Uber Supply-Demand Gap Case study

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Abstract

Problem statement:

Uber is facing driver cancellation and non- availability of cabs to and fro airport leading to impact on the business and loss of potential revenue.

Objective:

To find the root cause of the supply-demand gap of cabs form airport- city and city – airport.

Data used for analysis:

- The data used is only form city to airport and airport to city
- The span of the data is of 5 days.

Problem solving methodology Problem

Data collection and cleaning

1.Import the data
2.Identifying the data quality issues and clean the data

3.Format date and time variables
4.Extract new variables required for analysis

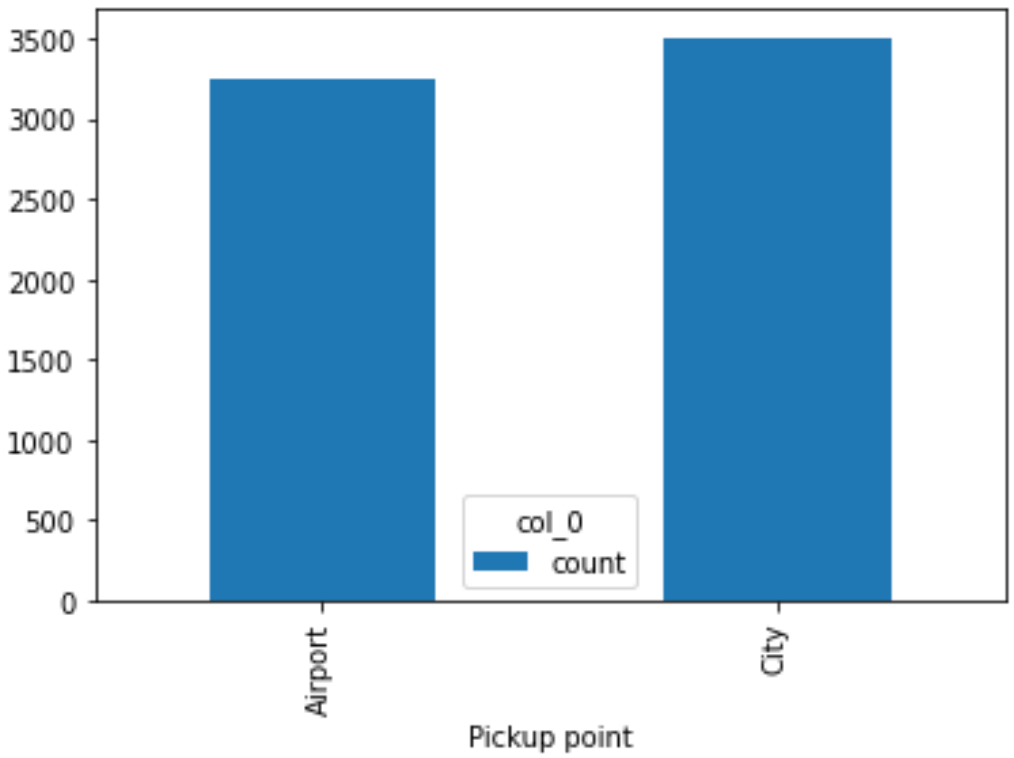
Data exploration and analysis

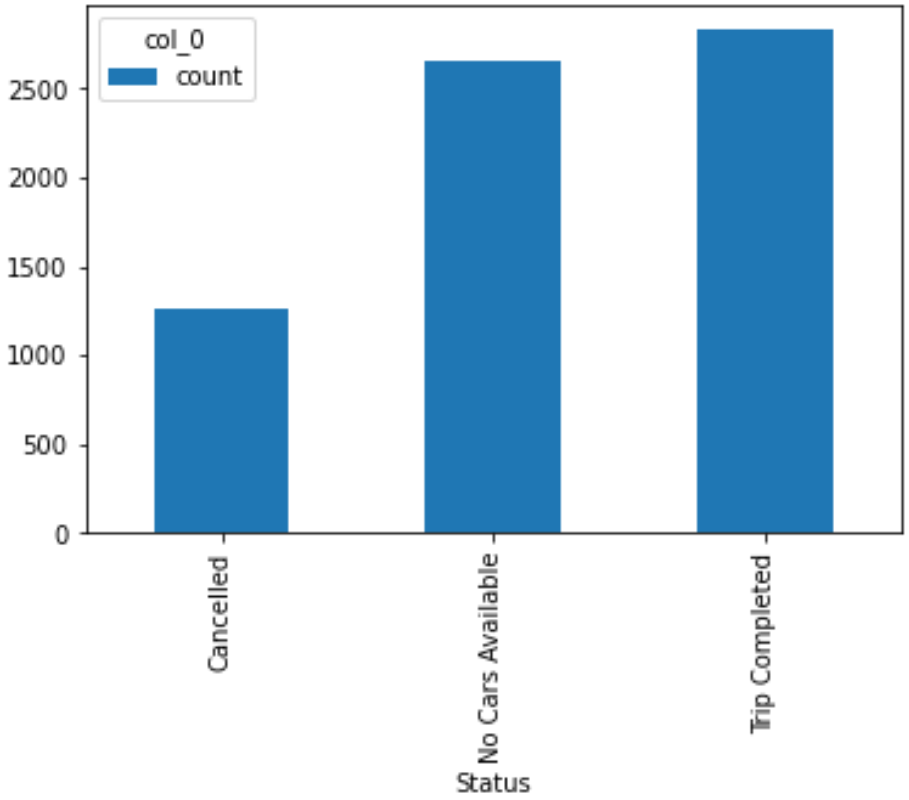
1. Analyze different variables
