UBER CASE STUDY

NIKHIL TIWARI

(ROLL NO.: DDA1710184)

UBER – a Transportation Technology company

- Uber Technologies Inc. is a technology company headquartered in San Francisco, California, United States.

- It operates in 570 cities worldwide.

- It develops, markets and operates the Uber car transportation and food delivery mobile apps.

- Uber drivers use their own cars, although drivers can rent a car to drive with Uber too.

Business Objectives

- The aim of analysis is to identify the root cause of the problem (i.e. cancellation and non-availability of cars) and

- recommend ways to improve the situation.

- Limitations:
  - Only to and fro traffic from Airport and City is considered

Understanding Data

- There are six attributes associated with each request made by a customer:
  - Request id: A unique identifier of the request
  - Pick-up point: The point from which the request was made (i.e. either City or Airport)
  - Driver id: The unique identification number of the driver
  - Status: Whether the trip was completed, cancelled or there were no cars available
  - Time of request: The date and time at which the customer made the trip request
  - Drop-off time: The drop-off date and time, in case the trip was completed

Methodology for Case Analysis

1. Gather data for the analysis (download and import in R)
2. Clean and Format the data for readability (Data formats fixing)
3. Understand the data by visual Inspection (Data Structure)
4. Correcting Data formats and Separating relevant Information (like hour of the day, Trip Duration)
5. Extrapolate the Derived Metrics
6. Filter Data Set on Trip Status, Pickup Point and Hour of trip
7. Perform Univariate and Segmented Univariate analysis on the Data.
8. Plot the results of Analysis and Understand the root cause of the issue.
9. Final Recommendations

Assumptions

- Cabs at the airport only take new trips originating from the airport, i.e. do not leave the airport until they get a trip.

- City Cabs may have different trips but we will take them now to Airport only.
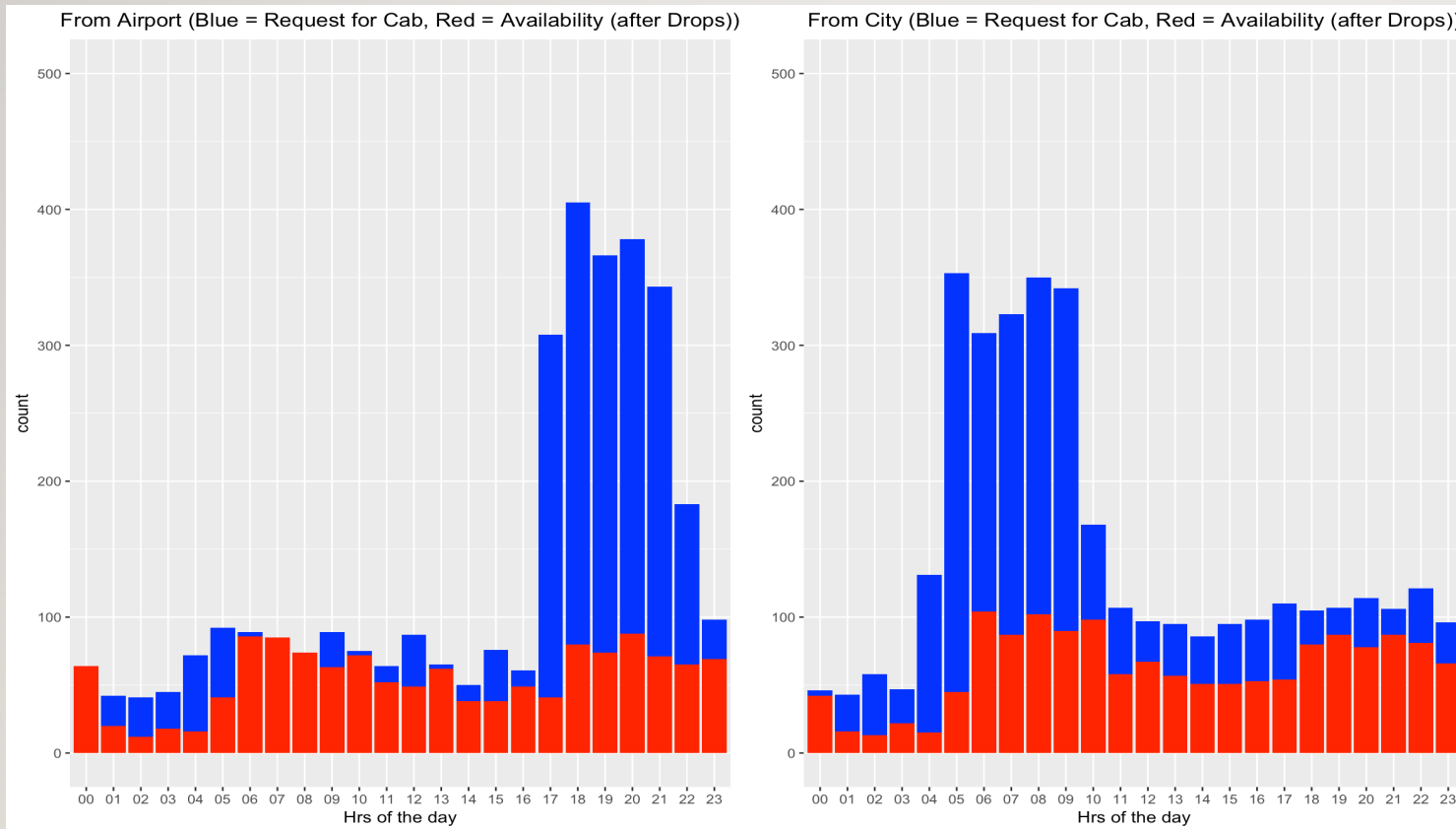
Tools

