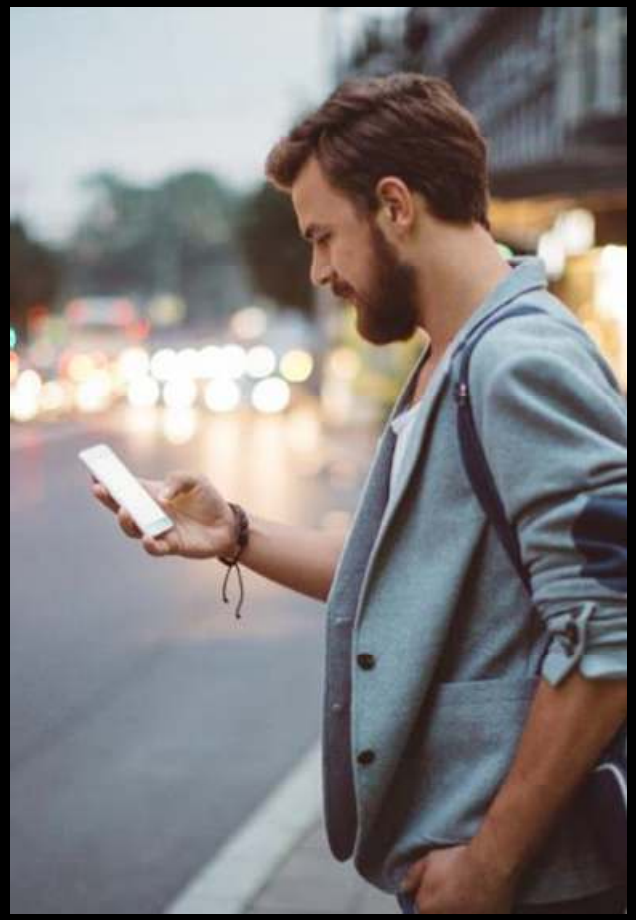
Uber Supply Demand Gap Assignment



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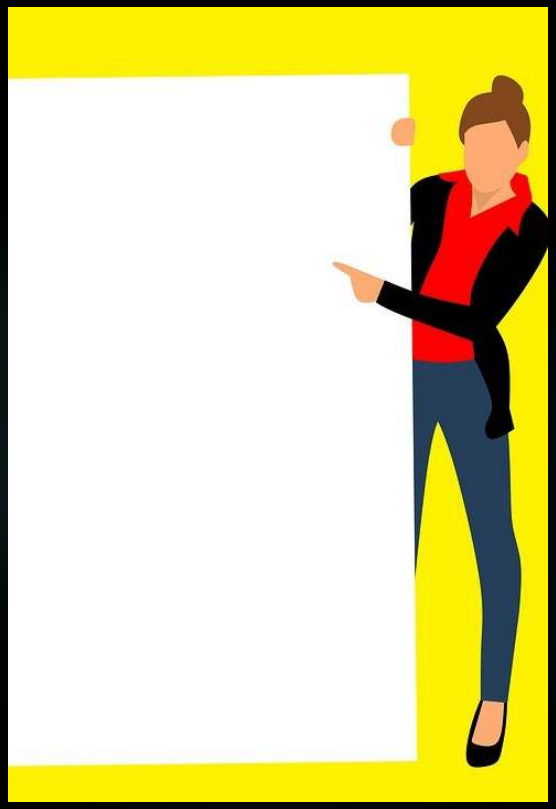
ABSTRACT



1. Data exploration.

2. Problem Statement: The Supply Demand Gap in airport and city areas.

3.Based on EDA identify the root cause of the problem.

4.Provide a hypotheses for the root cause of the problem.

5.Provide recommendations to improvise and/or eliminate the problem.

Data Exploration

1.There are 6745 rows and 6 columns.

