Uber Supply-Demand Gap

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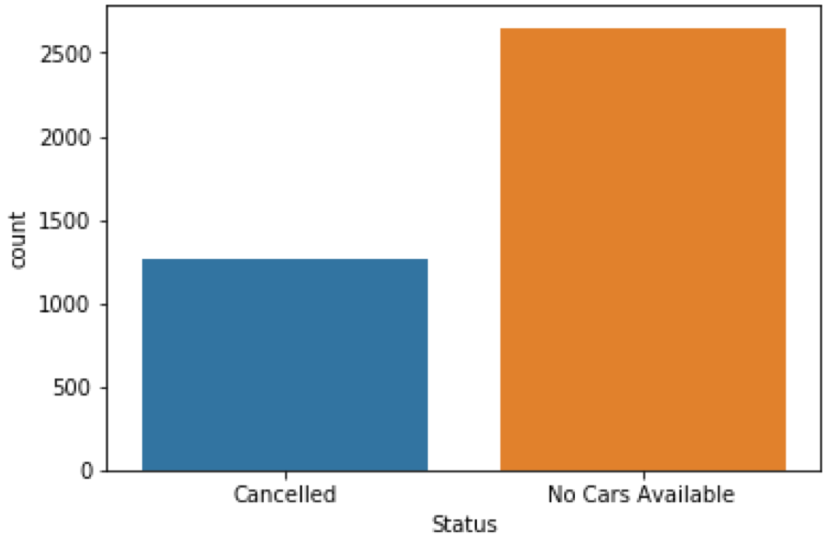
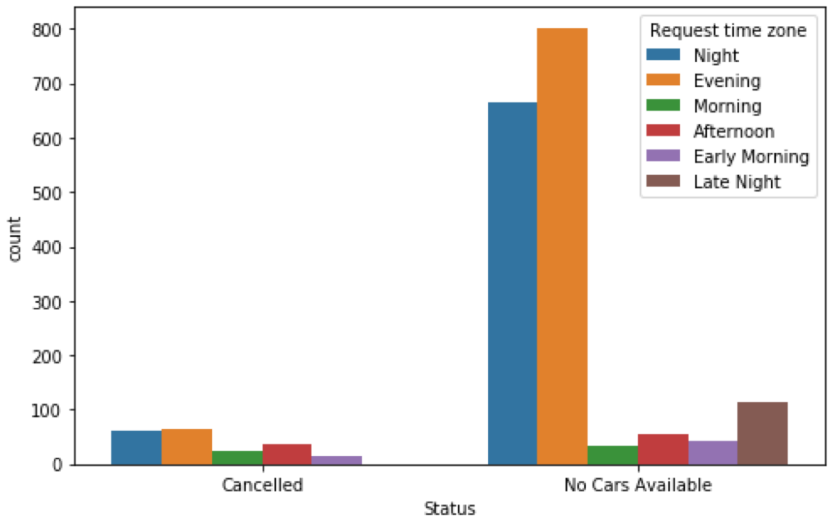
Plot -1