- Rstudio for
    - Data Import
    - Data Cleaning
    - Modelling
    - Analysis & Visualisation

- R – packages:
    - readr, tidyr, lubridate, ggplot2, grid, gridExtra

- Tableau for visualization

Plot 1 – Requests (demand) and Drops (Supply)
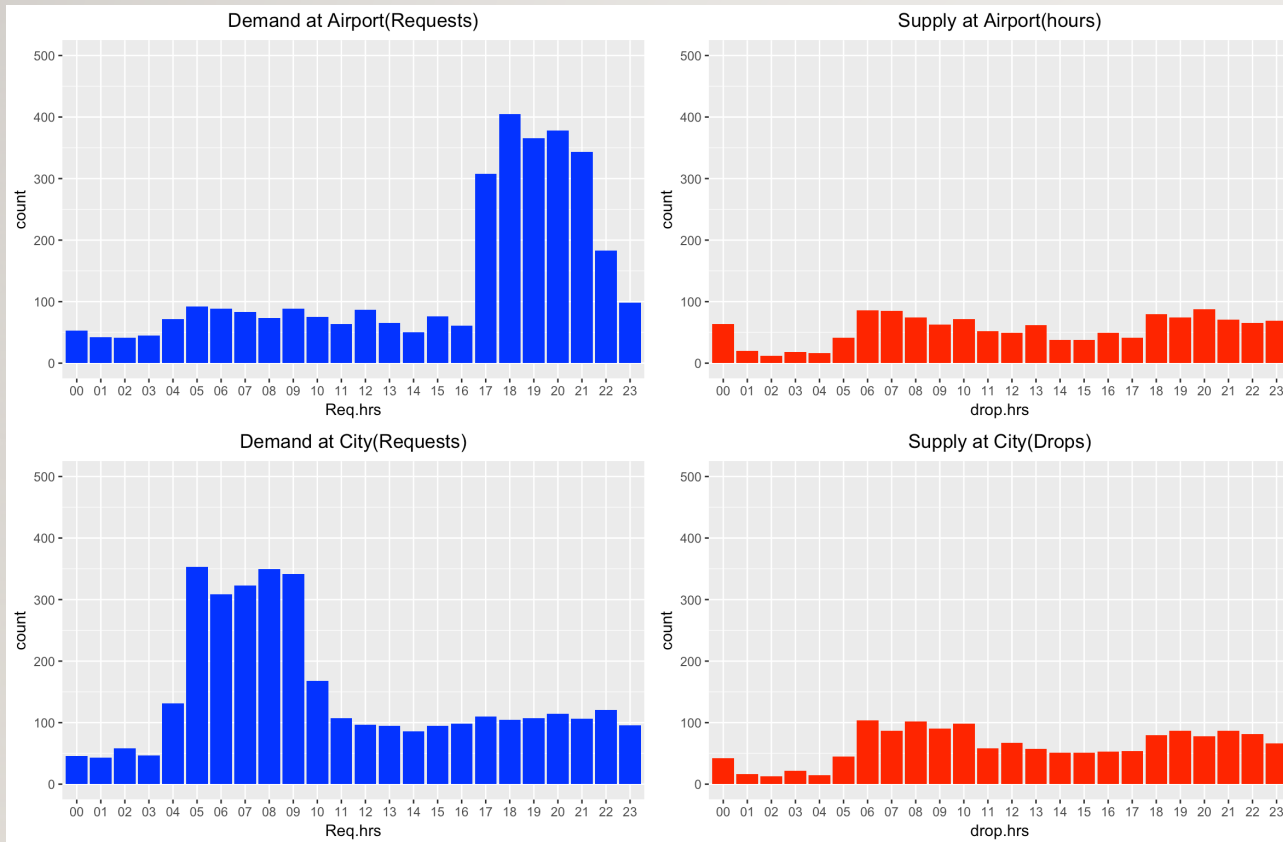

