

# Uber Supply Demand Gap Assignment

# Data Exploration

- Data set contains 6 columns:
  - Request.id
  - Pickup.point
  - Driver.id
  - Status
  - Request.timestamp
  - Drop.timestamp
- Problem Statement: Find out the supply demand gap and suggest way to improve the situation
- Based on the problem statement, we should focus on pickup point, status and driver id.

# Data Cleaning and manipulation

- Possible data inconsistencies:
  1. Duplicate values of Request ID
  2. NA values in the columns of interest
- Other Issues:
  1. Request time stamp is object here. Convert it to date time format.
  2. Dates are separated by “/” and “-”. Make this consistent for ease of data analysis

# Analysing trends for each day

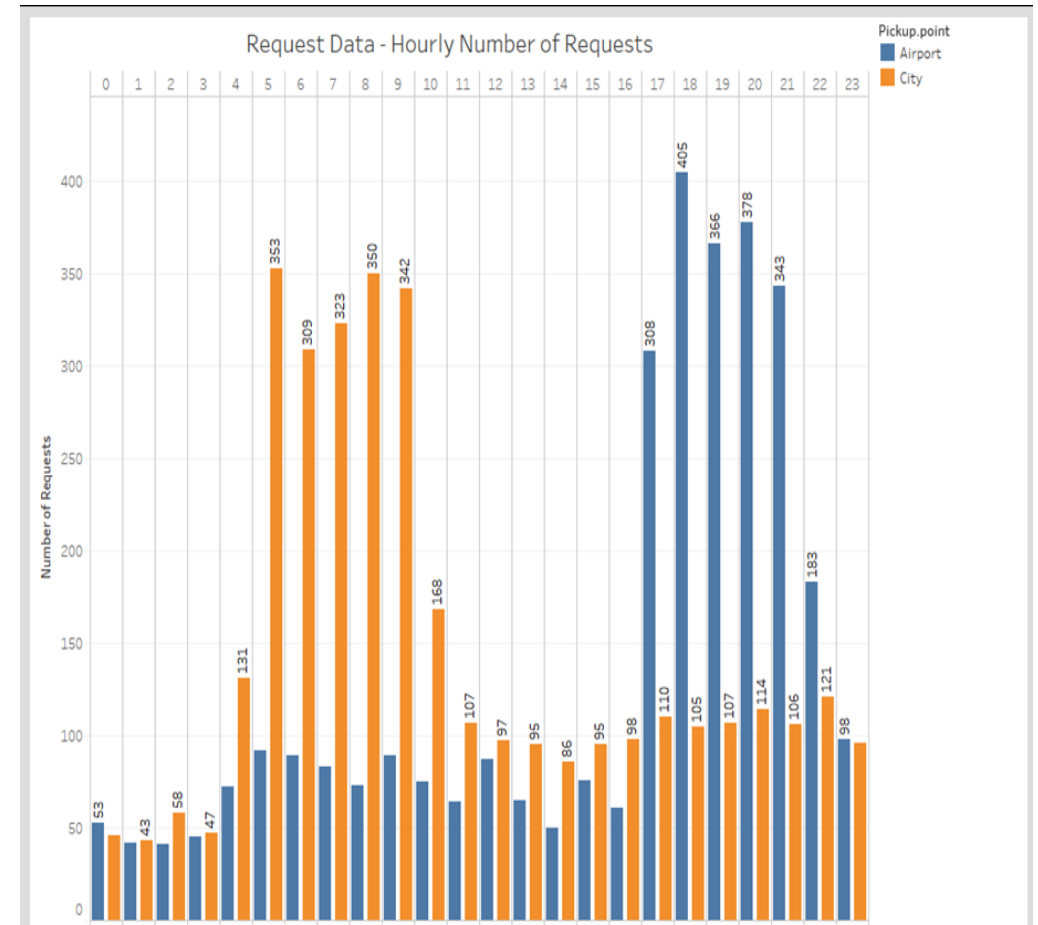
- The pattern of requests is common for all the days for the status of requests.