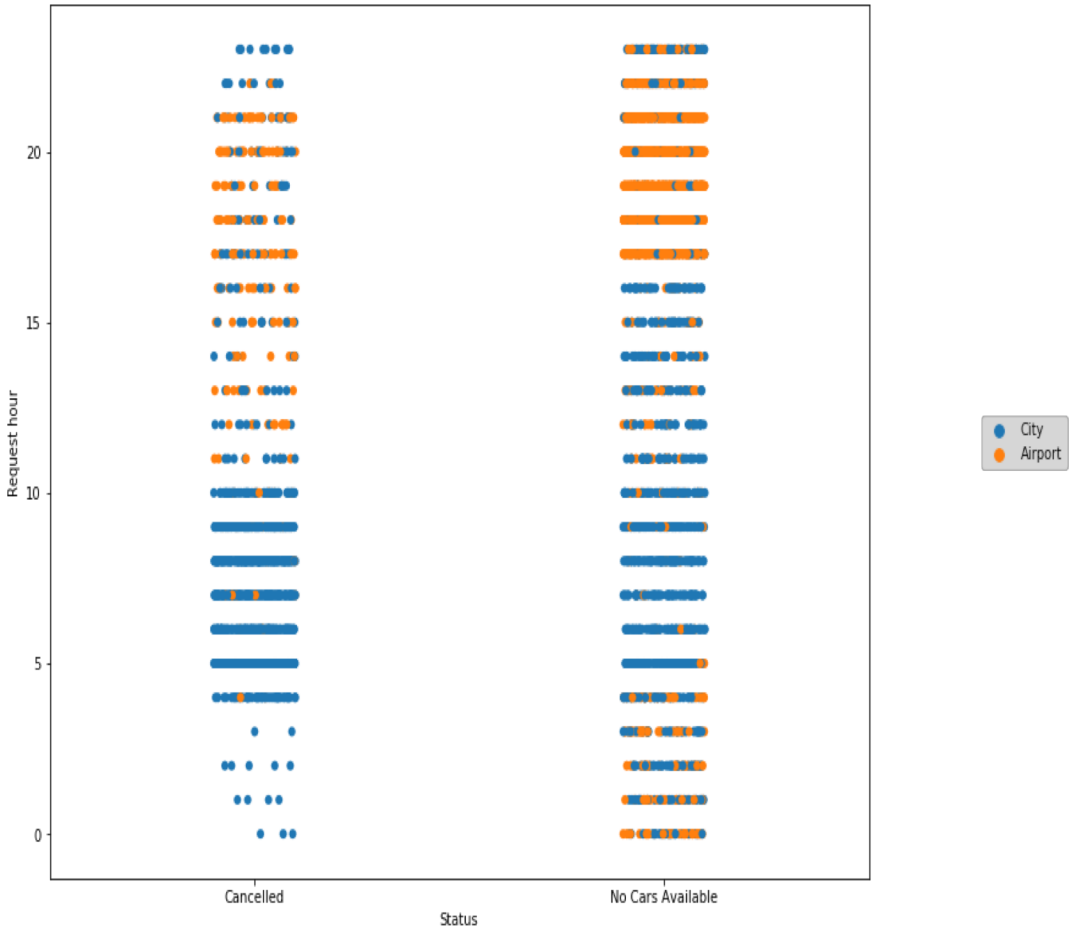
- Y-axis shows frequency of requests.
- X-axis shows the status of the cab .
- Result: Mostly the cabs are not available to the airport or to the city from airport.