2. Analyze variables across different time slots
3. Identify the types of requests, time slots and locations that constitute for the supply demand gap.

Outcome and recommendations

1. Visualizing the problem
2. Presenting the observations
3. Recommendation to resolve the problem

Problem


3500
3000
2500
2000
1500
1000
500
0
col_0
count
Airport
City
Pickup point


col_0
count
2500
2000
1500
1000
500
0
Cancelled
No Cars Available
Trip Completed
Status

Observations

1.Overall request is the same in city and airport

2.From the request, around 19% of the cabs get cancelled

3.From the request, around 39% of the cabs are not available

4.No car available rates are greater so to over come that supply demand gap we have to introduced new variables to analyze better

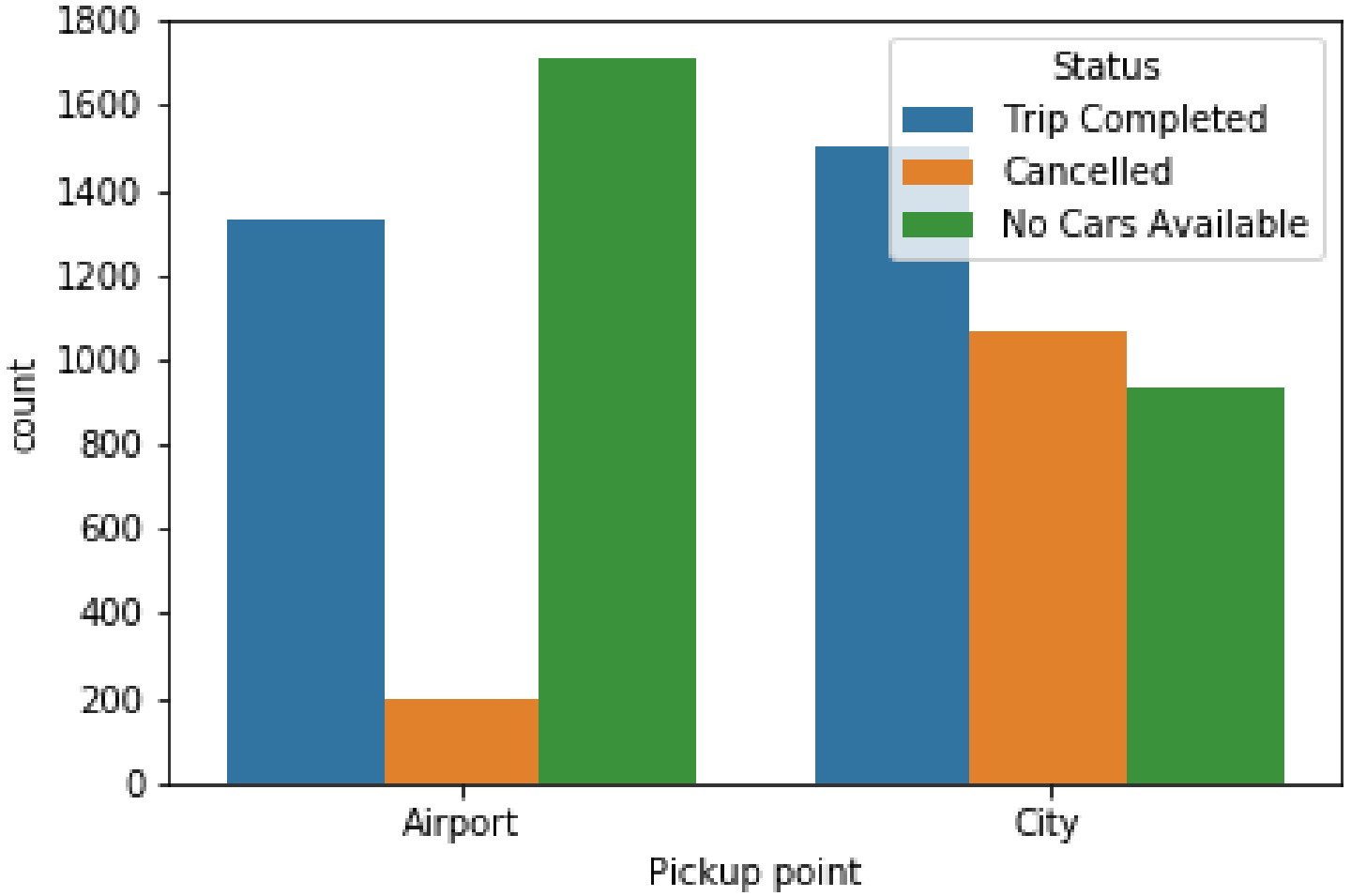
5.most cancelled rides are from city to airport then airport to city

