

Uber Supply-Demand Gap Submission

Submitted by-
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Abstract

Problem Statement:

Customers facing the problem of cancellation by the driver or non-availability of cars in a renowned cab service company Uber which in turn also impacts the business of the company.

Objective:

Identify the root cause of the problem mentioned above and present the root causes and possible hypotheses. Also, recommend ways to improve and overcome them.

Assumptions:

1. Dataset provided is of a big metropolitan city like Bangalore, Mumbai, Delhi, etc.
2. Total Time slots: 6 (early morning, morning, afternoon, evening, night, and late night)

Problem Analysis

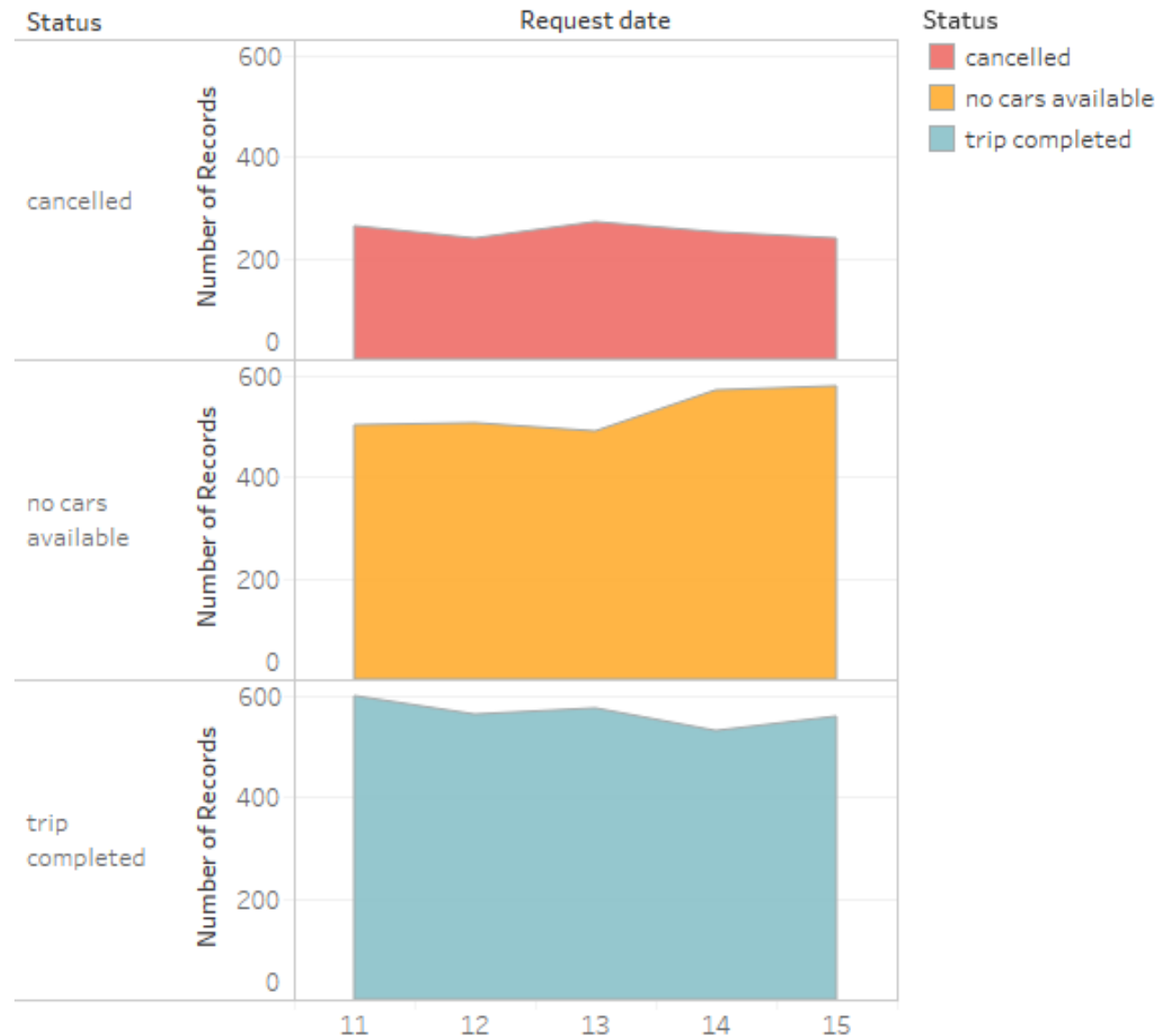
Plot 1:

Here's a graph presenting the status of the cab request vs. the requested dates of Uber's one week data records.

