Uber Supply- Demand Gap Assignment

Business Objective

- The aim of this analysis is to identify the root cause of the problem Uber is facing which is Loss of Revenue due to Driver Cancellation and No Cars Available and suggest ways to improve the problem

Data

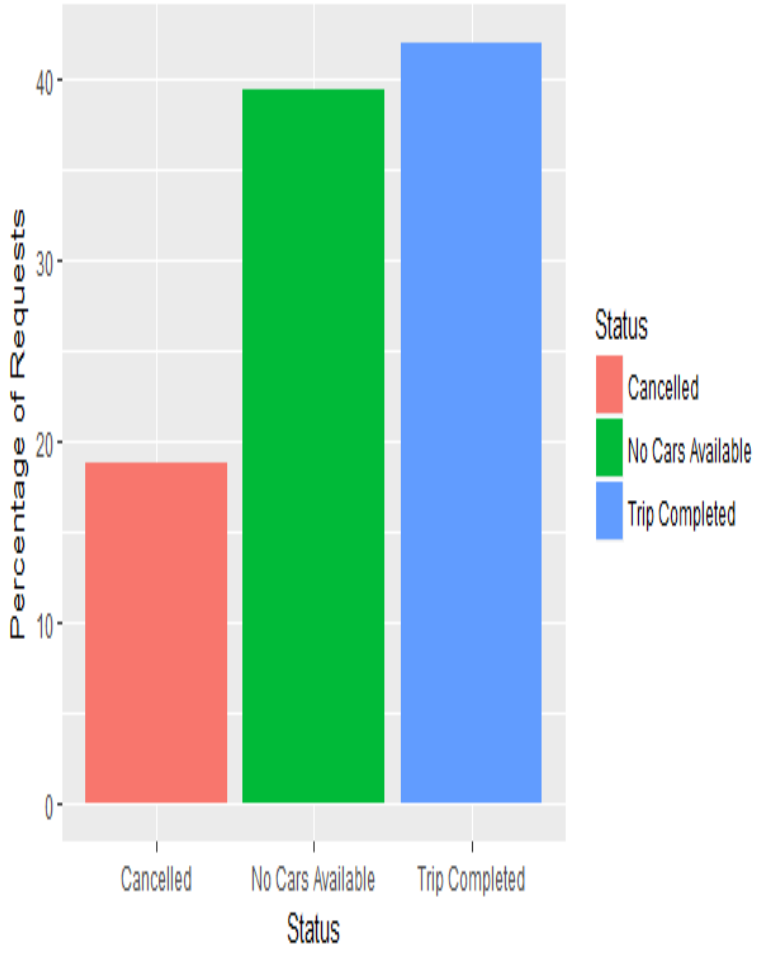
- Data comes from Uber and it comprises of
- 6745 requests made across 5 days in July, 2016.
- Observations include Request id, Pickup point, Driver id,
- Status, Request time and Drop time.

Approach

- Visually identify the most problematic types of requests using plots.
- Find out the gap between supply and demand and show the same using plots.
- Recommendations

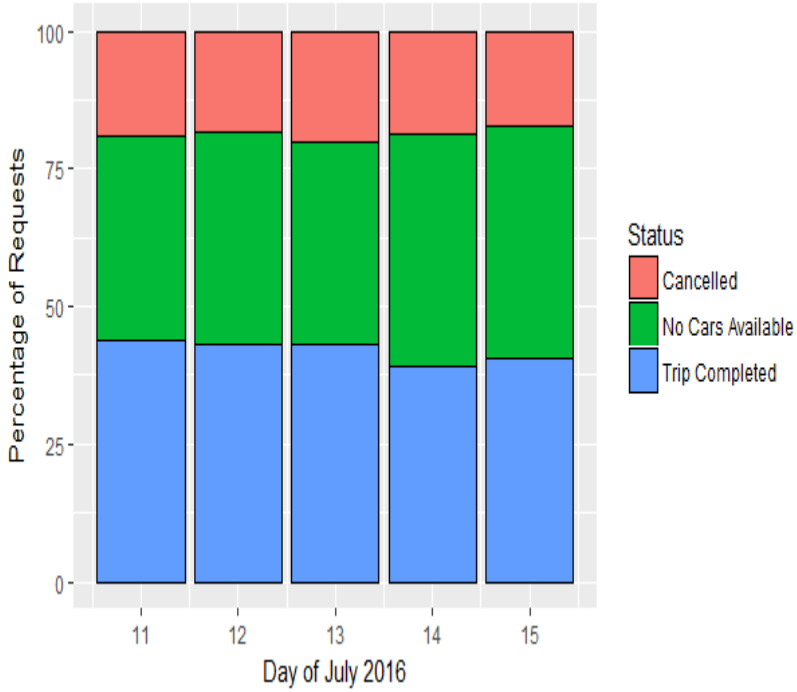
Percentage of Trips completed

As the graph shows, only 42% of the requests were completed during the 5 days with around 39% requests resulting in No cars available and 19% driver cancellations.



Trip completion by day

From the graph, there doesn't appear to be a significant difference between the various categories of status on the 5 days.



Trip Completion by Timeslot

For Requests originating at the airport, there is a high percentage of 'No Cars Available' in the Evening and Early Night timeslots. For Requests originating from the city, there are high percentage of cancellations in EM and LM time slots.

