UBER CASE STUDY

SUBMISSION

Submitted By:

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Uber Supply-Demand Gap

About Uber:

Uber is a peer-to-peer ridesharing, taxi cab, food delivery, bicycle-sharing, and transportation network company headquartered in San Francisco, California. with operations in 785 metropolitan areas worldwide.[1] Its platforms can be accessed via its websites and mobile apps.

Problem Statement:

Uber India is facing - driver cancellation and non-availability of cars leading to loss of potential revenue. If drivers cancel the request of riders or if cars are unavailable, Uber loses out on its revenue.

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.

For this assignment, only the trips to and from the airport are being considered

Data Cleaning and Assumptions

- **Data Cleansing:**

1. Request.timestamp & Drop.timestamp are converted using parse_date_time function to convert it into System format
2. Request.timestamp & Drop.timestamp are segregated into corresponding Date and Time Columns.
3. Time column is further segregated into Hours and Minutes.
4. Time Slots have been created by using library(OneR) library.

- **Assumptions:**

1. NA values are present in attribute 'Drop.timestamp' because of 'Cancelled' and 'No Cars Available' status.NA values are also present in attribute 'Driver.Id' because of 'No Cars Available' status. NA values need not to be treated as they are not considered in our analysis.
2. For analysis the entire day is divided into 6 Time_Slot/Interval as below:

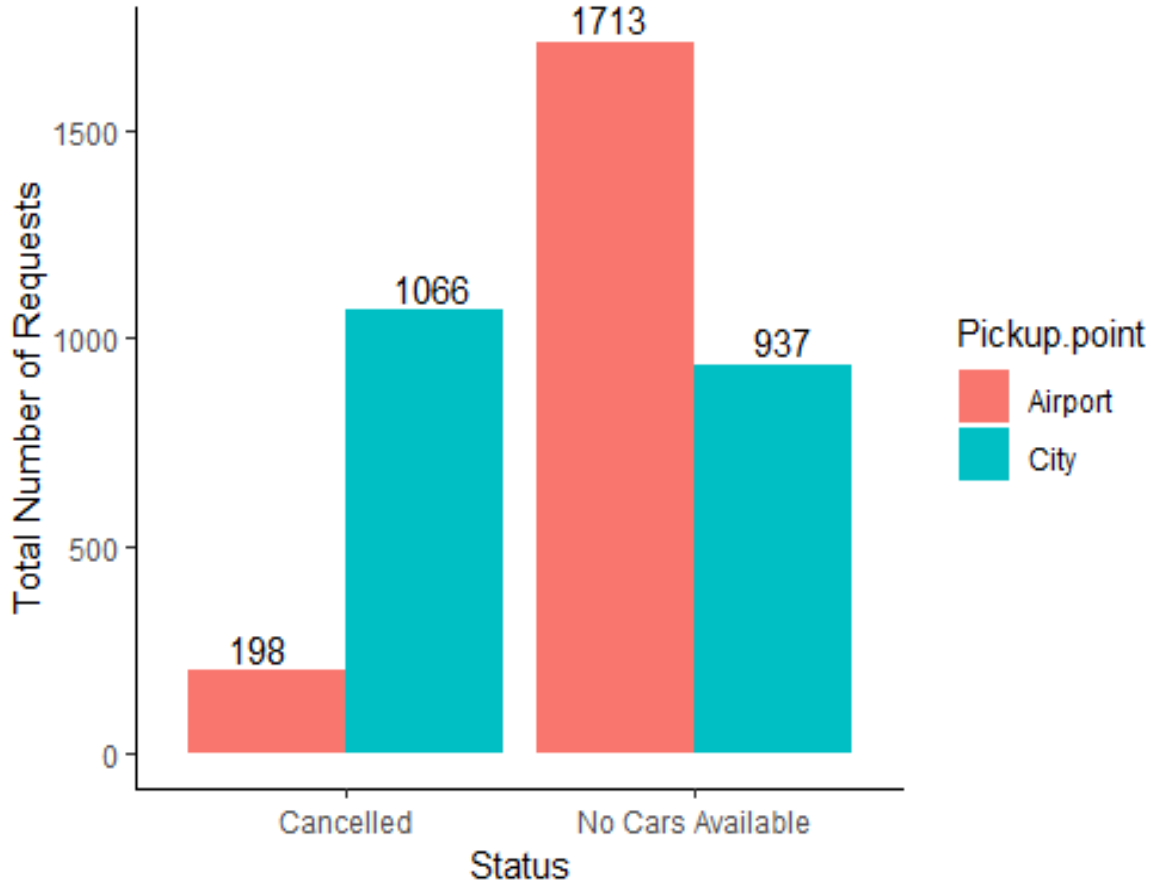
a. Late Night - 00:00-03:59
b. Early Morning - 04:00-07:59
c. Late Morning - 08:00-11:59
d. Afternoon - 12:00-15:59
e. Evening - 16:00-19:59
f. Night - 20:00-23:59

Frequency of Requests that got ‘Cancelled’ or show ‘No Cars Available’

- This graph plot shows the total number of requests that got ‘Cancelled’ or showed ‘No Cars Available’ where pickup point was either Airport or City.

- We can interpret that more requests got cancelled From City and comparatively very few got cancelled from Airport.