We can clearly see that, the cab company has completed most of the trips, but still the non-availability of the cars and cancelled trips together can impact the company's revenue drastically.

Uber is facing the major issue of the Non-availability of the cars and minor issue of driver cancellation. Together both the issues can lead to loss of potential revenue

Date requested vs. Status



Count of Number of Records for each Request date Day broken down by Status. Color shows details about Status.

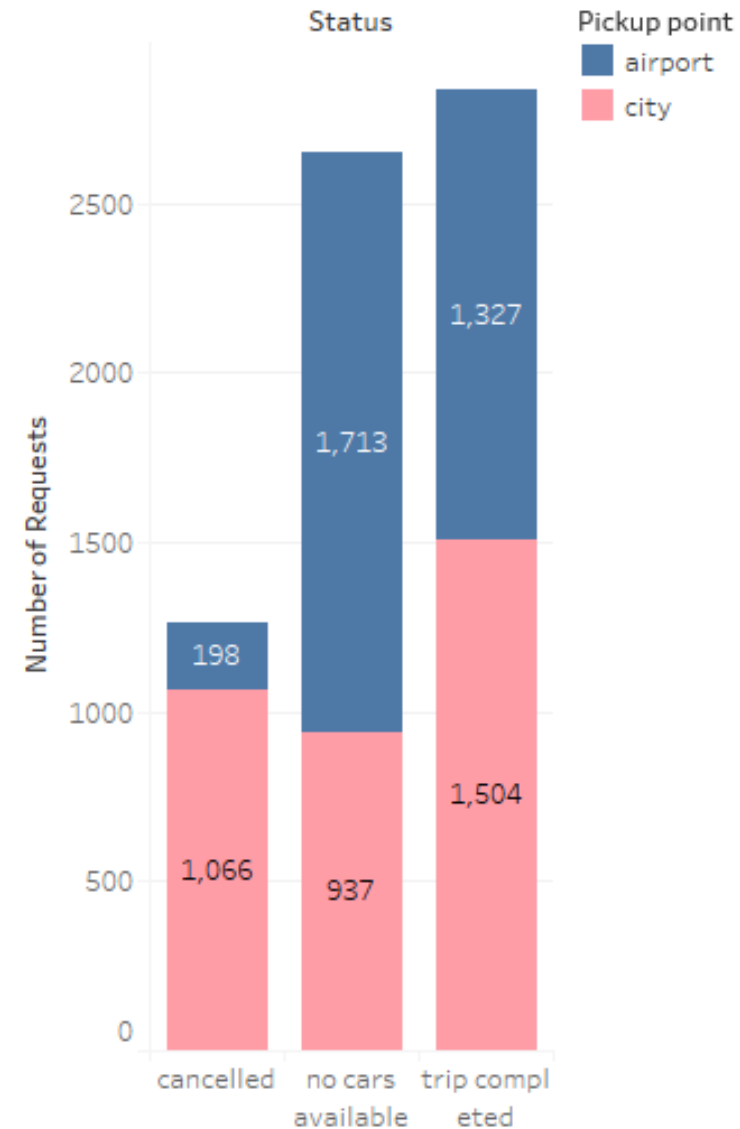
Plot 2:

The Status vs. Pickup point graph shows the distribution of rides from the airport and the city according to their statuses.

We can see that:

1. City rides tends to get cancelled more often than the airport rides.
2. Non-availability if the cars is higher for the airport rides as compared to city ones.
3. There isn't much of a difference in the completed trips; whether the pick up point is Airport or any place in the city

Status vs. Pickup point



Count of Number of Records for each Status. Color shows details about Pickup point. The marks are labeled by count of Number of Records.

