# UBER SUPPLY-DEMAND GAP CASE STUDY

# SUBMISSION

Submitted by:

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# Uber Supply-Demand Gap Case Study

**Problem Statement:**

Uber is facing a problem of driver cancellation and non-availability of cars leading to loss of potential revenue.

**Business Objectives:**

- The aim of analysis is to identify the root cause of the problem i.e. cancellation and non-availability of cars.
- Recommend ways to improve the situation for Uber.

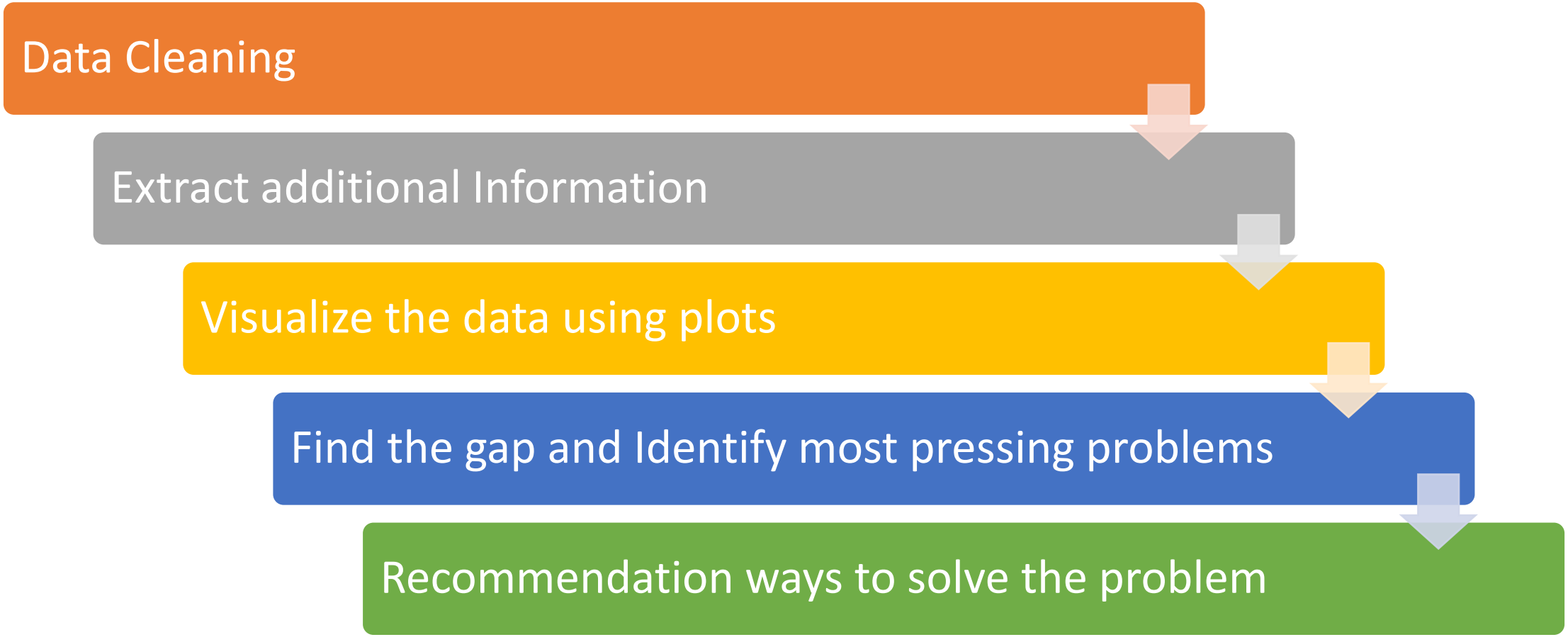
Below are the assumptions considered for the analysis-

**Assumptions:**

- Time Slots assumed for the analysis are as below:
  - Early Morning – 00:00 to 04:59
  - Morning – 05:00 to 08:59
  - Late Morning – 09:00 to 11:59
  - Afternoon – 12:00 to 16:59
  - Evening – 17:00 to 20:59
  - Night – 21:00 to 23:59
- Only trips from Airport - City and City - Airport are considered in this analysis.