- There is high demand scenario (**Peak Time**) at Airport between **5:00 PM to 22:00 PM**.

- There is high demand scenario (**Peak Time**) at City between **4:00 AM to 10:00 AM**.

Plot 2 – Demand (requests) and Supply (Drops) together

From Airport (Blue = Request for Cab, Red = Availability (after Drops))

From City (Blue = Request for Cab, Red = Availability (after Drops))

- This plot clearly shows huge demand deficiency between peak hours at Airport and City both.

- This high demand must have been responsible for No Cars Availability and Cancellations

Plot 3 – Demand and supply with Status of Request
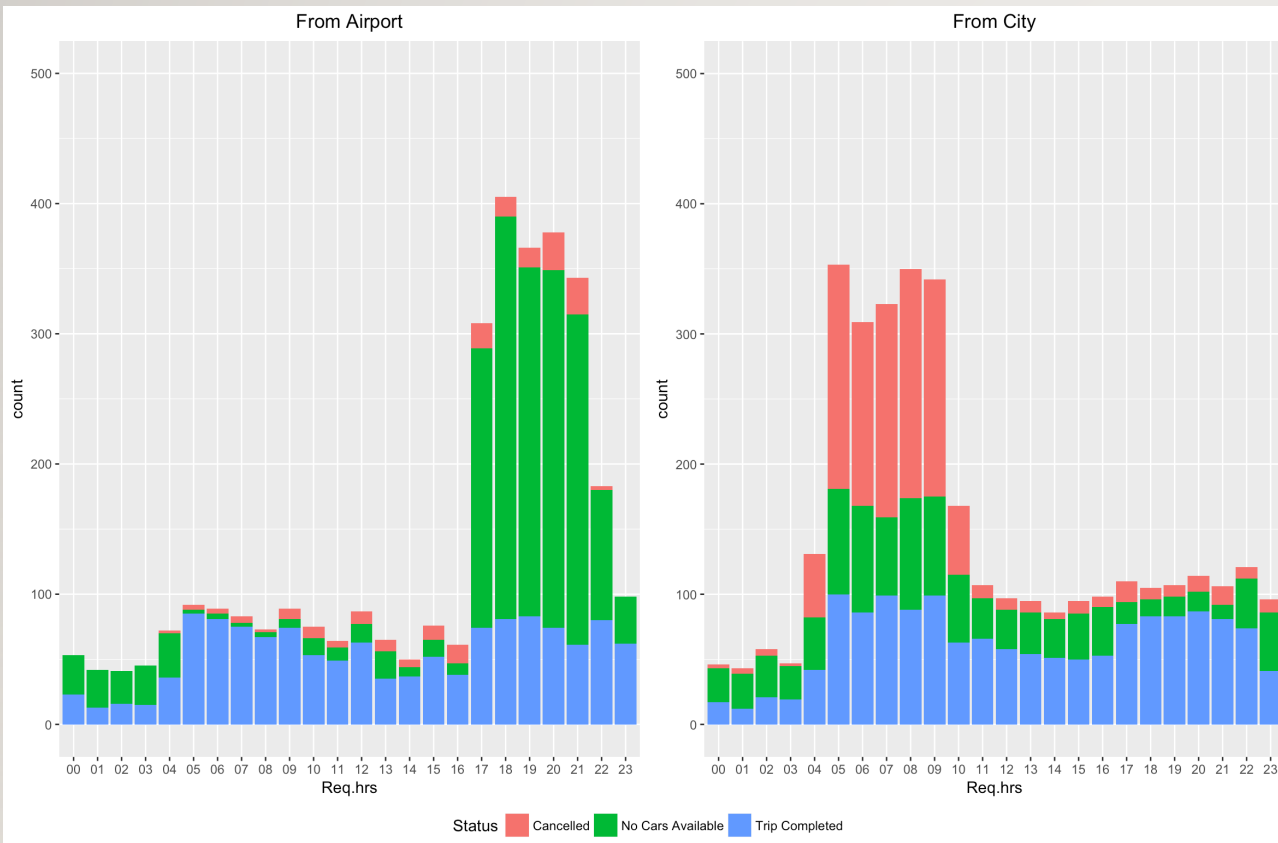
- These plots clearly show that cancellation and no cars availability scenarios are prevalent in peak hours:

- This suggests either

  - Cabs availability is less in these durations

  or

  - Overall Cab utilization is poor.

Plot 4 – Cancellations & No cars available scenarios in detail
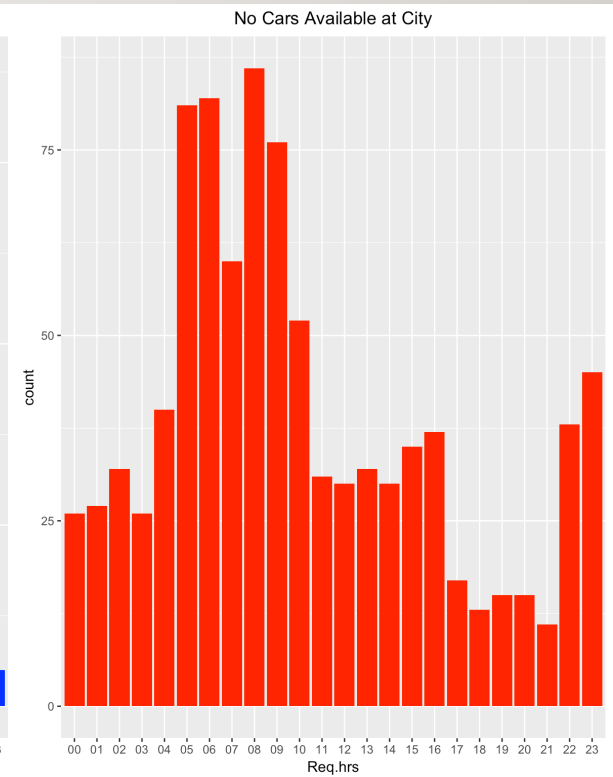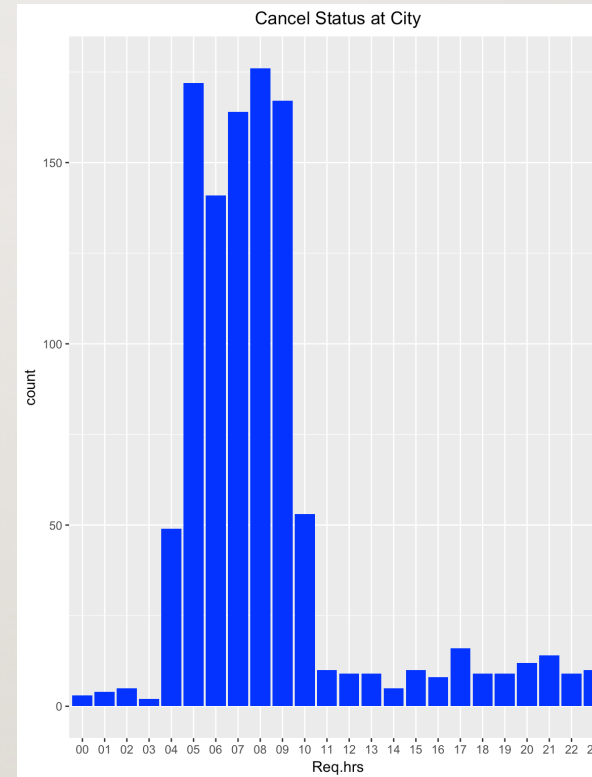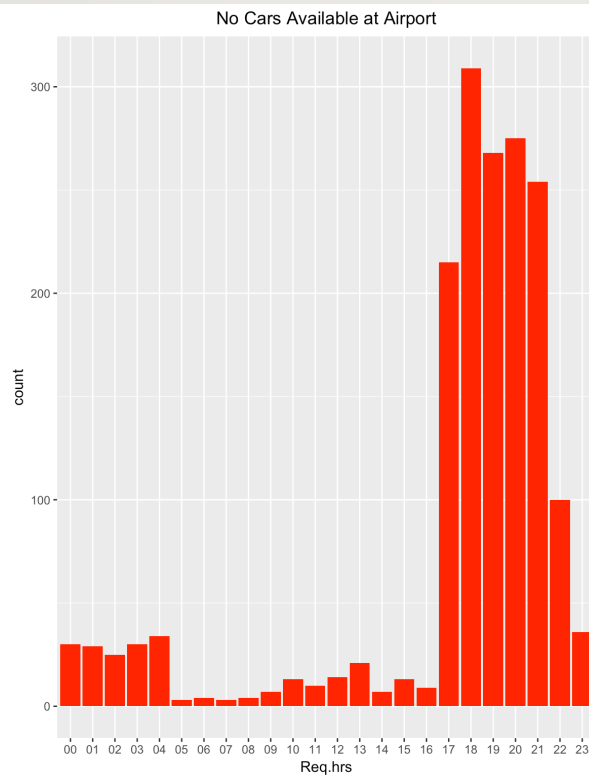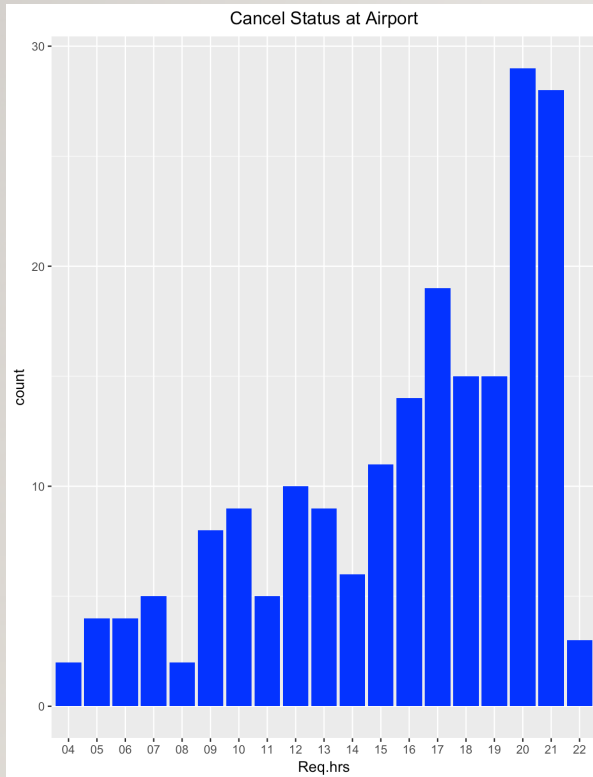
Trip Cancellations at City