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- Request Data - Hourly Number of Requests Day Wise
- Pickup.point  
 Airport  
 City
- Number of Requests
- 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

# Combining data for all days

- Previous graphs show that all the days show common trends
- Hence the number of requests can be clubbed together for further analysis.
- Conclusion:
  1. Number of trips in morning are high from the city
  2. Number of trips from the evening are high from the airport



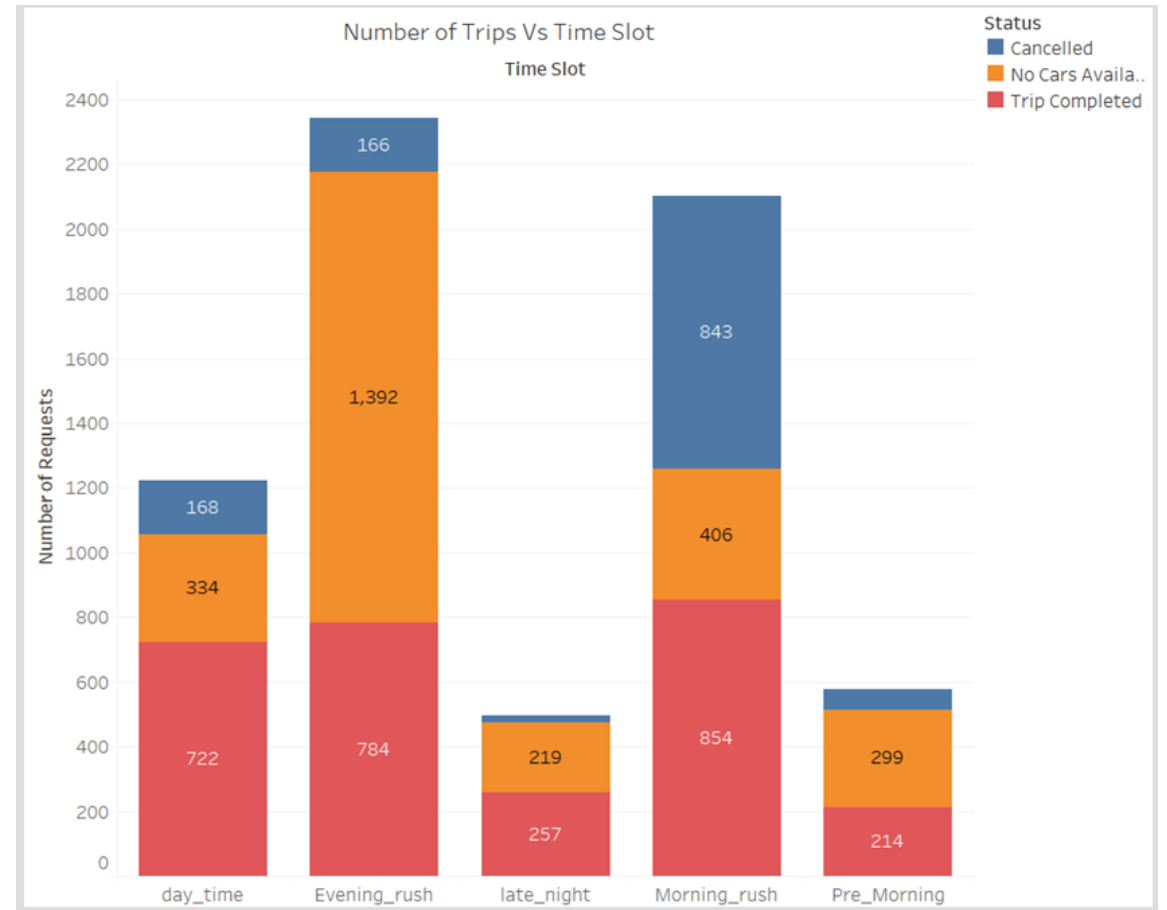
# Binning time into 5 categories

- Requests generated are divided into 5 homogenous categories based on the time of request

Time	Category
12 AM – 5 AM	Pre_Morning
5 AM – 10 AM	Morning_Rush
10 AM – 5 PM	Day_Time
5 PM – 10 PM	Evening_Rush
10 PM – 12 AM	Late_Night