# Basic Strategy and Methodology

The main idea is to follow the EDA and Data Visualization to solve the problems-



# Data Overview

There are six attributes associated with each request made by a customer:

- 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

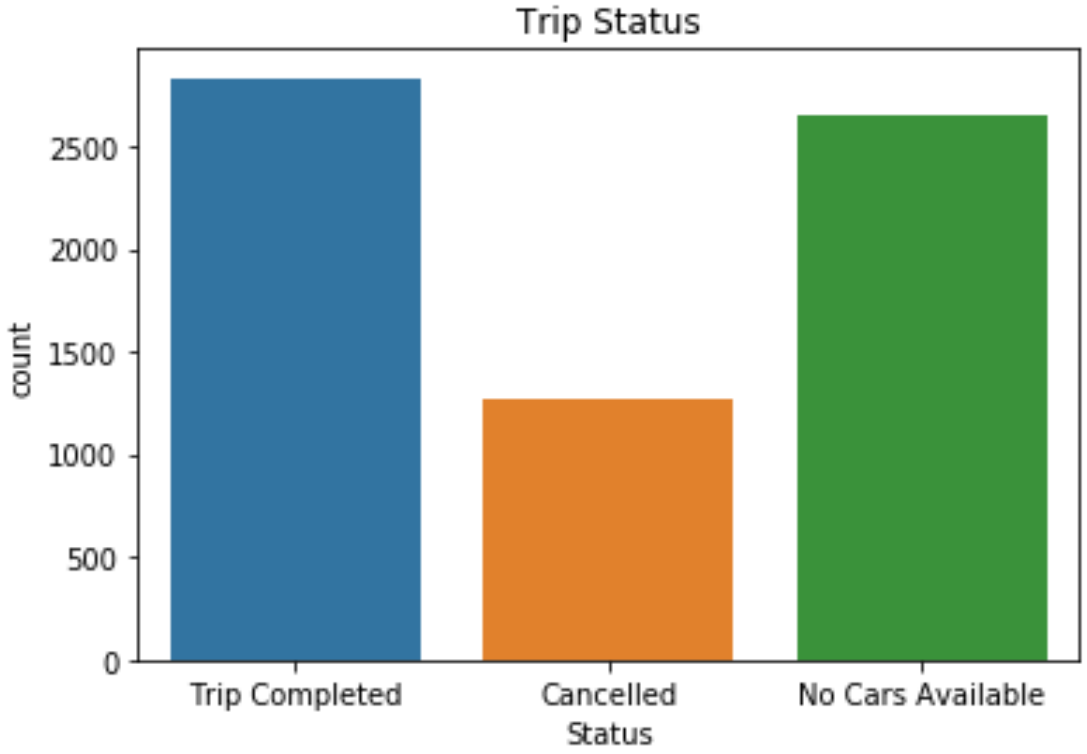
**Based on the above data, we derived additional information in few more columns:**