6.There are more trips not completed then trips completed this will face loss in total revenue of the company

7.Status: "No car available" Where is it happening: Airport - i.e airport to city When is it happening: Evening

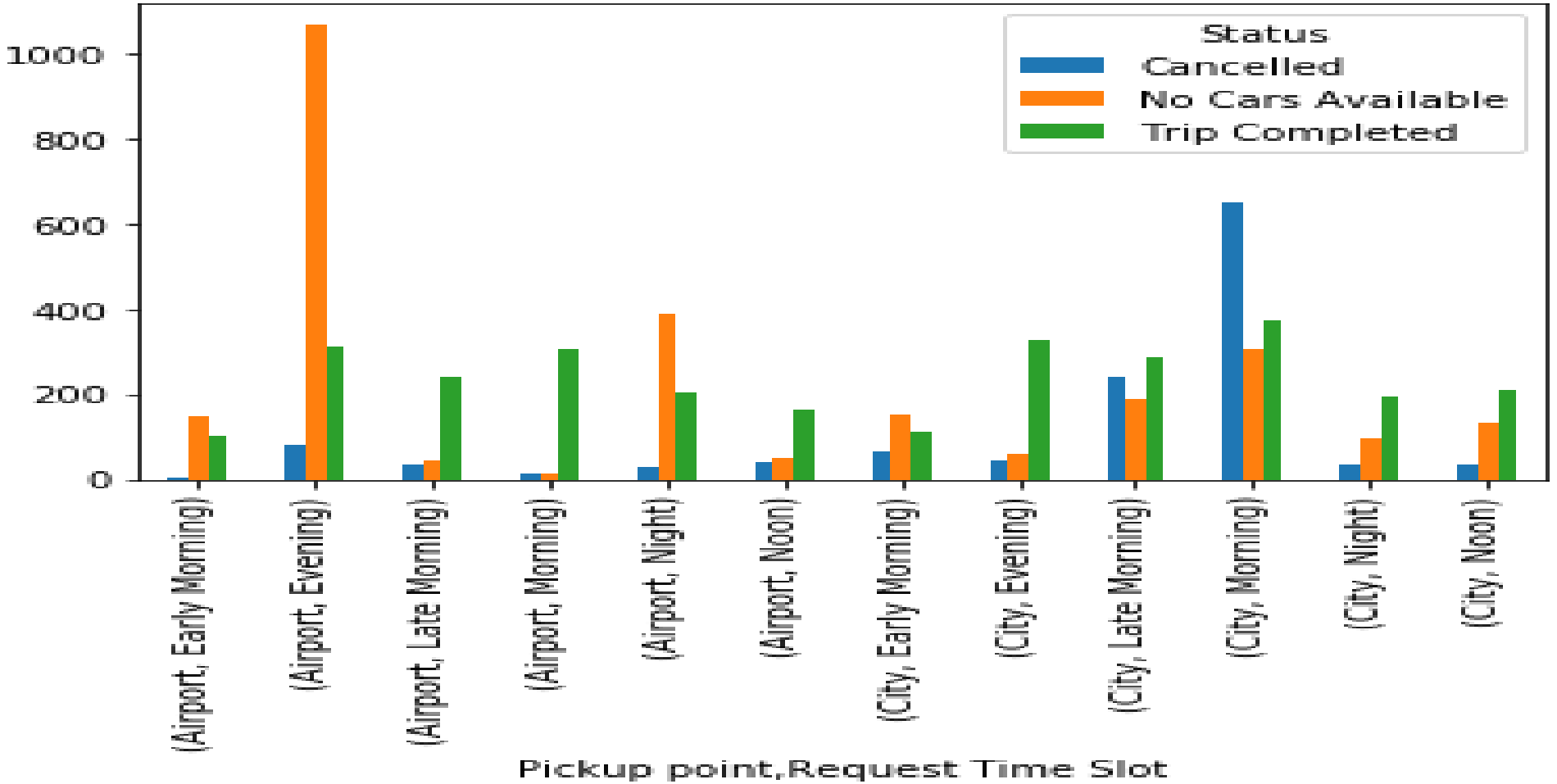
Status: "Cancelled" Where is it happening: City - i.e city to airport When is it happening: Morning