Plot-2



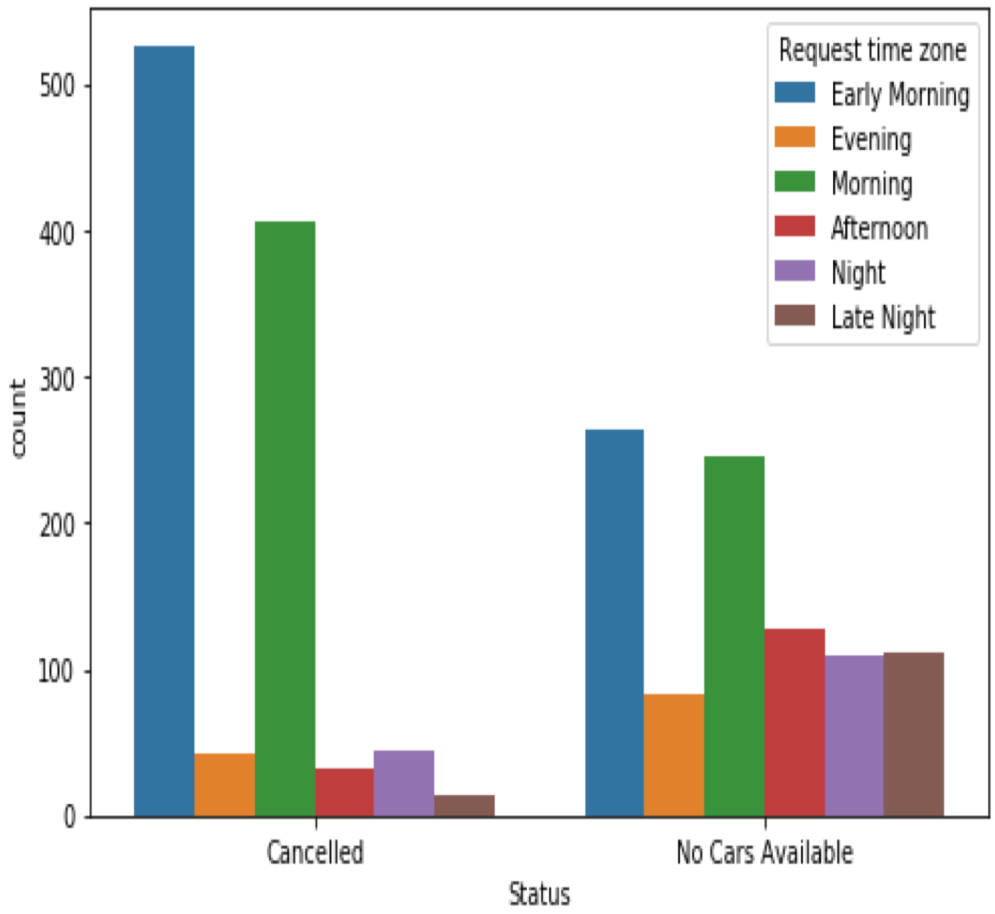
- X- axis shows the status of cab.
- Y-axis shows the frequency.
- Result: For the two statuses , the frequency of cancelled trips are few where as a large number of trips in the evening and night show that no care are available.

Plot -3



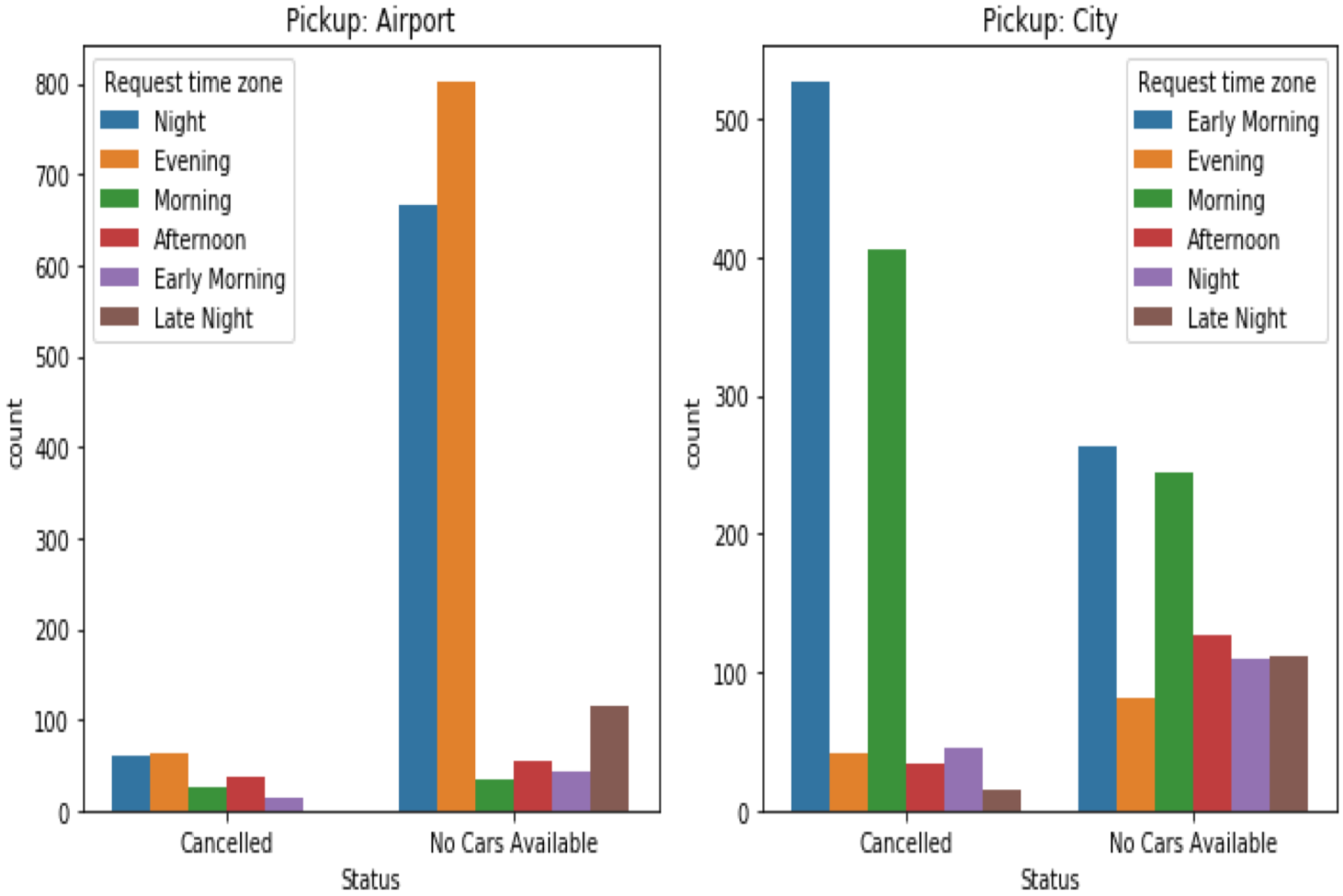
- A stripplot() was plotted based on status of the trip excluding Trip completed as well as request hour at both the pickup points.
- Results show that majority of cars are not available from city to the airport.
- Also, large number of trips are getting cancelled from the city to the airport possibly due to the idle of the driver to pick up the next customer for a journey towards the city.

