

The background of the slide is a light gray gradient, decorated with numerous realistic water droplets of various sizes. Some droplets are large and prominent, while others are small and subtle, scattered across the top and bottom edges of the frame.

# **UBER SUPPLY-DEMAND GAP (ASSIGNMENT)**

**SUBMITTED BY:**

**DARSHNA**

## **PROBLEM STATEMENT**

- Driver cancellations and non-availability of cabs to and from airport leading to loss of potential revenue.

## **OBJECTIVE**

- Aim of the 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.

## **DATA PROVIDED**

- Request Id : A unique identifier of the request.
- Pickup point : The point from which the request was made.(Airport or City)
- Driver Id : The unique identification number of the driver.
- Status : The final status of the trip, that can be either completed, cancelled by the driver or no cars available.
- Request timestamp : The date and time at which the customer made the trip request.
- Drop timestamp : The drop-off date and time, in case the trip was completed.

# **DATA CLEANING AND MANIPULATION**

## **1. Possible data inconsistencies**

- I. Duplicate values of request ID.
- II. NA values in the columns of interest.

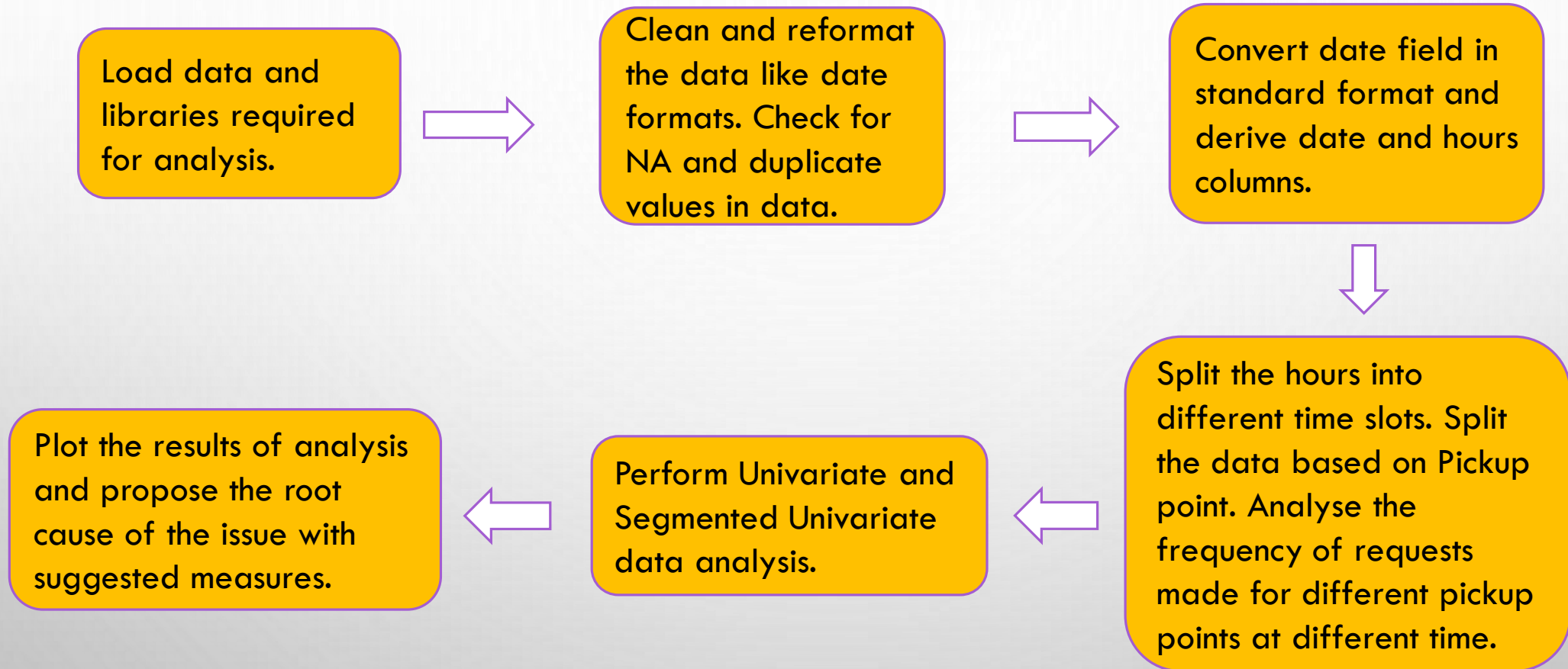
## **2. Other issues**

- I. Request timestamp is in factor format. Convert it to date time format.
- II. Dates are separated by “/” and “-”. make this consistent for ease of data analysis.