Further analysis of the problem based on location



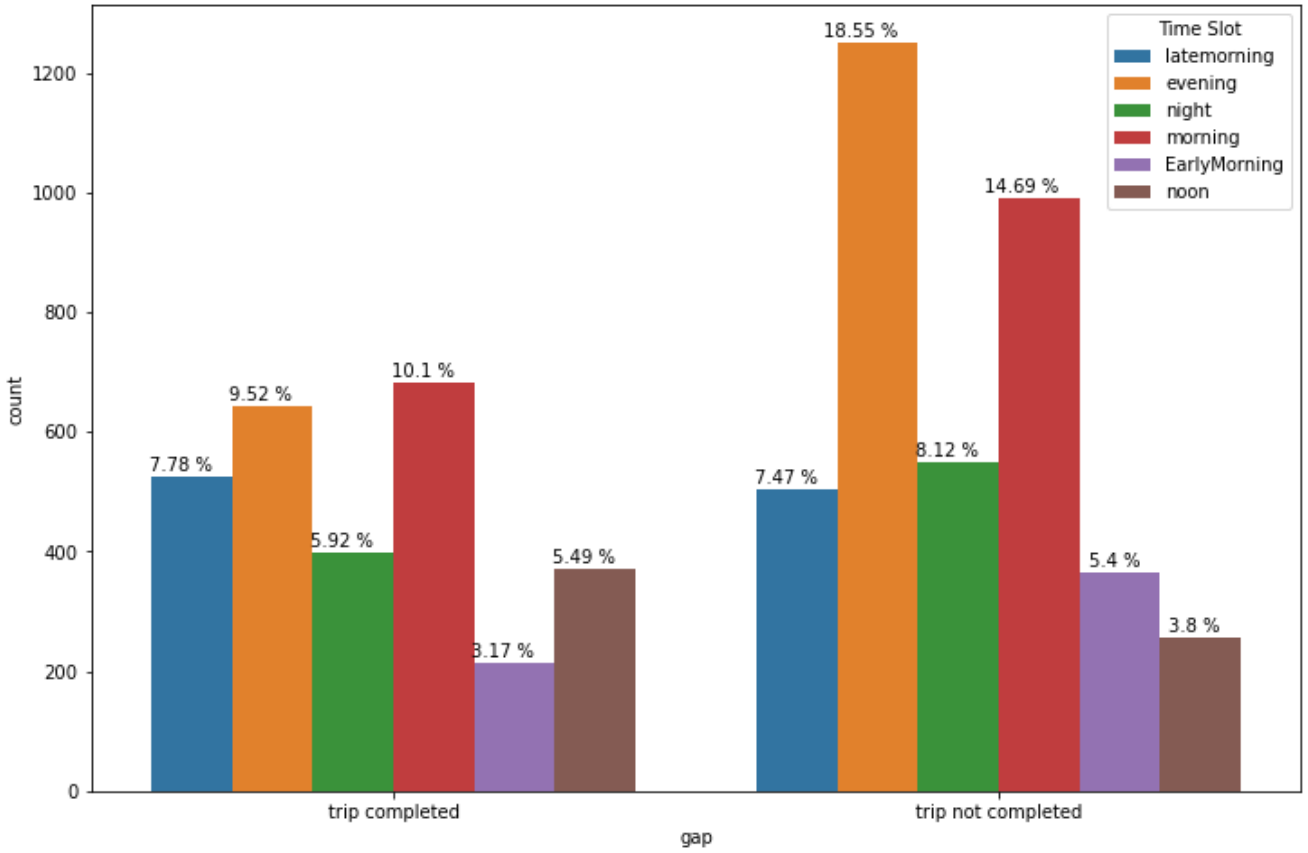
- The % of cabs that get cancelled from city is 16%
- ‘No cars available’ - is mainly at the airport – 25%

