



## UBER Supply-Demand Gap

VINAY DHARWADKAR



# UBER Supply-Demand Gap : Problem Statement

Uber may be facing a loss of revenue due to Trip-Cancellation by Driver-Partners and Non-Availability of cars during peak hours of trip requests.

## Objective :

1. Identify the most pressing issues that UBER is facing with respect to Trips not getting completed.
  - Visualize Trip Requests by Status
  - Identify type of requests with major issues w.r.t 'Cancellation' and 'No Cars Available'.
  - Identify Time-Slots based on pattern of trip requests received over the hours of the day.
2. Identify the Time-Slots with Highest Supply-Demand Gap
3. Identify the Type of Requests (City-to-Airport or Airport-to-City) for the Time-Slots with severe Supply-Demand Gap.

## Limitation :

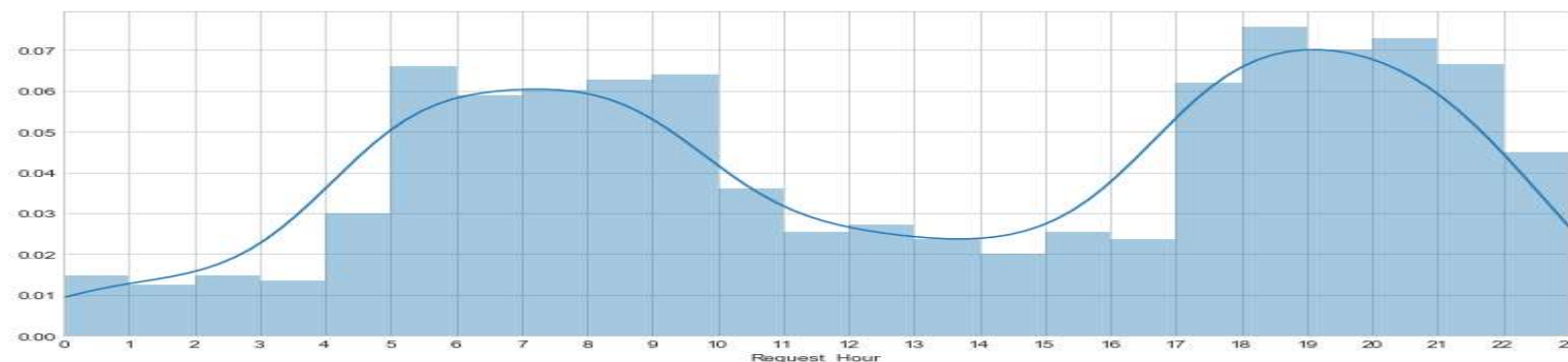
1. The data is only for trips from "City to Airport" and "Airport to City". The analysis will also be based only for these type of requests.
2. Insufficient data to perform UBER Driver Partner Idle-Time. Analysis
3. Data Provided is for only 5 weekdays (11-July-2016 to 15-July-2016). This small sample of data may not accurately represent data for rest of the weekdays.

## Assumptions :

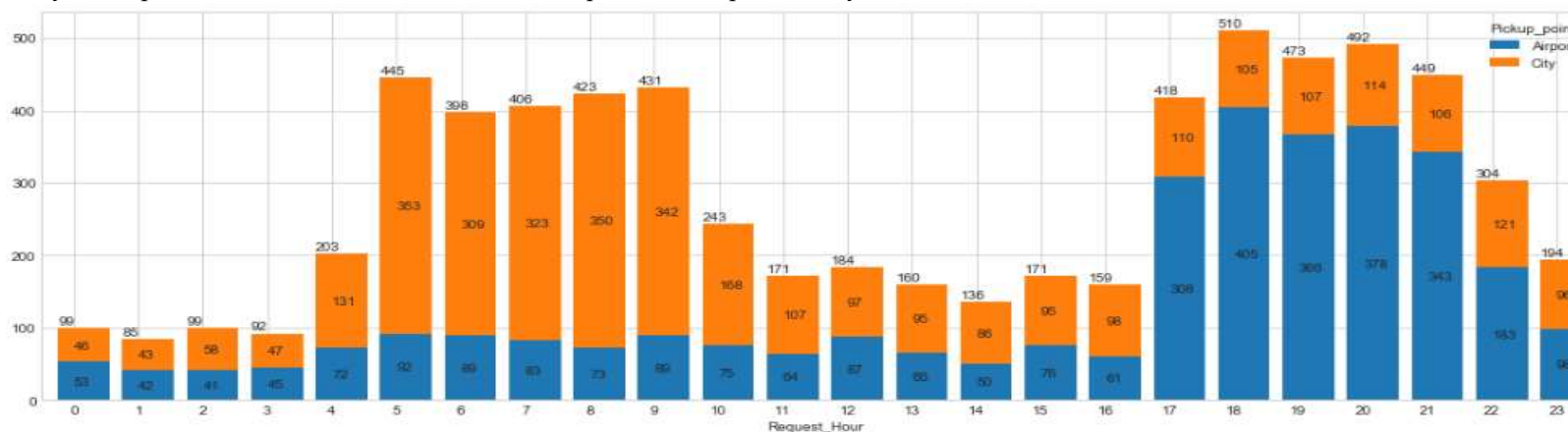
1. UBER Driver Partner is assumed to be driving all types of trips and not just City-to-Airport and Airport-to-City trip requests. Since the data provided is only for City-to-Airport and Airport-to-City requests, there is insufficient data to perform analysis of the "Idle-Time" of Driver Partner.