Plot -4



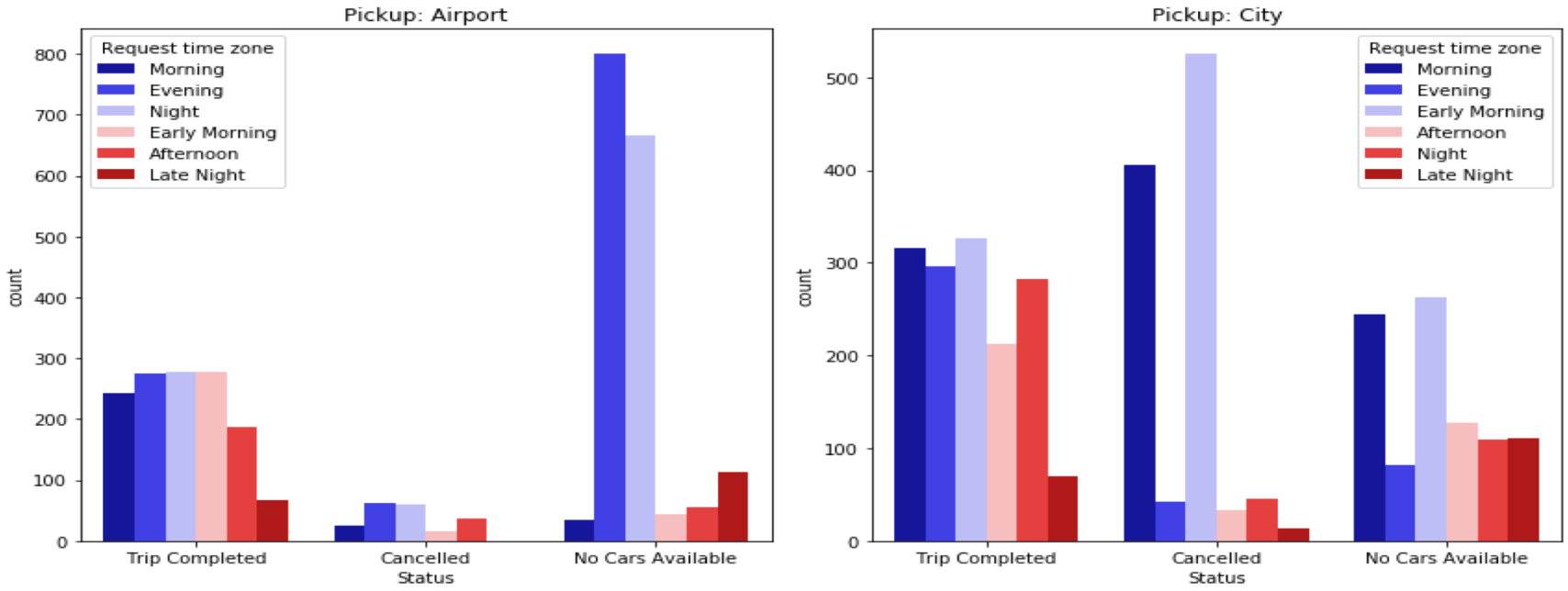
- The bar plot shows the frequency of requests from the city to the airport that get cancelled or no cars available.
- The highest number of trips get cancelled are in the early morning and morning time zones.
- Nearly equal number of trips have the status as no cars available in the same time zones as cancelled trips.

