Assignment – Uber Supply-Demand Gap

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Abstract - Objective and Problem Statement

- Uber, the car hailing app service, is facing some problems.

- It has come to Uber's notice that customers are having trouble getting car rides to and from Airport.

- As it generates a lot of data, it would like to find out the patterns in the data that correspond to the problem.

- We need to figure out the reasons for this problem as well as ways to overcome it.

- We have data of 5 days. (Mon to Fri) 11 July, 2016 to 15 July, 2016.
- We only have ride data of Airport to City and City to Airport.

Analysis

1.a.

First of all, let's see the number of requests by customers.

It can be seen that the number of requests do not vary through days of the week. Also, users request more rides from airport to city in the evening. And in case of City to Airport, users request more rides in the morning.

We can drill down further and see that requests made at different time slots do not vary throughout the days. The plot is in the next slide.
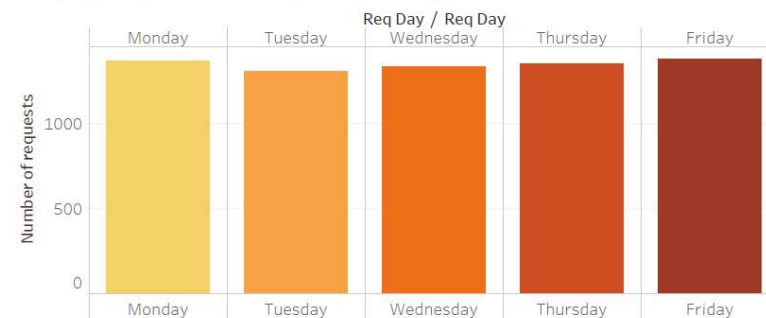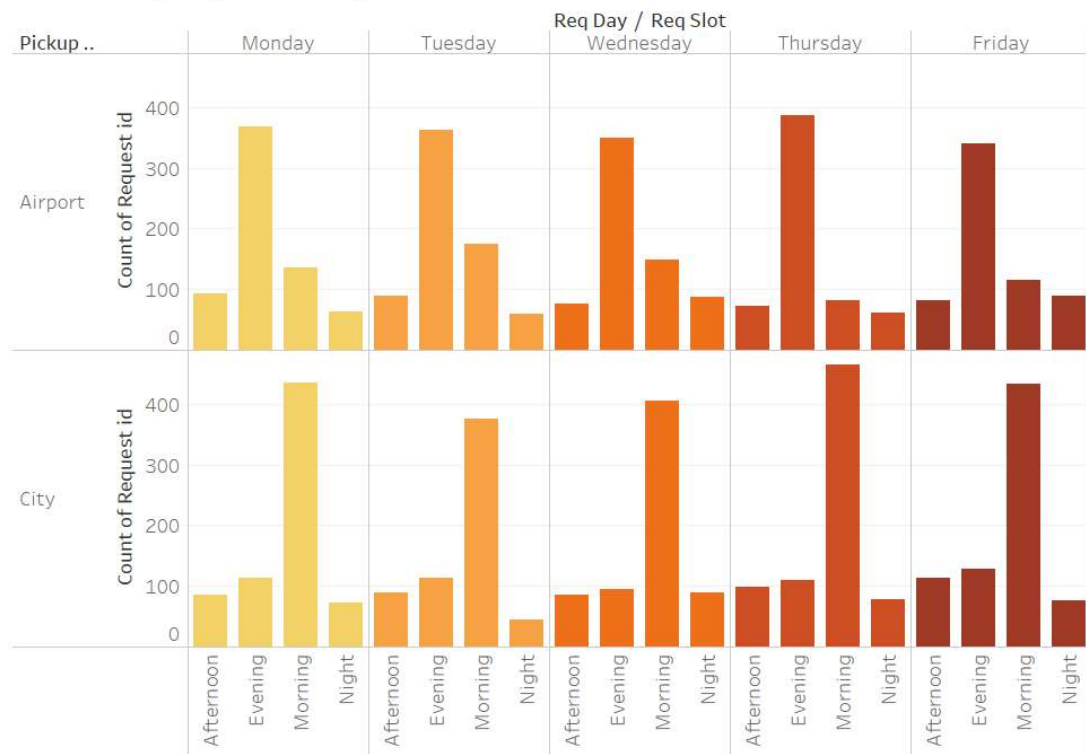
Analysis (…contd.)

