UBER SUPPLY-DEMAND GAP CASE STUDY

SUBMISSION

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Business Objectives

- To identify the root cause of the problem (i.e. cancellation and non-availability of cars) and recommend ways to improve the situation

- To identify the root cause(s) and possible hypotheses of the problem(s) and recommend ways to improve them

Data Cleaning and Assumptions

- Assumed Time Slots as mentioned below:

    1. Early Morning : 4 AM - 8 AM

    2. Morning : 8 AM - 12 Noon

    3. Afternoon : 12 Noon - 4 PM

    4. Evening : 4 PM - 8 PM

    5. Night : 8 PM - 12 Mid Night

    6. Late Night : 12 Mid Night - 4 AM

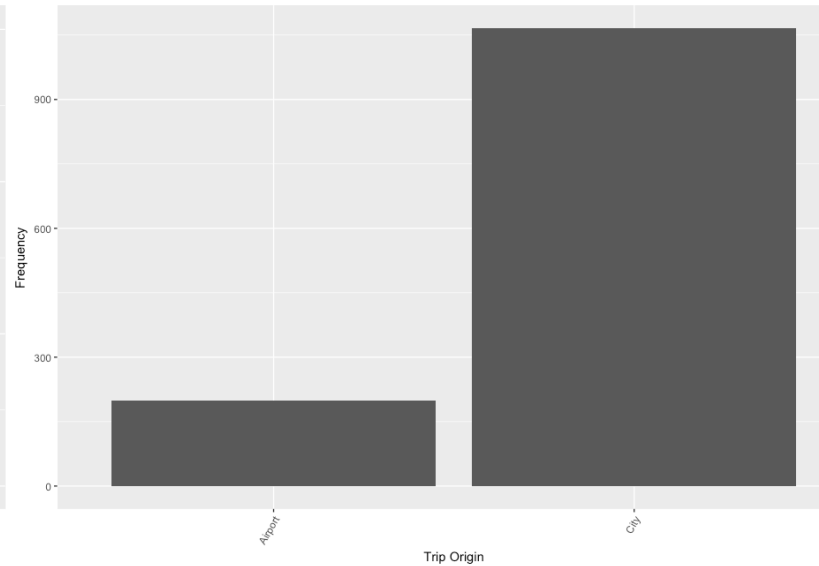- Removed time precision till seconds so as to create uniform data for analysis

Identifying Problematic Types of Requests
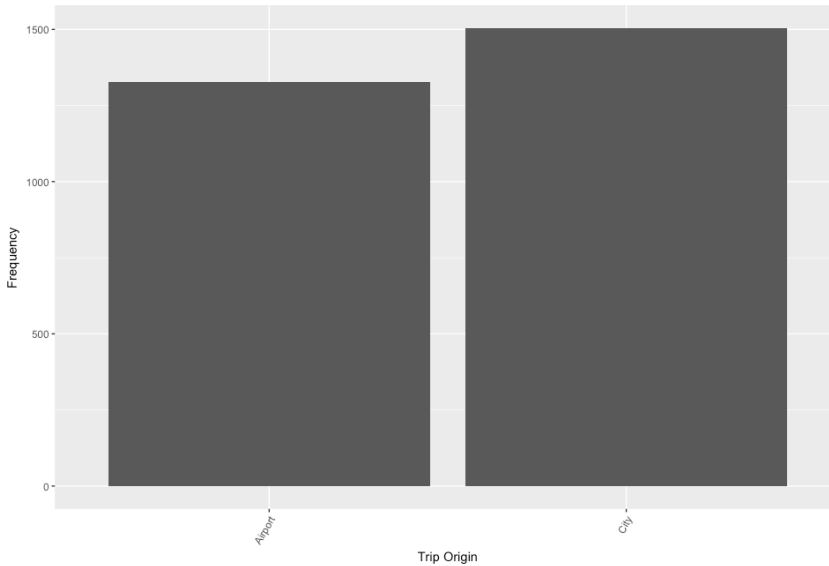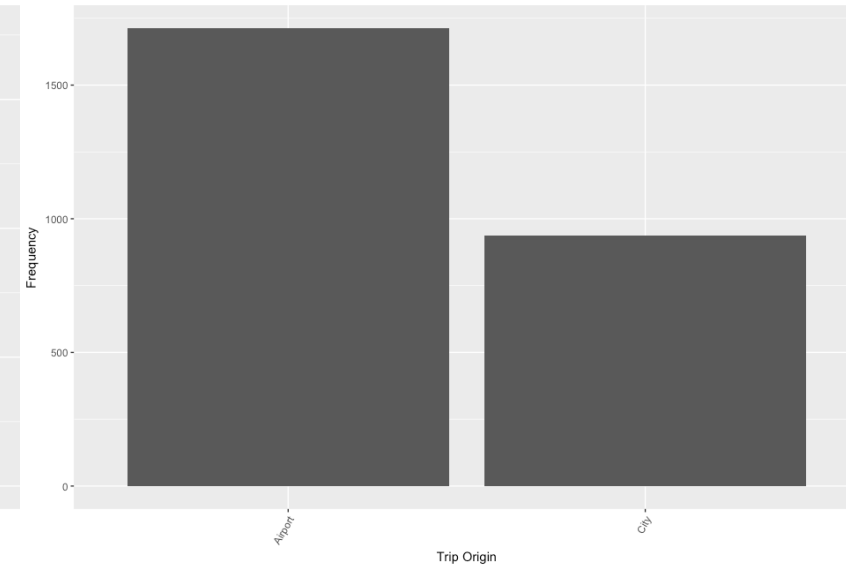