# **RESEARCH QUESTIONS**

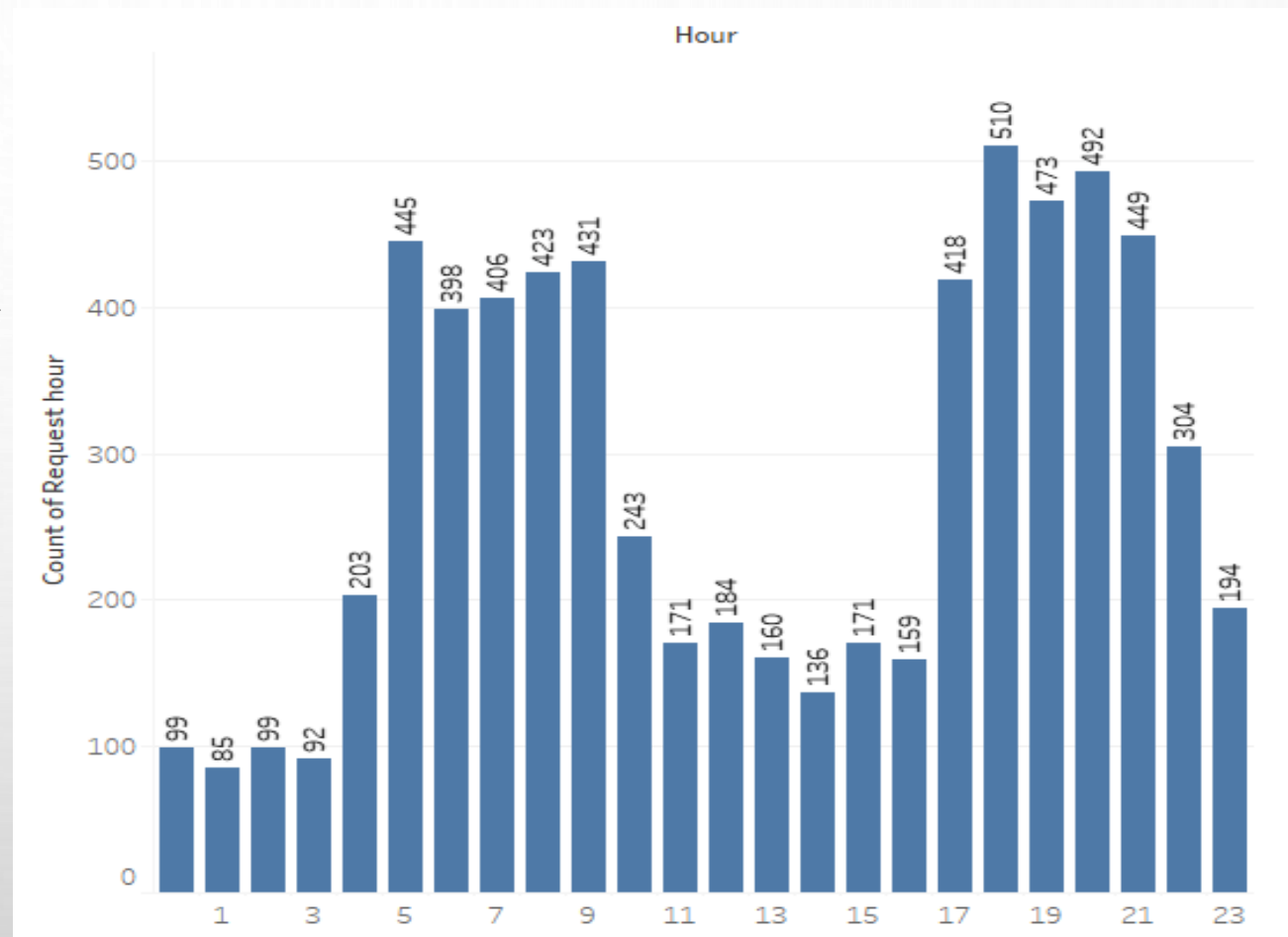
- 1. Identify the most pressing problems for uber.
- 2. What is the gap between supply and demand to and from airport.
- 3. What might be the reason for this supply-demand gap?
- 4. Recommend some ways to improve the supply-demand gap.

# METHODOLOGY



# FREQUENCY OF REQUEST IN EACH HOUR OF 5 DAYS

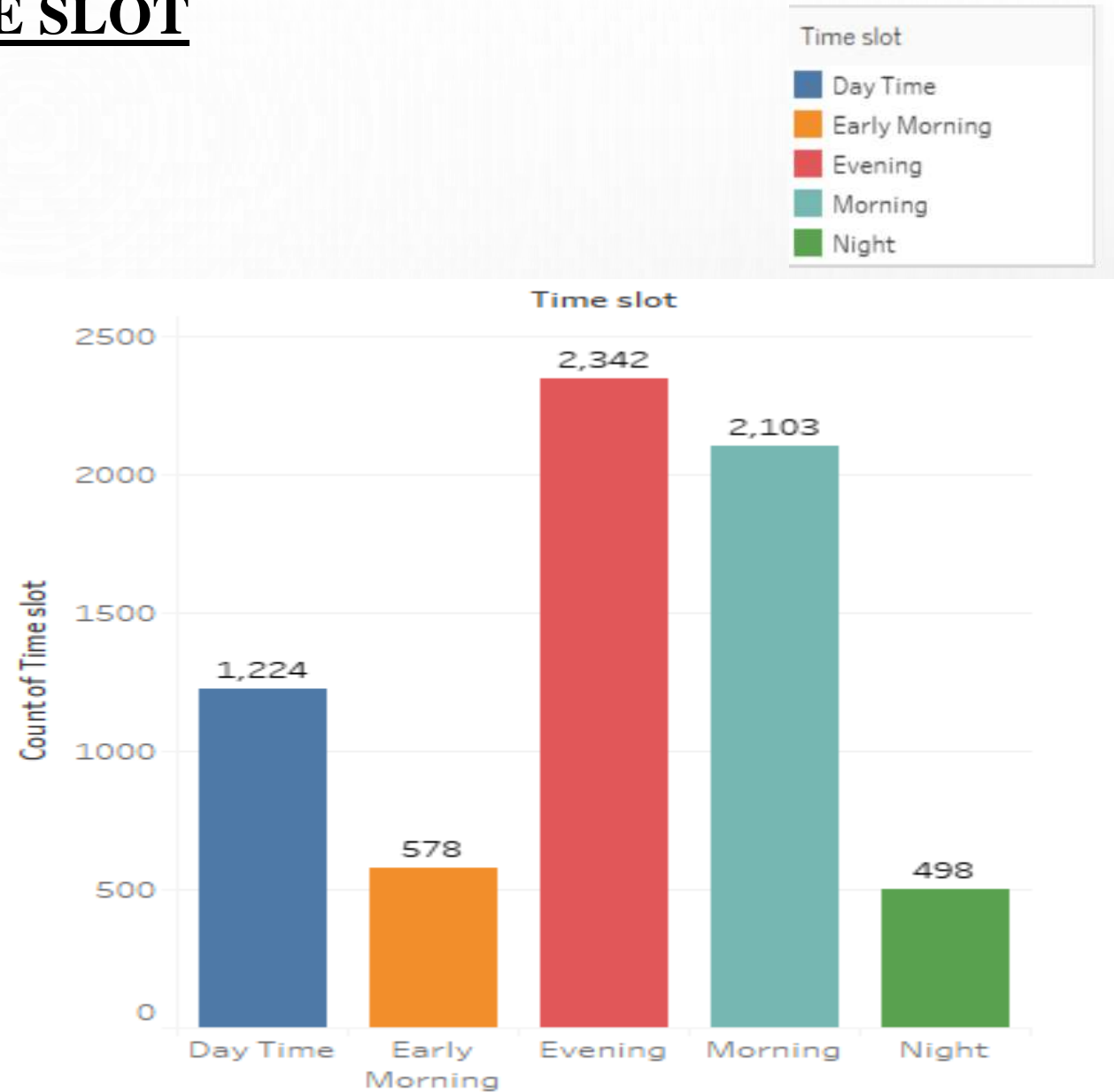
- Demand of cab is more between 5am to 9am  
And 5pm to 9pm.
- Total demand of cab are  
6745 in which 31.1% of demand in  
5am to 9am and 34.7% of demand in  
5pm to 9pm.