# Problem identification-morning and evening

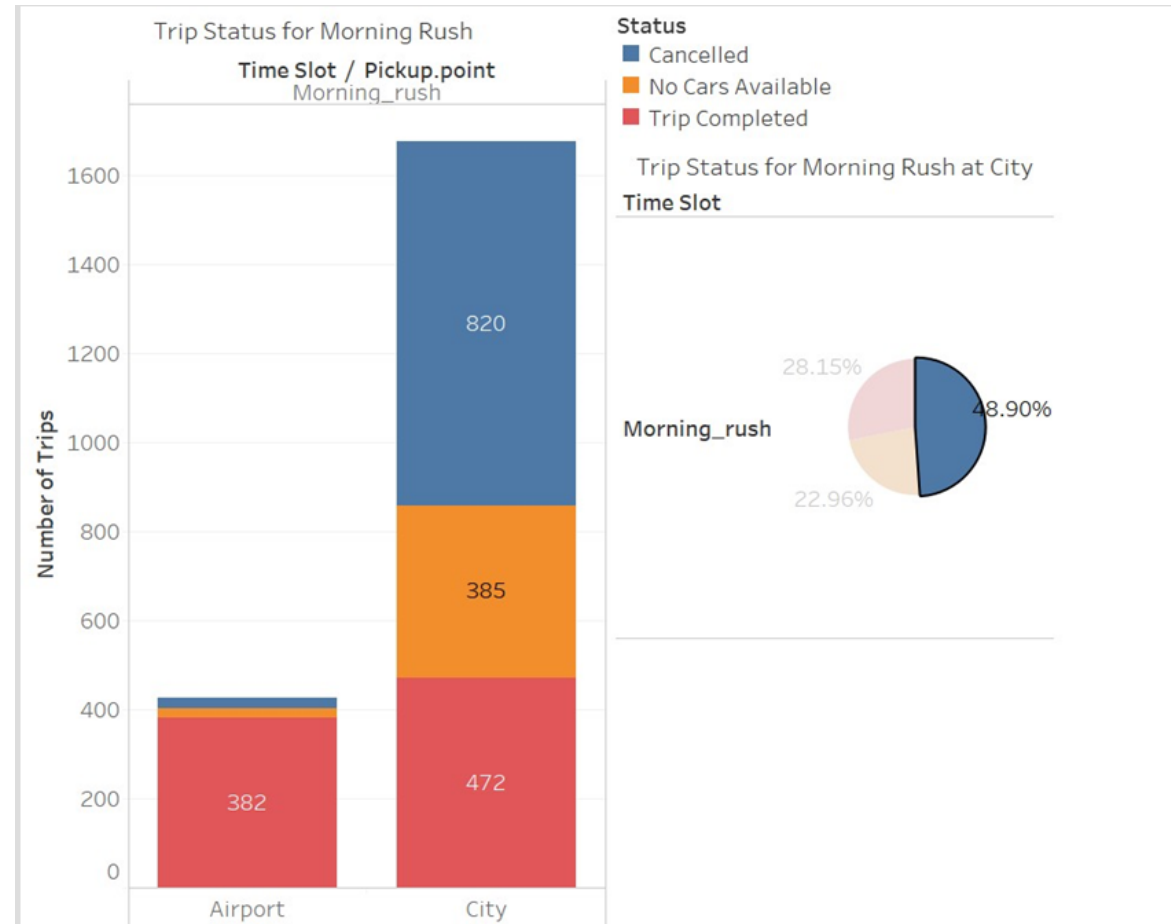
- Graph clearly shows that the major problems are:
  - Cancelled trips during the morning rush
  - Unavailability of cars during evening rush