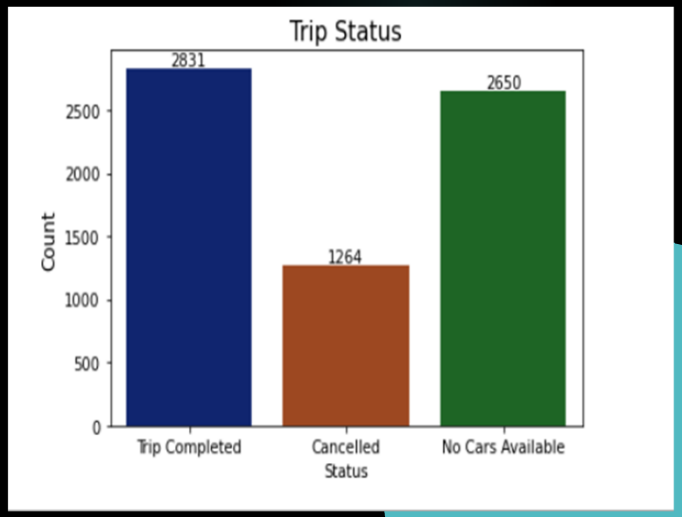
2. The columns are: Request id, Pickup point, Driver id, Status, Request timestamp and Drop timestamp.

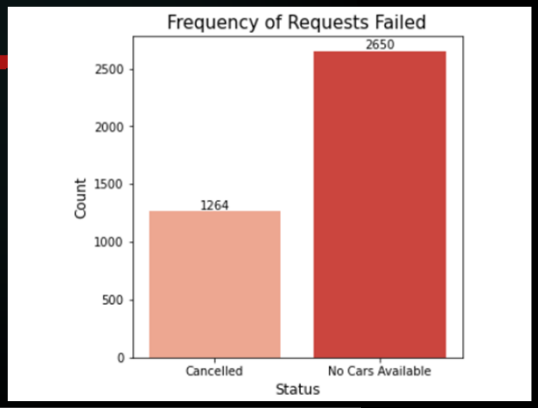
3.Null values in Driver id, Drop timestamp.

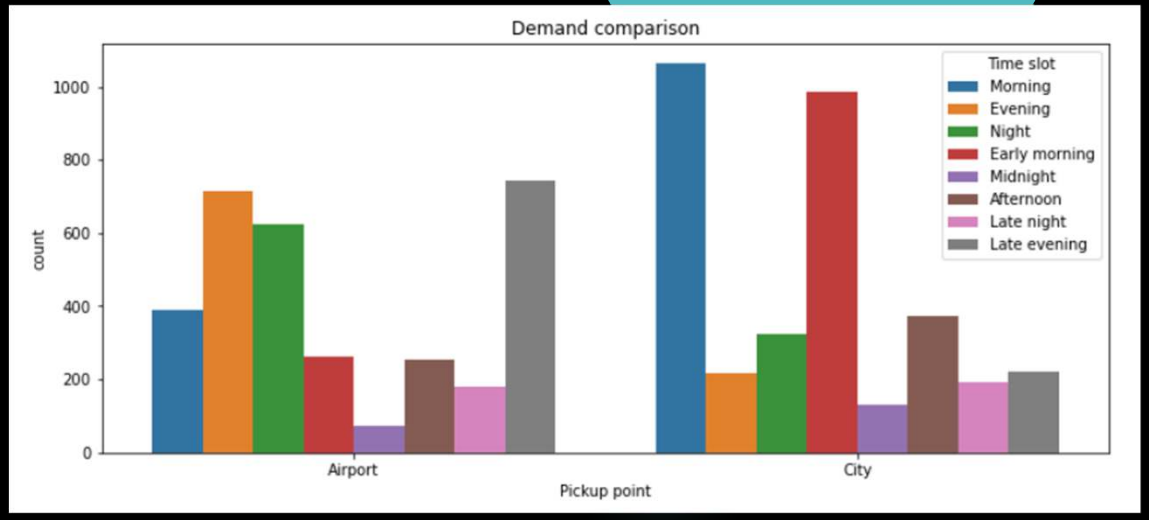
4.1264 requests cancelled and 2650 times no cars available.