## TIME SLOT

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

HOURS	TIME SLOT
12AM – 5AM	EARLY MORNING
5AM – 10AM	MORNING
10AM -5PM	DAY TIME
5PM-10PM	EVENING
10PM – 12AM	NIGHT



# FREQUENCY OF REQUEST IN EACH HOUR OF 5 DAYS FROM AIRPORT TO CITY AND CITY TO AIRPORT

- AIRPORT

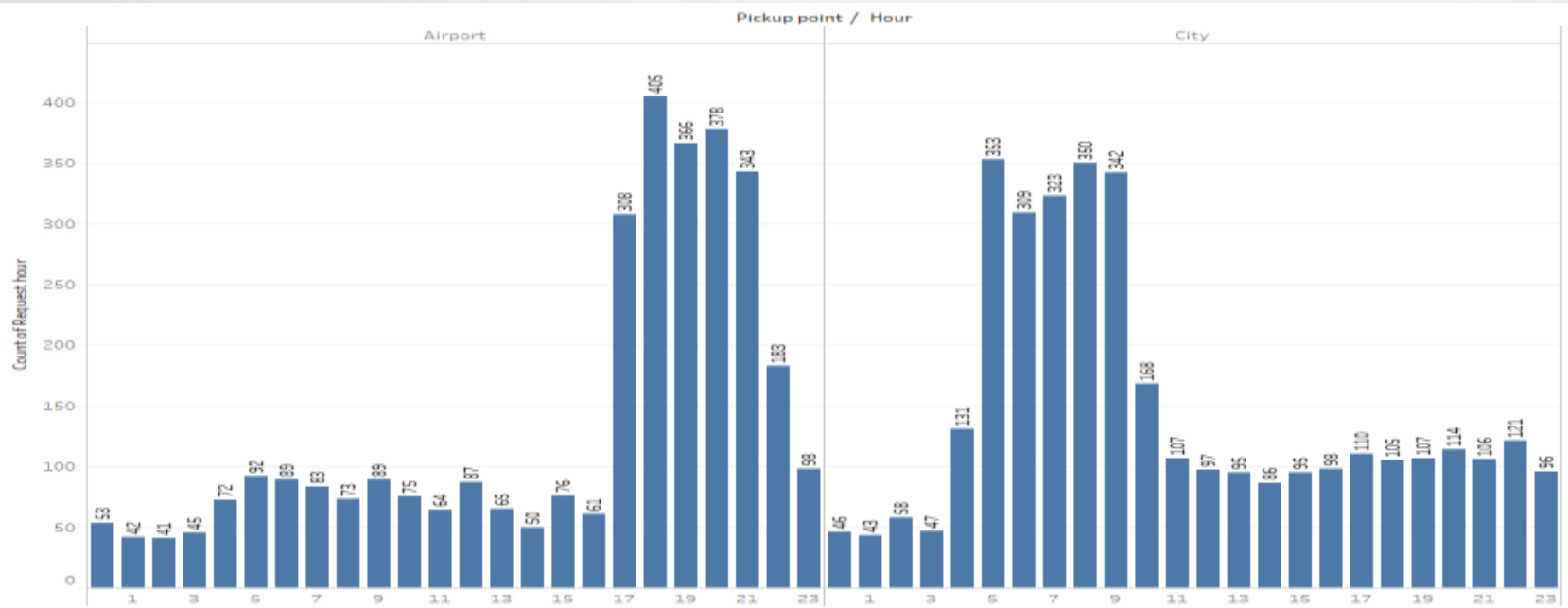
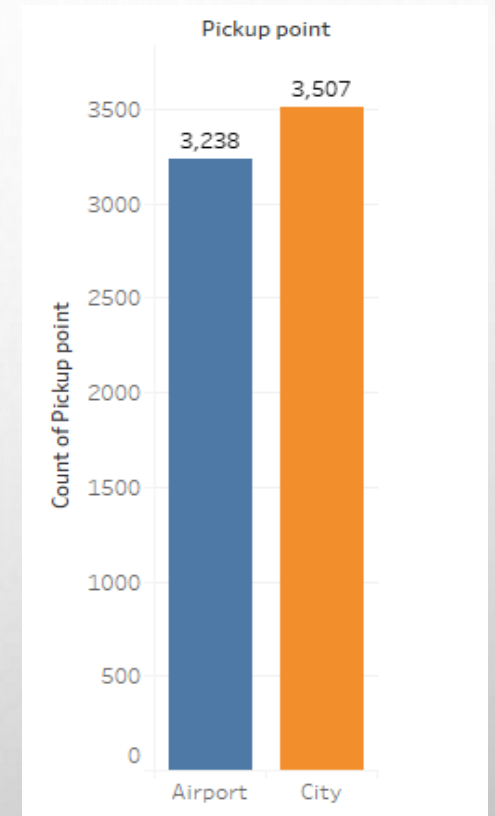
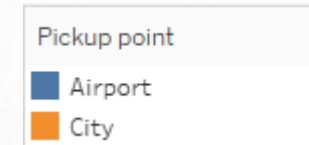
Total demand = 3238