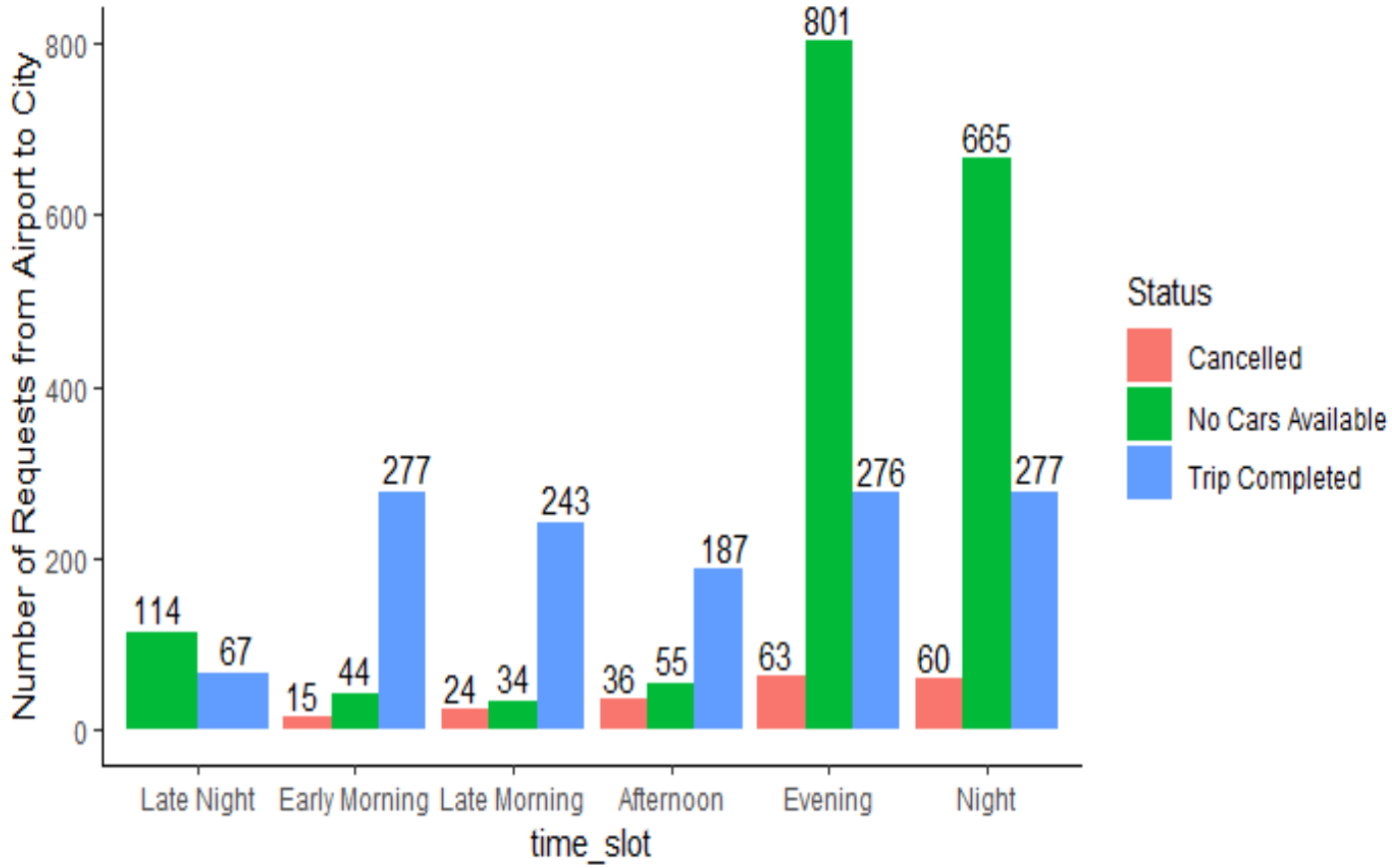
- We can interpret that Non-Availability of cars is more in Airport than that of City.



Distribution of Number of Requests from ‘Airport to City’ in different hours of the day