# Frequency of Requests by Hours of Day

- High volume of requests between “5AM to 9AM” and “5PM to 9PM”.

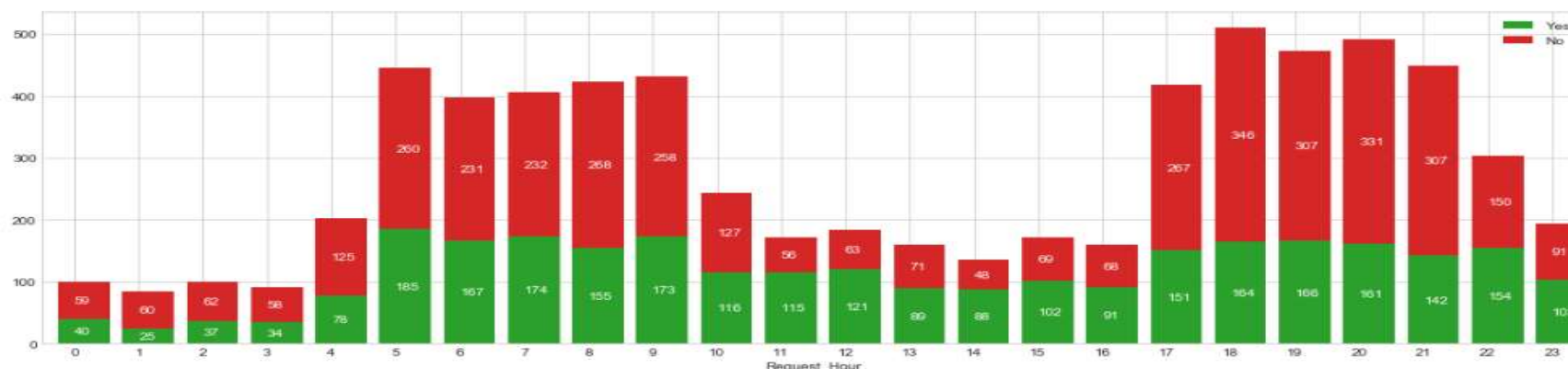


- More requests for City-to-Airport between “5AM to 9AM”. More requests for Airport-to-City between “5PM to 9PM”.

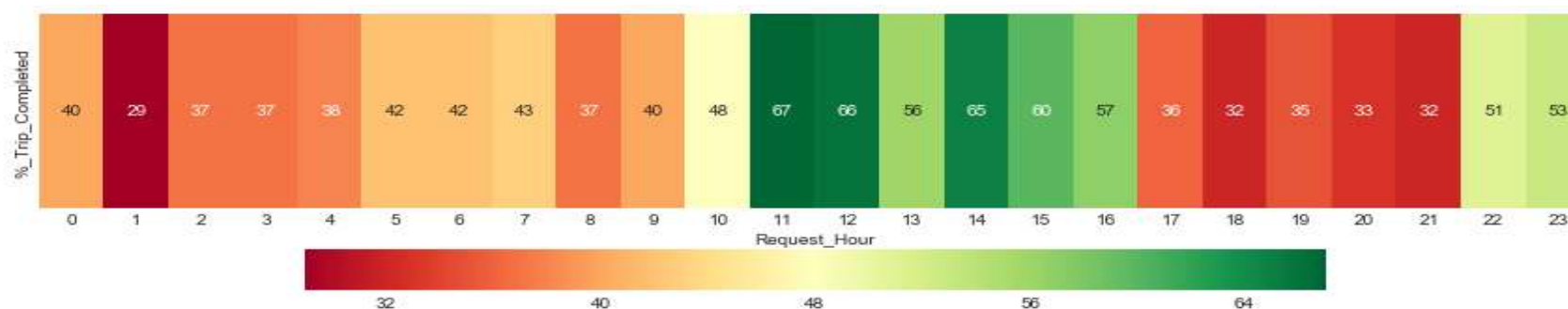


# Frequency of Requests by Hours of Day

- Trip Non-Completion very high between “5AM to 9AM” and “5PM to 9PM”.