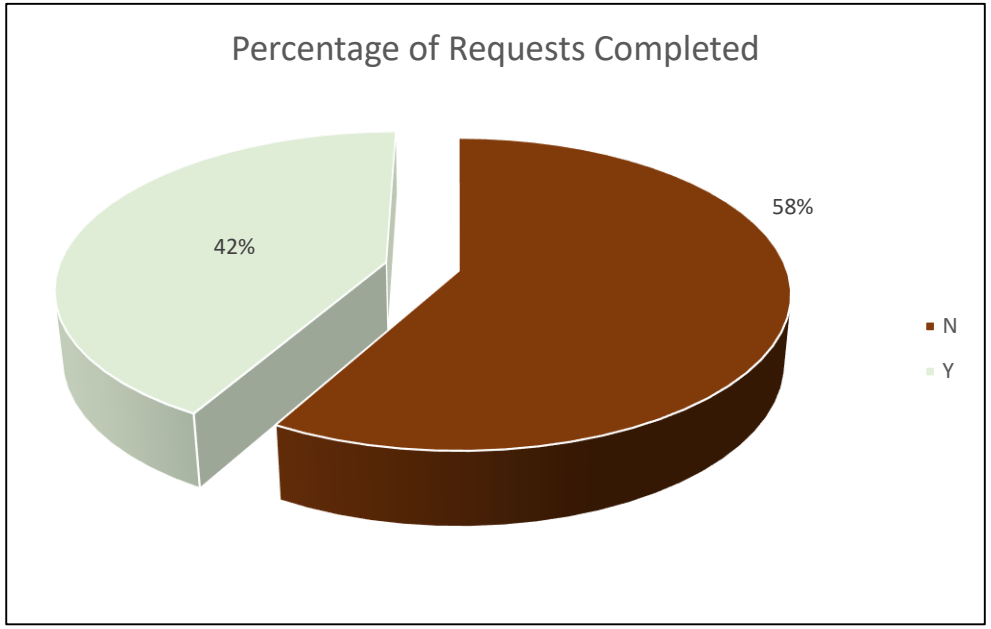
- Request hour: Hour of the day when the request was made
- Time Slot: Based on the request time, the derived time slot.
- Availability: If the request was completed, ‘Availability’ is Y otherwise N.

# High-Level Analysis

On performing a high-level analysis, below are the key observations:

- Total number of requests made by the customers is 6745.
- Out of 6745 requests, 3914 i.e. ~58% requests could not be completed due to “Cancellation” or “No Cars Available” issues.

