Uber Supply – Demand Gap

Submission

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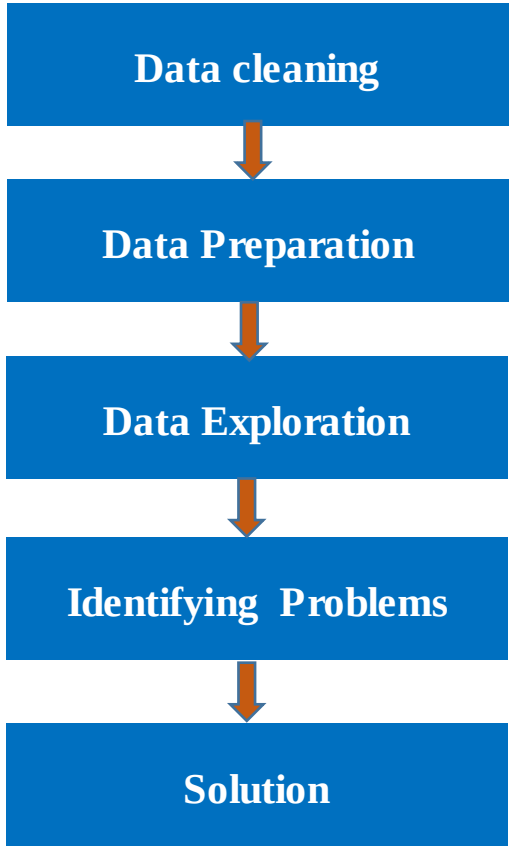
Abstract

- **Business Objectives**:
  - Aim of 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.

Approach :

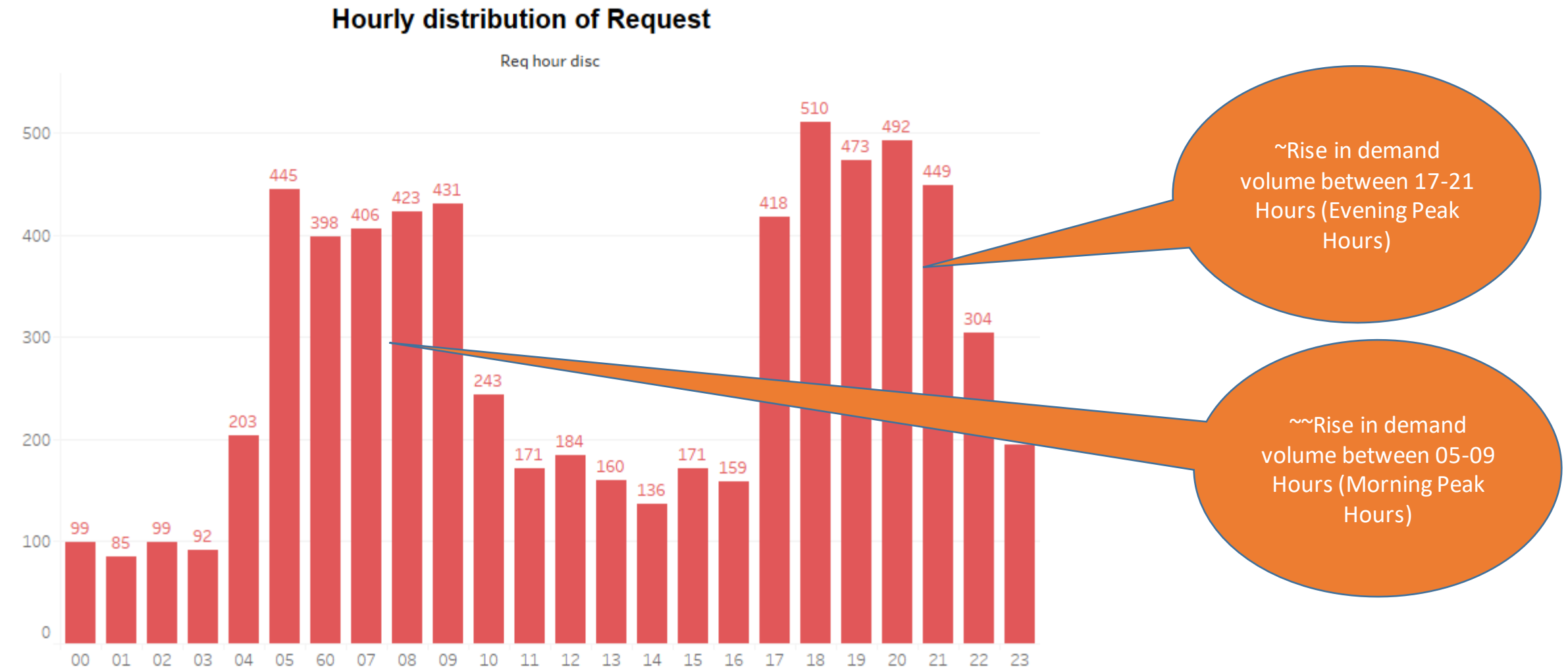
- Identify the most pressing problem
- Identify the demand supply gap
- Identify the reason for supply demand gap and recommend ways to resolve