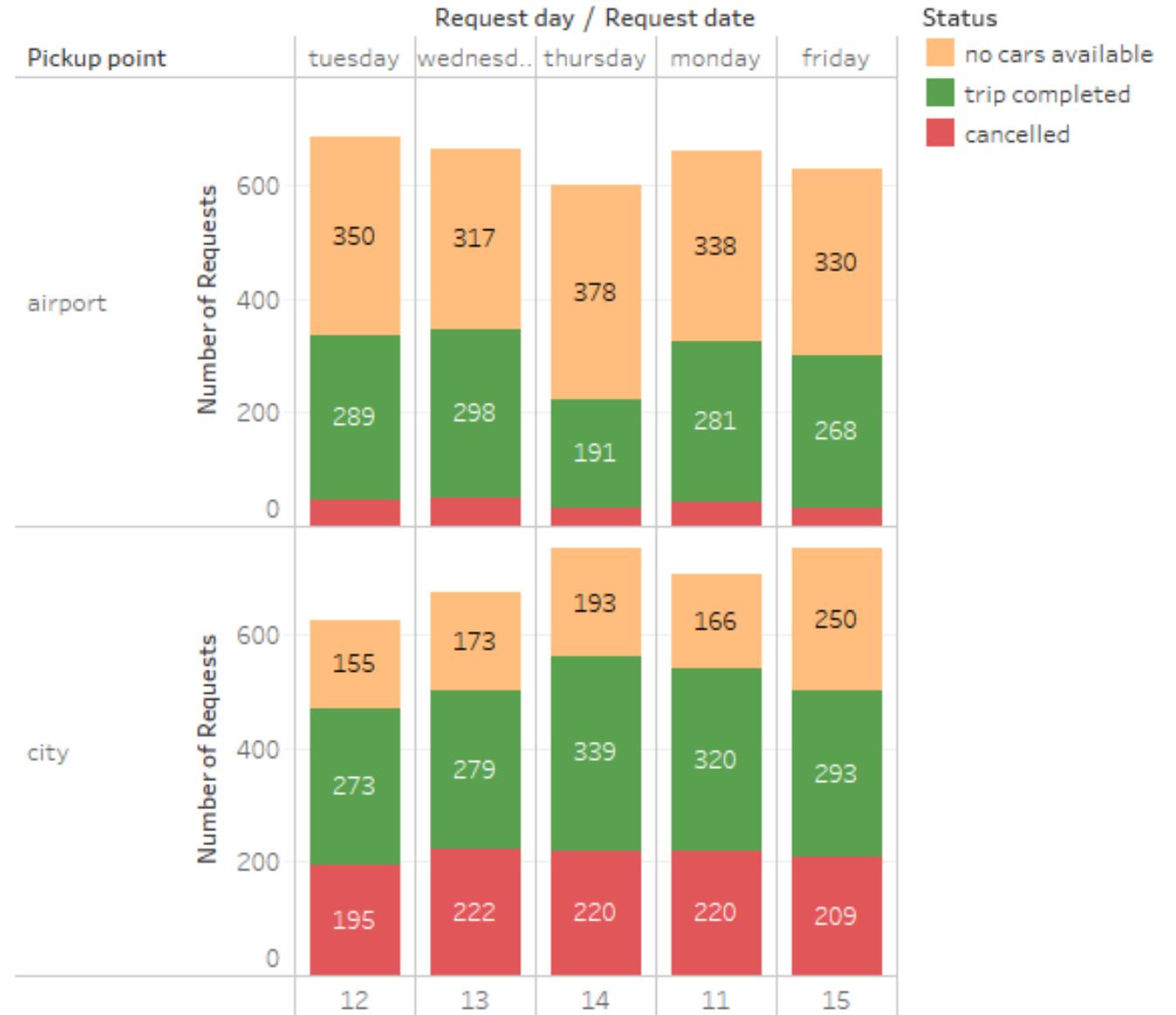
Plot 3:

The Date requested vs. the Pickup point graph shows more clearly the non-availability of the cars as well as the cancelled trips, day-wise.

It can be deduced from the graph that:

- Trips from the city tends to gets cancelled more than the trips from the airport; throughout the weekdays.
- The non-availability of the cars is higher for the bookings where the Pickup point is Airport; throughout the weekdays.
- The drivers tend to complete their trips more often from the city.

Date requested vs. Pickup point



Count of Number of Records for each Request date Day broken down by Request day vs. Pickup point. Color shows details about Status. The marks are labeled by sum of Number of Records.

Supply-Demand Gap

Plot 4:

Here's a pie chart depicting the total demand and supply of the uber cab riders and cabs available respectively.