Higher proportion of Completed Trips originate from City

Cancelled trips huge in trips originating from City
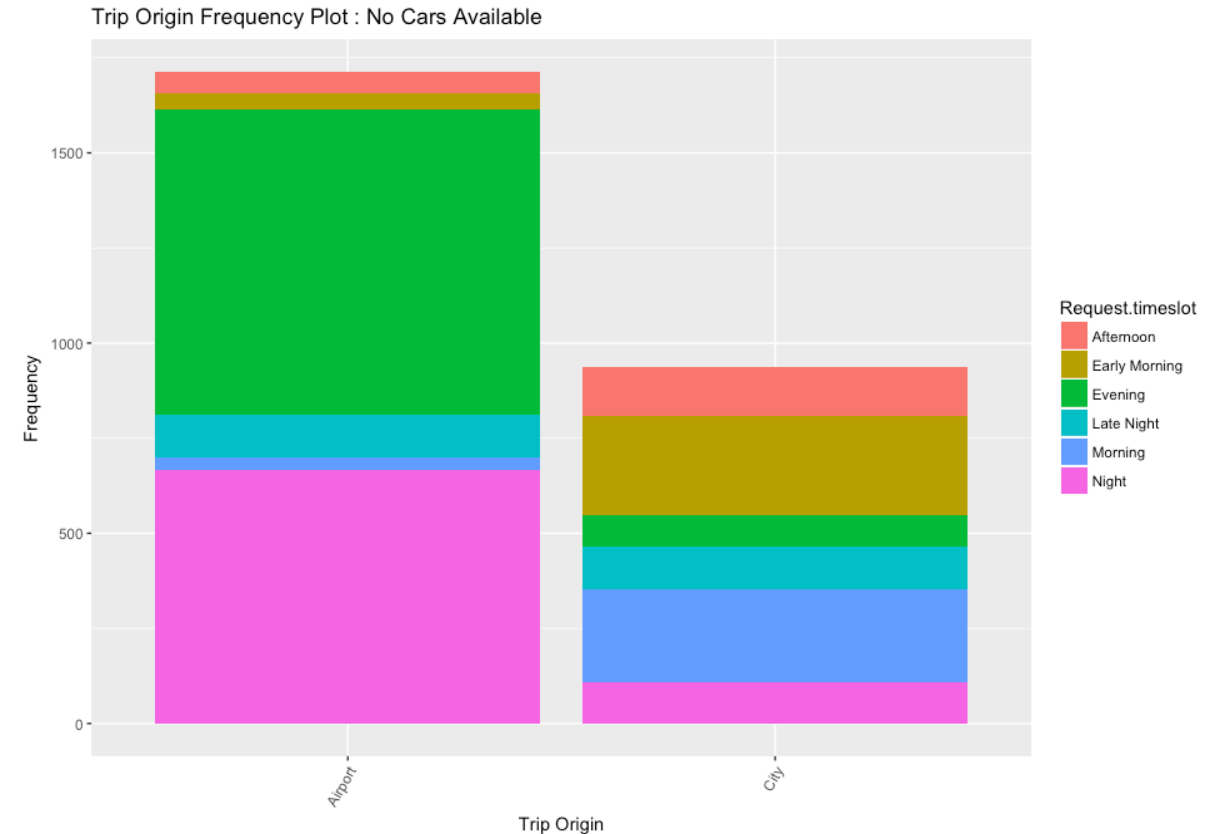
High proportion of No Cars Available in trips originating from Airport