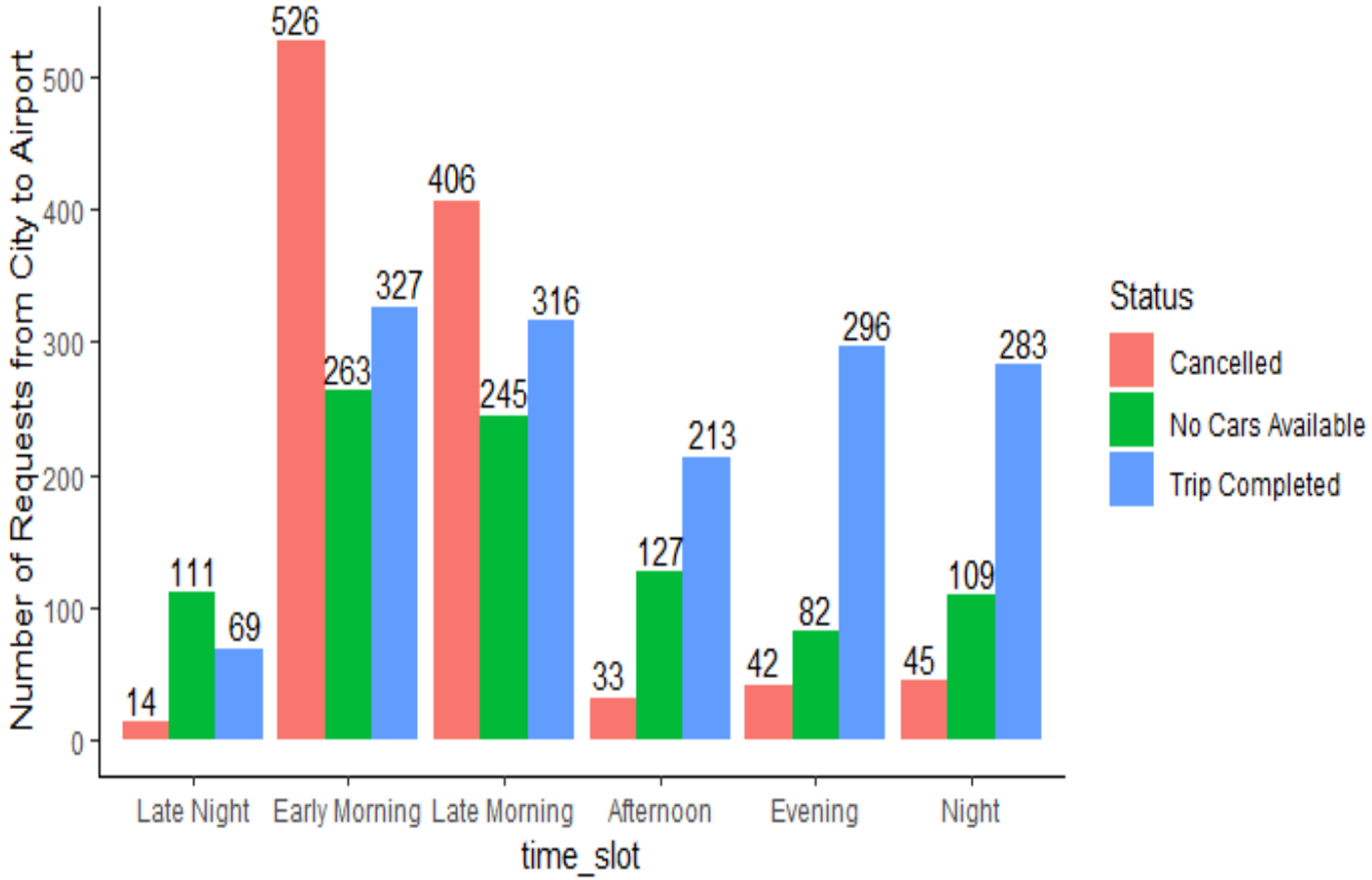
- This graph plot shows the distribution of Total number of requests from ‘Airport To City’ in different intervals of the day.

- At Airport Non- availability of cab is more during evening and night hours.
- Cancellations are very few through out the day.
- At Late night there are comparatively very less number of trips completed.



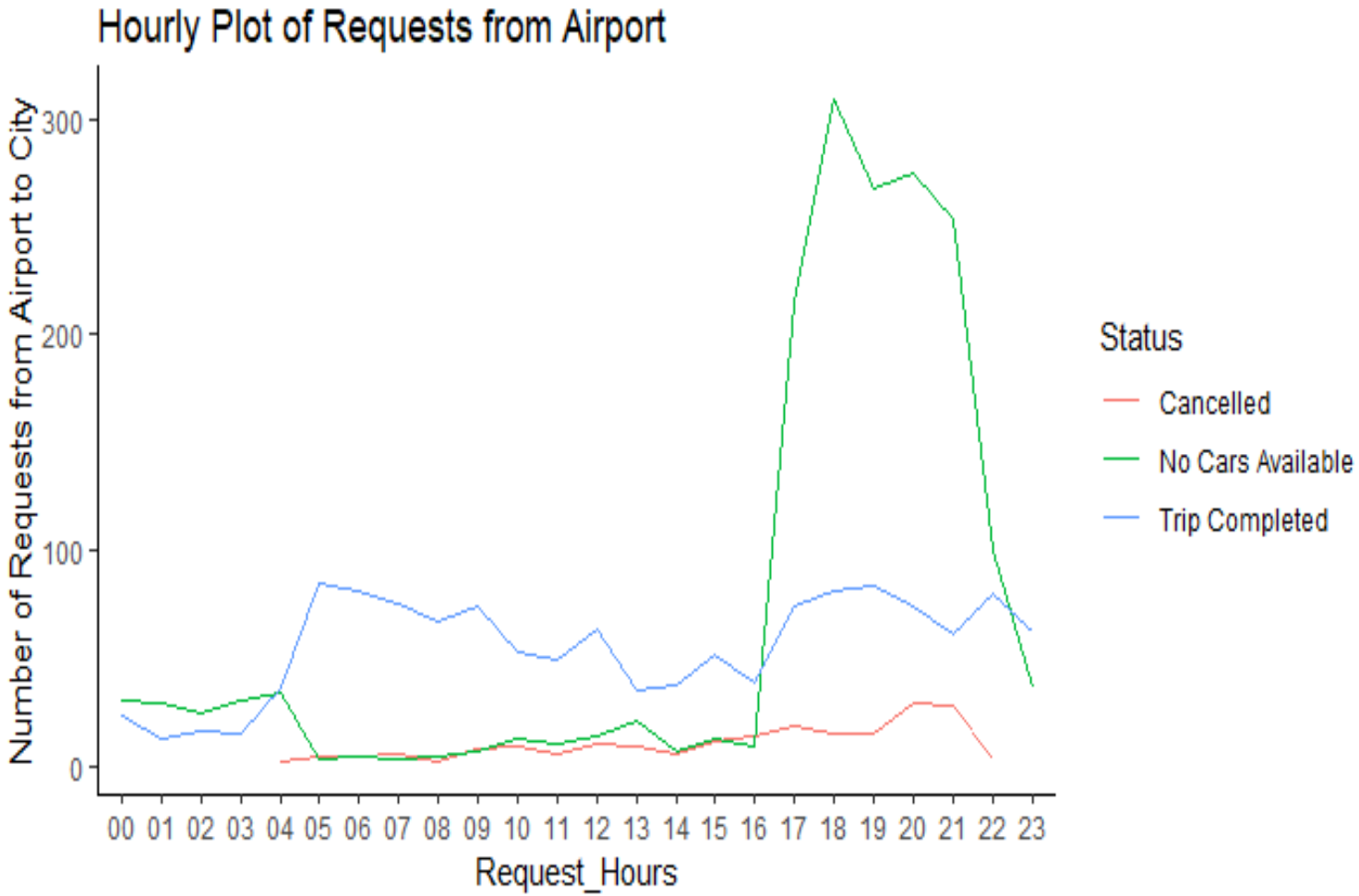
Distribution of Number of Requests from ‘City to Airport’ in different hours of the day