From the data we can see that:

Demand = 6745 units

Supply = 2831 units

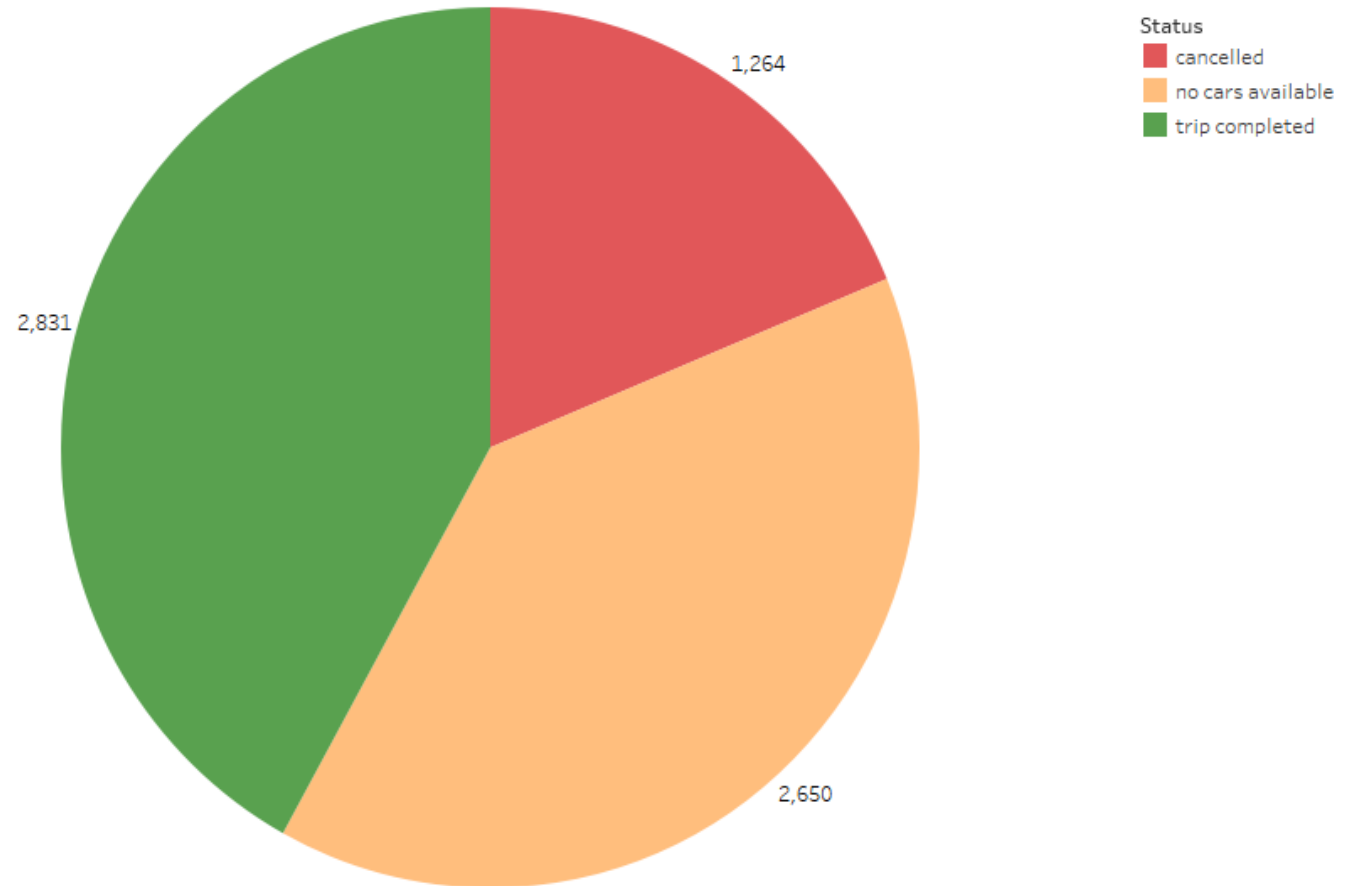
Hence, the gap between supply and demand can be calculated as:

Gap = Demand – Supply

= 6745 – 2831

= 3914

Supply-Demand



Count of Number of Records. Color shows details about Status. The marks are labeled by count of Number of Records.

