UBER SUPPLY-DEMAND GAP

SUBMISSION

By,

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Problem Analysis

Requirement Brief:

1. Identify the root cause of the problem i.e. cancellation and non-availability of cars.

2. Recommend ways to improve them.

Data Brief:

- Request id: A unique identifier of the request

- 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

- Pick-up point: The point from which the request was made

- Driver id: The unique identification number of the driver

- Status of the request: The final status of the trip, that can be either completed, cancelled by the driver or no cars available.

Analysis Methodology

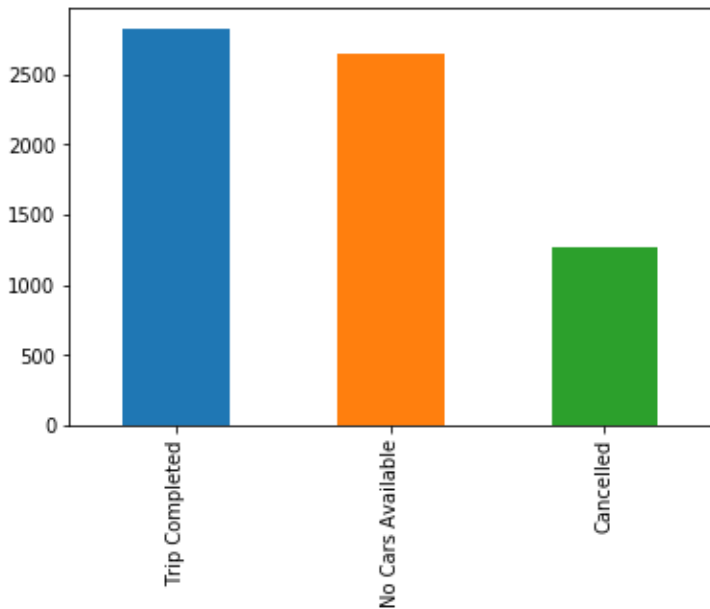**Import Data/Packages**

Cleaning Data:
Changing Datatype of Variables.

Derived Metrics:
1. Part of the day: eg. Evening, Night..
2. Ride Time: Drop-Request time
3. Path: City to Airport/Airport to City

Univariate Analysis

Segmented Analysis

Early Morning: 00:00:00 to 03:00:00
Mid Morning: 03:00:01 to 06:00:00
Late Morning: 06:00:01 to 09:00:00
Before Noon: 09:00:01 to 12:00:00
After Noon: 12:00:01 to 15:00:00
Evening: 15:00:01 to 18:00:00
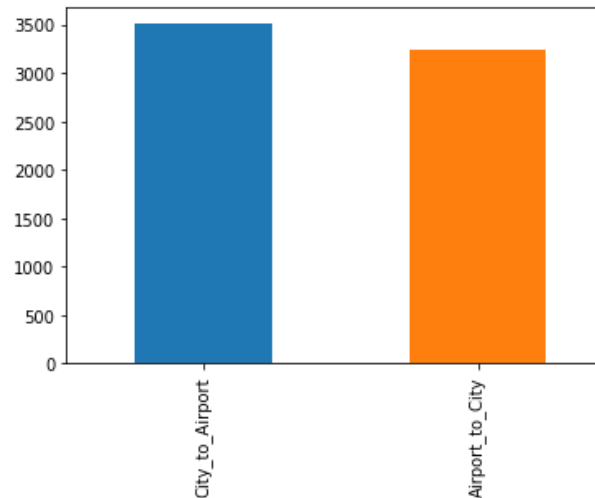Late Evening: 18:00:01 to 21:00:00
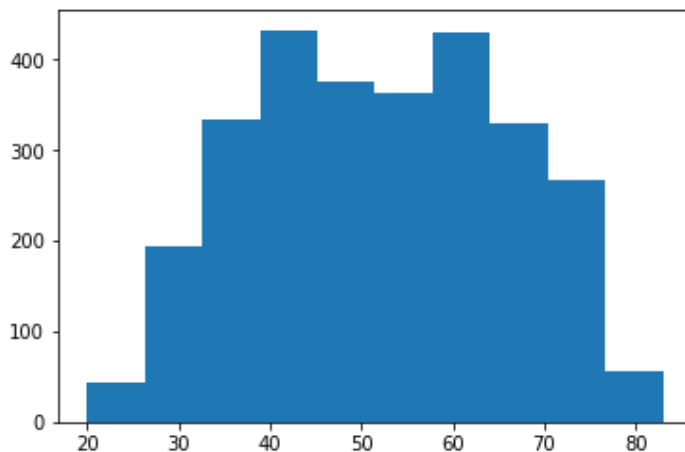Night: 21:00:01 to 23:59:59