1.b.

Further drill-down of number of requests, segmented by request day, time slot and pickup point. It can be seen that the pattern identified in previous slide remains true irrespective of day of the week.

Morning - 5 AM to 12 Noon
Afternoon - 1 PM to 5 PM
Evening - 6 PM to 10 PM
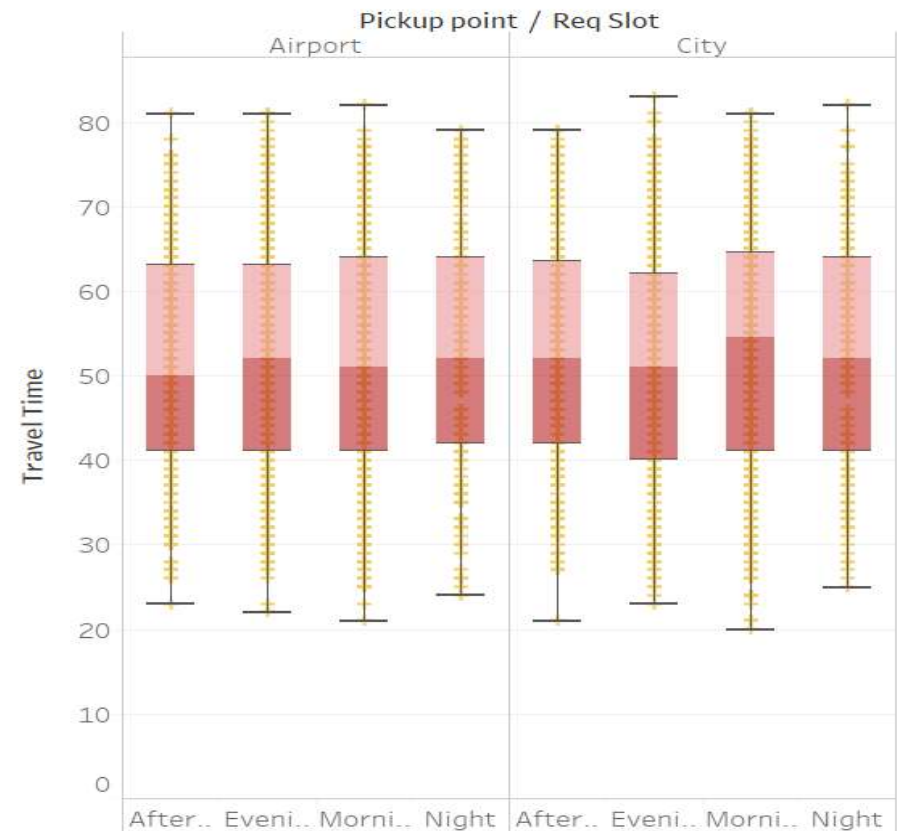Night – 11 PM to 4 AM

REQUEST /segment-Day, Slot

Analysis (…contd.)

2.