- Percentage Trip-Completion by Hours of the Day



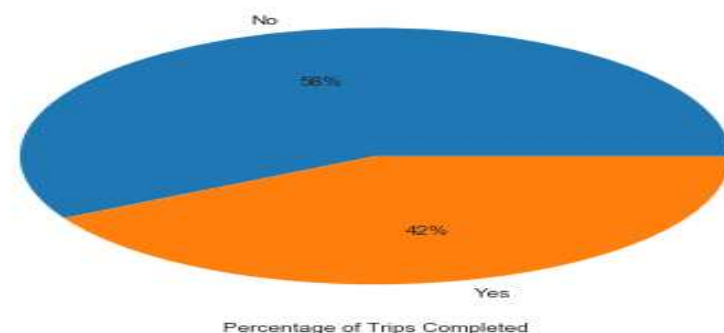
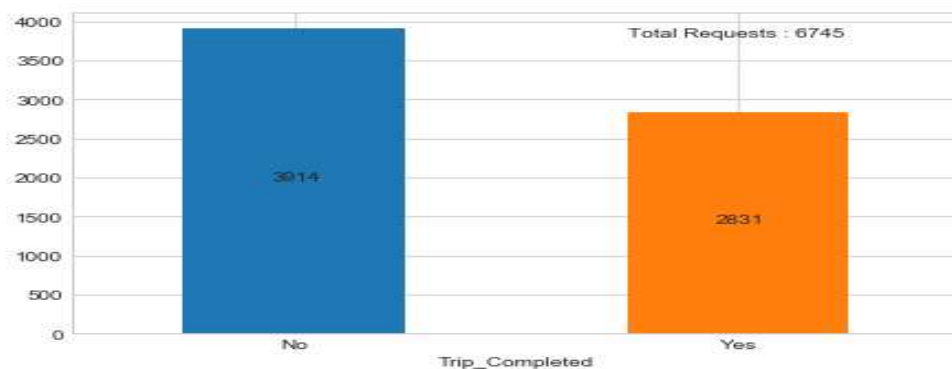
# Segmentation of Hours of Day to Time-Slots

Based on inferences from previous slides, the following Time-Slots have been created:

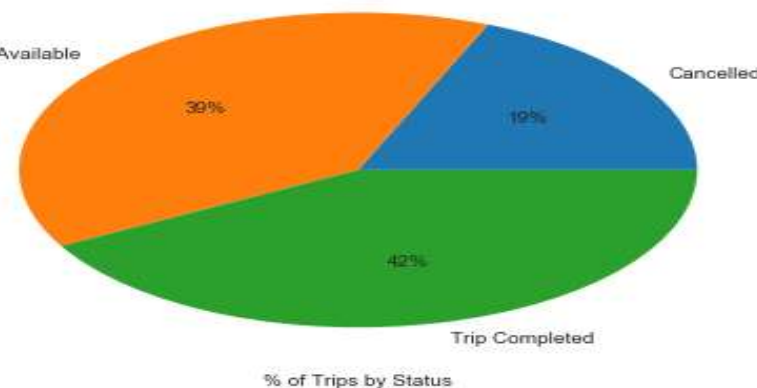
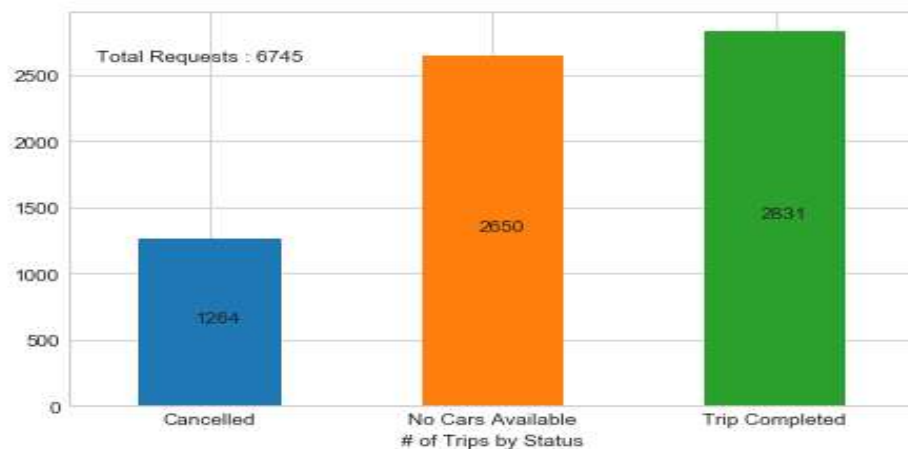
- |    |                            |             |              |
|----|----------------------------|-------------|--------------|
| 1. | Hours 5,6,7,8,9            | (5AM-9AM)   | : Morning    |
| 2. | Hours 10,11,12,13,14,15,16 | (10AM-4PM)  | : Mid-Day    |
| 3. | Hours 17,18,19,20,21       | (5PM-9PM)   | : Evening    |
| 4. | Hours 22,23,0              | (10pM-12AM) | : Night      |
| 5. | Hours 1,2,3,4              | (1AM-4AM)   | : Late-Night |