Data Analysis

With above Univariate analysis Below points can be concluded:
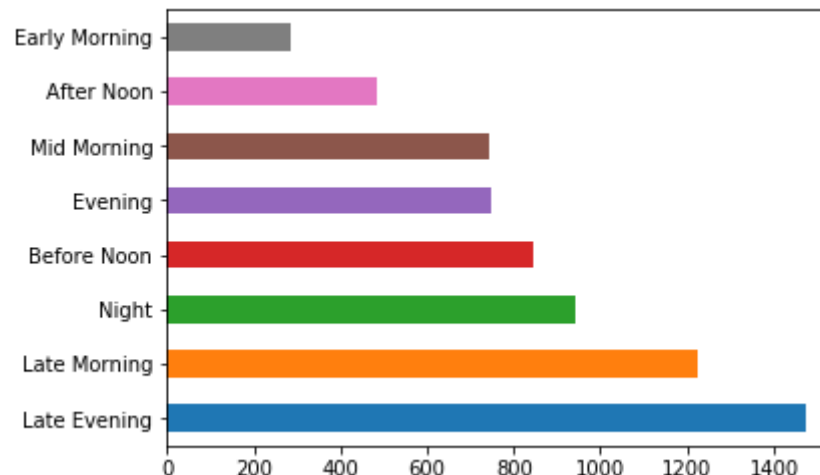

No Cabs Available is twice that of cancelled. It means there are shortage of cabs.

There slightly more requests on City to Airport than Airport to city.

Late Evening	1475
Late Morning	1226
Night	944
Before Noon	845
Evening	749
Mid Morning	741
After Noon	482
Early Morning	283