- This graph plot shows the distribution of Total number of requests from ‘City To Airport’ in different intervals of the day.
- We can interpret that most requests are cancelled in Early Morning and Late Morning.
- Non-availability of cabs is most during early morning.
- Most trips are completed at Early Morning.



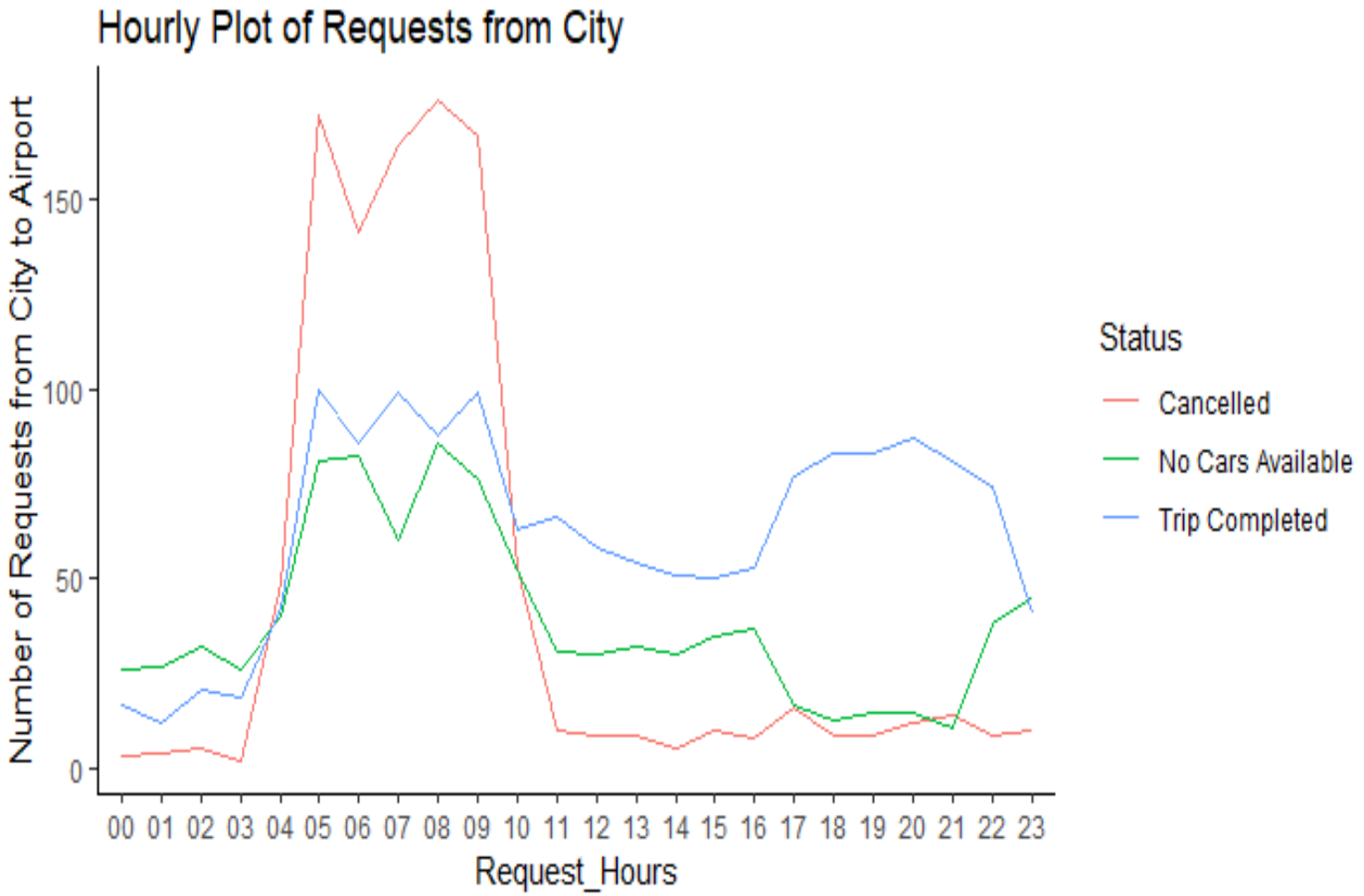
Trend of Requests from ‘Airport to City’ in all hours of the day

- This graph plot shows the line-graph of Status of Requests from ‘Airport To City’ in each hour of the day for all days
- We can interpret that cars are mostly not available between 16:00 PM – 22:00 PM at the airport.
- During day time most trips are getting completed.



