Supply-Demand Gap

Assignment Submission

Presented By:

Arram Rahul

Overall Demand Based on Date and Time

Problem Statement

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

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.
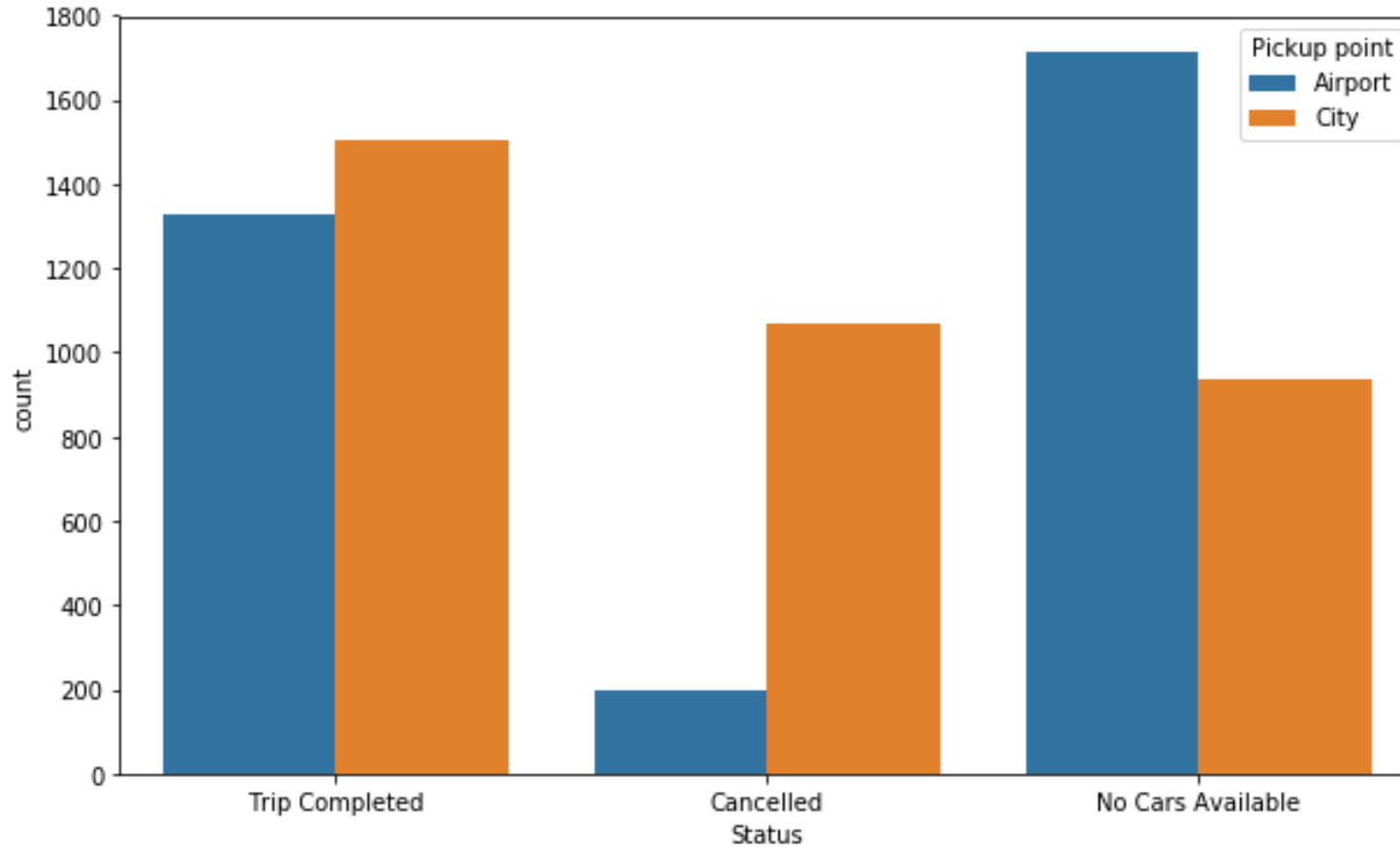
Demand Based on Time and Location

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 Late Evening and Night hours.