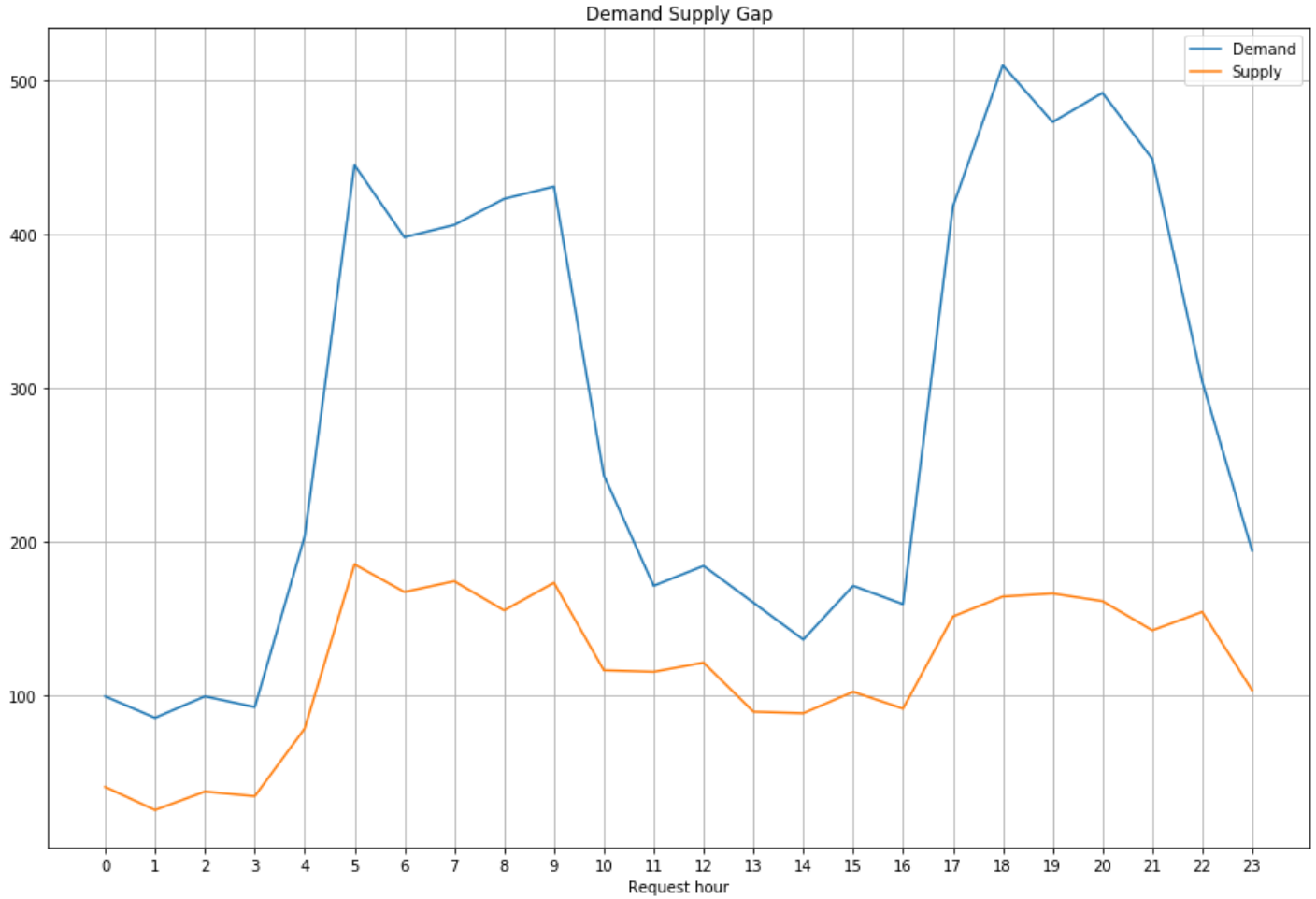


# Supply-Demand Gap during each hour of the day

By Analyzing the frequency of requests during each hour of the day, it is evident that Majority of the requests are between 05:00 am to 09:00 am and 17:00 to 21:00.

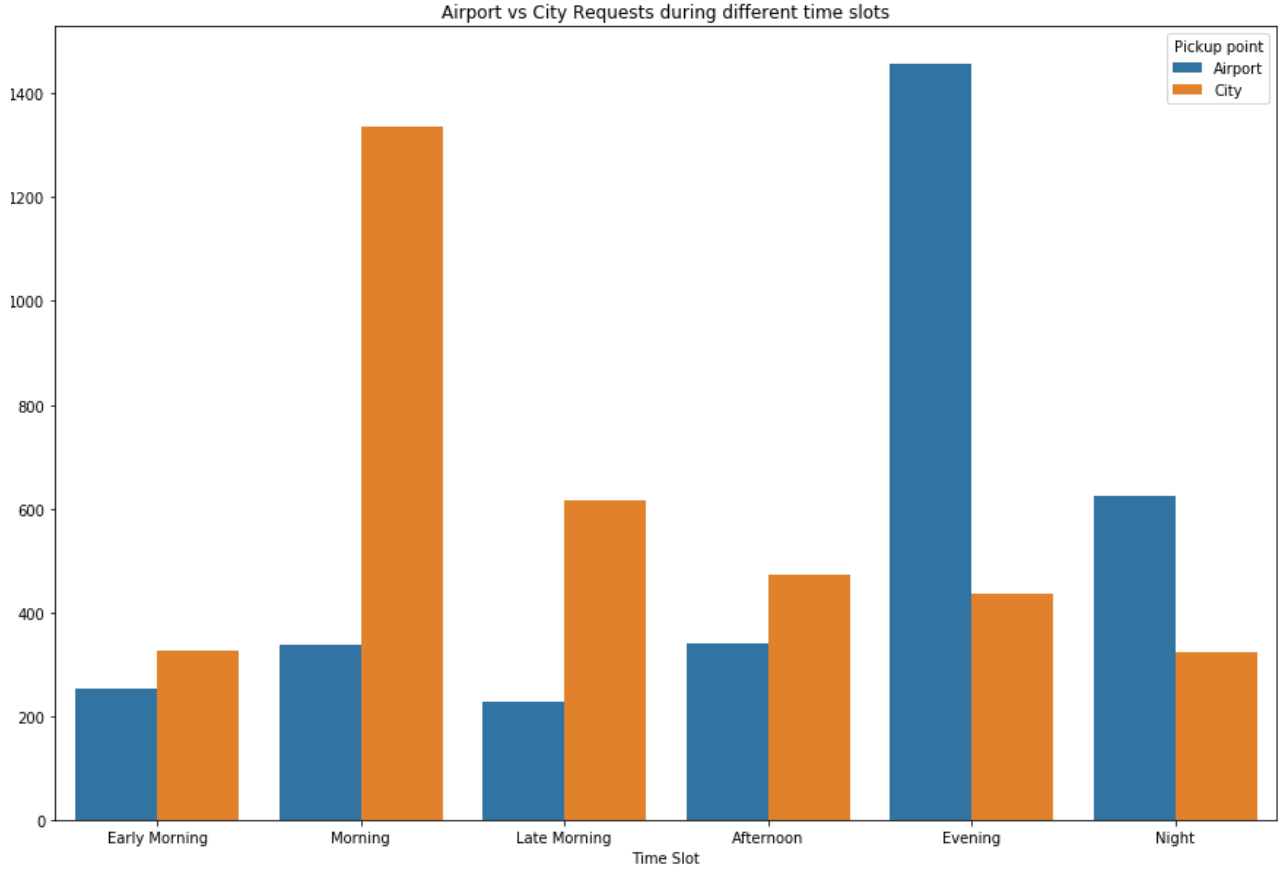
This is the time frame where the huge Supply-Demand gap lies.



