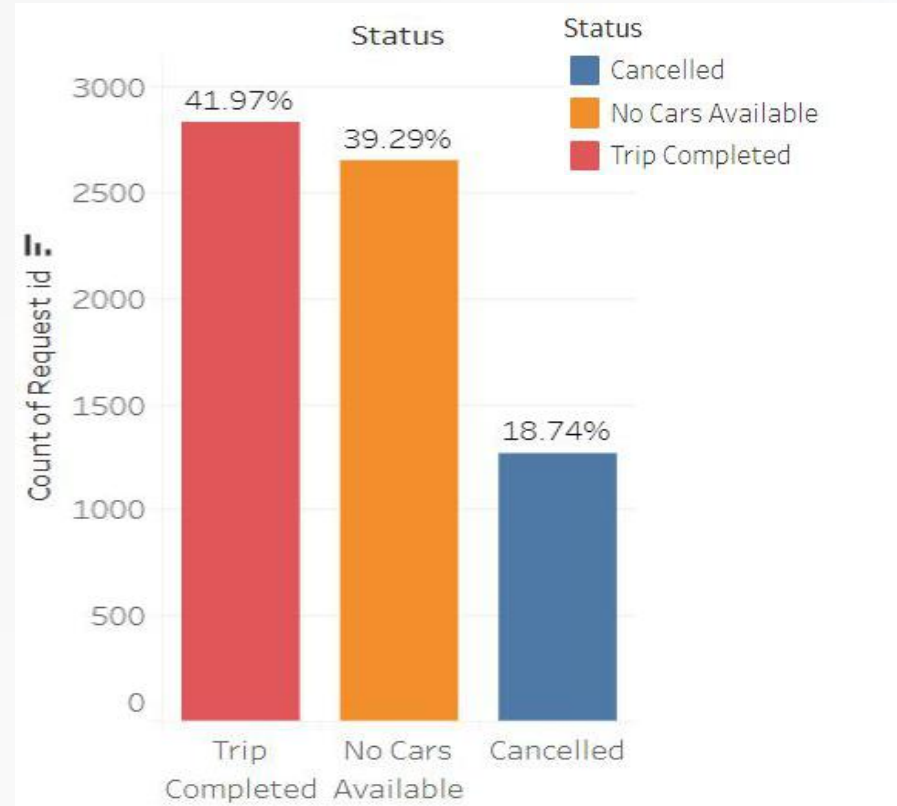To identify the Supply-Demand gap in cabs from Airport to City and vice-versa.

Research Questions:

- Identify the most pressing problems for Uber
- What is the gap between supply and demand to and from Airport
- What might be the reason for this supply-demand gap?
- Recommend some ways to improve the supply-demand gap.

Data Used for Analysis:

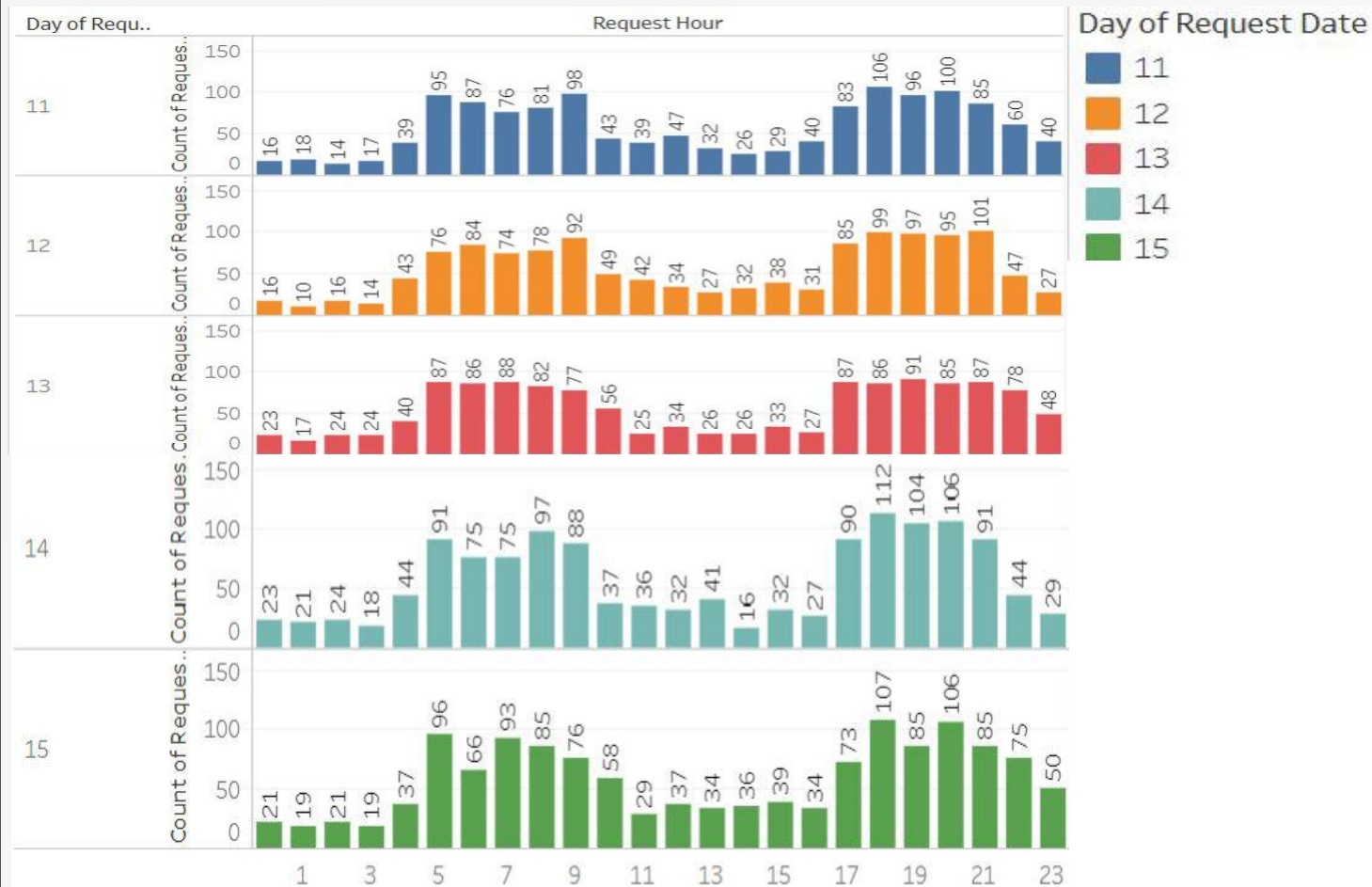- The data used is only to and from Airport.

The Problem:

The **Demand** for cabs is equivalent both from Airport to City and vice versa.

There is a huge gap in **Supply** as only about **42%** of the requests are fulfilled.
There is a gap of **58%** in the supply of cabs.
About **39.3%** shortage in cabs availability in the concerned areas and **18.7%** trips cancelled.

Overall Demand Based on Date and Time

Irrespective of days, it is clearly seen that the demand is high demand of cabs mainly in:

- Morning (5am to 10am)