# Non-Completion of Trips

1. Approximately every 6 out of 10 Trip Requests are not completed

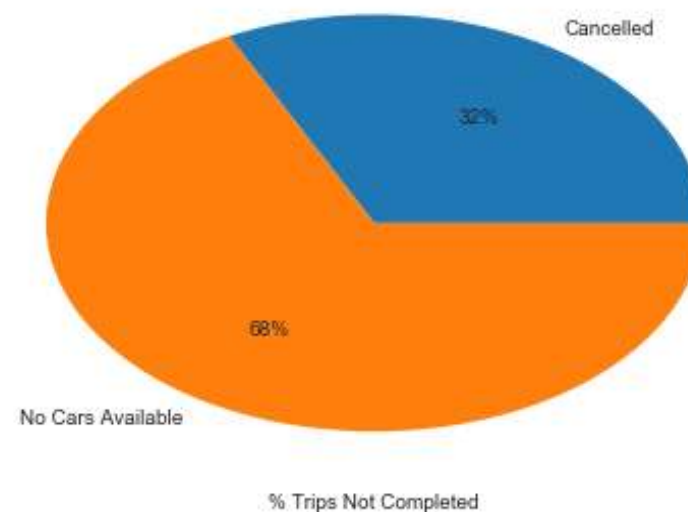
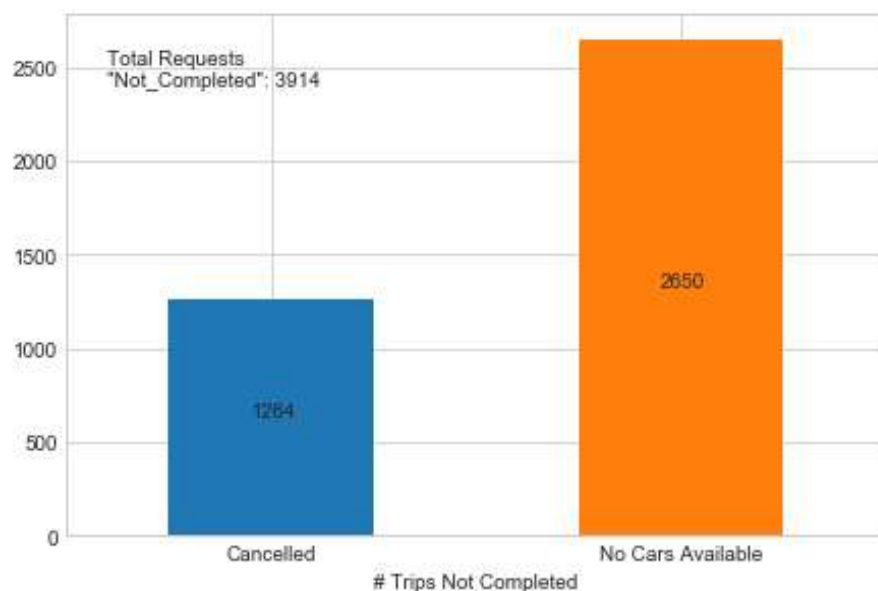


2. Approximately every 4 out of 10 Trips are not completed due to unavailability of cars and 2 out of 10 Trips are not completed due to Cancellation by Driver Partner.