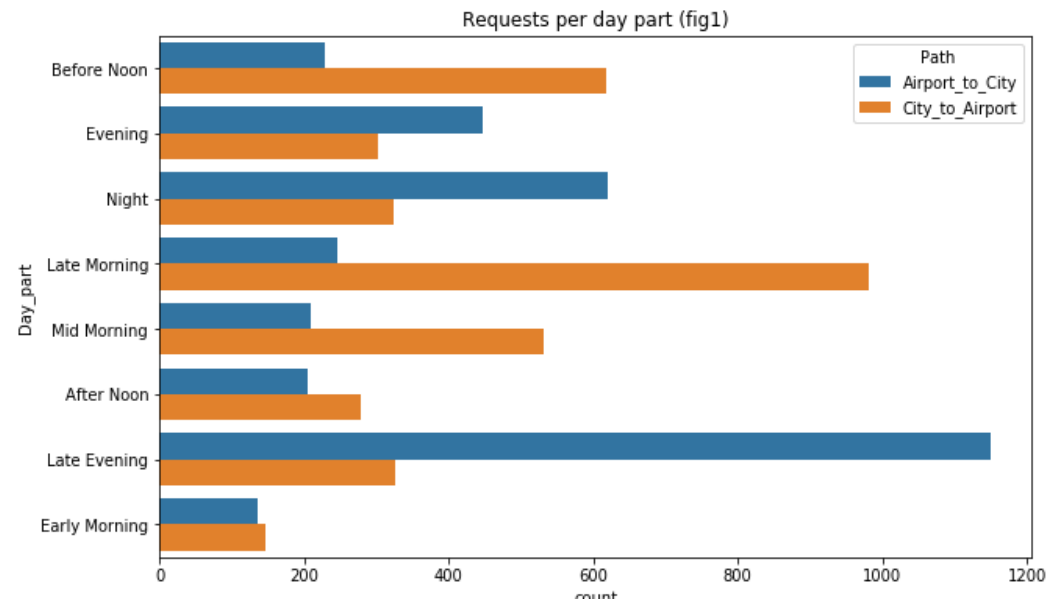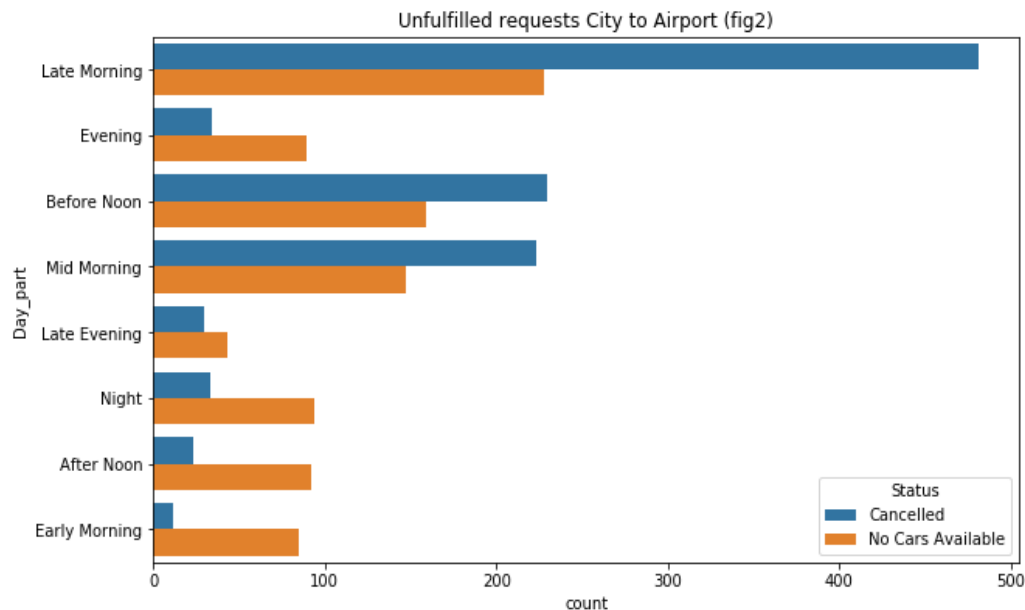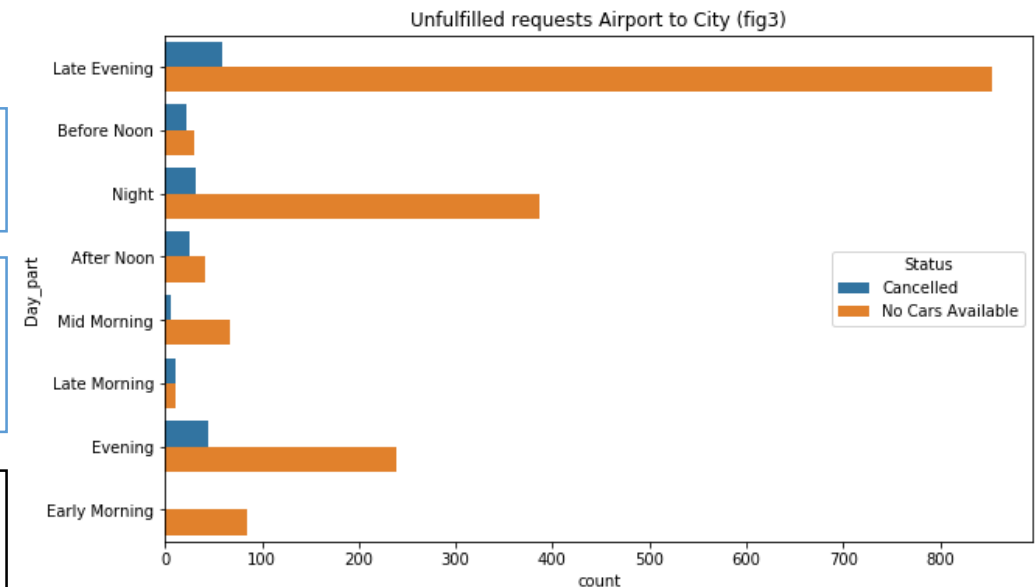Majority of trip takes 40 to 60 mins travel duration.