55.5% of demand in between 5pm to 9pm

- CITY

Total demand = 3507

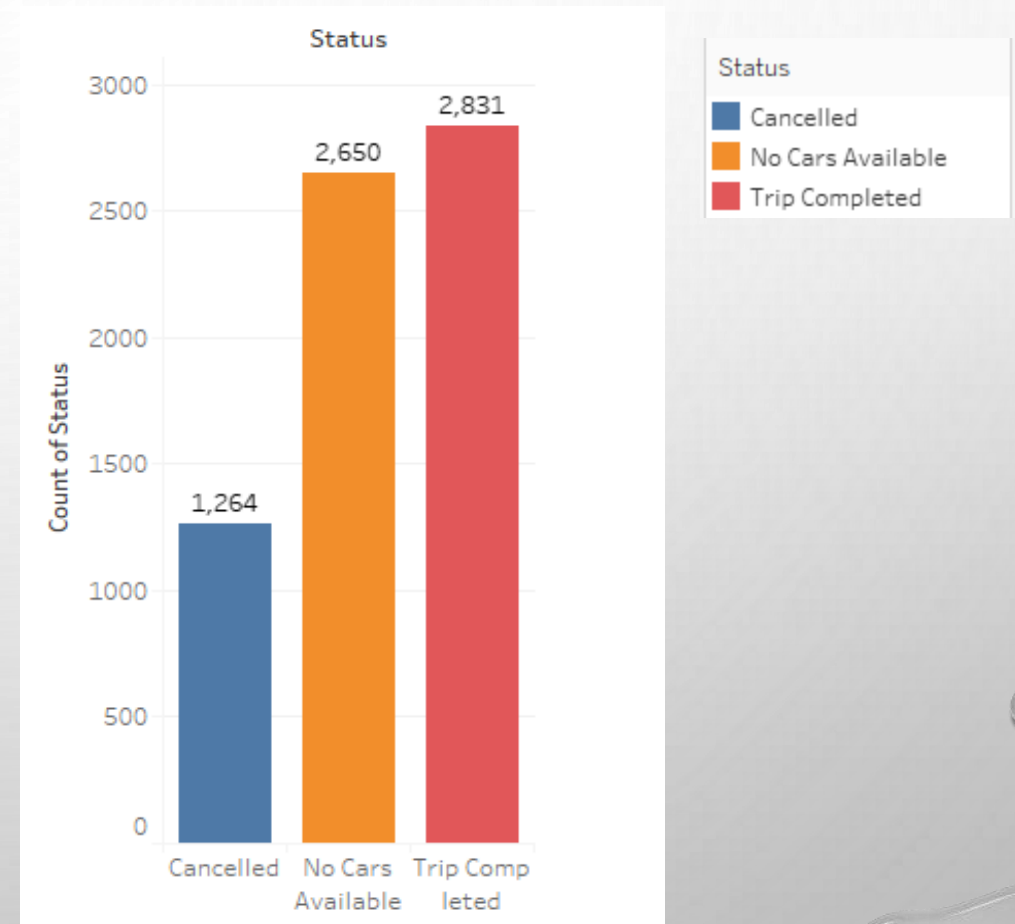
47.8% of demand in between 5am to 9am





# FREQUENCY OF REQUESTS THAT GET CANCELLED, NO CARS AVAILABLE AND TRIP COMPLETED

- As total demand of 6745 only 2831 trip is completed and 1264 is cancelled rest 2650 requests of cars are not available.
- **Percentage of status:-**  
Trip completed(41.9%) approx.  
No cars available(39.2%) approx.  
Cancelled(18.7%) approx.





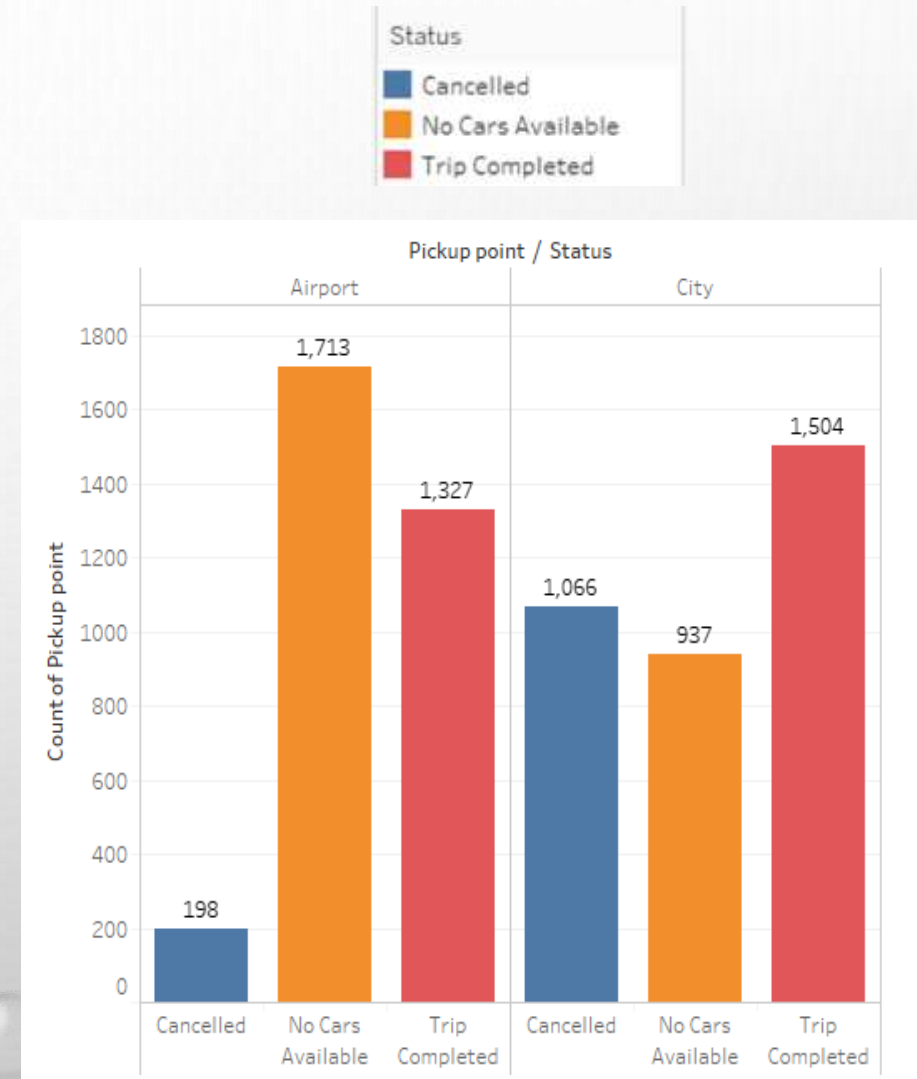
# REQUEST OF CARS CANCELLED, TRIP COMPLETED AND NO CARS AVAILABLE FROM CITY TO AIRPORT AND AIRPORT TO CITY.