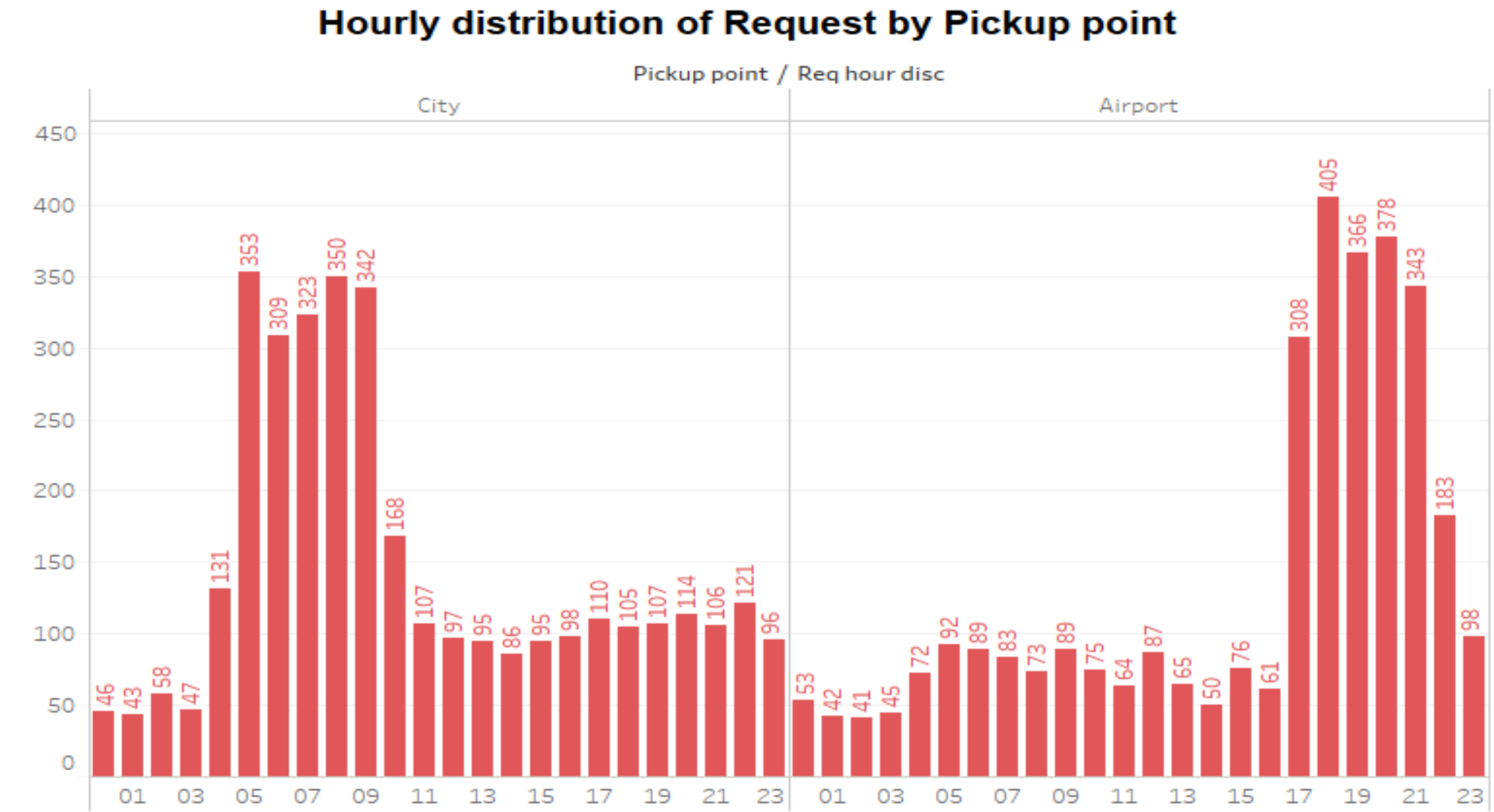
Methodology used for Problem Solving



- Data cleaning to sterilize the data and to avoid the impact unstructured data on final results
- Format Date and time Fields
- Derive new variables needed for analysis
- Identify the problems using visualization on different time slots based on pickup points
- Recommend ways to resolve the supply demand gap