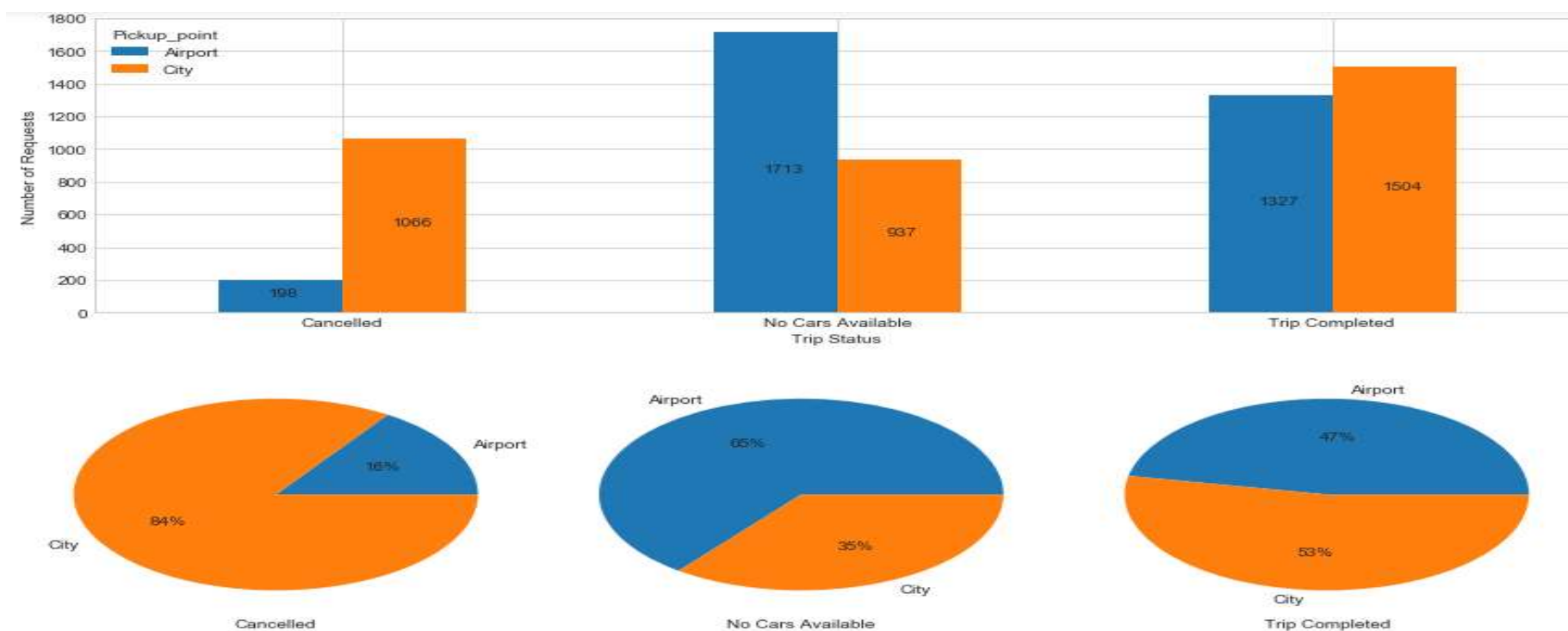
# Reasons for Non-Completion

- **“Unavailability of Cars”** is the major reason followed by **“Cancellation”** by Driver Partner. 7 out of 10 trips which were not completed were due to unavailability of Cars.



# Reasons for Non-Completion contd.

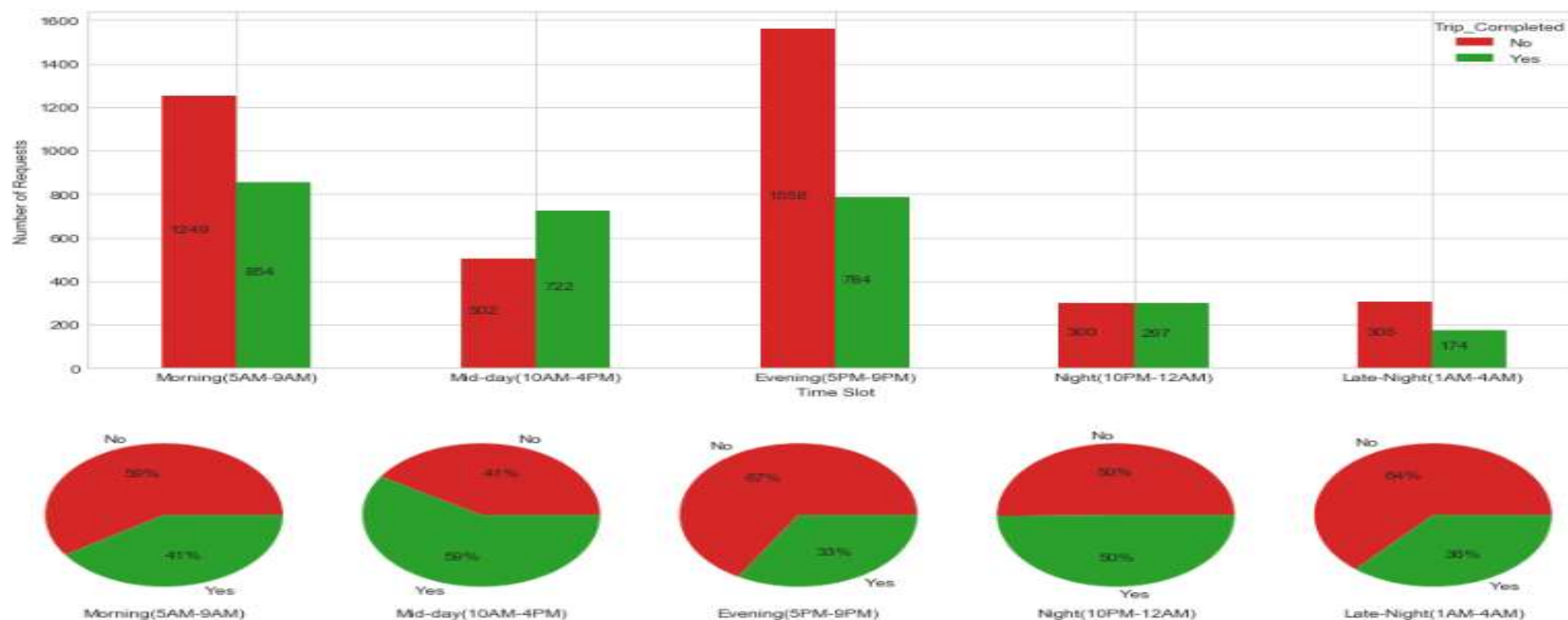
- Cancellation of trip by Driver Partners is more when the trip is scheduled from City-to-Airport. The issue of unavailability of cars is more for requests from Airport than for City.