Most of the requests came on Late evenings(6PM to 9PM) followed by Late Morning(6AM to 9AM)

Data Analysis

Visually identifying most pressing problems for UBER:

1. High number of requests from Airport to city in **Late Evening and Night** ref.(fig1). But most of them unattended because of **No Cars Available** ref.(fig3)
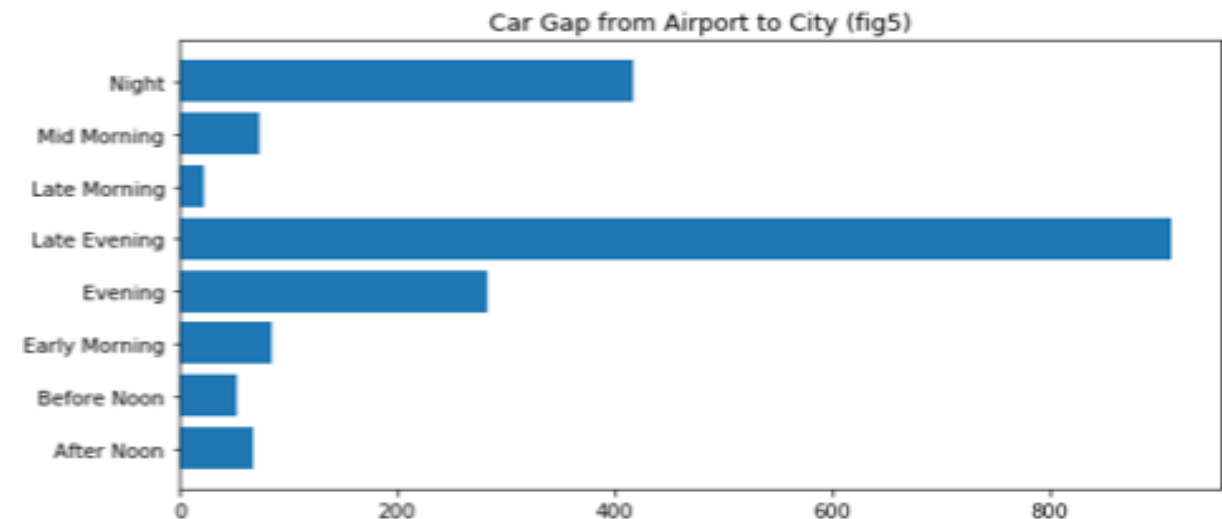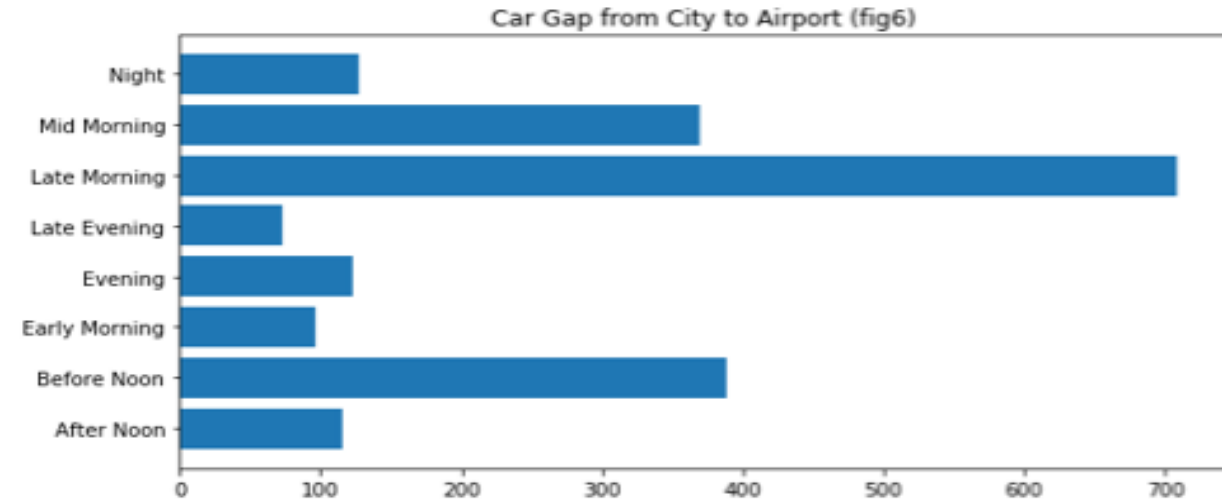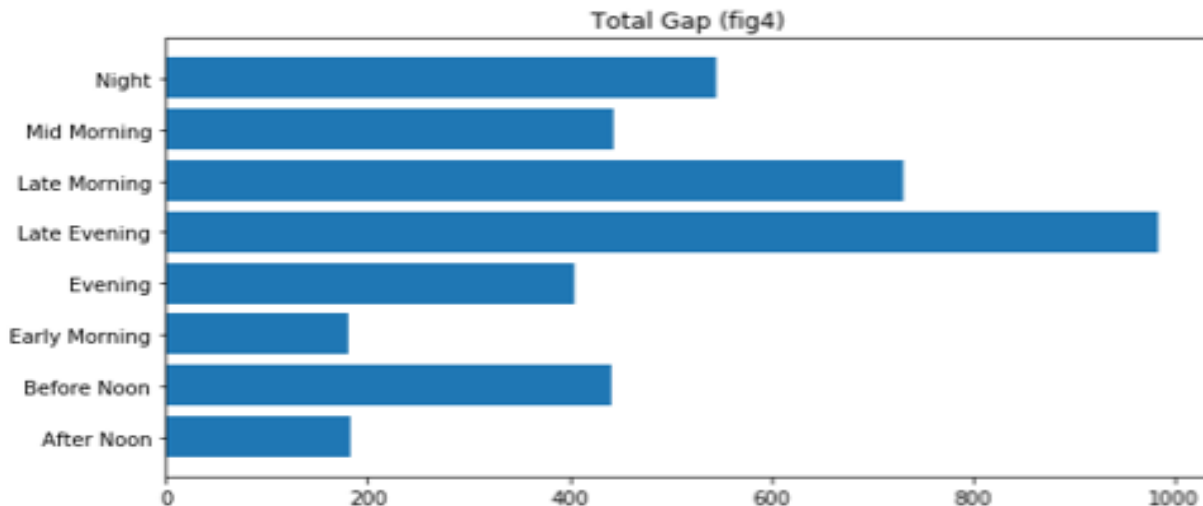
2. High number of requests from City to Airport in **Mid Morning, Late Morning and Before Noon** ref.(fig1). But most of them unattended because of **cancellation**.(fig2)