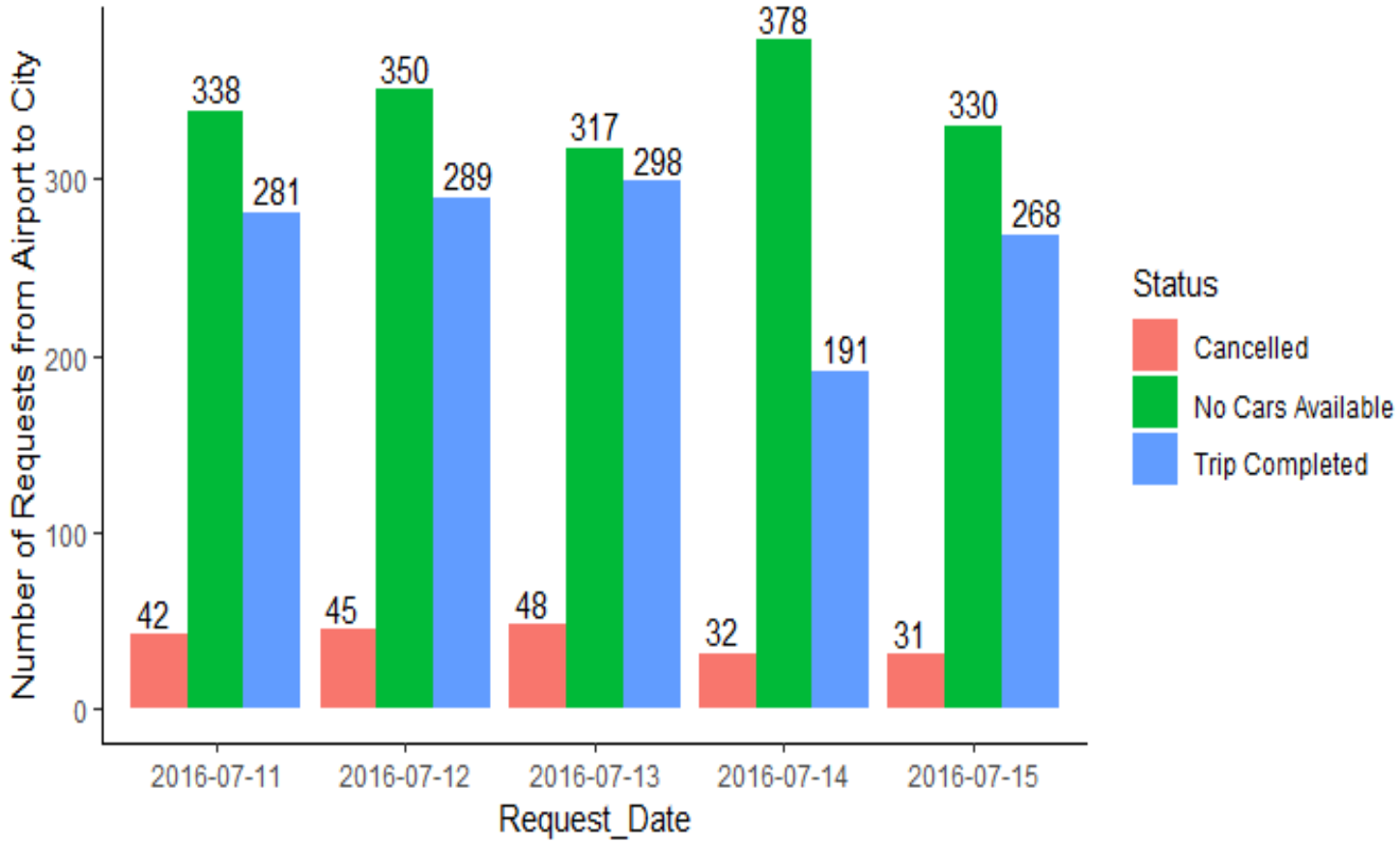
Trend of Requests from ‘City to Airport’ in all hours of the day

- This graph plot shows the line-graph of Status of Requests from ‘City To Airport’ in each hour of the day for all days
- We can interpret that cars are mostly cancelled between 4:00 AM – 11:00 AM in the city.
- Almost the same pattern is seen for Trips Completed and No Cars Available as for cancelled. In day time mostly trips are getting completed or showing NO cars Available.