- Late Evening and Night (5pm to 11pm)
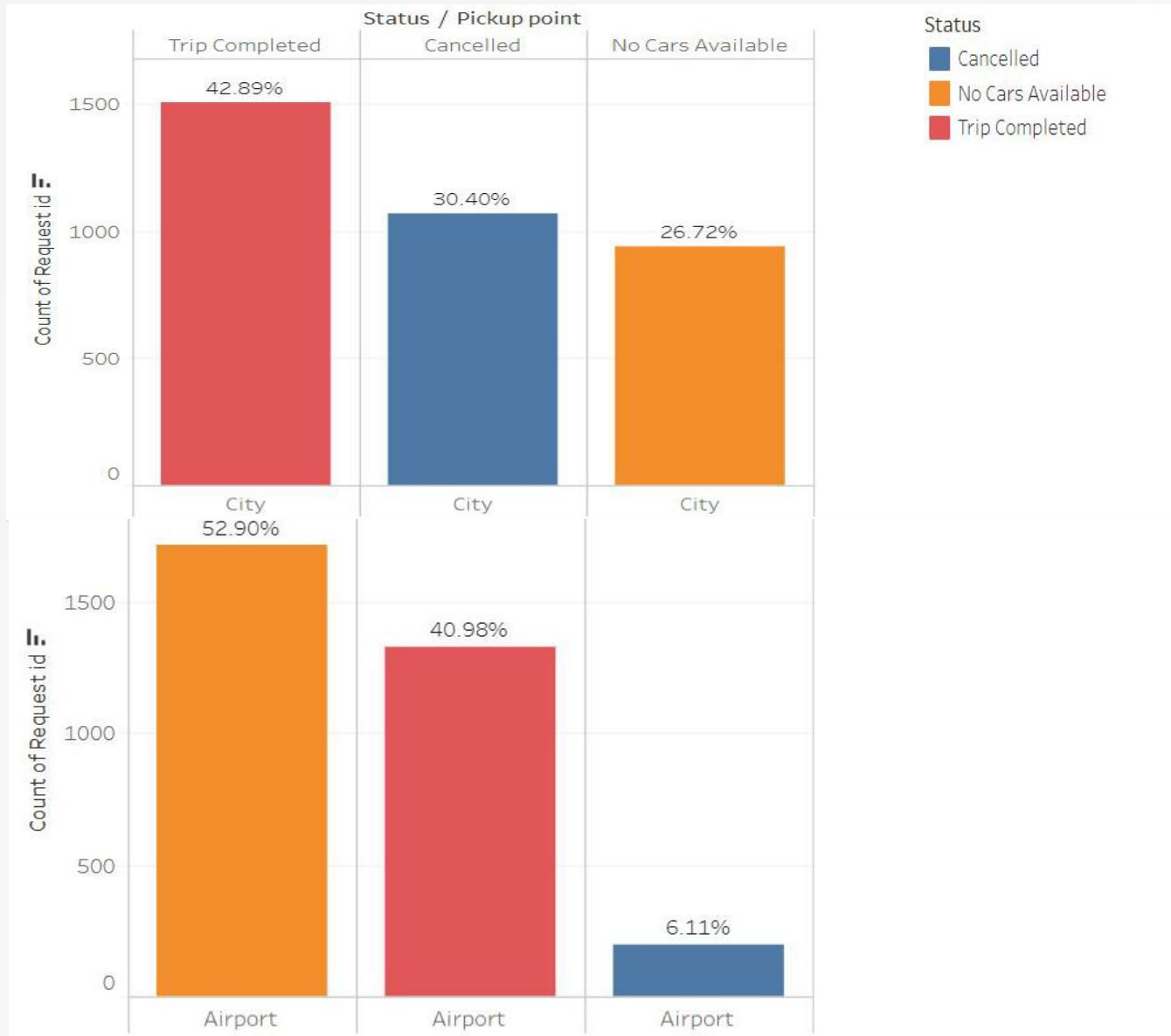
Demand Based on Time and Location

There is a high demand of cabs from City to Airport in the **Early Morning and Morning hours**.

There is a high demand of cabs from Airport to City in the **Evening and Night hours**.

This means there are chance of having:

- more Outbound flights in the **Early Morning and Morning**
  Hence more customers going to Airport and **less customers coming to City**,