5.Failed requests from city more than airport.

6.Morning and evening are the peak hours.

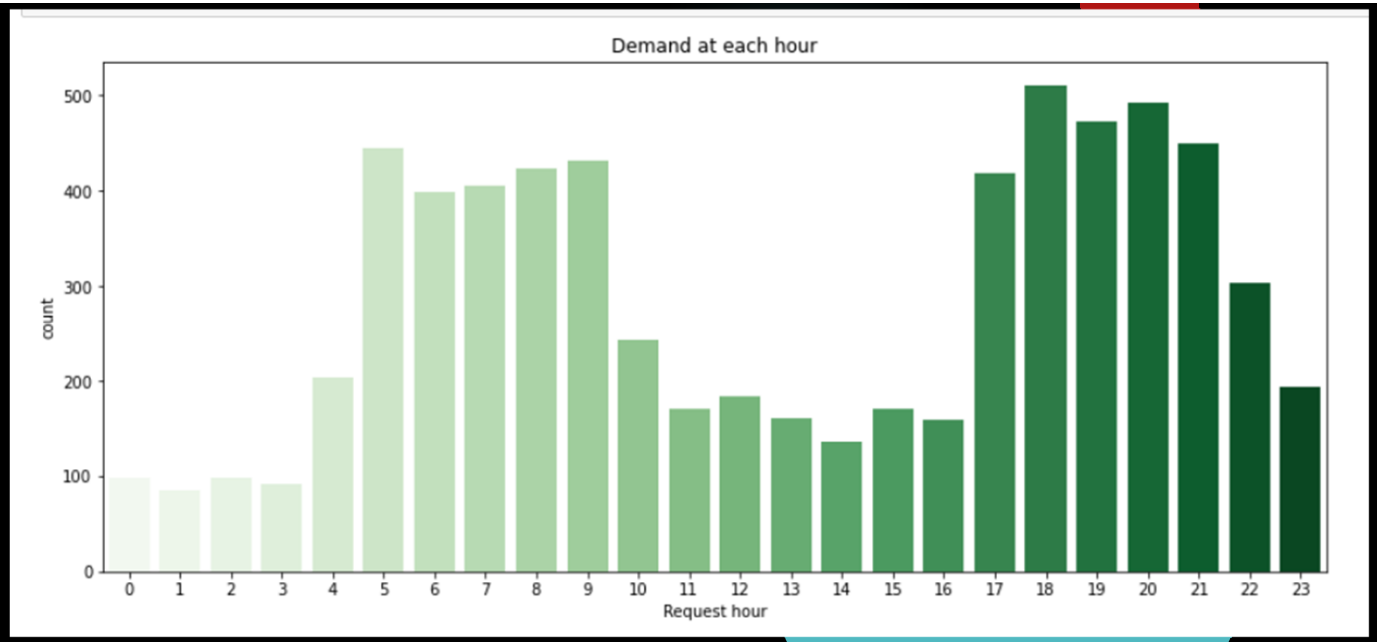