Further analysis of the problem based on time



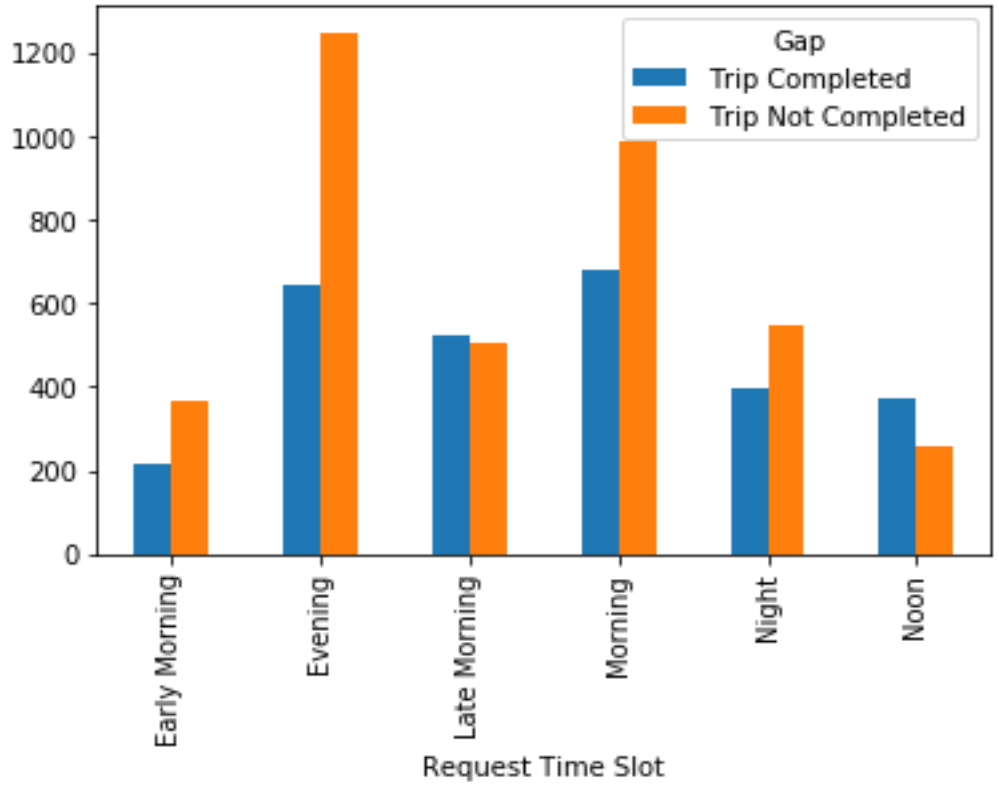
- The cabs that get cancelled in the city are during the morning hours (5am to 9am)
  - No cars are available in the airport are during evening hours (5pm to 10 pm)