Identifying Problematic Types of Request Time Slots

Trip Origin Frequency Plot : Cancelled Trips
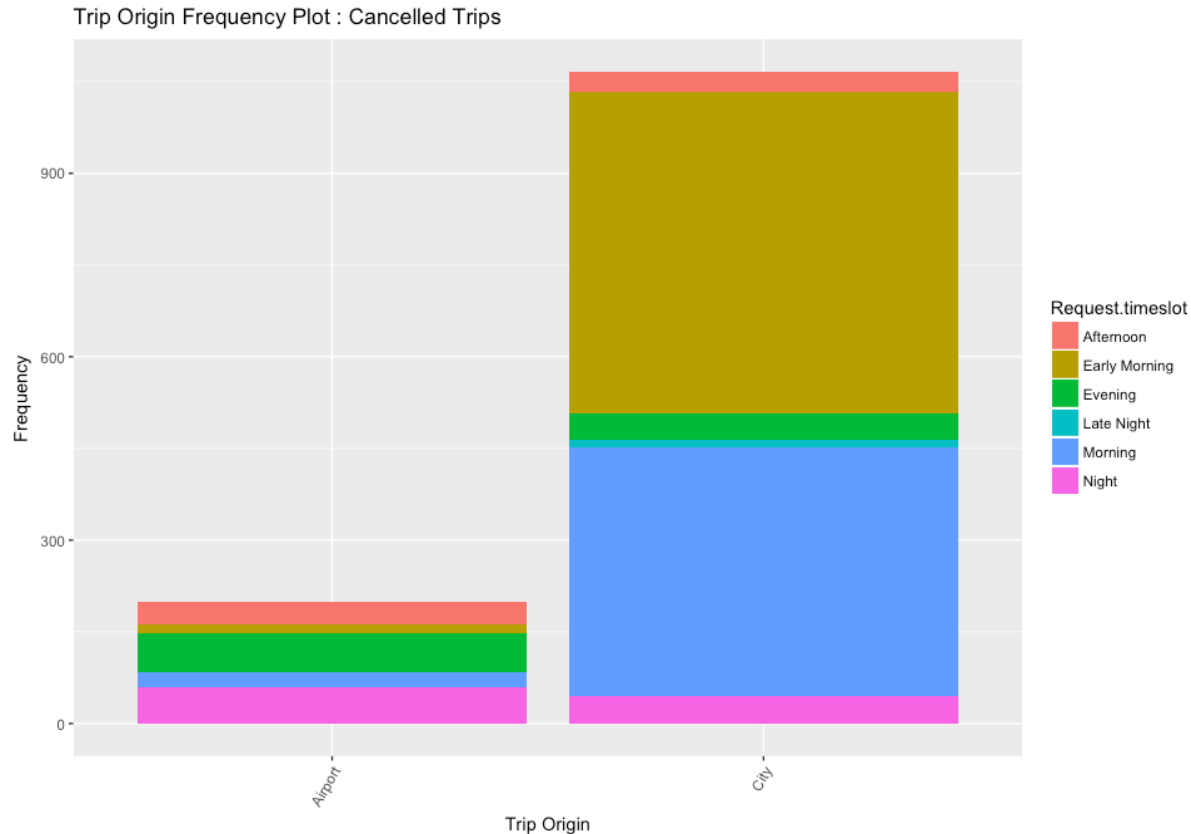
Early Morning and Morning time slots have very high Cancellation for trips originating from City


Trip Origin Frequency Plot : No Cars Available

Evening and Night time slots have very huge proportions No Cars Available for trips originating from Airport