Request pattern in a day

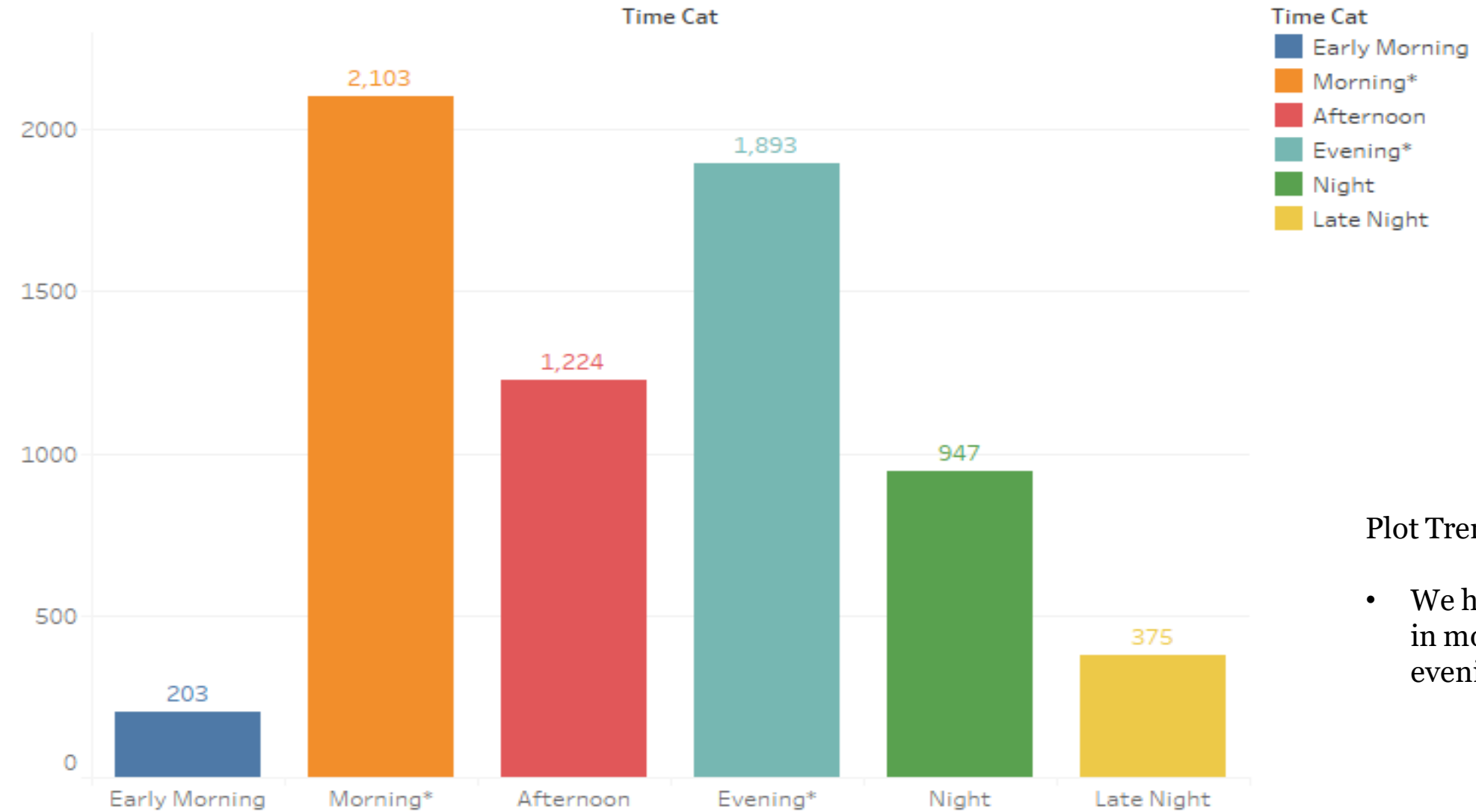




Plot Trend:

- In City we have high demand in morning
- At airport we have high demand in evening.