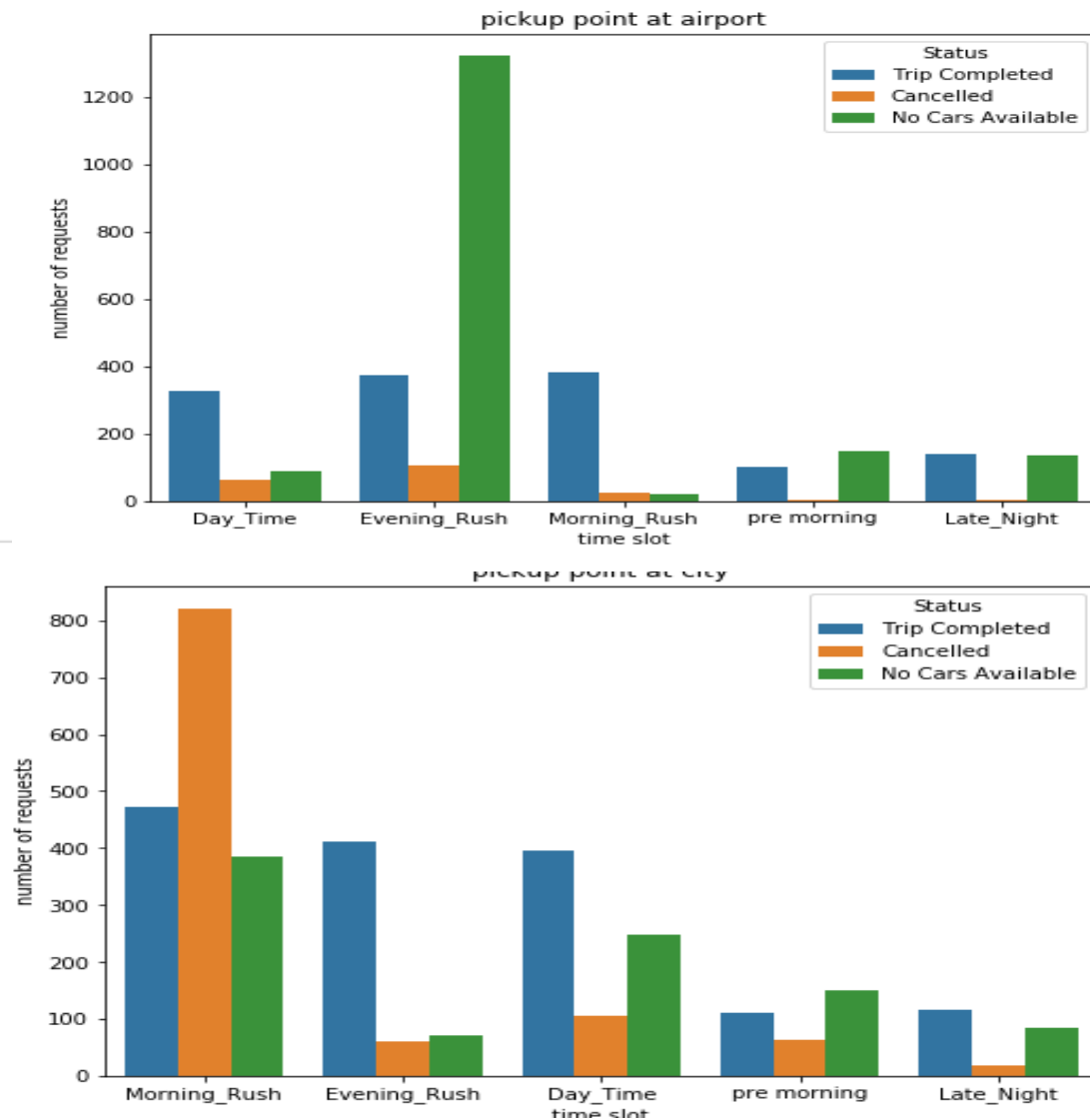This means there are chance of having :

- 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 Late Evening and Night. Hence more customers coming to City and less customers going to Airport.