- more Inbound flights in the **Evening and Night**
  Hence more customers coming to City and **less customers going to Airport**.
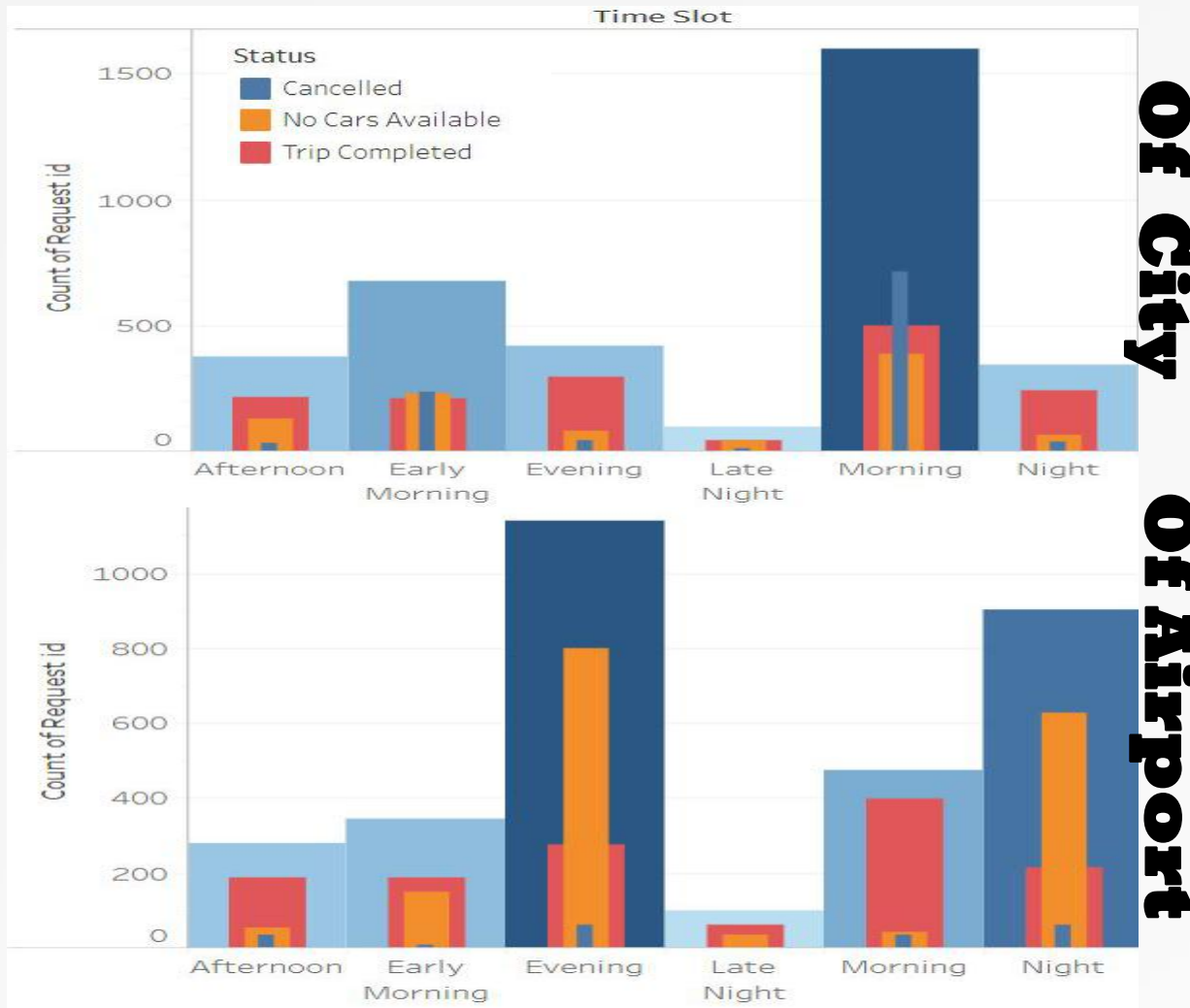
Supply Based on Location