## Airport

- Total demand in airport = 3238
- 198 cars cancelled, approx. 6.1% of total demand.
- 1713 cars are not available, approx. 52.9% of total demand
- 1327 cars completed their trips, approx. 40.9% of total demand

## City

- Total demand in airport = 3507
- 1066 cars cancelled, approx. 30.3% Of total demand
- 937 cars are not available, approx. 26.7% of total demand
- 1504 cars completed their trips, approx. 42.8% of total demand

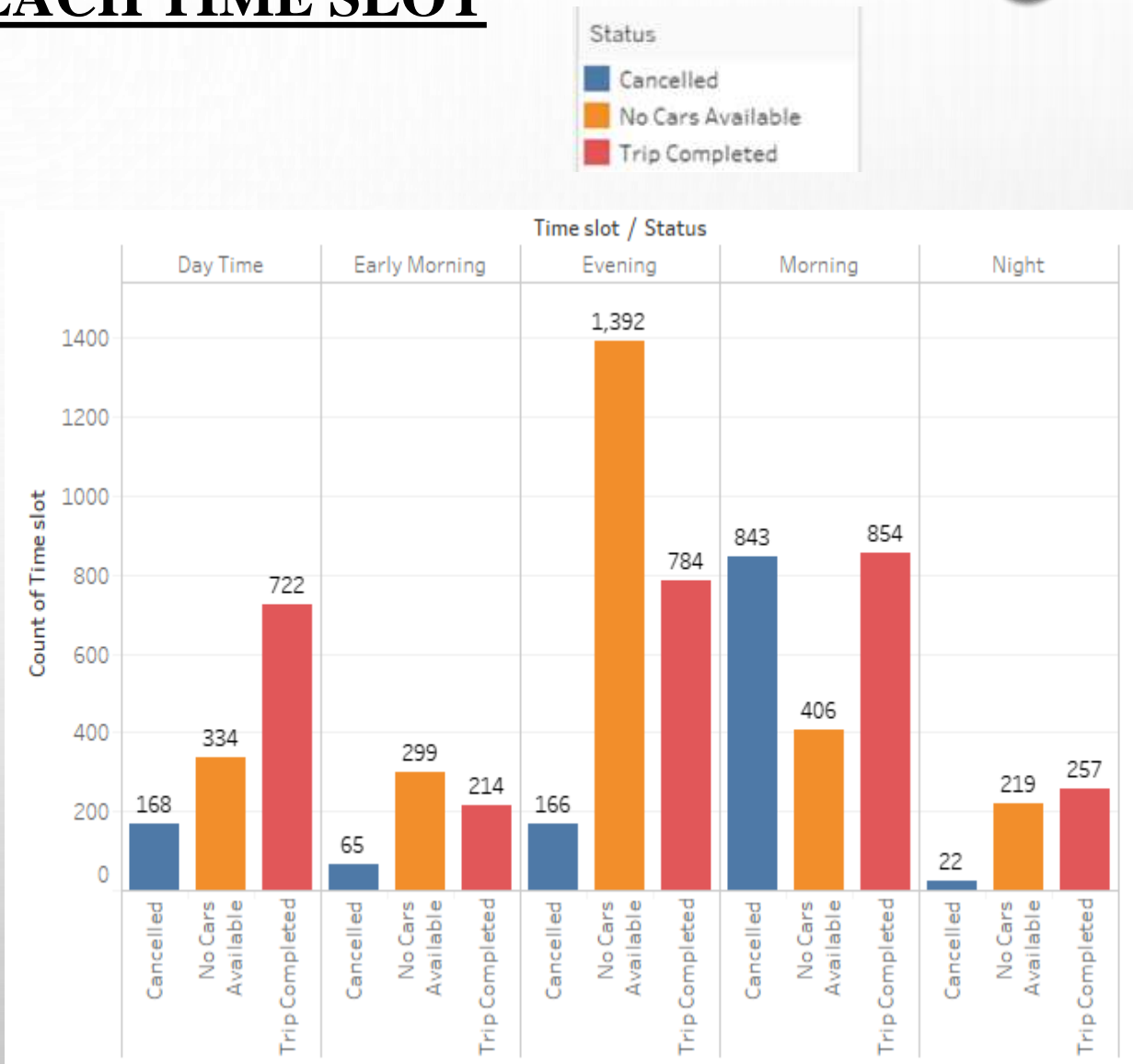


## REQUEST OF CARS CANCELLED, NO CARS AVAILABLE AND TRIP COMPLETED IN EACH TIME SLOT

TIME SLOT	CANCELLED	NO CARS AVAILABLE	TRIP COMPLETED
EARLY MORNING	65	299	214
MORNING	843	406	854
DAY TIME	168	334	722
EVENING	166	1392	784
NIGHT	22	219	257

### Analysis

In evening time maximum no. of cars are not available and in morning time maximum no. of trips are cancelled.



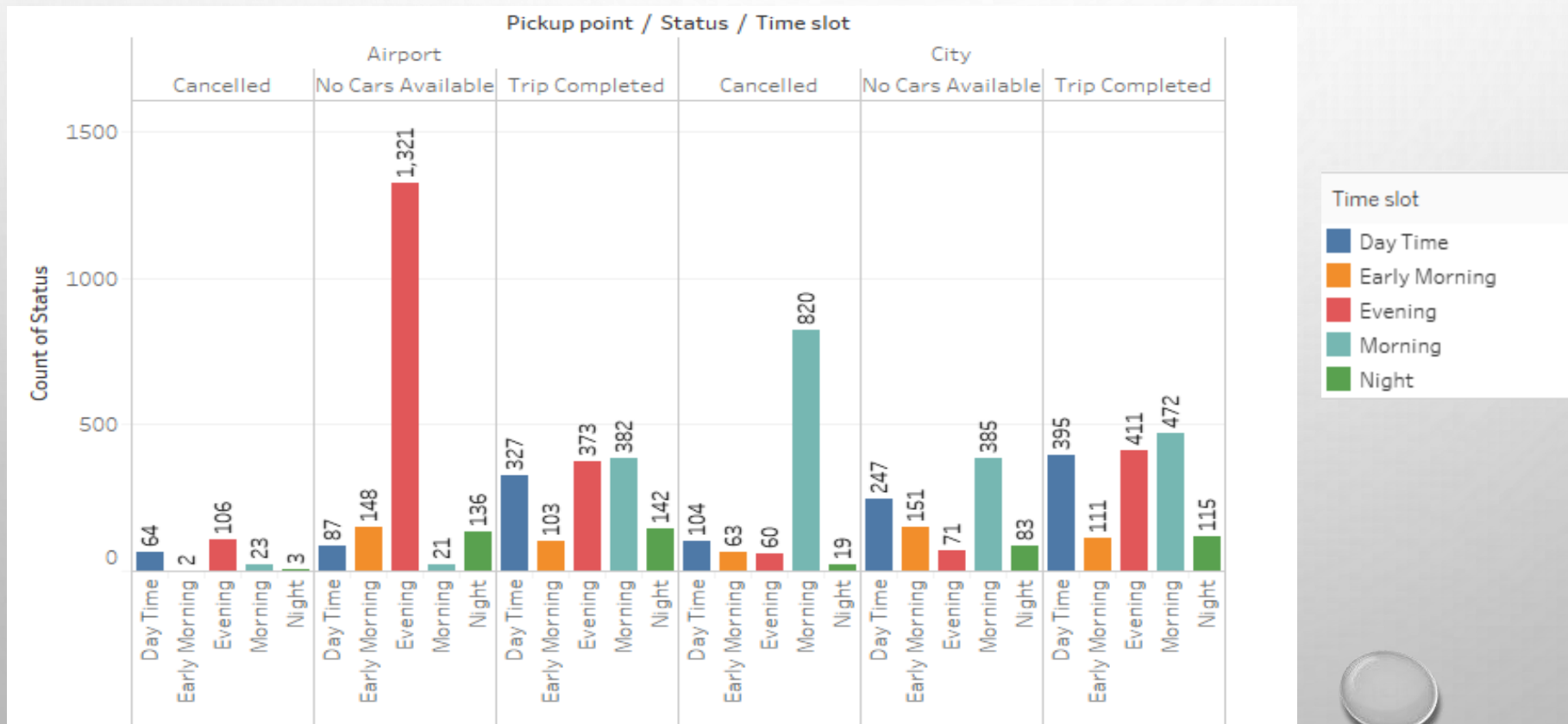
# PROBLEM IDENTIFICATION –MORNING AND EVENING