Conclusion: There are high number of Cancellation recorded for City to Airport trip where as Car availability issues for Airport to City trip.

Unfulfilled requests Airport to City (fig3)

Unfulfilled requests City to Airport (fig2)
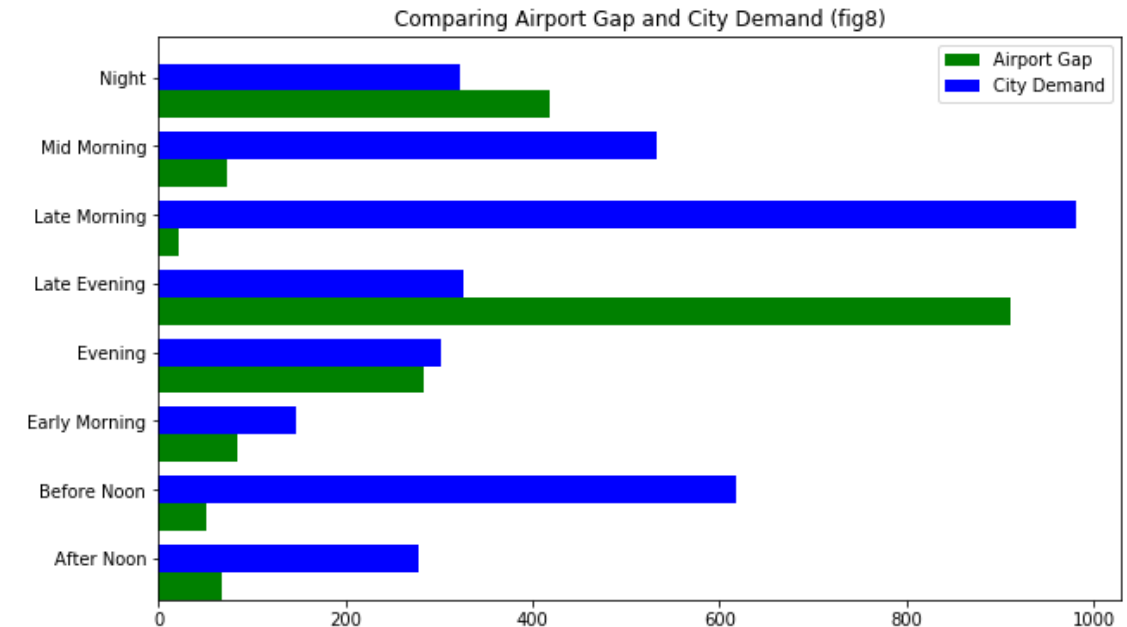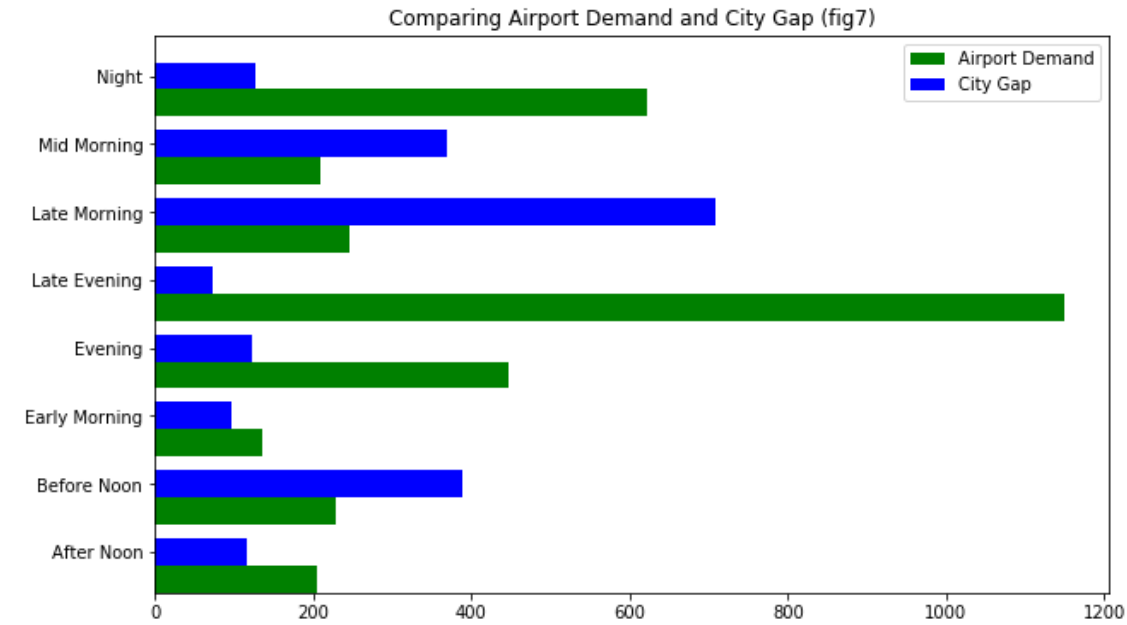

Requests per day part (fig1)

Find out the gap between supply and demand:

1. Overall the highest gap exists in Late Evening i.e. 6PM to 9PM.(fig4)

2. Maximum gap is present in Airport during Late Evenings.(fig5)

Car Gap from City to Airport (fig6)

Total Gap (fig4)

Car Gap from Airport to City (fig5)

The reason for this issue for the supply-demand gap:

- City supply-demand gap is huge during low Demand in Airport. Chart in Fig7 and negative correlation between Airport Demand and City Gap clearly gives this insight. Airport demand contributes to 24% of City Demand. Drivers hesitate to take rides from City to Airport whenever there is a low Airport demand. This causes more cancellation. Even after this huge City-Airport cancellation, city cab supply is covering 90% of Airport demand.

- Low City cab supply is causing High Airport Supply-Demand Gap and unavailability. City supplies 22% of Airport Demand during Late Evenings. City to airport cab demand is low but there is high demand in airport.

Comparing Airport Demand and City Gap (fig7)

Comparing Airport Gap and City Demand (fig8)

Recommendations

1. To award waiting allowances for airport waiting.

2. To penalize driver who has more number of cancellations.

3. To provide surged prices from Airport to City during peak hours.

4. To promote lower cost Shared cabs from Airport to City benefiting both customers and drivers.