Supply-Demand Gap vs. Time slots

Plot 5:

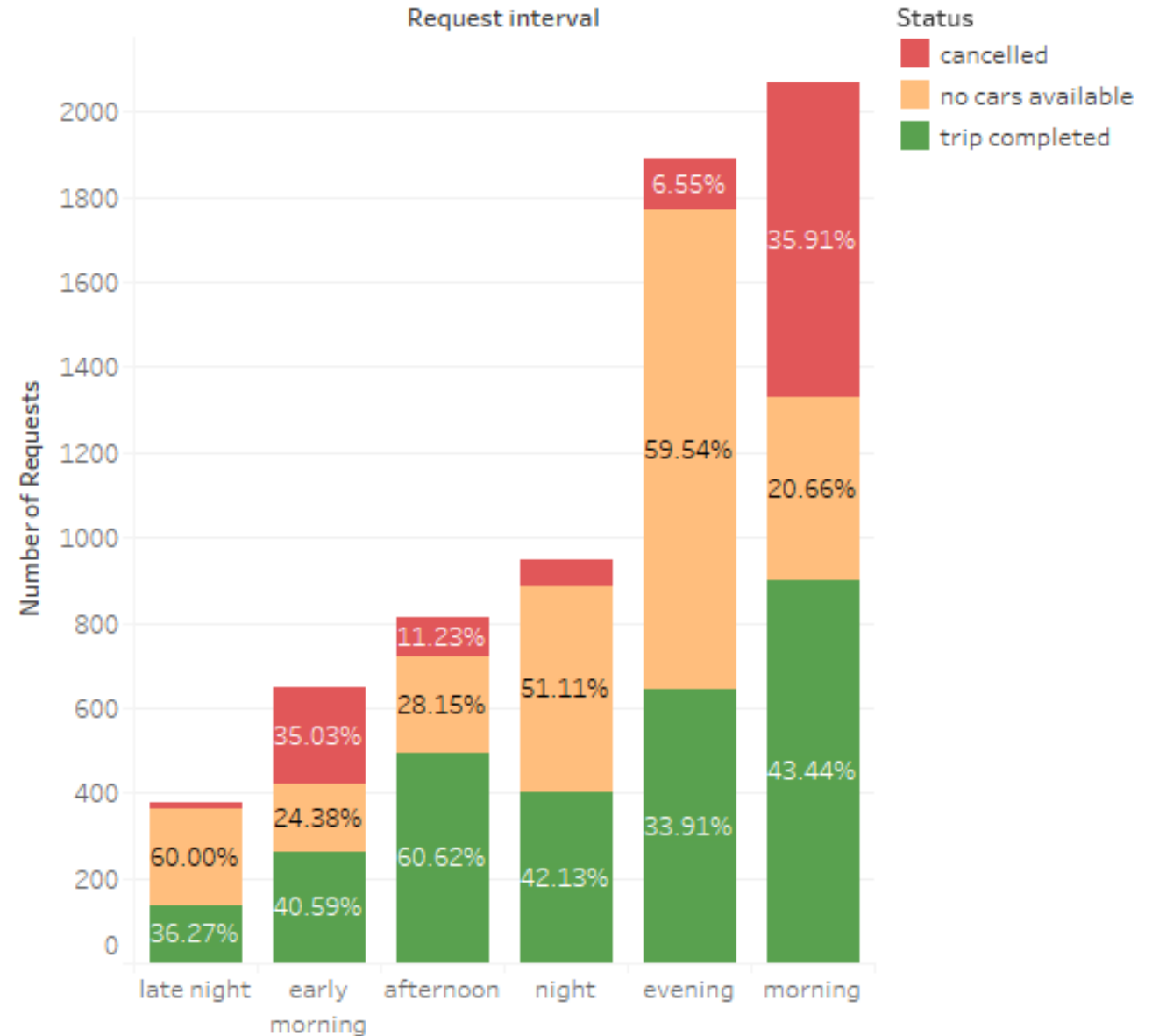
The supply-demand gap vs. the time slots in a day is plotted in this graph, and we can see the existence of the supply-demand gap according to the time slots in a day.

It can be deduced from the graph, that the Gap is highest is highest during the **Evening slot** of an entire day. i.e. between 5 p.m. to 8 p.m.

Second highest gap can be seen in the **Late night** slot of the day i.e. between 11 p.m. to 4 a.m.

The lowest gap can be seen during the afternoon hours i.e. between 12 p.m. to 4 p.m.

Time slot vs. Status



Count of Number of Records for each Request interval. Color shows details about Status. The marks are labeled by % of Total Number of Records.