- **Problem 1: No cars available in airport during evening**

77.1% cars are not available in evening time in airport

- **Problem 2: Driver cancelled the request in city during morning**

76.9 % of cars cancelled in morning in city.

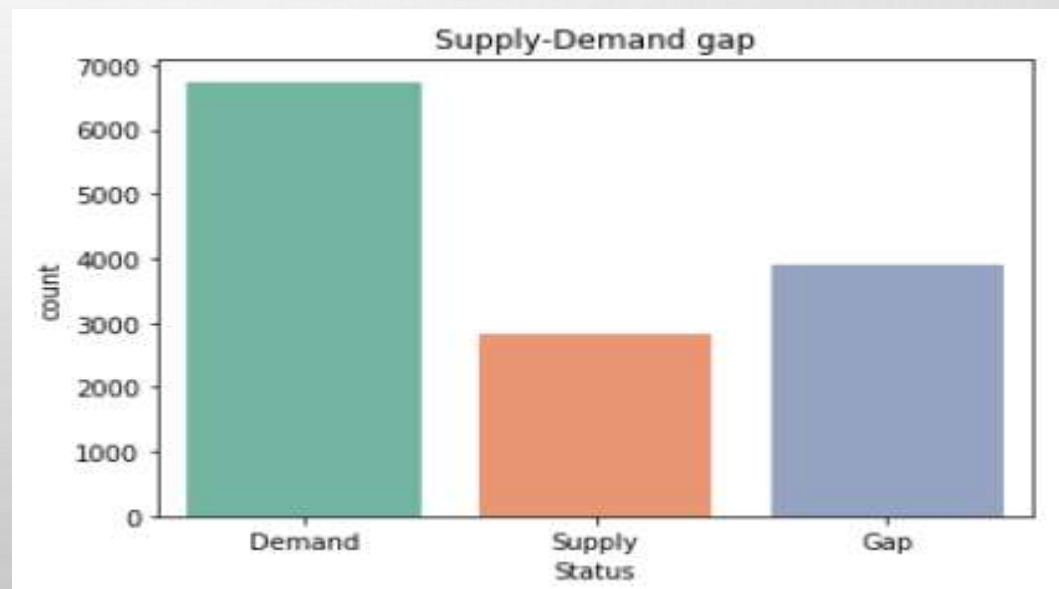


# SUPPLY- DEMAND ANALYSIS

## 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
- **Supply-demand gap = cancelled trips + no cars available trips**

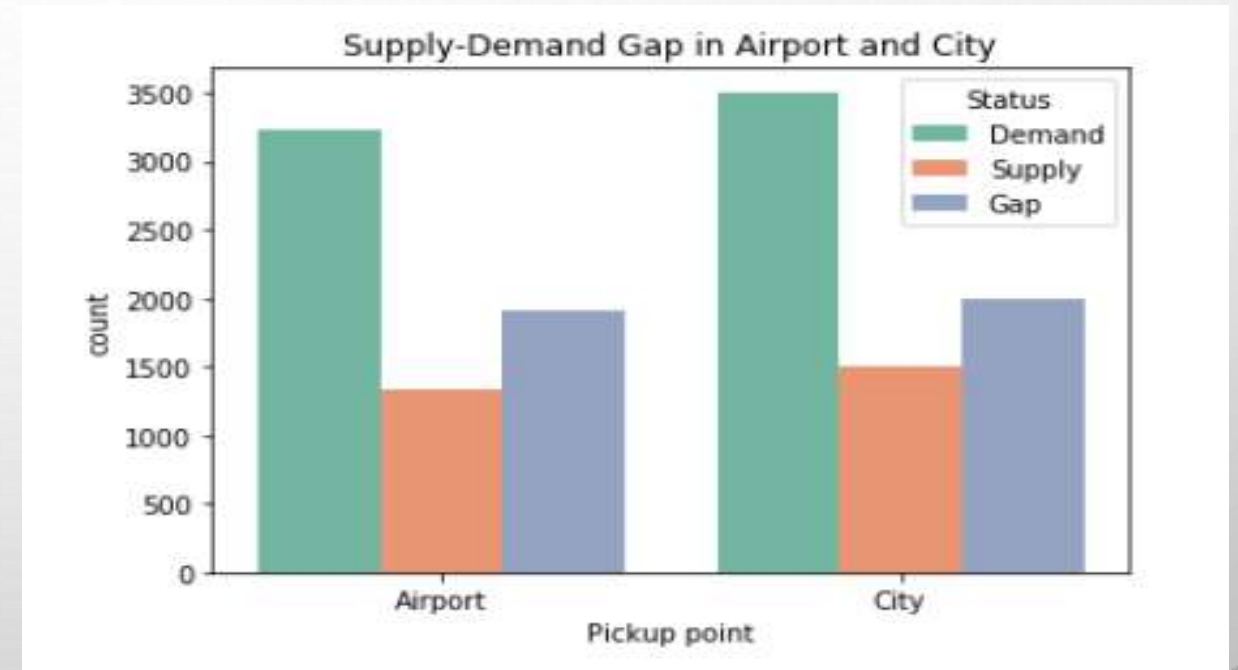
DEMAND	SUPPLY	GAP
6745	2831	3914



# SUPPLY-DEMAND GAP IN AIRPORT AND CITY

- Supply demand gap in city is high as seen in graph.