City to Airport :
- 30.4% requests Cancelled
  - ☑ Cabs denying services

- 26.7% face Non-Availability
  - ☑ Shortage of cabs in city

Airport to City :
- 52.9% face Non-Availability
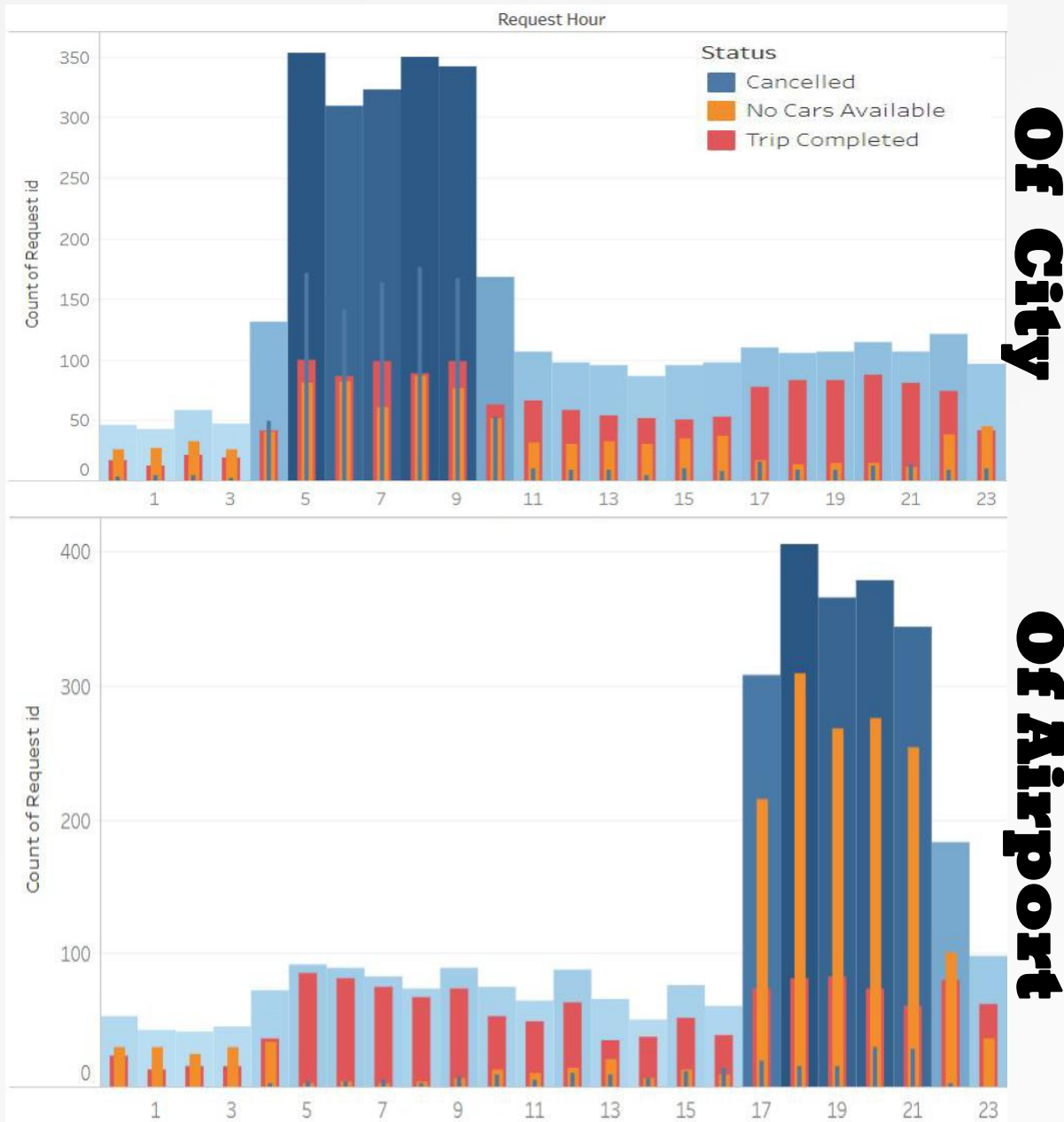 - ☑ Shortage of cabs around Airport

Demand and Supply Gap

City to Airport (Early Morning and Morning):
1. High Demand
2. Low Supply
   - ☑ Cabs denying services as not enough demand from Airport to meet the influx of cabs
   - ☑ Also not enough cabs to meet the demand

Airport to City (Late Evening and Night):
1. High Demand
2. Low Supply
   - ☑ Not enough cabs go towards Airport to meet the demands

Demand and Supply Gap - The Reason

What is the reason for this supply demand gap?

1. The flow of traffic is one directional due to flight timings.
   - ☑ **Early Morning and Morning:** High demand from City, but low demand from Airport. Hence it's risky/less opportunity for drivers to get return trip to City and the trips are cancelled.

   - ☑ **Late Evening and Night:** High demand from Airport but not enough cars around as less number of cars go towards airport in evening.

2. There is a shortage of cabs in general. At the peak times there is about **26%** chance of Non-Availability of cabs both to and from Airport

Possible Solutions and Recommendations:

- It was found the demand at peak times is mostly unidirectional and demand at destination around that was not enough for return trips for drivers.

  ☑ It is recommended to provide incentives to drivers for trips to and from Airport during these rush hours (to 5 am to 11am and 5pm to 11pm.
  ☑ During these rush hour customers can be charged higher for trips to and from Airport.

- It was also observed that there is a shortage of cabs in general.
  Though the reason of shortage from Airport is not enough organic supply to the airport, but from city as well, overall about 26.7% requests face Non-Availability of cabs.

  ☑ Avg. Non-Availabilty hourly
     ∗ Airport = 71
     ∗ City = 39
  ☑ Hence based on the available data a new fleet of 40-70 cabs can added to Uber services

- The average time of travel is 52.4 minutes for these trips.

  ☑ Incentive based on distance of trips will encourage drivers to take these trips. This would make a better financial sense for drivers.
  ☑ Accordingly longer trips should be charged

- Incentivising these trips will in turn meet more customer demands, resulting in better profits for Uber.

- Educating drivers about these demand-supply gap.