Plot -5



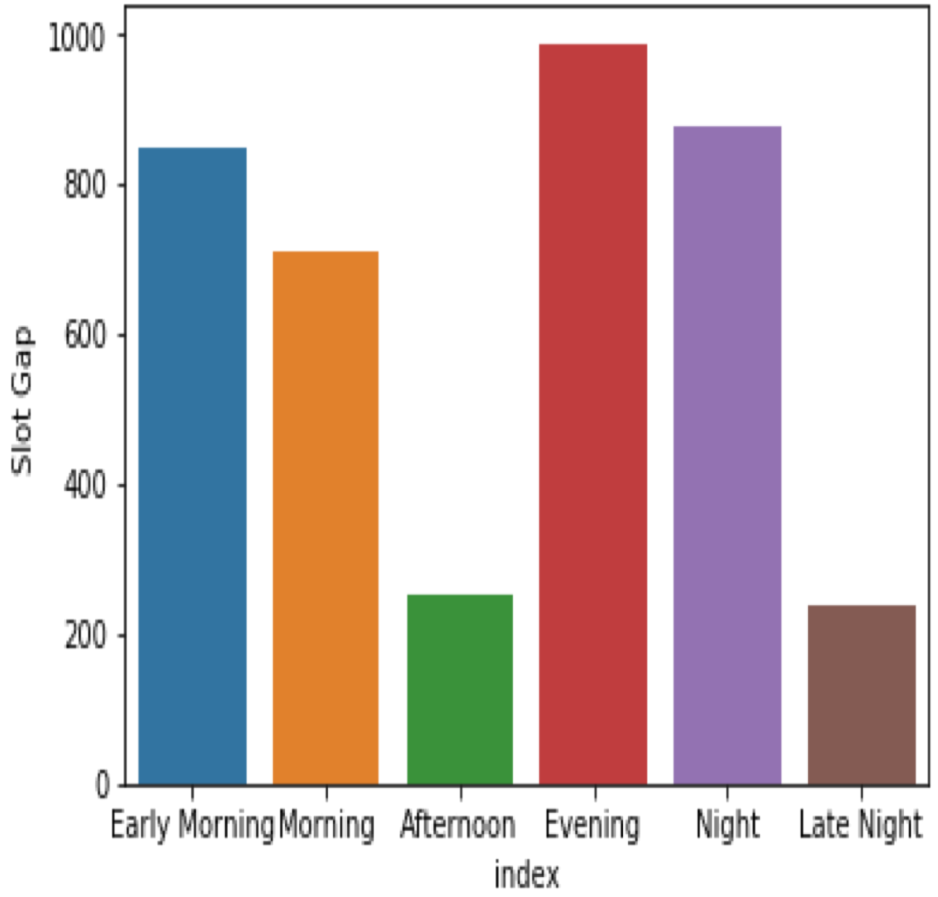
- Majority of trips from the airport towards the city in the evening and at night show that no cars are available in the Uber app.
- During the daytime, more than 400 trips get cancelled between 4 am and 12 pm when the pickup point is in the city for a journey towards the airport.