Request at Different Time Slots

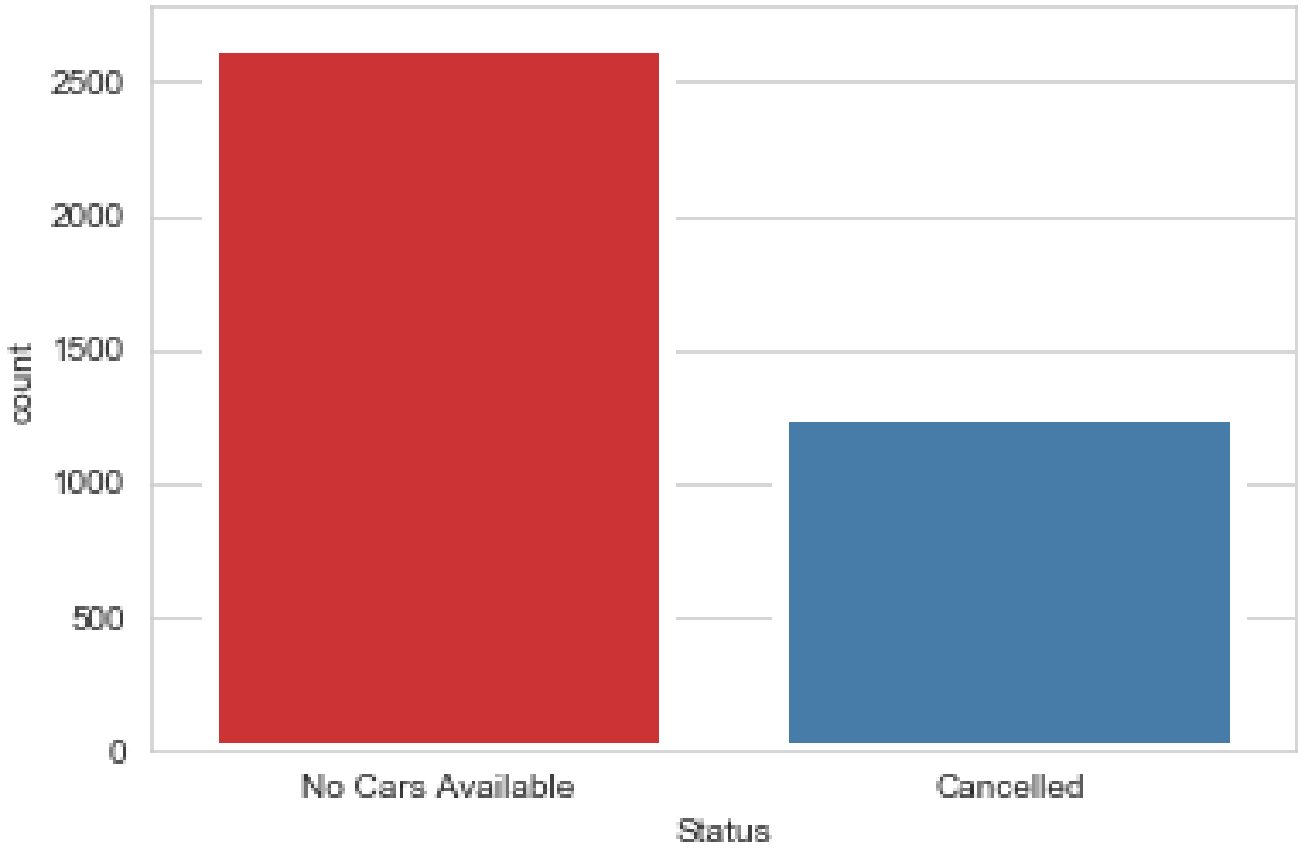


Sum of Demand/Supply for each Time Cat. Color shows details about Time Cat.

Plot Trend:

- We have high demand in morning and in evening.