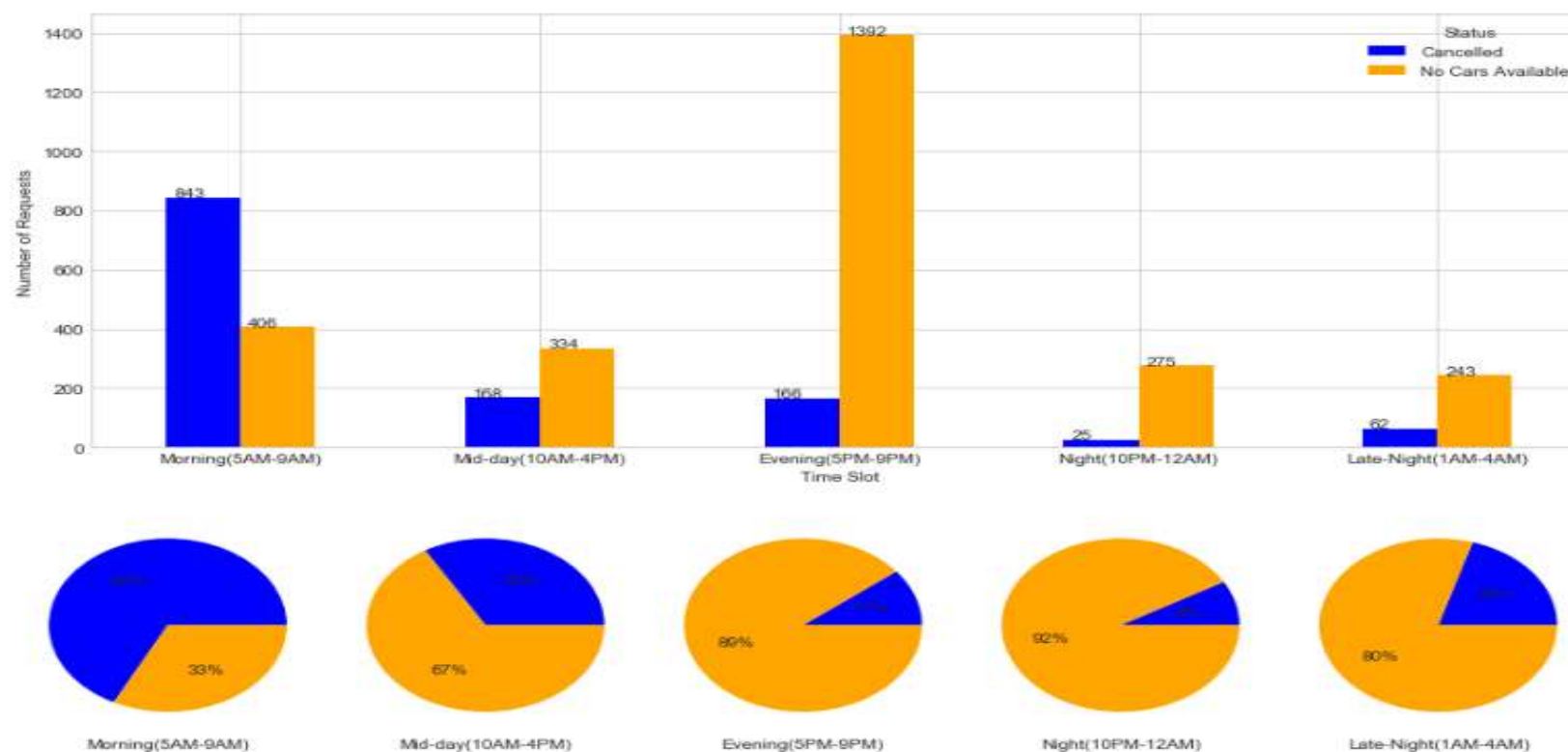
# Reasons for Non-Completion contd.