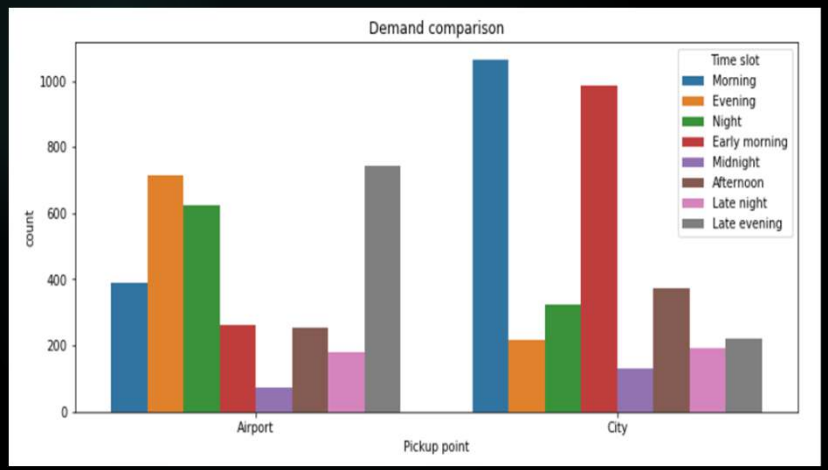


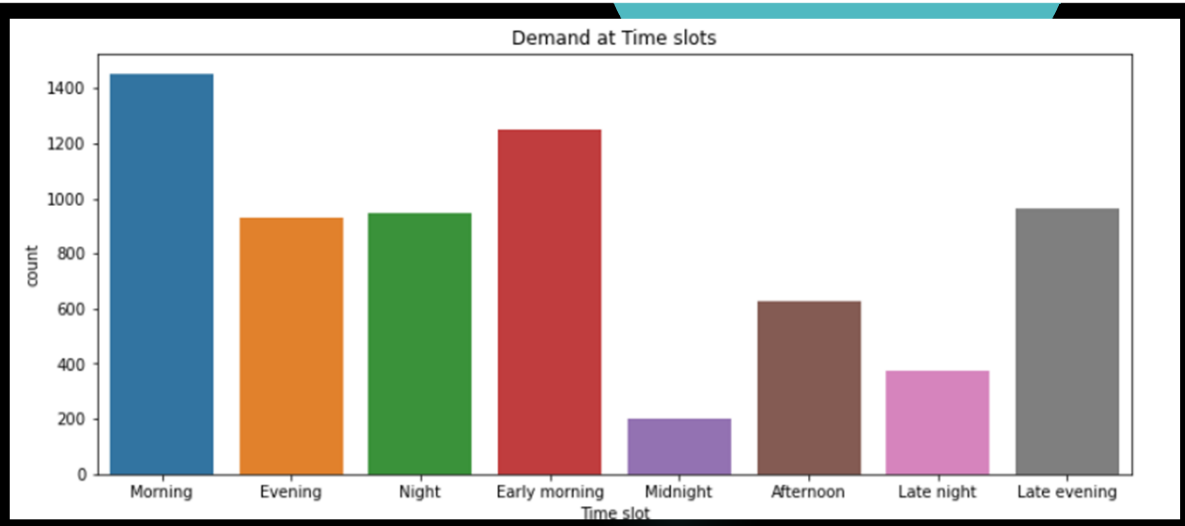


Problem Statement

The 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.