1 a.m. - 5 a.m. -> Late Night (LN)

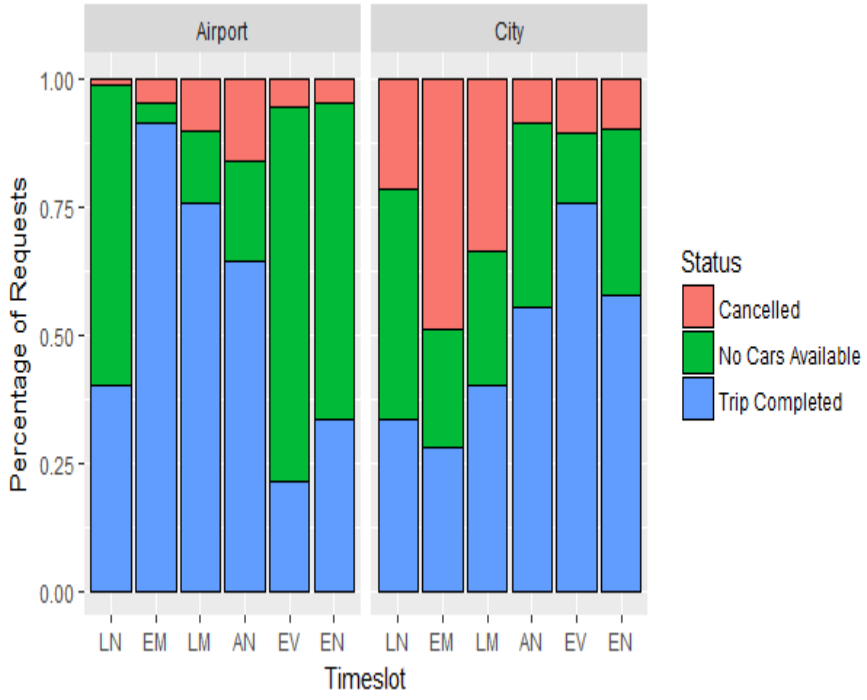
5 a.m. - 9 a.m. -> Early Morning (EM)

9 a.m. - 1 p.m. -> Late Morning (LM)

1 p.m. - 5 p.m. -> Afternoon (AN)

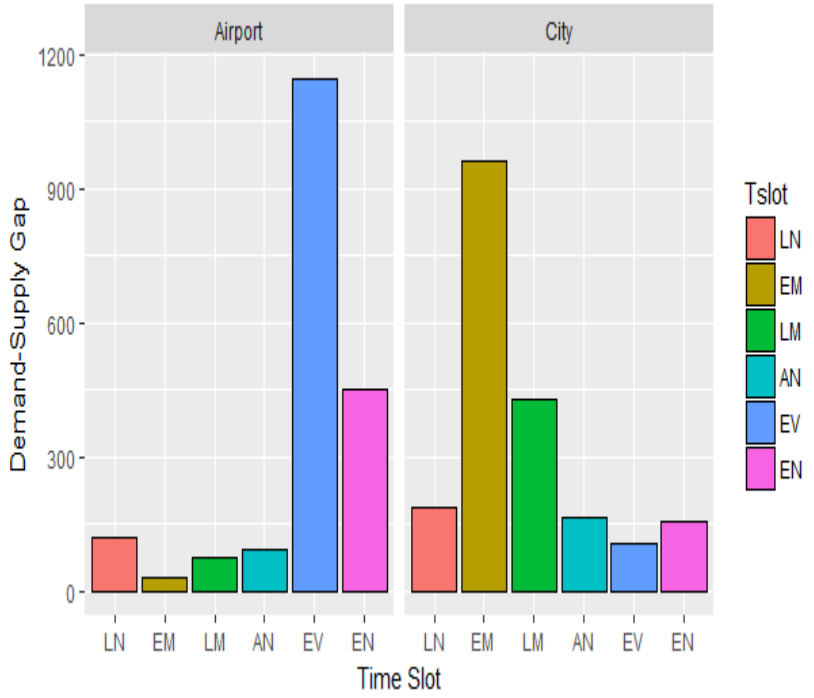
5 p.m. - 9 p.m. -> Evening (EV)

9 p.m. - 1 a.m. -> Early Night (EN)



Demand-Supply gap by various time slots and origin

The Demand-Supply gap is highest in the Evening and Early night for requests originating at the airport. Gap is highest in Early Mornings and Late Mornings for requests originating from the city.



Hypothesis

There could be different reasons for the Demand-Supply gap by origin of request

Airport: The Demand Supply gap is highest in the Evening, Early Night and Late Night slots (5 p.m. - 5 a.m.) due to non-availability of cars. This could be due to higher trip completion times for drivers coming from City to Airport as the Evening time slot also has the highest trip completion rate for trips originating from the city.

The Demand is not there for Drivers at the airport prior to these time slot resulting in higher waiting times for the driver and thus they prefer to move to the next assignment instead of waiting at the airport.

The drivers are simply resting after working through the day and prefer not to operate.

Hypothesis

City: The Demand Supply gap is highest in the Early morning and Late Morning slots (5 a.m – 1 p.m) mainly due to cancellation by drivers.

This could be due to either drivers resting (early morning) or cancelling due to there not being enough demand for the return trip from the airport resulting in longer wait times.

Recommendations

- 1) It is recommended that Uber add more drivers to its partner program (preferably from areas near the airport) so that they can scale up when the demand rises at the airport.
- 2) Uber can incentivize the drivers with some reward programs who complete trips during the lean periods.
- 3) Uber can build a forecast model using flight data available from the airport i,e. how much the demand increases or decreases by the arrival or departure of flights at the airport and at the city and accordingly maintain a buffer of drivers to meet the demand.