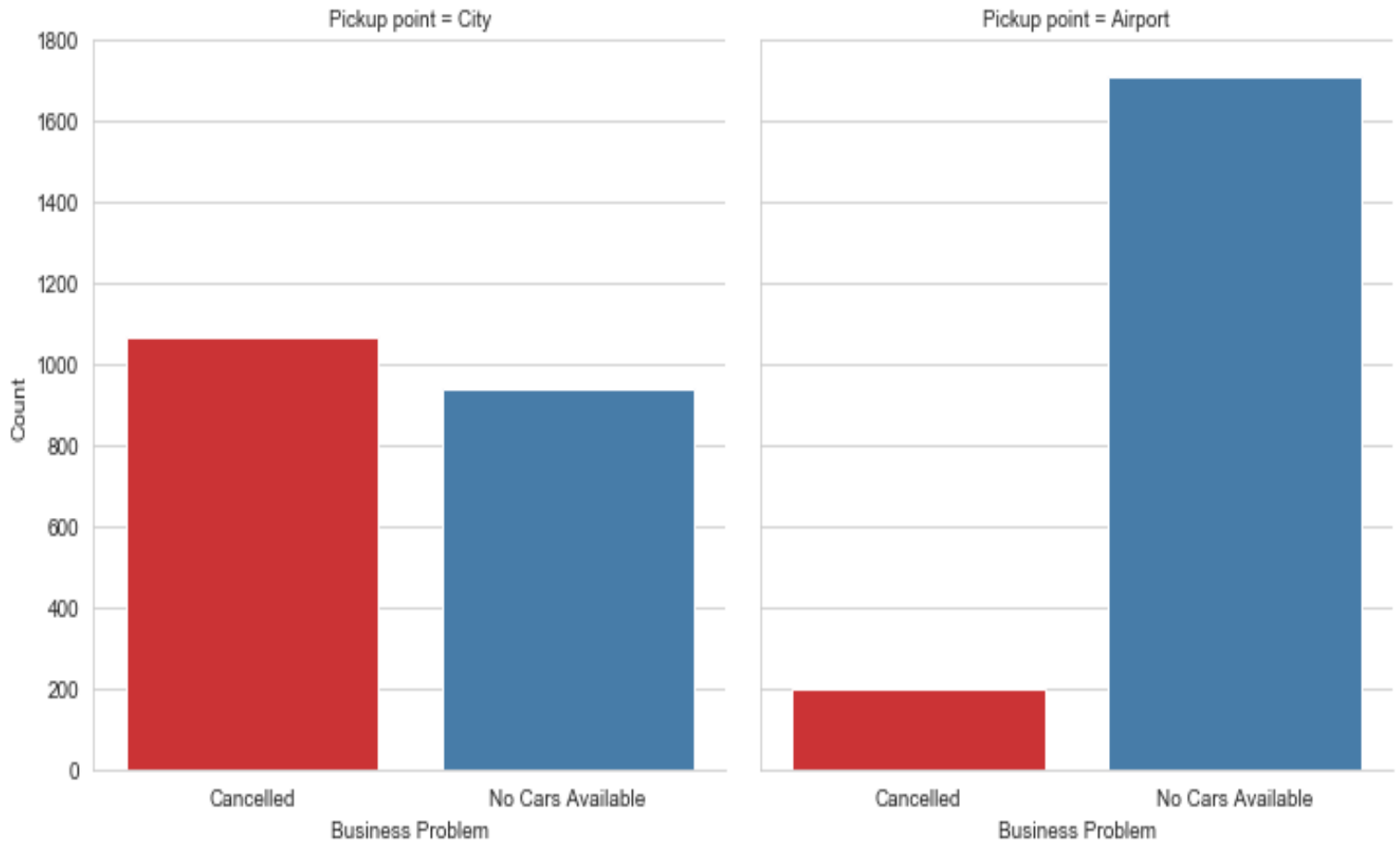
Frequency of requests get cancelled or 'No cars Available'



Total counts = 3914

- Unavailability of cars = 68%
- Cancelled = 32%

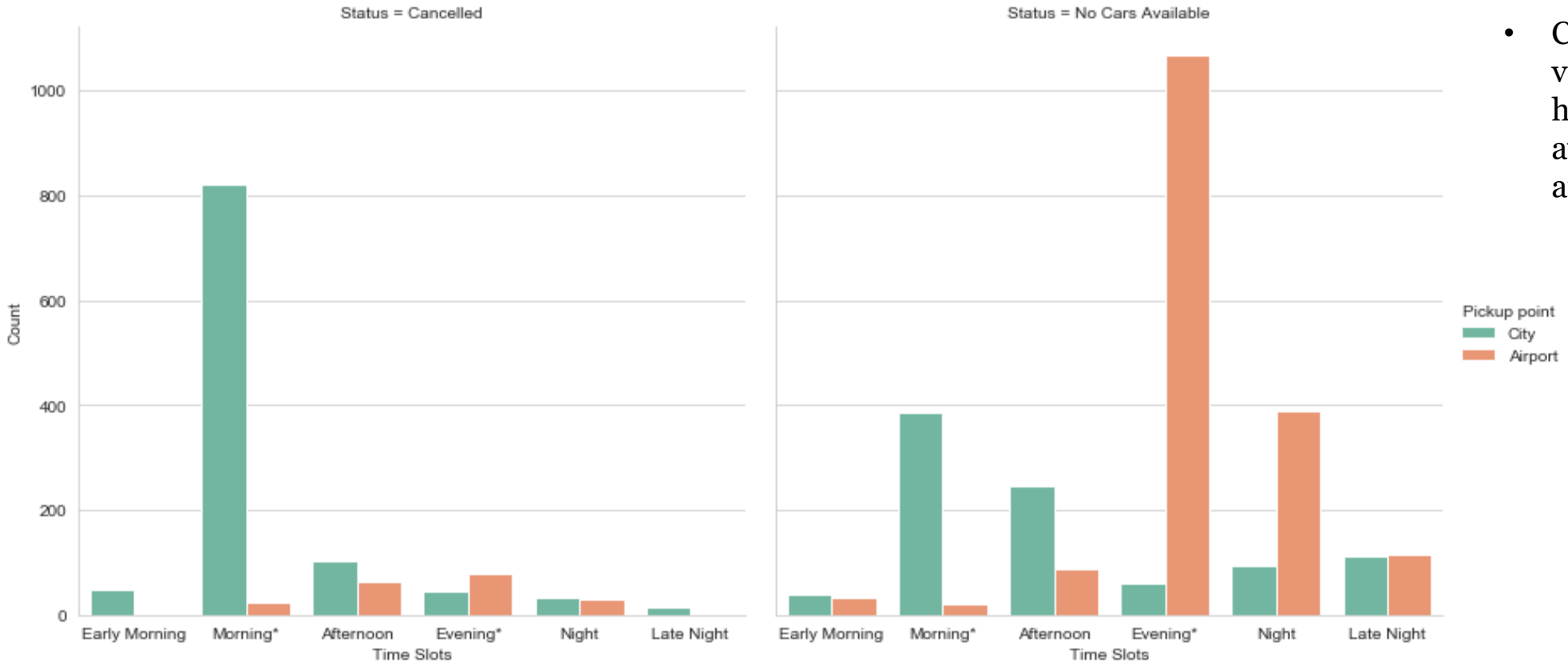
Identifying most problematic types of requests (city to airport / airport to city)