Analysis of supply-demand gap



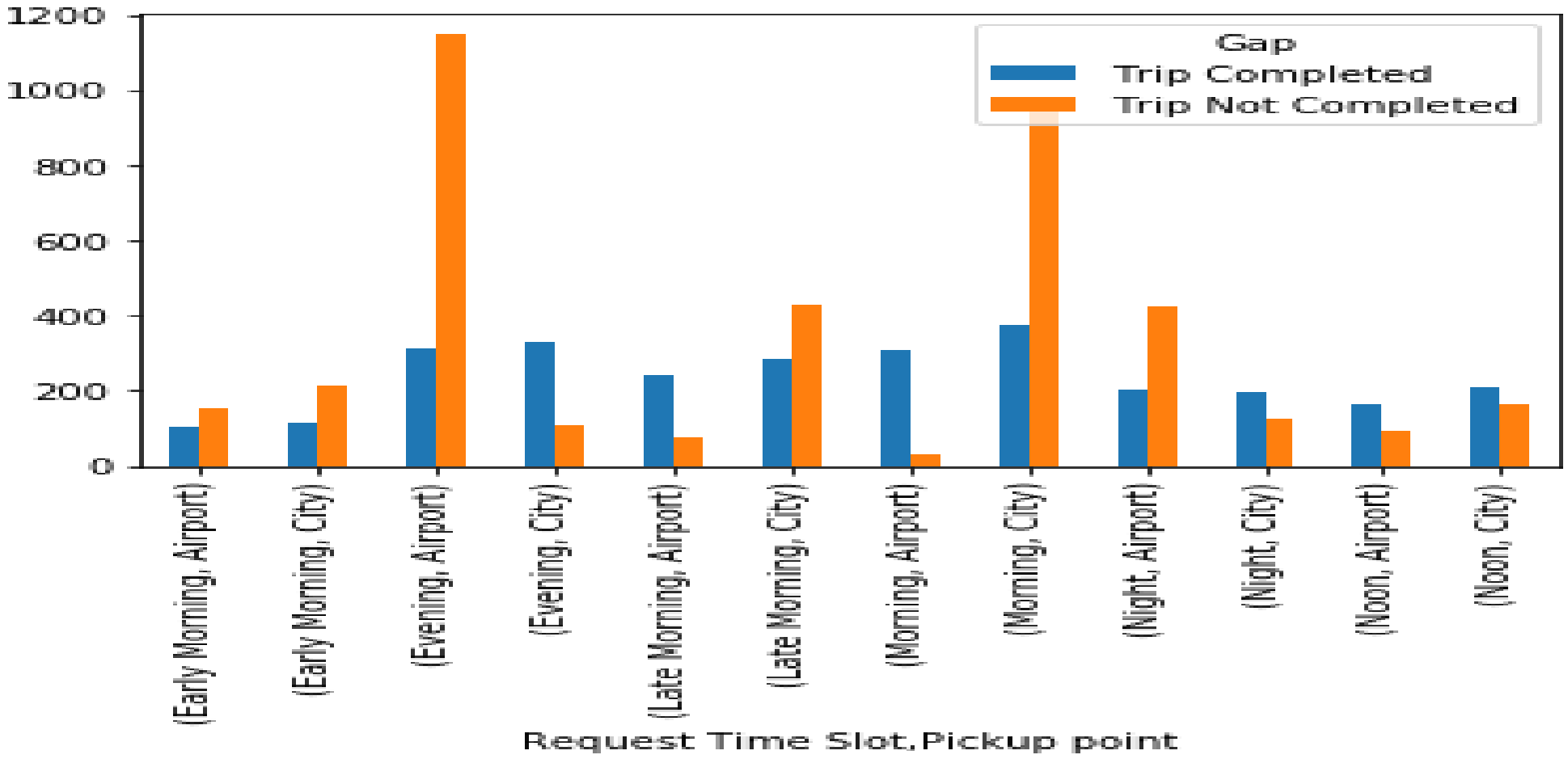
- There is gap of 58% in the supply of cabs.
- In that 58%:15% gap happens in the morning and evening timeslot each.

Supply-demand gap based on time



- As we saw that 15% of the gap that exist in the morning is due to cancellation
- 15% of the gap that exist in the evening is due to no cars availability.

Supply-demand gap based on location



- 15% of the gap that exist in the morning due to cancellation is at City
- 15% of the gap that exist in the evening due to no cars availability is at Airport.

Possible reasons for the issue:

In the morning hours:
Though there is a high demand for cabs from city to airport, the vice versa is not true.
Hence the driver tends to 'cancel' the request as getting a return trip from airport to city would be tough.

In the evening hours:
Though there is high demand for cabs from airport to city, the vice versa is again not true.
Hence 'no cars available' in the airport is the highest in the evening.

Possible solutions and recommendations

1.cabs during peak hours should be increased.

2.Company should be pay fixed waiting charge to driver.

3.Impose penalty for cancellation of requests by the drivers.

4.Promote continuous trip to airport with incentives.

5.For solving the problem of demand and supply gap from airport to city, making a permanent stand in the airport itself where the cabs will be available at all times and the incomplete requests can come down significantly.

6.Uber can provide some incentives to the driver who complete the trip from city to airport in the morning part. This might result the driver to not cancel the request from city to airport trips.

7.company should increase the numbers of cab in its fleet.