Plot -6



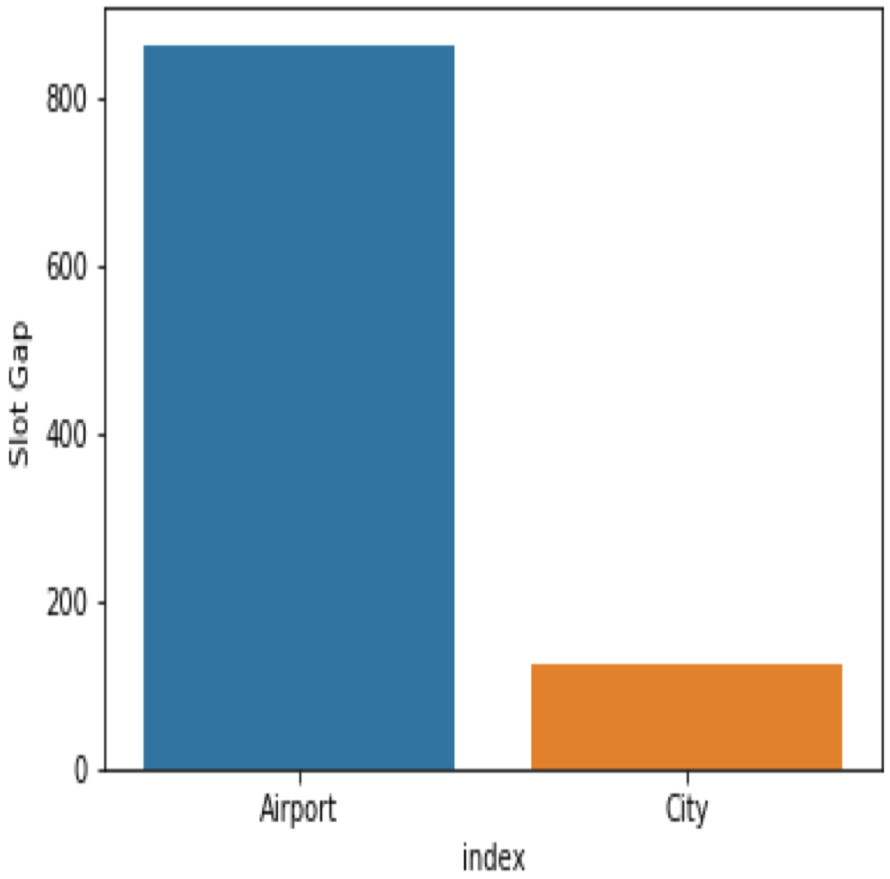
- A countplot() with a seismic color palette was drawn to analyze the frequency of requests for all 3 statuses of the trips. Each color represents a time zone.
- The number of trips completed from the city is higher than from the airport. The bar plot also show that from the airport no cars are available from evening until late night.
- Whereas trips shoe cancelled status during early morning and morning time zones from the city.