Airport-City Trips

Request Timeslot Frequency Plot : Airport Trips

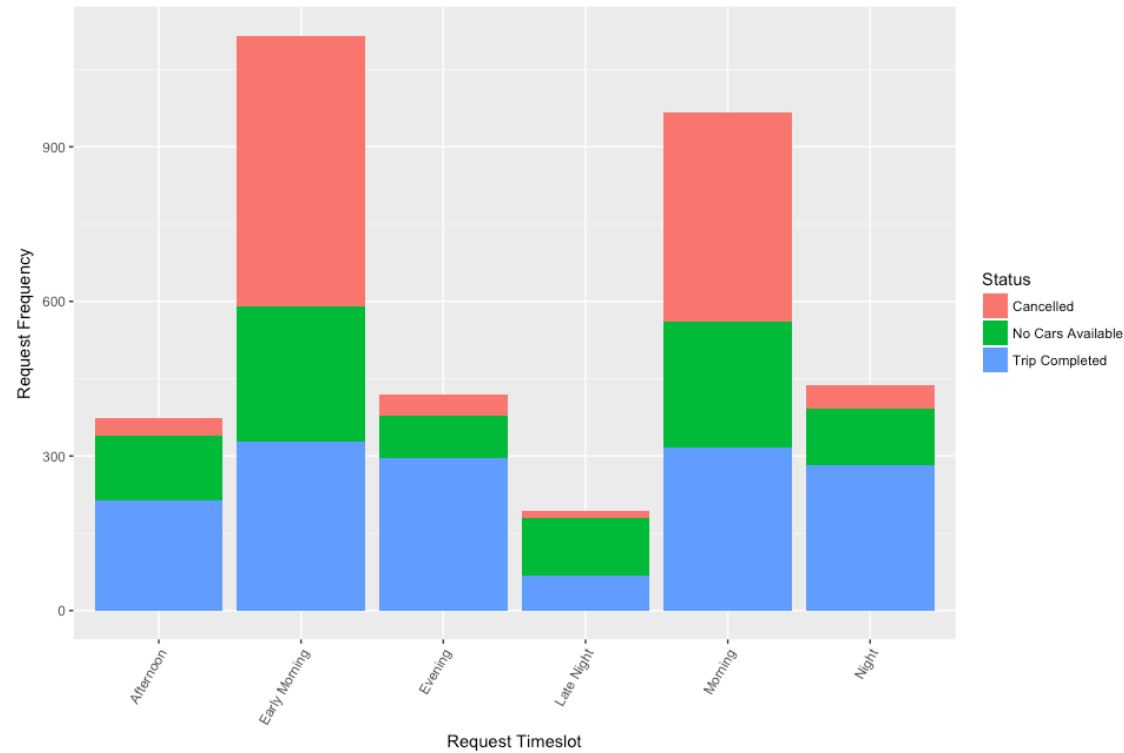Request Timeslot Frequency Plot : Airport Trips
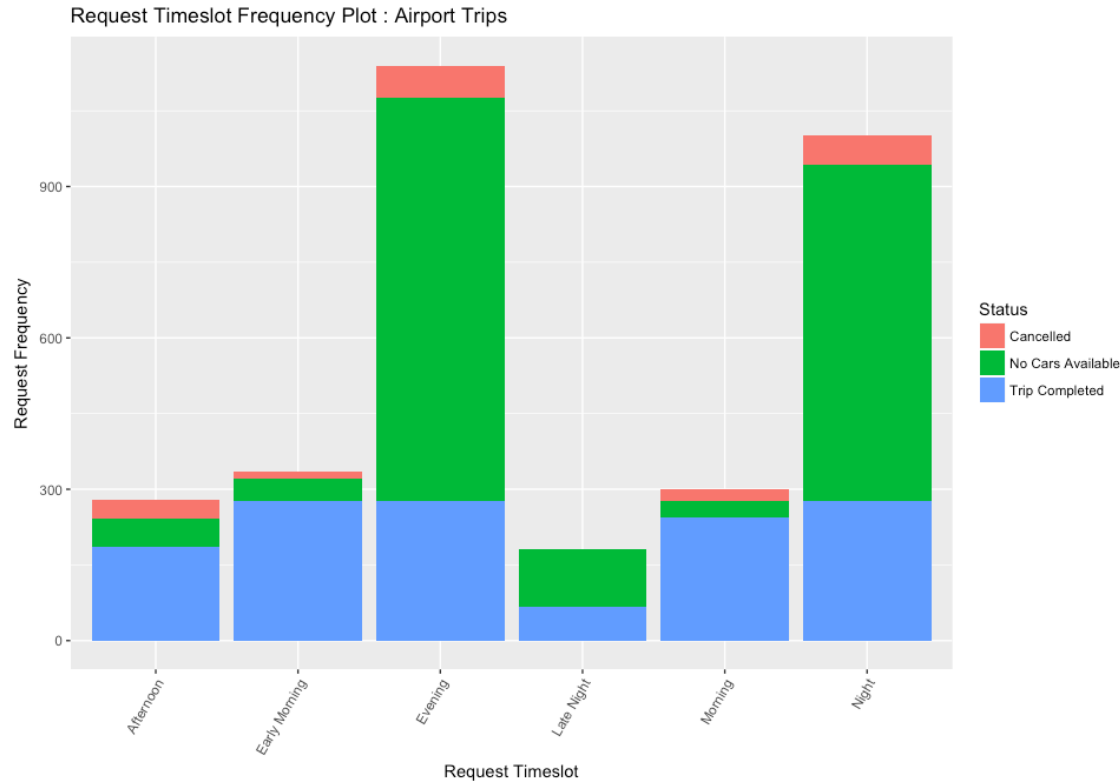
Evening has the highest Demand followed by the Night time slot with Non