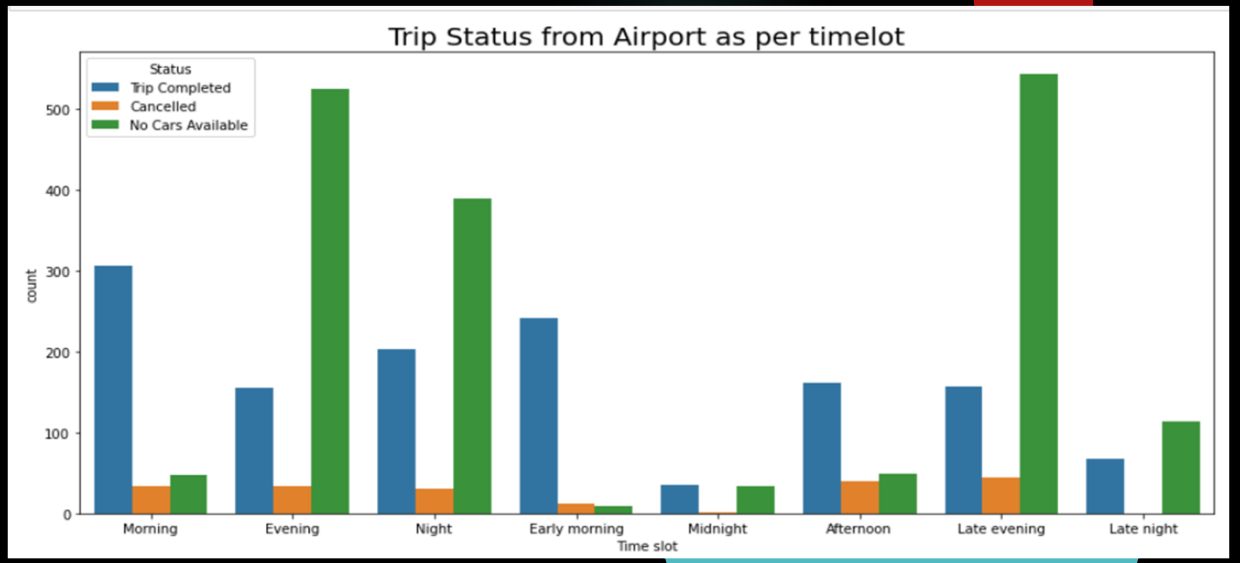


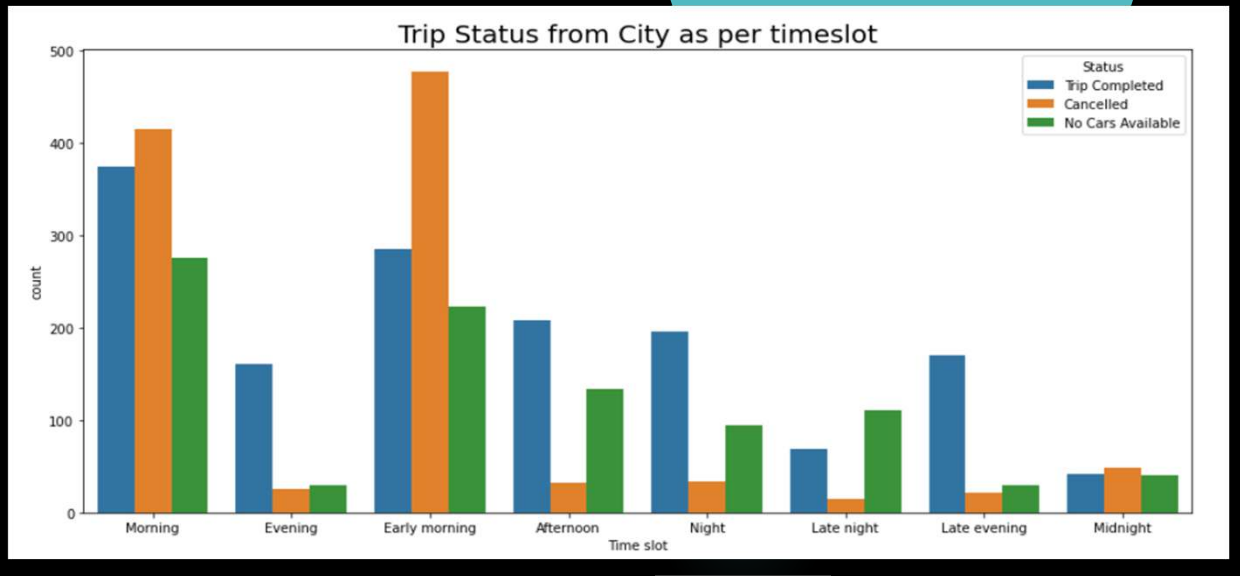




EDA

1. There are a lot of requests from 5am to 9am and 5pm to 10 pm.
2. The early mornings, evenings and the night shifts are the prime time of the day.
3. The demand from the airport is the highest in the evening but there aren't cars available; while the demand from the city is highest in the morning but the trip keeps getting cancelled a lot. Clearly there's a supply-demand gap here.