# Airport vs City Requests Analysis during different time slots

Below are the key observations by plotting the below chart-

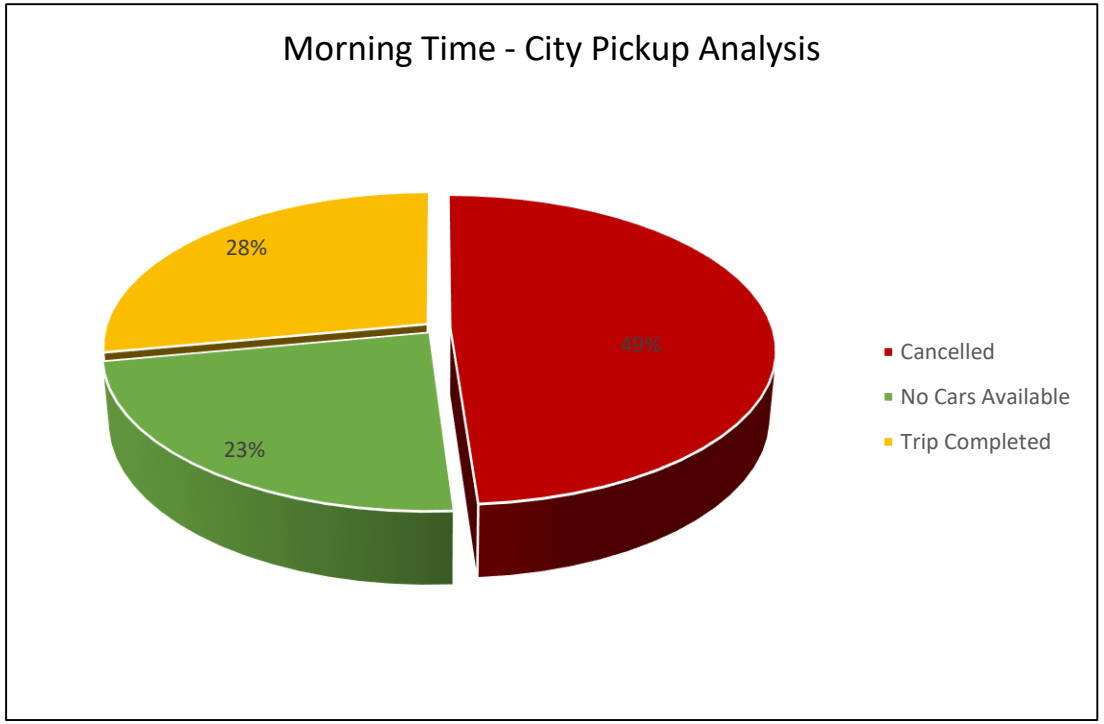
- In Morning, most problematic type of requests are from **City to Airport**
- In Evening, most problematic type of requests are From **Airport to City**