Availability of Cars being the major reason for Non Completion of Ride
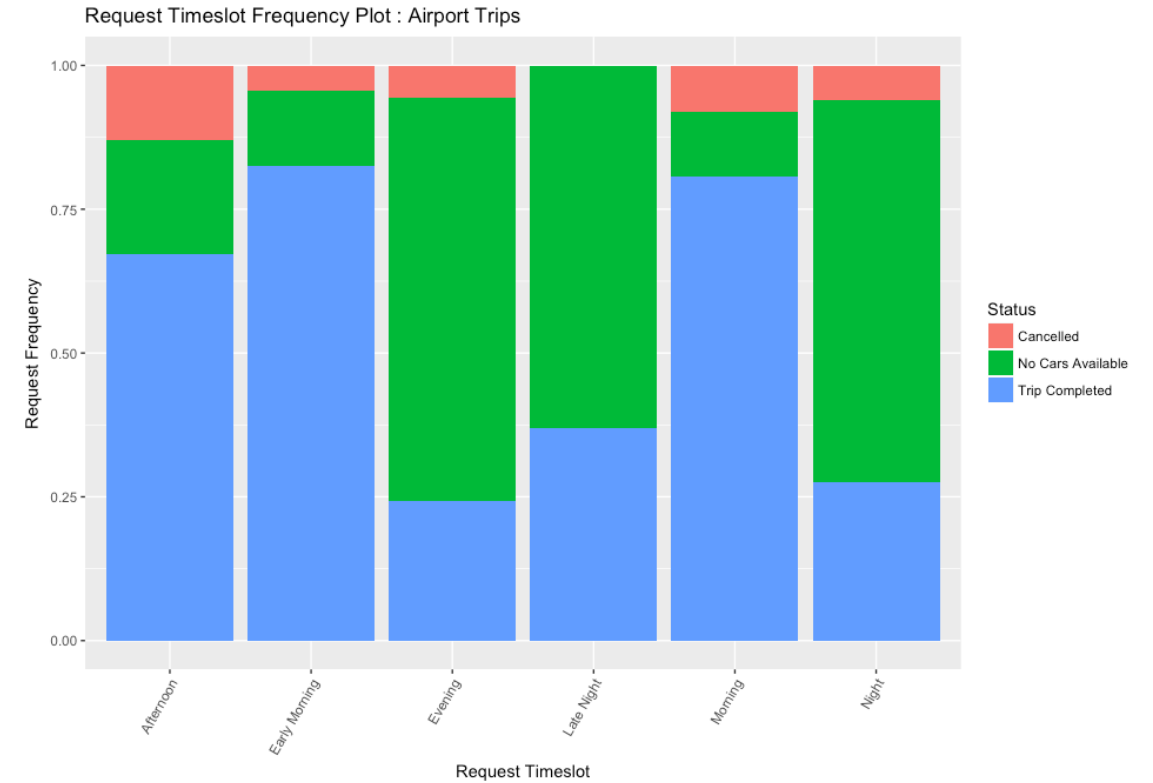
Must improve Trip Completion levels for Evening and Night time slots which have the highest demand
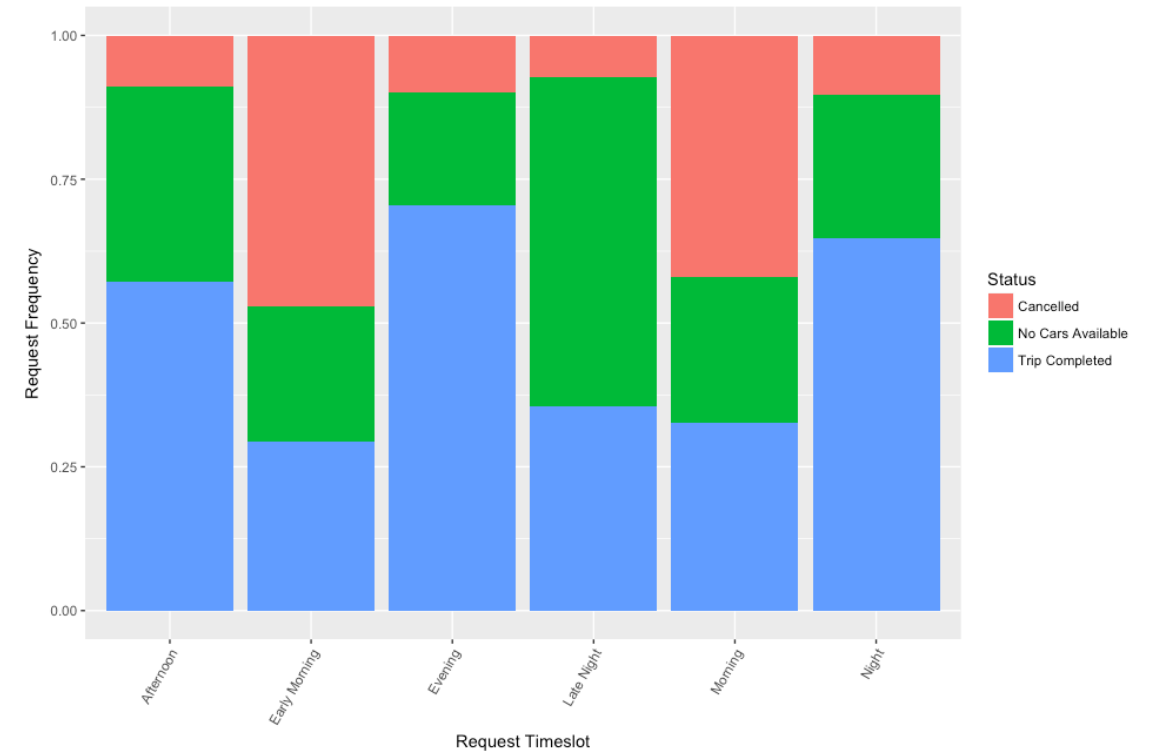
City-Airport Trips