- The 2 time-slots with the worst trip completion percentages are : “**Morning(5AM-9AM) 59%**” and “**Evening(5PM-9PM) 67%**”. These two time-slots also witness the highest volume of requests.



# Reasons for Non-Completion contd.

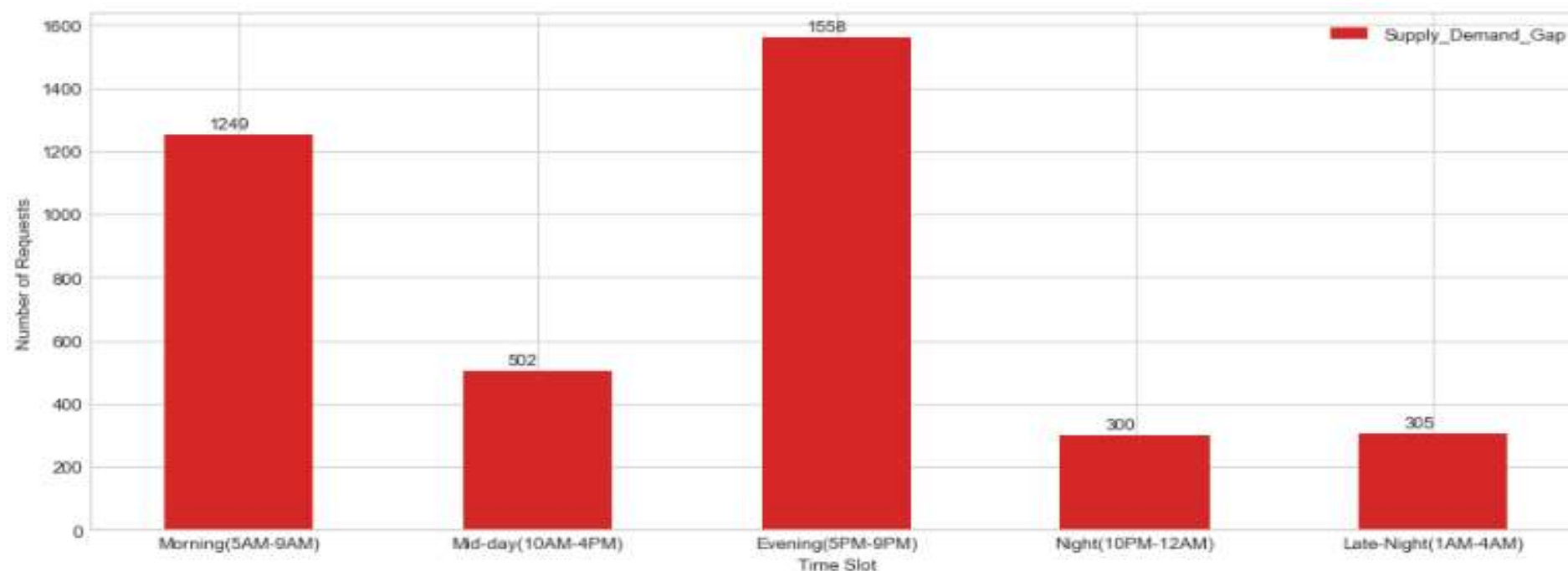
- During 'Morning(5AM-9AM)' time-slot, the major reason for trip non-completion ( 67% ) is **“Cancellation by Driver Partner”**.
- During 'Evening(5PM-9PM)' time-slot, the major reason for trip non-completion ( 89% ) is **“Unavailability of Cars”**.



# Time-Slot with Highest Supply-Demand Gap

Timeslots with TOP-2 Supply\_Demand\_Gap are :