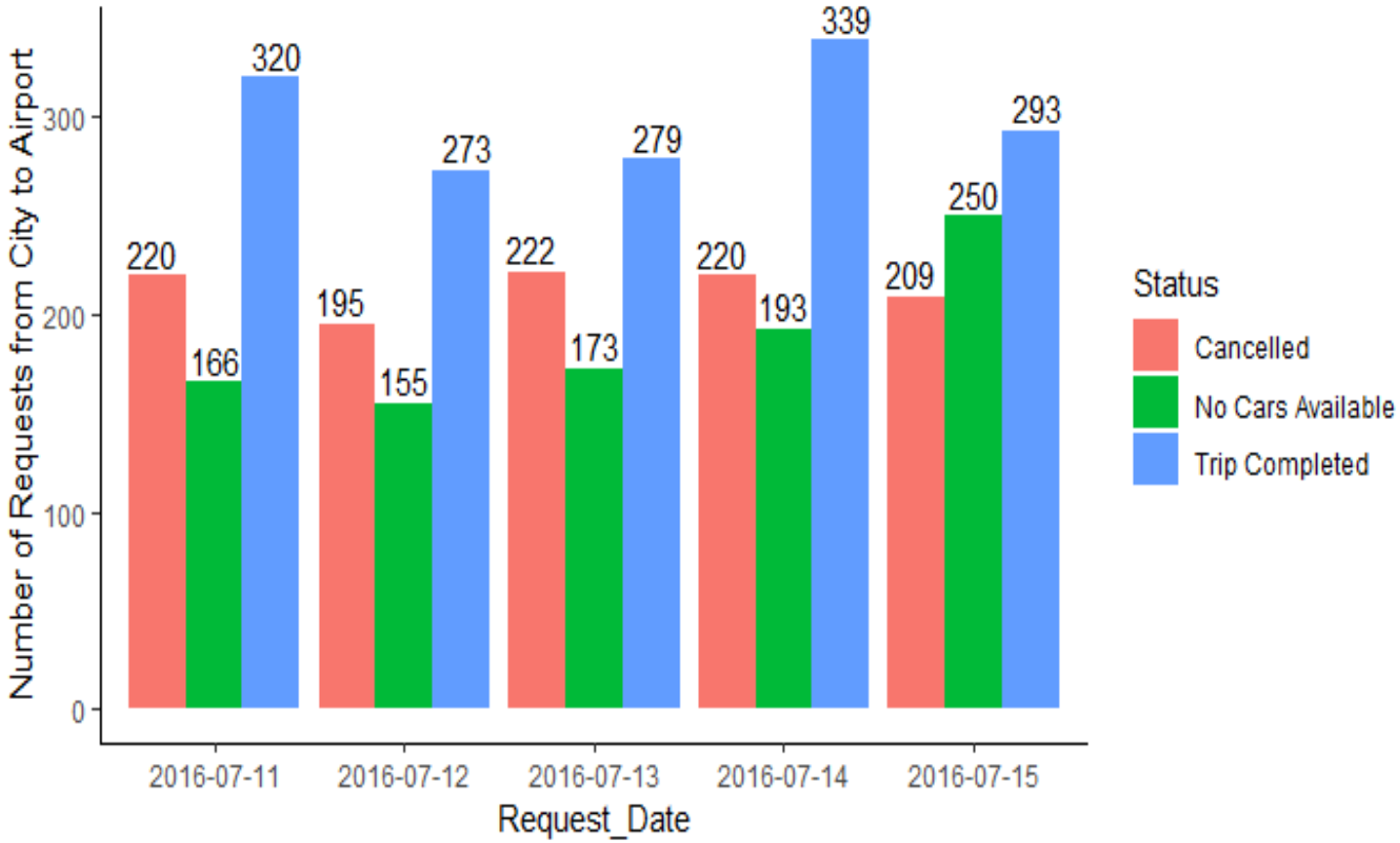
Distribution of Requests from ‘Airport to City’ for all given days

- This graph plot shows the distribution of Requests for each day from ‘Airport To City’.
- We can interpret that cars are Non available throughout all the days.
- Very few Cars are being cancelled from Airport at all days.



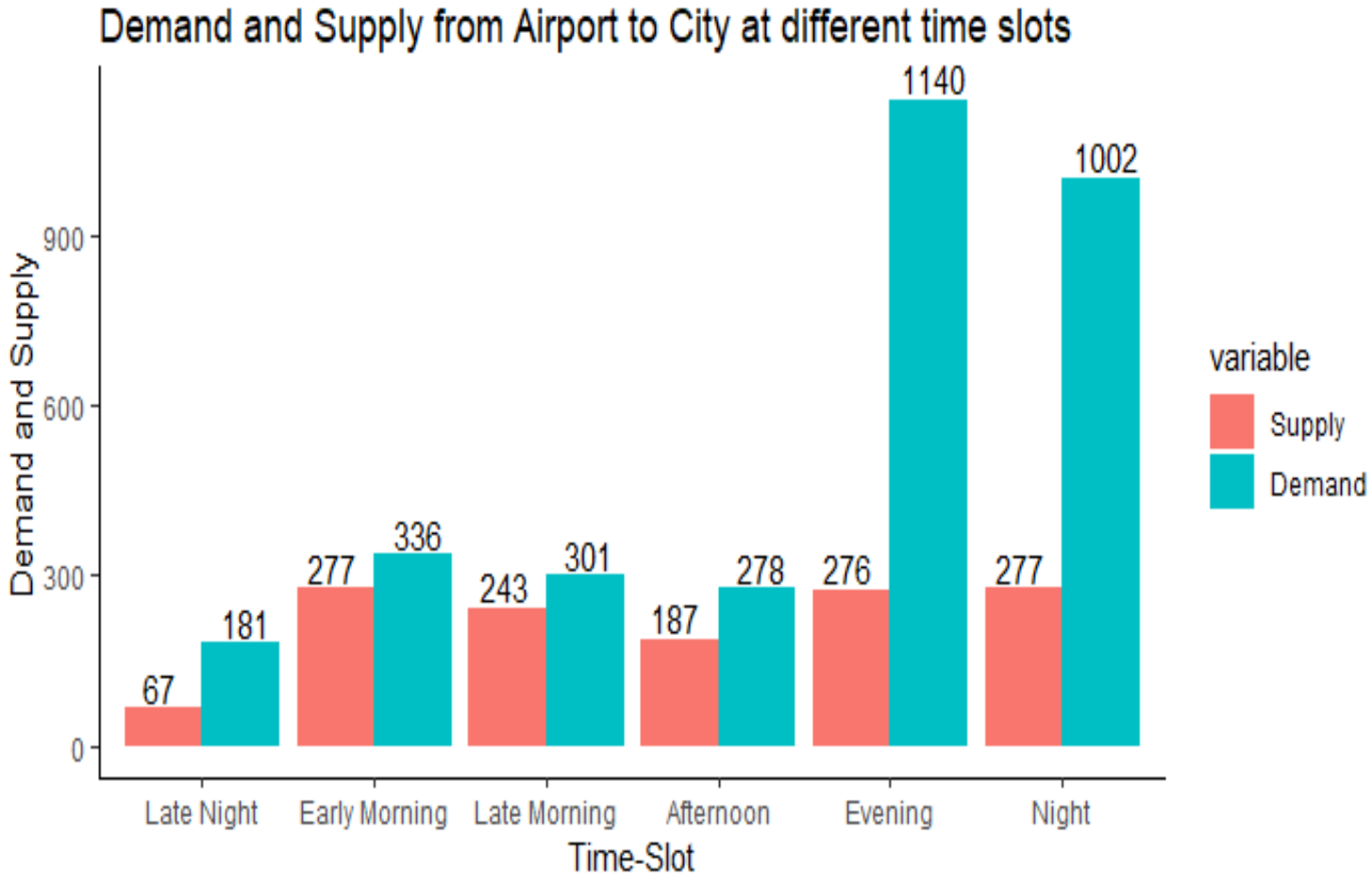
Distribution of Requests from ‘City to Airport’ for all given days