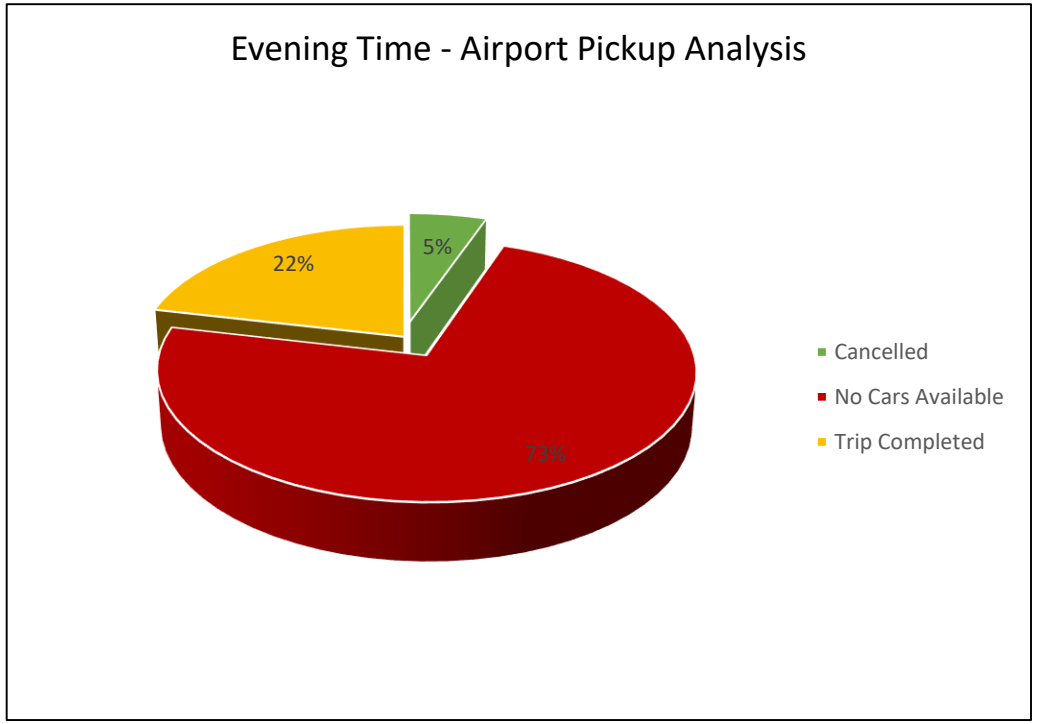


# Problematic Trips Analysis

As we observed that Morning trips and Evening trips are the most problematic.

- In Morning, when pick up was from City - 49% of requests were cancelled by the drivers.
- In Evening, when pick up was from Airport, 73% of requests could not get completed due to Non Availability of cars.



# Reasons for Supply-Demand Gap

Based on the analysis, below are the reasons for the Supply-Demand Gap

- Reasons for 49% cancellations during Morning hours-

    - Airport could have been too far from driver's location and he would not be making enough profit out of the ride. Hence, he would have cancelled the request.
    - There were no incoming flights during the morning hours. Hence there driver could not see any profits going to the airport.

- Reasons for 73% Non-availability during Evening hours-

    - There were not many incoming flights scheduled during these hours. Hence not many drivers were available near Airport.
    - In previous trips during that day, not many customers went to Airport. Hence, cabs were not available.

# Recommendations

Based on the analysis, we can recommend below ways to improve the problems-

- Provide better incentives to the drivers for morning and evening rides from City to Airport and Airport to City respectively.
- To avoid cancellation of rides by drives, provide 5% allowance for waiting idle at the airports.
- Provide car-pool option more frequently during peak-time hours.
- To avoid ‘No cabs available’ at the airports, increase the range for cabs search.
- Penalize the drivers in case they cancel more than 5 rides in a single day.
- Partner with other local companies in order to increase the availability of cabs during peak hours.