PICKUP POINT	DEMAND	SUPPLY	GAP
AIRPORT	3230	1327	1911
CITY	3507	1507	2003

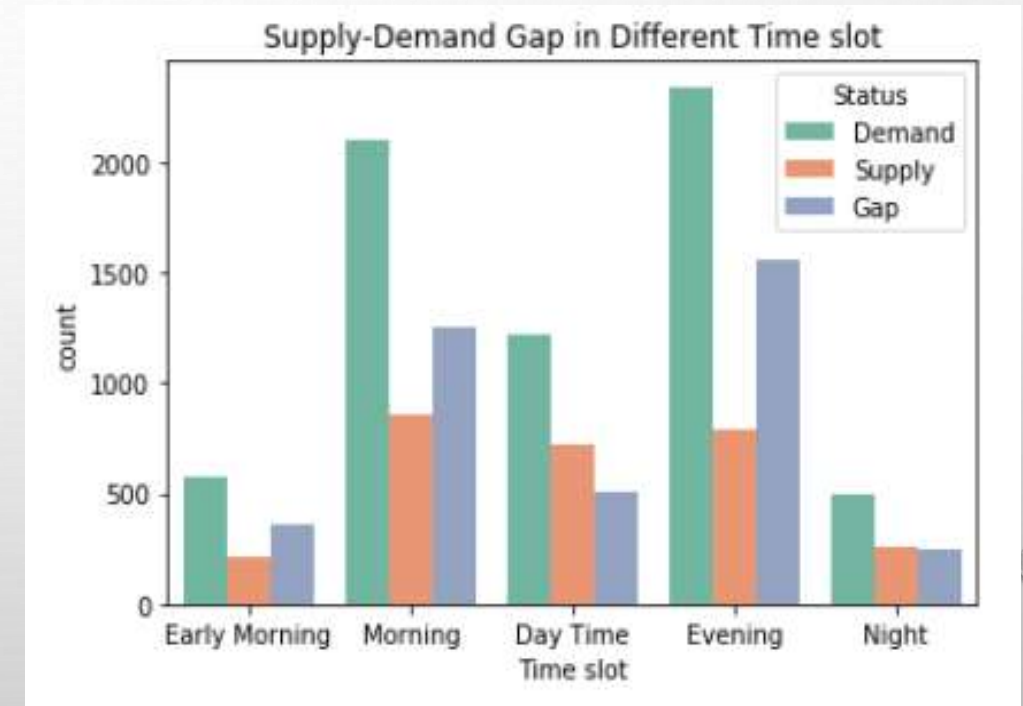




# SUPPLY DEMAND GAP IN DIFFERENT TIME SLOT

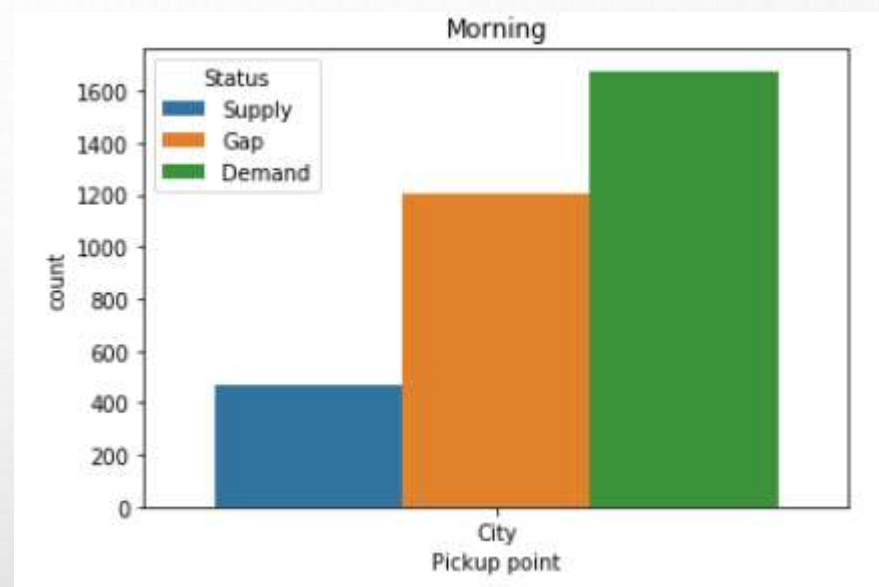
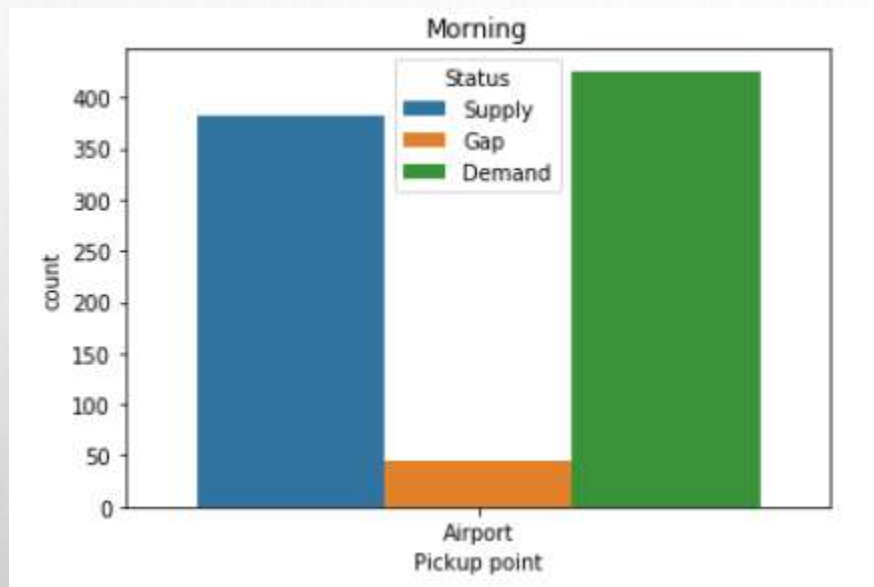
- According to the graph supply and demand Gap is high in morning and evening slot

TIME SLOT	DEMAND	SUPPLY	GAP
EARLY MORNING	578	214	364
MORNING	2103	854	1249
DAY TIME	1224	722	502
EVENING	2342	784	1558
NIGHT	498	257	241



# SUPPLY-DEMAND GAP IN MORNING AT AIRPORT AND CITY

In morning high supply demand gap from city to airport.