Request Timeslot Frequency Plot : City Trips

Status
- Cancelled
- No Cars Available
- Trip Completed

Request Timeslot Frequency Plot : City Trips

Status
- Cancelled
- No Cars Available
- Trip Completed

Early Morning has the highest Demand followed by Morning time slot with ride being Cancelled as the major reason for Non Completion of Ride

Must improve Trip Completion levels for Early Morning and Morning time slots which have the highest demand

Supply-Demand Gap Metric

- Supply-Demand Gap = Total Rides Requested - Total Rides Completed

- Total Rides Requested = Completed Trips + Cancelled Trips + No Cars Available Trips

- Total Rides Completed = Completed Trips

- Thus,

  Supply-Demand Gap = Cancelled Trips + No Cars Available Trips

- Hence we will use this understanding for analysing the Supply-Demand gap for Uber

Supply-Demand Gap Analysis

At an Overall level,

- Evening & Night time slots mainly because of Non Availability of Cars

- And, Early Morning & Morning time slots due to Cancellation

- Seems to be the time slots where the highest Supply-Demand Gap exists for Uber
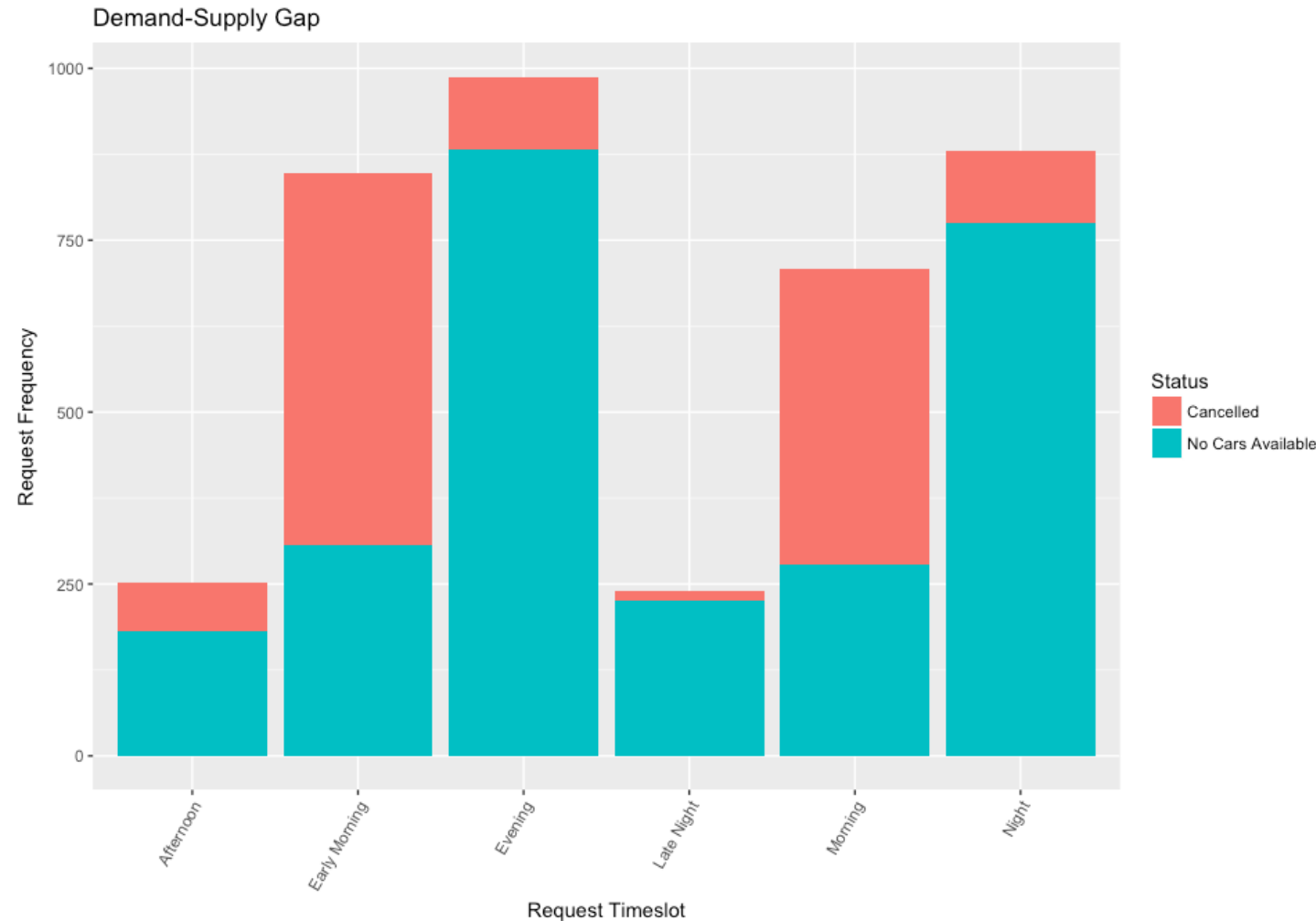
Supply-Demand Gap Analysis