Plot Trend:

- We can easily identify cancellation in city is very high causing Non availability of cars at airport.

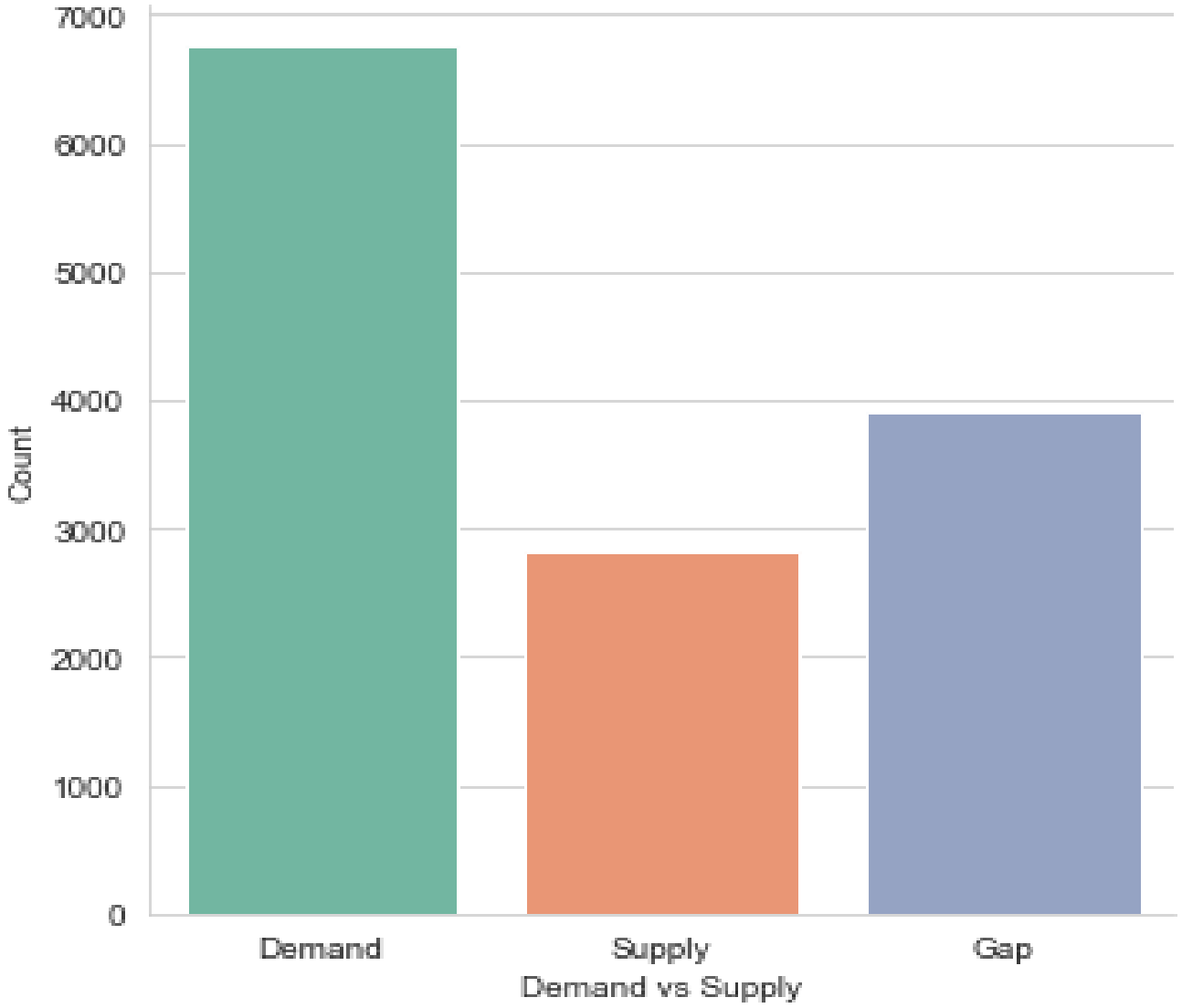
Business Problem by Different Time Slots



Plot Trend:

- Cancellation in city is very high in morning hours causing Non availability of cars at airport in evening hours.