We can see that travel time is nearly about 50 minutes (with a variability of 10 minutes). Also, it does not vary much with respect to pickup point or time of day.
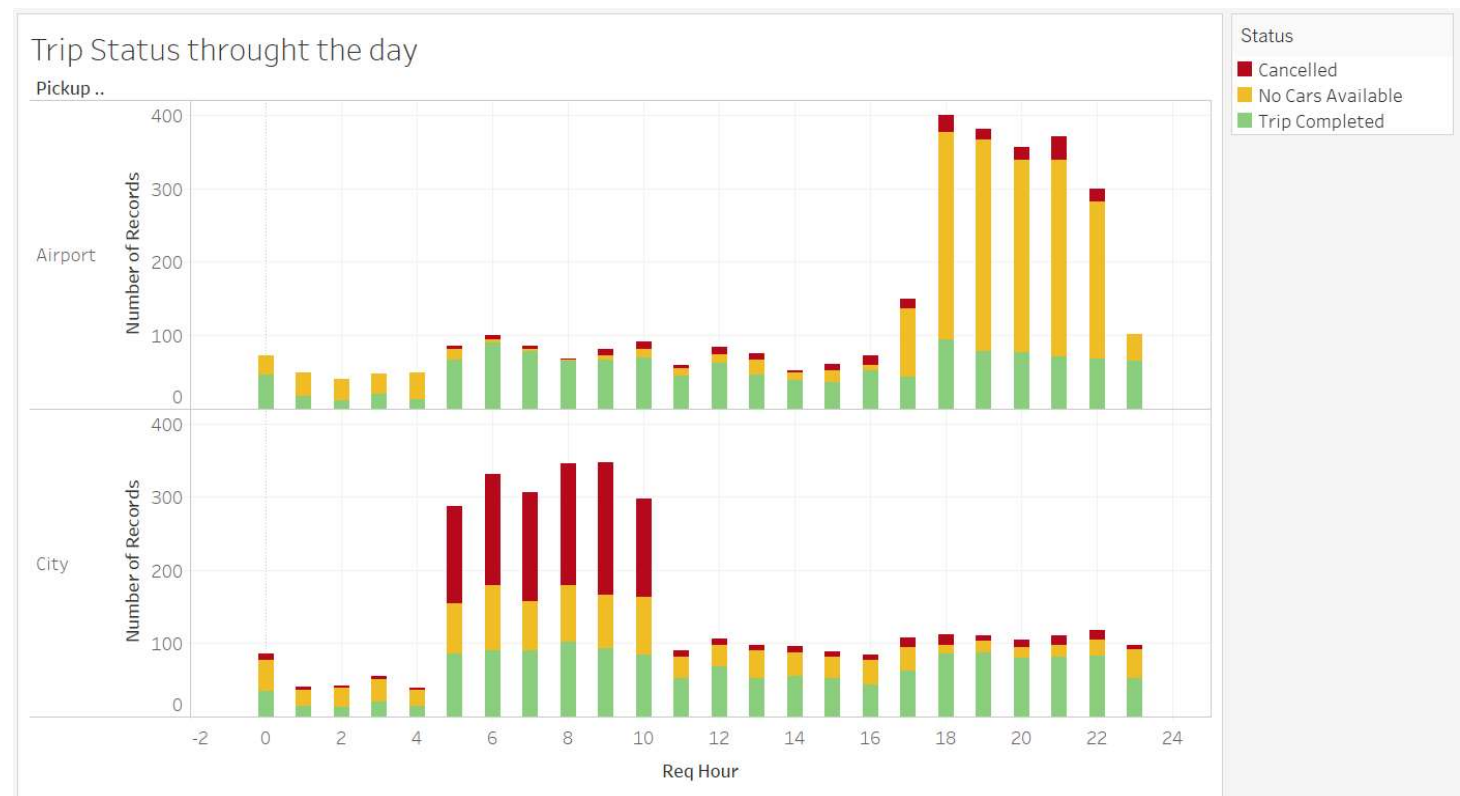

Travel Time

Analysis (…contd.)

3.a.