- This graph plot shows the distribution of Requests for each day from ‘City To Airport’.
- We can interpret that almost same amount of requests are being cancelled at all days.



Supply vs Demand GAP for Requests from ‘Airport to City’

- At Airport Demand is very high at Evening and Night time.
- There is no Supply to fulfil demands at Evening and Night Time.
- High (Supply vs Demand) gap for Evening to night hours.



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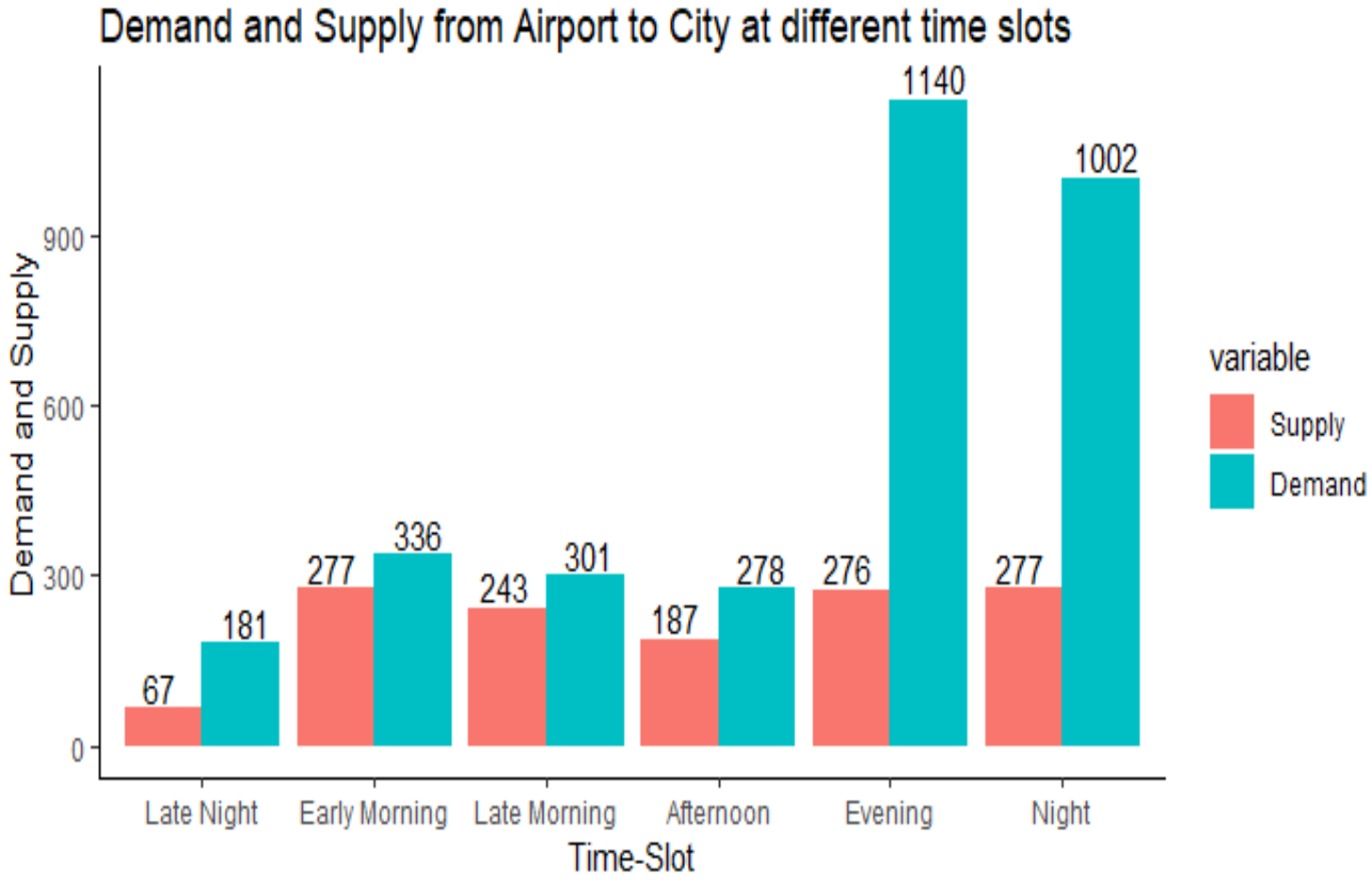
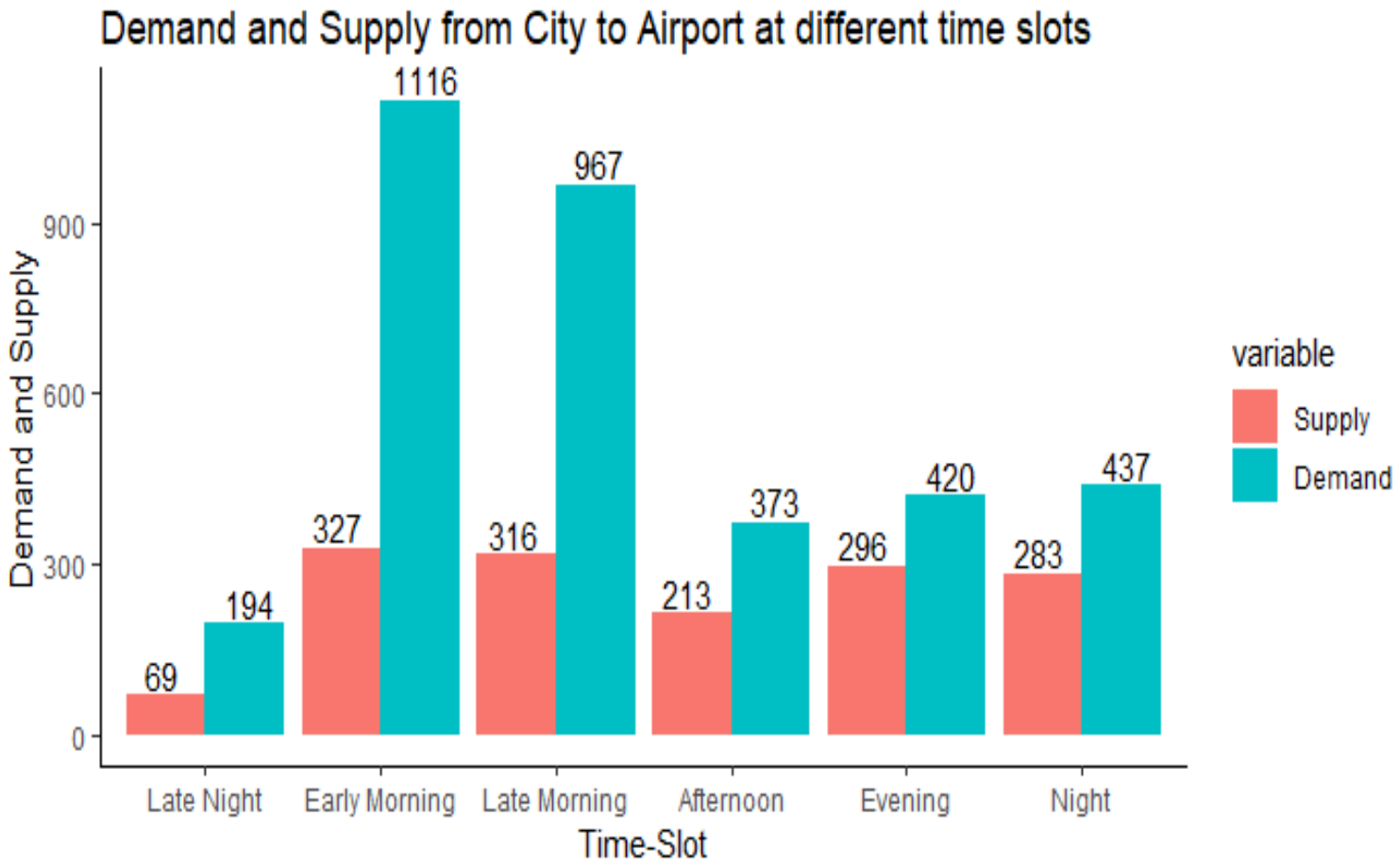


Supply vs Demand GAP for Requests from ‘City to Airport’

- At City Demand is very high at Early and Late Morning.
- There is no Supply to fulfil demands at at Early and Late Morning in City.
- High (Supply vs Demand) gap for Early to Late Morning hours



Supply-Demand gap Hypothesis & Recommendations

- **Supply-Demand gap Analysis:**

In City demand and supply gap is is very high at Early and Late Morning.

At Airport demand and supply gap very high at Evening and Night time.

- **Hypothesis:**

In City demand and supply gap is is very high at Early and Late Morning because the driver thinks that if he goes to airport at early morning then he has to wait at the airport for a long time and idle time is high since there are very few early morning flights arrival at the airport . That is the reason why drivers cancel the flight in morning for booking requests from city to airport.

At Airport demand and supply gap very high at Evening and Night time because there are less number of bookings from city to airport at Evening and night and therefore there are less number of cabs reaching airport at that time. Because there is a higher a number of flights coming in the airport at evening and night and very few cars are there at that time so 'No Cars available' is very high for this time period.

- **Recommendations:**

1. Giving incentives to drivers apart from regular fare to go to Airport at Morning and Evening & Night time.

2. Restricting drivers for cancellation of bookings to Airport at Morning time when if we are fulfilling point 1 at first place.

3. Also give incentives to drivers to complete 'n' number of trips per day. So that by this they will not cancel any bookings.

Thank You