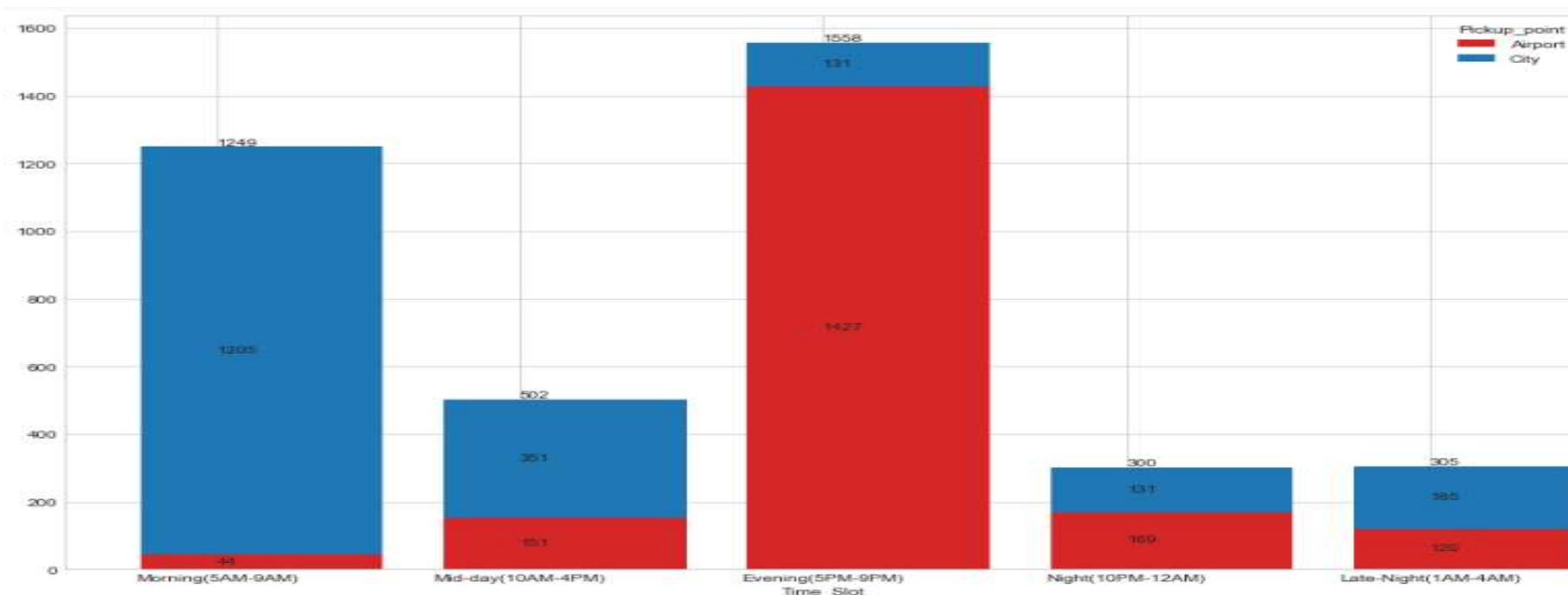
1. Evening(5PM-9PM) with 1558 unfulfilled requests.
2. Morning(5AM-9AM) with 1249 unfulfilled requests.



## Request type in Timeslots with severe Supply\_Demand\_Gap

Request Type ("Pickup\_point") where Supply\_Demand\_Gap is severe :

- **Evening(5PM-9PM)** : 1427 **Airport-to-City** requests of the total 1558 unfulfilled requests.
- **Morning(5AM-9AM)** : 1205 **City-to-Airport** requests of the total 1249 unfulfilled requests.



# Possible reasons for Supply-Demand Gap

1. Less number of Driver Partners working with UBER, which is the main reason for supply deficiency, probably due to better offers by competitors like higher incentives, quick pay-out(settlement), better marketing etc.
2. Driver Partners not willing to go to Airport during Morning(5AM-9AM) Timeslot probably due to the duration of travel being more during peak hours, unavailability of return trips to city, amount spent for toll etc.
3. A huge percentage of trips not completed during Evening(5PM-9PM) due to unavailability of cars. This could be due to less number of Driver Partners, higher demand to go to Airport for people travelling after work hours, traffic at peak hours etc.
4. Since many Driver Partners are not willing to take trips to the Airport, this may be creating a situation of less supply of cars at the airport for trips from Airport-to-City.

# Recommendations

1. Increase the number of Driver Partners enrolled with UBER by providing competitive offers in terms of incentives, quicker pay-out. Devise a marketing strategy to attract more Driver Partners.
2. Understand the pain point of Driver Partners because of which they cancel trips to Airport during Morning Timeslot. Explore means to compensate Driver Partners for idle hours in case of no return trip available as this may boost the chances of them taking the trip to airport.
3. Instead of letting the Driver Partner idle his/her time at the Airport, work out a nearby location from where Inter-City Requests can be assigned to the Driver Partner. The cost for travelling to the location can be shared between Driver Partner and UBER. This may help in getting more productivity from the Driver Partners.
4. Provide advance booking of City-to-Airport and Airport-to-City requests by Riders, so that an estimate of the demand during all hours and especially during peak hours is available, allowing for measures to be taken to meet the demands. The Riders usually book air travel tickets much in advance and hence such a provision would be helpful to get a better estimate of demand. The Riders may be charged an additional service amount for a guaranteed service commitment.
5. Car pooling could also be explored leading to benefits for UBER, Driver Partners and Rider Partners.

THANK YOU