Supply Based on Location

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

- City to Airport :
  - requests Cancelled
    Cabs denying services

  - face Non-Availability
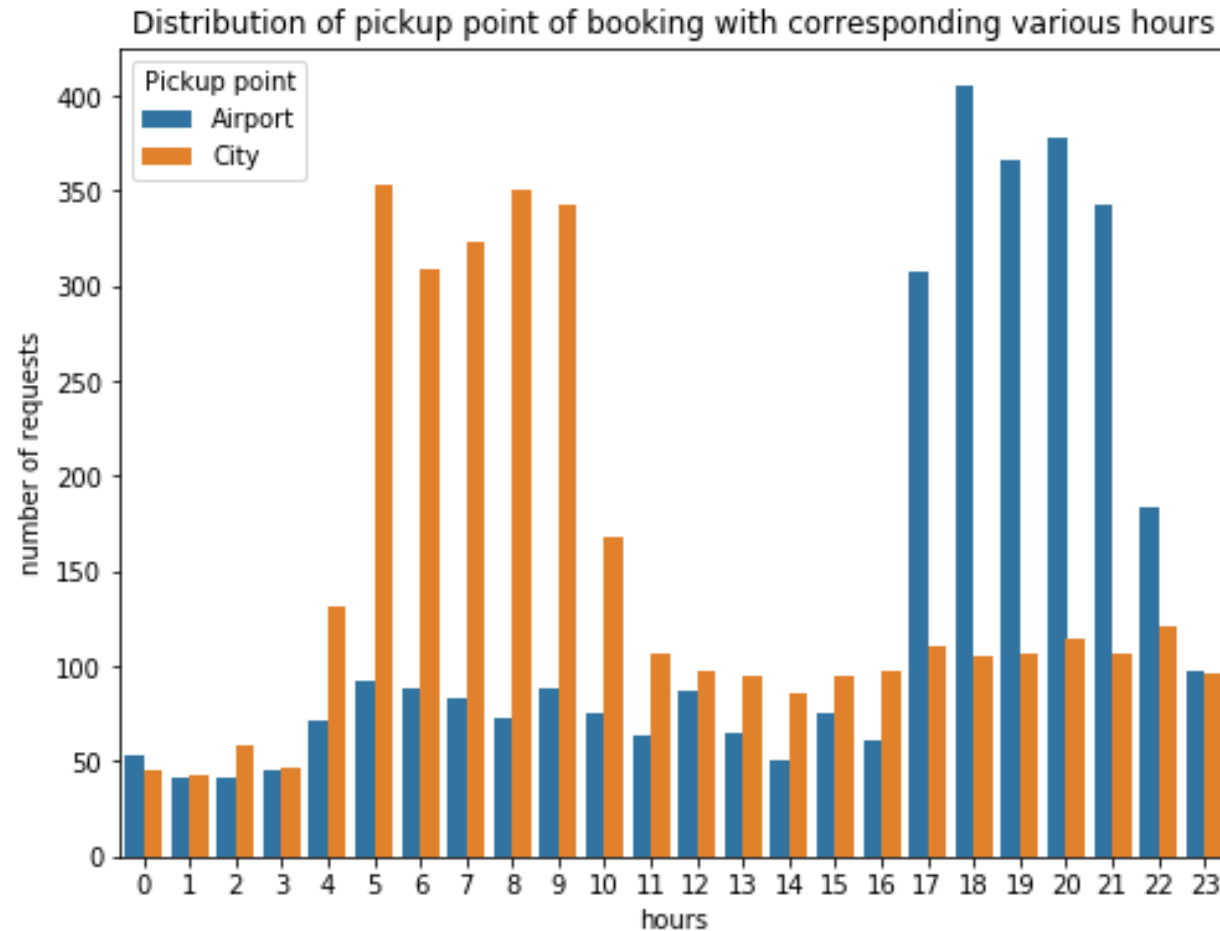   Shortage of cabs in city

Demand and Supply Gap

pickup point at airport

pickup point at city

The bar graph also show us the following:

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

- City to Airport (Early Morning and Morning) :
    - High Demand
    - 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

Demand and Supply Gap – The Reason

Distribution of pickup point of booking with corresponding various hours

What is the reason for this supply-demand gap?

○ 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.

○ 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 (i.e. 5am to 11am and 5pm to 11pm).
  - During these rush hours 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 supply to the airport, but from
  city as well, overall about 26.7% requests face Non-Availability of cabs.
  - 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.