- As visualized, in plot no 4, there is a sharp increase in cancelled trips from 4:00am to 10:00 am.

- On an average a trip from the city to the airport takes 52 mins.

- As visualized in plot no 1 there is less demand of cabs from the Airport during 4:00am to 10:00am.

- Therefore if drivers are asked to accept the trip to airport there are ample chances, that they might have to wait at the airport for a long period of time before they get a new trip.

- The Supply and Demand gap in this duration in the above time frame is very high and is forcing cab drivers to cancel the trips in favor of better business opportunities in city.

No Cars Available at Airport

- As visualized in plot no 4 there is rapid increase "no cars available" cases from 5:00 pm , to 22:00 pm and there is sharp increase demand of cabs From the Airport during 5:00 pm to 22:00 pm.

- As visualized in plot (page no 2) there is a gap in Demand and Supply of Cabs at the Airport.

- This Sharp increase in demand in this timeframe cause Lesser numbers of cars availability at airport.

Recommendations

- Increasing Cabs strength by will surely help in ensuring availability.

- Also as minimum time to commute is 44.95, strict monitoring of Cabs may help to increase availability there by reducing cancellations.

- For arresting trip cancellation:
  - Drivers can be incentivised to carry out trips between 4:00am to 10:00 am in city.
  - Drivers can also be compensated for their waiting time for above period.

- For arresting "No cars available":
  - Strict monitoring of cabs is required and within certain kilometer drivers can be informed to take these trips
  - Also cabs which are away can also be informed beforehand and incentivised suitably for reaching airport for taking trips.

THANK YOU

Nikhil Tiwari

DDA1710184