We can see that car availability problem is most evident in evening/late evening for trips from airport to city.
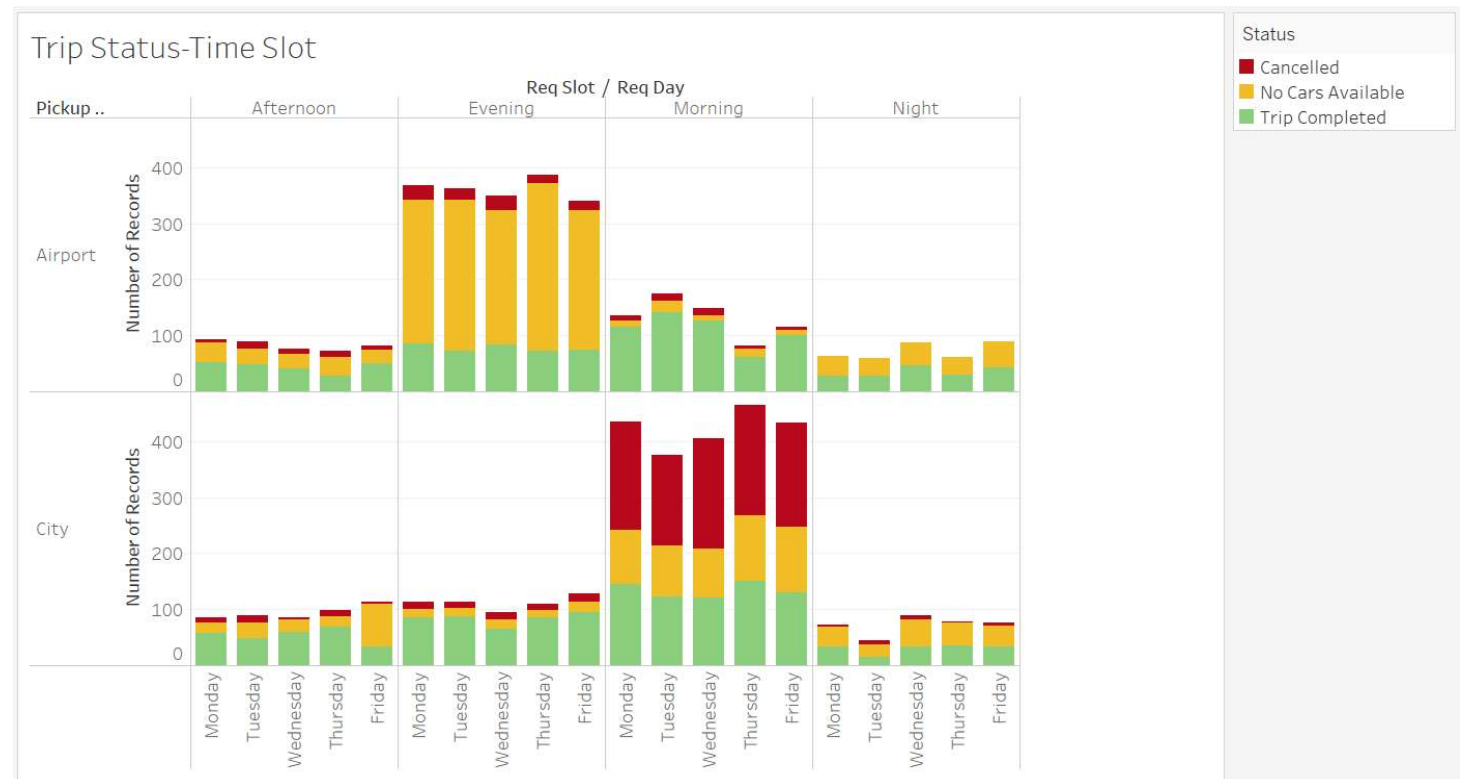
And, for trips from city to airport, cancellations are a major concern in the morning rush-hour.

Analysis (…contd.)

3.b.