Supply Demand Gap

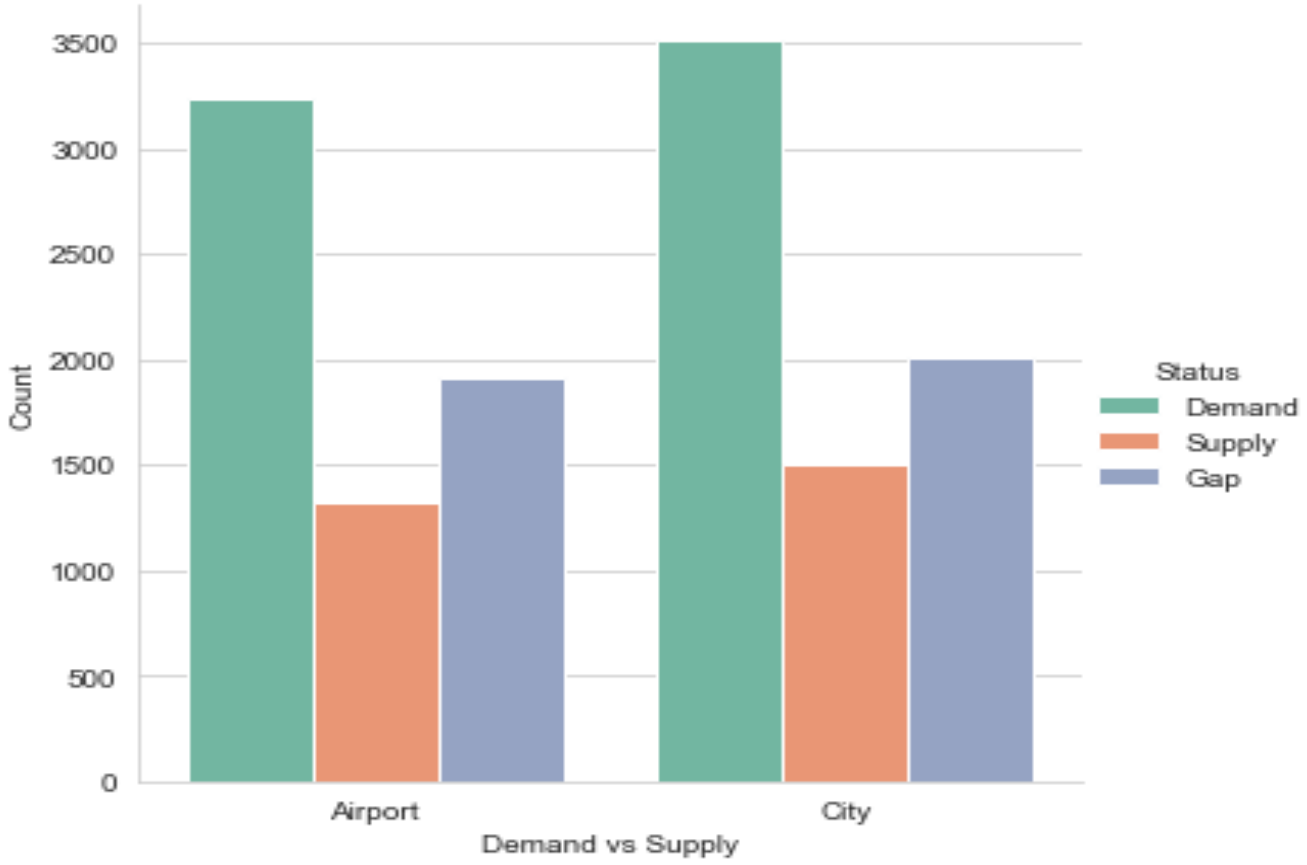


Plot Trend:

- Demand was 6745 and supply is only 3831 = 42%
- Gap = 58%

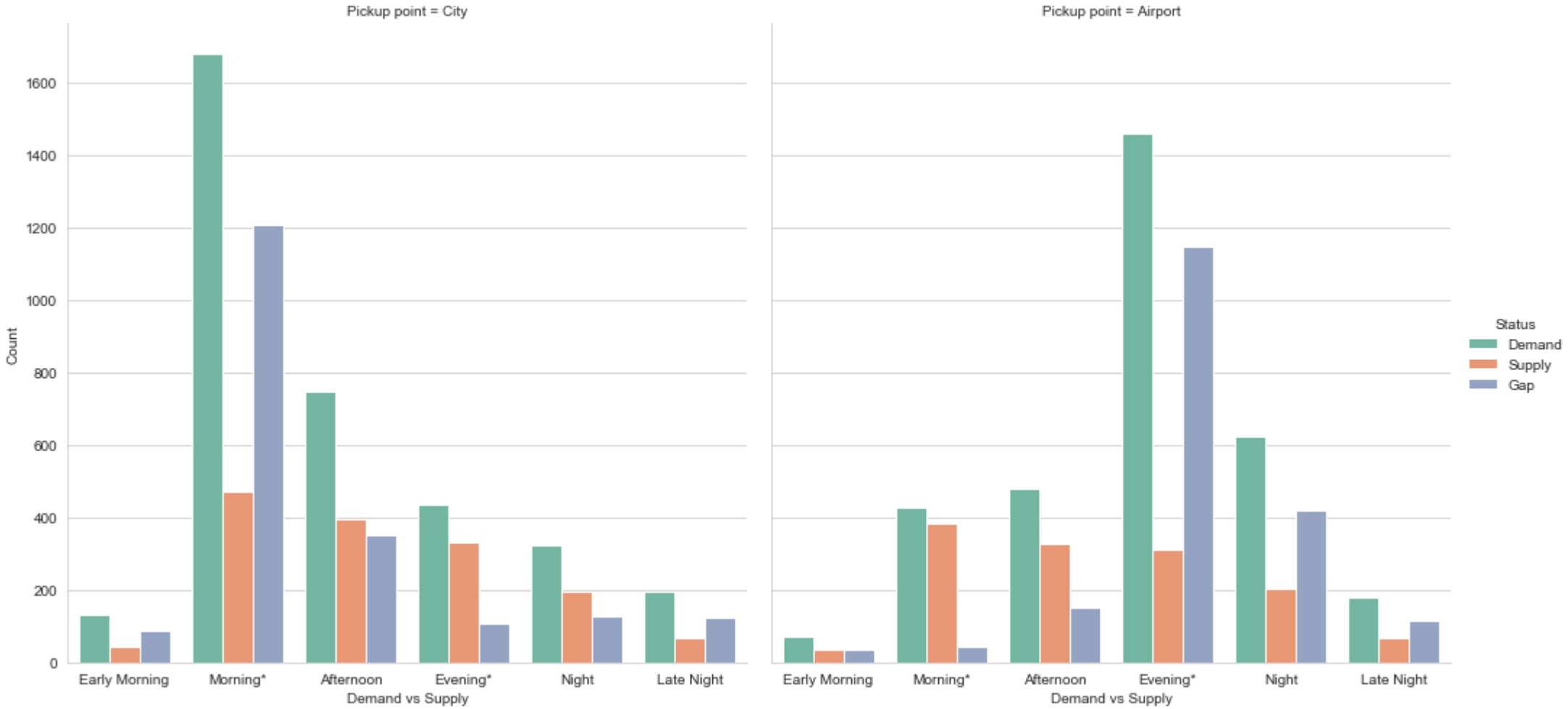
Pickup point	Time Slots	Demand	Gap	Supply
Airport	Afternoon	478	151	327
	Early Morning	72	36	36
	Evening*	1457	1145	312
	Late Night	181	114	67
	Morning*	426	44	382
	Night	624	421	203
Total Airport		**3238**	**1911**	**1327**
City	Afternoon	746	351	395
	Early Morning	131	89	42
	Evening*	436	106	330
	Late Night	194	125	69
	Morning*	1677	1205	472
	Night	323	127	196
Total City		**3507**	**2003**	**1504**
Total		**6745**	**3914**	**2831**
Note : * Showing Peak Hours				

Supply Demand Gap by Pickup Point



Gap is higher in city, if we can fill this gap, we will be able to fill airport gap easily.

Supply Demand Gap by Pickup Point by Time Slots



Reason for supply-demand gap

- Drivers are cancelling the trips City to Airport in Morning Peak Hours due to low demand on return during morning and afternoon hours.
- Because the inflow of the cars is less for airport the non availability is very high in evening peak hours at airport

Solution

- We can integrate with various airlines to know the demand in morning hours from the arrivals & in evening hours from the departures and distributing these demands to drivers who are not cancelling by this we can encourage our drivers to take more trips, this may result in reducing the cancellation and also this can bring more drivers on road by login in early morning peak hours resulting reduction in non-availability of the cars.

- Restrict number of cancellations by drivers by imposing some penalty.

- Give discounts to passengers who book airport-city in morning peak hours and city-airport in evening peak hours, by this we can create demand and compete with other taxi services during peak hours which will help reducing non – availability of cars during evening peak hours at airport.