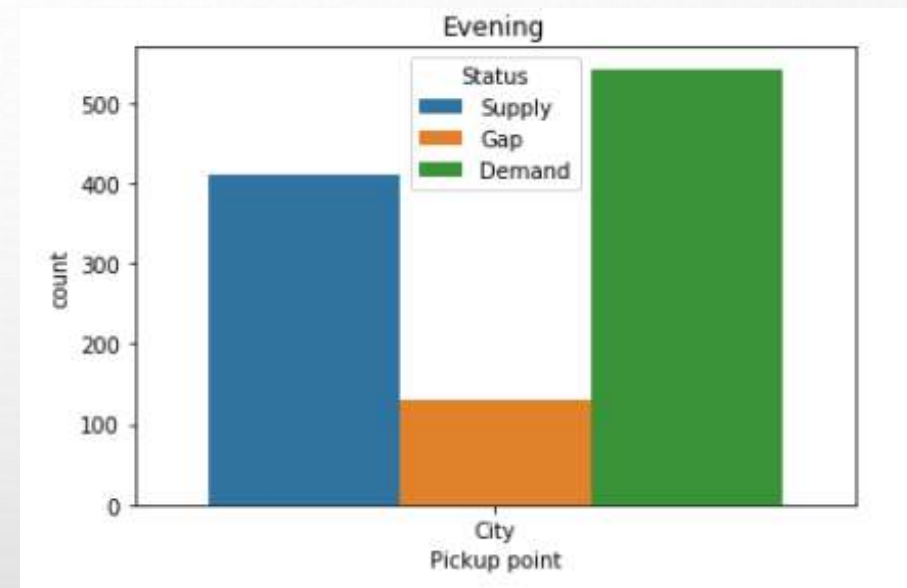
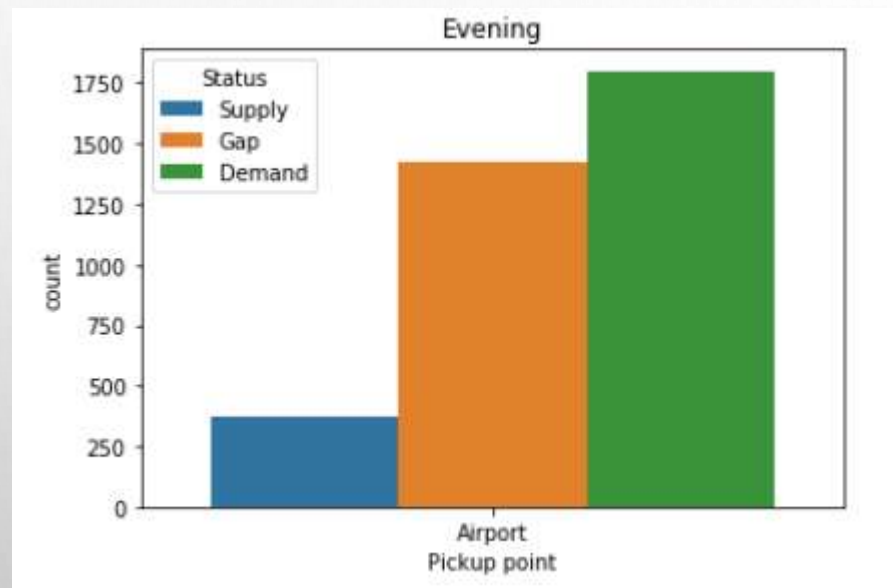
**MORNING**

PICKUP POINT	DEMAND	SUPPLY	GAP
AIRPORT	426	384	44
CITY	1677	472	1205



# SUPPLY DEMAND GAP IN EVENING AT AIRPORT AND CITY

In evening supply demand gap is more from airport to city



**EVENING**

PICKUP POINT	DEMAND	SUPPLY	GAP
AIRPORT	1800	373	1427
CITY	542	411	131

## **REASON FOR SUPPLY-DEMAND GAP**

- **No cars are available in the evening from airport to city**

1. The flights departing from airport is high in the morning, due to which there are more passengers who want to go to the airport in the morning.
2. Due to higher number of flights traffic is caused for the route from city to airport in the morning.
3. The drivers are cancelling the rides due to high traffic.

- **Higher requests are cancelled by the drivers in the morning from city to airport**

1. The flights landing at the airport is high, due to which there are more passengers then drivers/cars.
2. The route from airport to city may be crowded at evening due to which more cabs are not able to reach the airport.
3. Drivers need to unnecessarily wait at the airport due to which their is time wastage where they could have completed some other rides instead.

## **WAYS TO RESOLVE THE SUPPLY-DEMAND GAP**

1. Encourage pooling of riders to the airport. This would ensure a larger combined income to the driver.
2. Incentivize the drivers opting for morning pickup to the airport by providing monetary benefits.
3. Reduce wait time at the airport. Encourage drivers to leave the airport w/o passenger after a minimum wait time. Till the driver gets a passenger in the city, a monetary incentive can be added.
4. Drivers staying near the airport would have higher incentive to take the trips. More such drivers can be hired.
5. Number of cabs at the airport in the evening should be increased to Maximize returns.
6. Give some more benefits to driver for airport trip like decrease the minimum limits of trip, increase the commission given by uber to drivers.
7. Drivers can be awarded with bonus amounts for less cancellation of rides at peak hours.
8. Uber can pay for the gas mileage of drivers to come back to the city without a ride.
9. Impose penalty for cancellation of requests by driver and set threshold for maximum number of cancellations per day.

The image features a light gray background with a subtle radial gradient. In the top-left and bottom-right corners, there are several realistic water droplets of varying sizes, rendered with soft shadows and highlights to give them a three-dimensional appearance. The text "THANK YOU" is centered in the middle of the frame.

**THANK YOU**