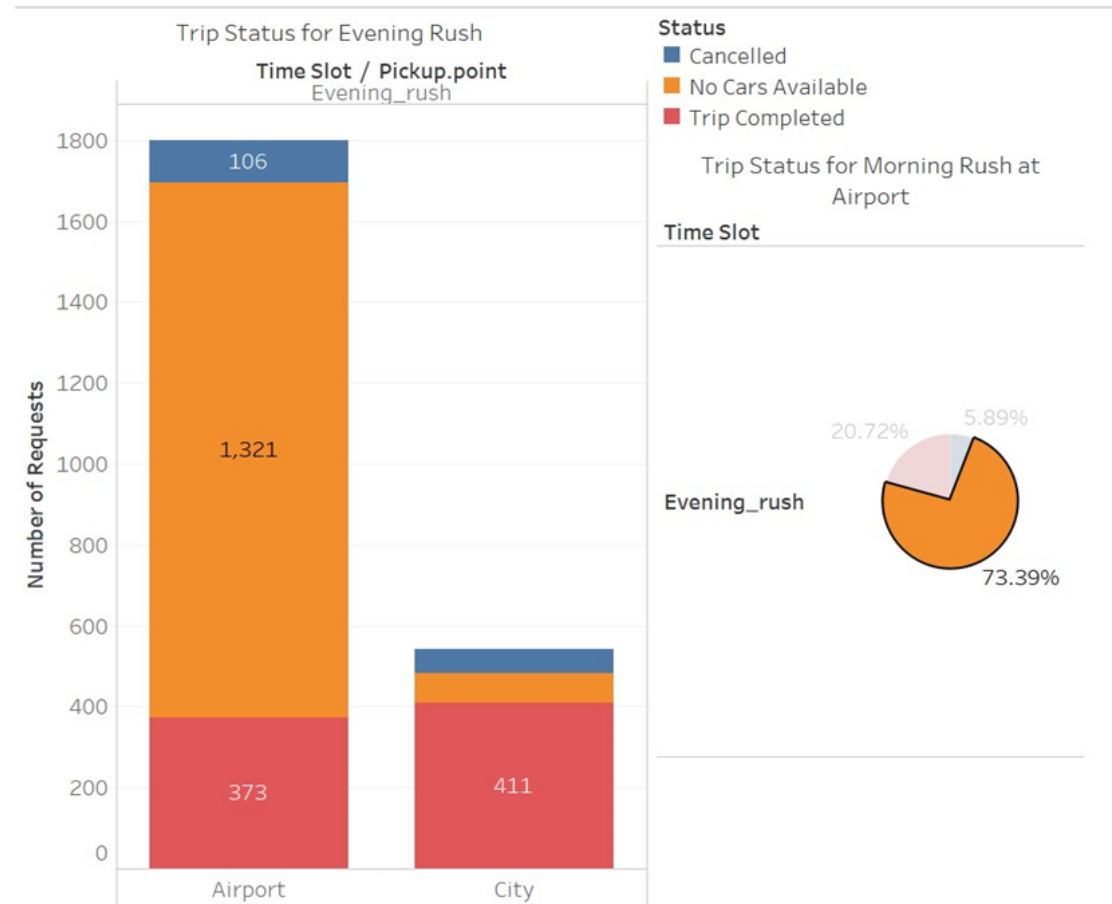
# Cancelled trips-50% of total trips from city

- The supply from the city is 472, while the demand is  $472 + 285 + 820 = 1677$ .
- The difference between the demand and the supply is 1205



# No cars- 70% of the total trips from airport

- The supply from the airport is 373, while the demand is  $373 + 1321 + 106 = 1800$ .
- The difference between the demand and the supply is 1427.



# Recommendations

- For the trips in the morning, the drivers can be incentivised to make trips.
  - They could be given a bonus/incentives for every trip they complete from the city to the airport in the morning rush. This will ensure that a smaller number of trips will be cancelled.
  - Uber could pay for gas mileage of drivers to return to the city without a ride.
  - Uber can increase the demand at the airport to decrease the idle time – by increasing marketing and price cuts for the passengers
- For the evening trips, as the number of drivers is less, some of the ways are:
  - Drivers can again be given a bonus to complete a trip from the airport in the evening. This will ensure that the supply increases at the airport.
  - Uber could also pay drivers to come without a passenger to the airport
  - Another way can be to pool the rides of passengers so that a smaller number of cars can carry more passengers.