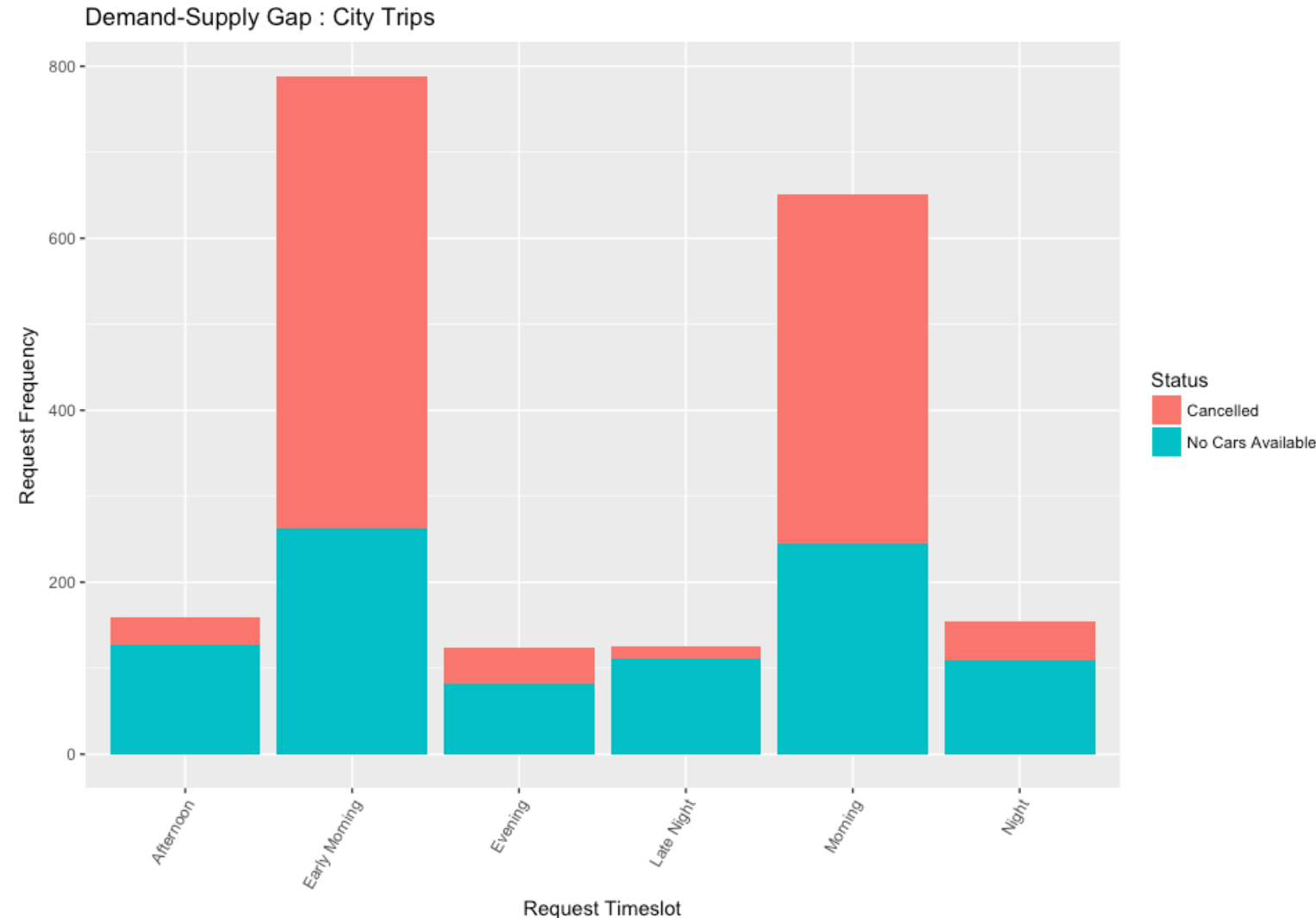For trips originating from Airport,

- Huge Supply-Demand Gap exists during Evening and Night time slots majorly because of Non Availability of Cars at the Airport
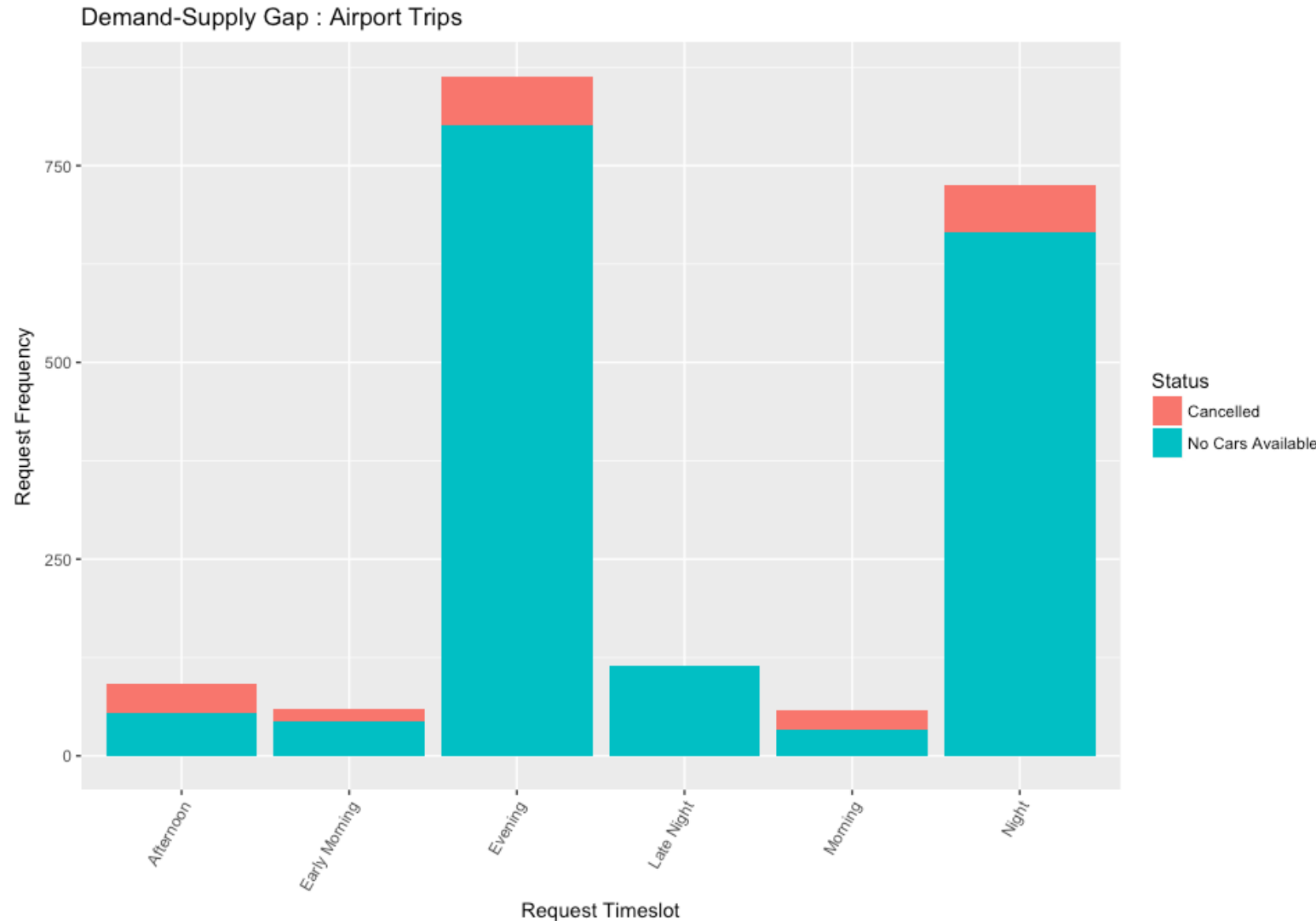
Supply-Demand Gap Analysis

For trips originating from City,

- Huge Supply-Demand Gap exists
  during Early Morning and Morning
  time slots majorly because the rides
  are being Cancelled by the drivers

Demand-Supply Gap : City Trips

Reasons for the Supply-Demand Gap

- For trips originating from the Airport, most probable reasons for such a huge Non Availability of Cars during Evening and Night request time slots are:

  - For most of the driver partners this time period is the end of their working hours thus leading to non-availability of cars at the airport

  - Also since the frequency of flights landing after these time slots start reducing the wait period for the driver partner is increased for a passenger to board a trip from Airport thus they are reluctant to be at the airport at these time slots

- For trips originating from the City, most probable reasons for such a huge Cancellation during Early Morning and Morning request time slots are:

  - Higher waiting period at the airport after these time slots

  - Chances of more trip completion and higher earnings if choosing a trip that is not bound for airport

Ways to resolve Supply-Demand Gap

1. Incentivise trips to Airport from City during the problematic request time slots i.e. Early Morning and Morning

2. Incentivise driver partners to be available for ride at Airport to City during problematics request time slots i.e. Evening and Night