The pattern of problems identified in previous slide remains same irrespective of day of the week.
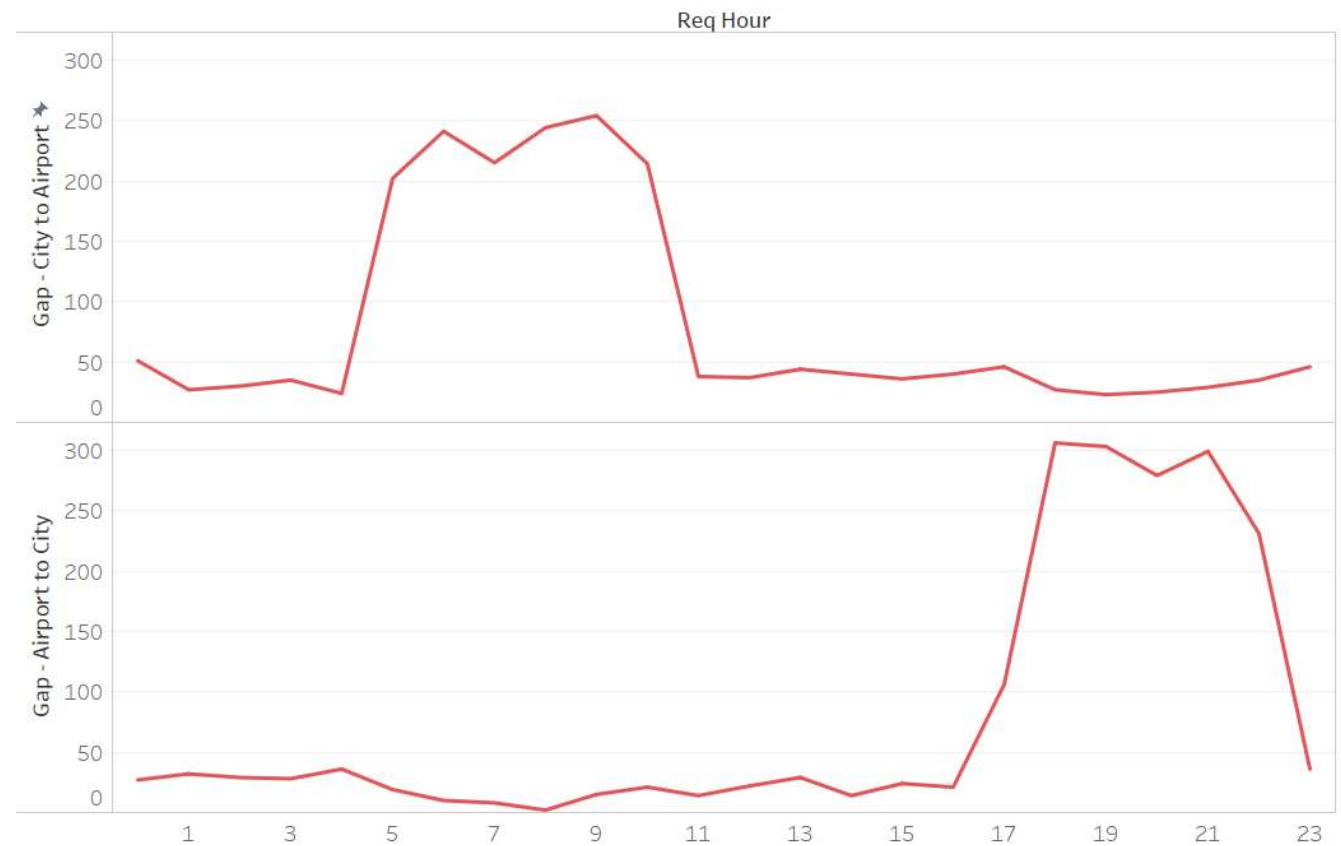
Analysis (…contd.)

4.

We can see the huge
gaps appearing in the
time slots identified for
the two pickup points.

Supply-Demand Gap

Reasons for Gap

- Figure (3.a.) shows that <u>in evening no cars are available around airport</u>, so there are no/very less cancellations but only availability issue. This must be because all the drivers come to city as they find more rides there because people go out to various places in city in evening (return home from office, go to malls/restaurants, etc.). Throughout other periods of day, availability issue is common.

- <u>In morning rush hour, a lot of drivers cancel</u>. Availability issues are less in morning in city as the drivers are present, but they cancel. This is because they find other rides in city only (home to office). We can also say that if a driver leaves from city around 10/11 AM, then he will reach airport at 12 Noon. Driver knows/observed that frequency of flights in afternoon will be less, so less people in airport in afternoon. It means that drivers might be stuck in airport for a long time.

Remedies

- Increase the fare to airport – In morning we have drivers in the city, but they **cancel** (150 to 200, see Fig.3.b.) everyday for other rides (city to city). In general, just increase the fare, whether the ride is city to airport / airport to city. This will compensate the driver for idle time.

- Increase the cars – We see Car **availability** (250 to 300, see Fig.3.b.) issue in airport in evening everyday. By judging the number of cancellations, we can say that we need around 200 more drivers. This will also deal with availability issues throughout the day (both city to airport and vice versa).

- Incentives – Give some sort of incentive/rewards to drivers for completing rides to and from airport.