Plot -7



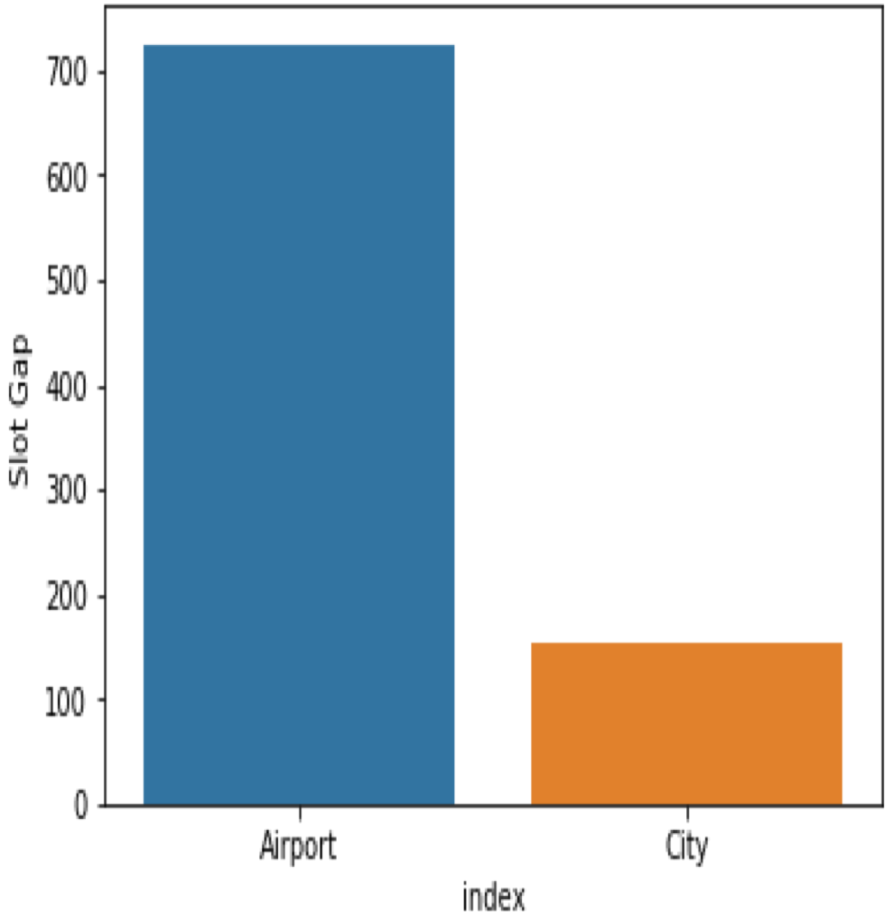
- The bar plot shows the gap between supply and demand at each time zone.
- Results from the plot show that the gap is highest in the evening. During the night and at early morning, the gap is very high and moderately high in the morning.

Plot -8



- Evening and night are the time zones where the gap is the highest.
- The bar plot shows the count of slot gap at both the pickup points for the evening time zone.
- Results show that the gap count is around 800 and 200 respectively for airport and city pick up points.
- The supply-demand gap is the highest at the airport.

Plot -9



- The bar plot shows the count of slot gap at both the pickup points during the night.
- Results show that the gap count is around 700 and 150 respectively for airport and city pick up points.
- The supply-demand gap is the highest at the airport.
- Hence, for both the time zones, the highest gap exists for airport to city requests.

REASONS FOR THE SUPPLY-DEMAND GAP

During late evenings, there is a gap in the demand and supply as there are no cabs available from the airport to the city.

There are less rides from the city to the airport in afternoon and evenings.

In the mornings, there is again a gap as drivers cancel the rides from the city to the airport.

As we can see from the plots, there are maximum cancellations at Early Morning (4-8 am) for the requests from the City to Airport. In case of Requests from Airport to the city, the problem lies in the Evening (4-8pm) where there are maximum instances of ‘no cars available’.

WAYS TO RESOLVE THIS PROBLEM

- Since there is in general, a very limited number of cabs plying to and from the airport, the most obvious solution would be to increase the number of cabs on this route to meet the ever-growing demand.
- Uber can reduce the gap of demand and supply at the airport in the evening by implementing surge pricing so that any requests which are made in the evening from the Airport will be priced higher than the normal Price depending on the gap.
- In Late evening (7 pm to 9 pm) numbers of cars must increase from Airport to city by informing nearby drivers to airport about large requests at airport.
- The cab cancellations in the mornings can be avoided by providing bonuses to the drivers to ensure their availability. The surge prices that are charged from customers can be used to meet this overhead expense.

Thank you