Plot 6:

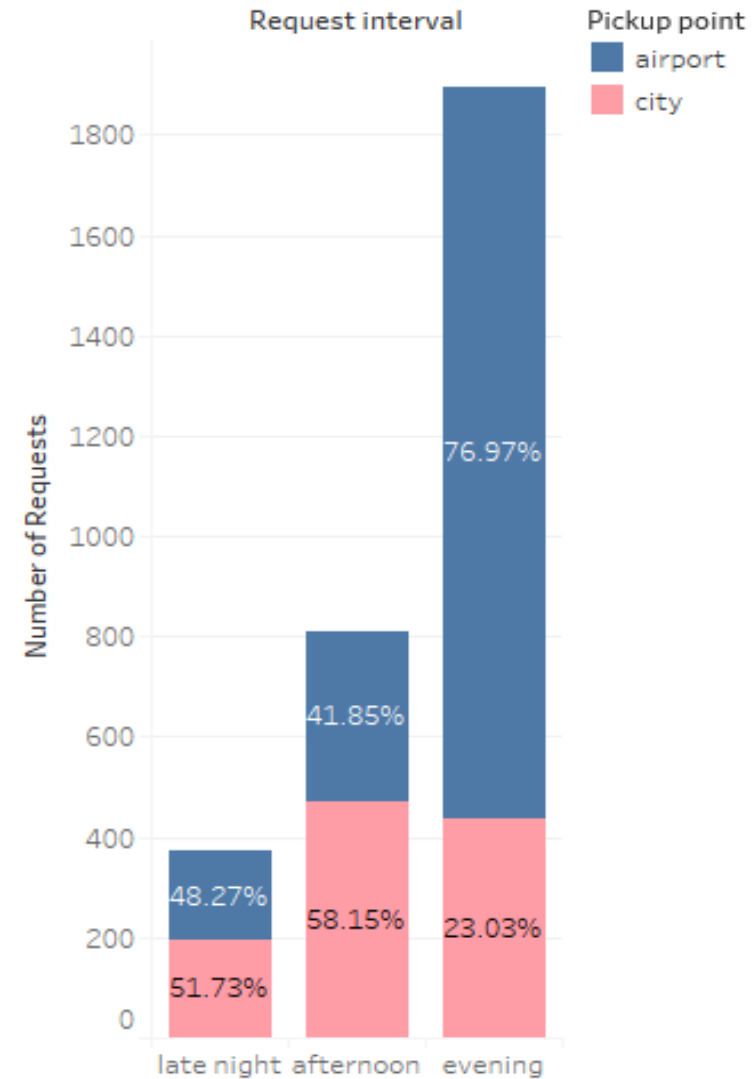
After identifying the time slots having the highest gap value, this graph depicts the request of the customers: whether the ride is from the Airport to the City or vice-versa.

It can be deduced that in the **Evening time slot**, the maximum number of requests i.e. approximately 76.97% has been made for the route **Airport to City**.

In the second highest gap timeslot, we can see that the ride route has been of equal percentage almost.

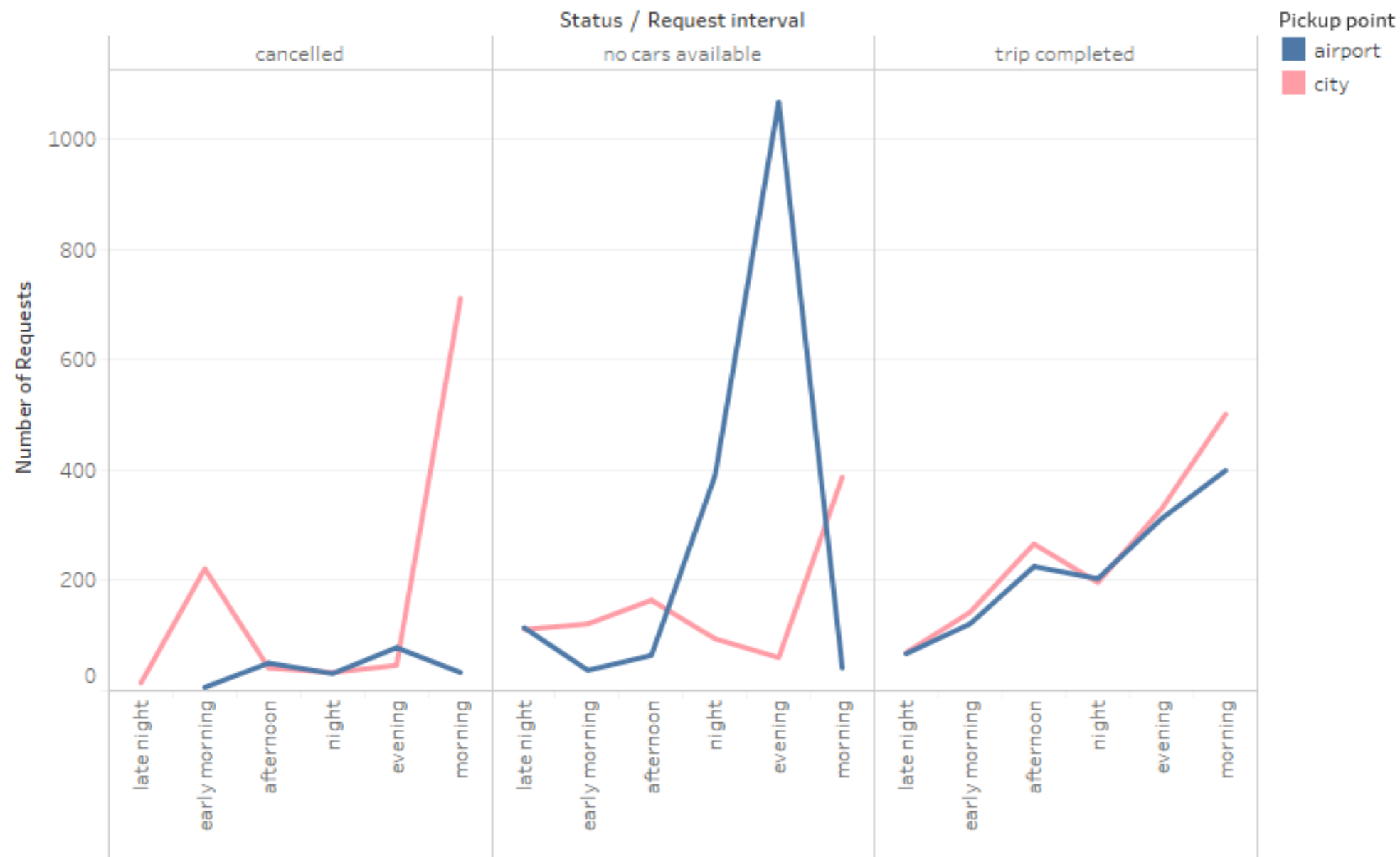
But, in the time slot having the lowest gap value, we can see that more number of riders have booked the cab from City to Airport.

Time slot vs. Status



Count of Number of Records for each Request interval. Color shows details about Pickup point. The marks are labeled by % of Total Number of Records. The view is filtered on Request interval, which keeps afternoon, evening and late night.

Time slot vs. Status vs. Pickup point



The trend of count of Number of Records for Request interval broken down by Status. Color shows details about Pickup point.

Issues of the Demand-Supply Gap

After analyzing the data, It can be deduced that the following can be the major issues that lead to this huge gap in the demand-supply of Uber:

- In the Evening slot, the maximum gap was created due to the non-availability of the cabs and that too for the route Airport to City. It is seen that most people in busy cities prefer to travel via Airplanes and take up the flight that lands in evening, hence more number of requests for that route. It seems to be favorable to say that, the evening time slot (5pm to 8pm) is mainly the time when most of the working population completes their shift and return home via cab. This can be the prime reason for the non-availability of the cabs for that time slot and route.
- In the second highest gap value time slot, late nights, more number of flights land in and thus more number of requests for that route. In that time slot(12 am to 4 am) most of the cab drivers retire for the day, hence the non-availability of the cabs.

Resolving the supply-demand gap:

To reduce the gap between the supply and demand, I would like to recommended:

1. Hire more number more cab drivers
2. Hire them Shift-wise accordingly
3. Distribute the number of drivers to both the routes according to the pickup request

Conclusion:

The most pressing problem for Uber: **Non-availability of cabs**

The gap between supply and demand: **3914 units**

Major issue: **Clash of timing** among the users i.e. from Airport to City and City to Airport. Also, the **Evening rush hours** time slot which is mostly hectic.

Resolving the issue: **Hiring more drivers and hiring them to work shift wise.**