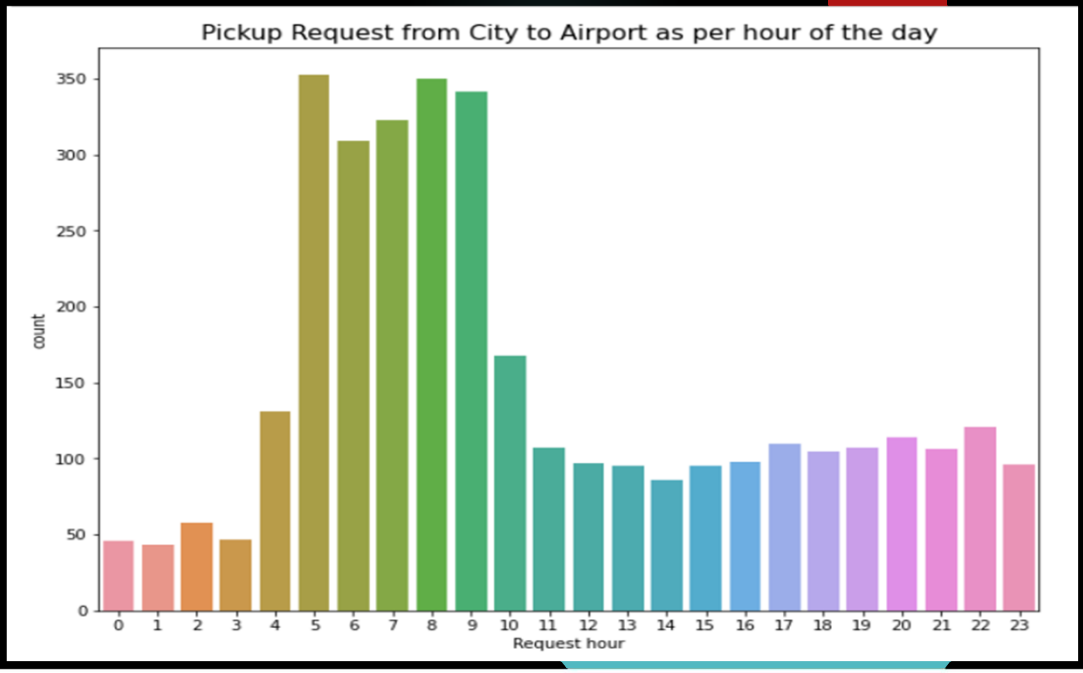


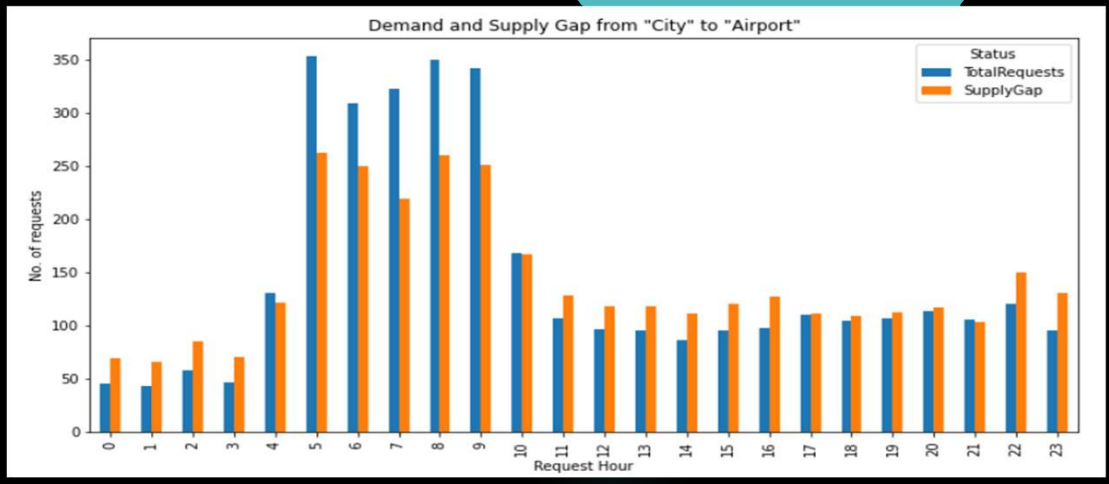


EDA

The total gap between the demand and the supply is 3914 which is a significant number. And the two main reasons for this downfall is non availability of cars and cancellation of trips.

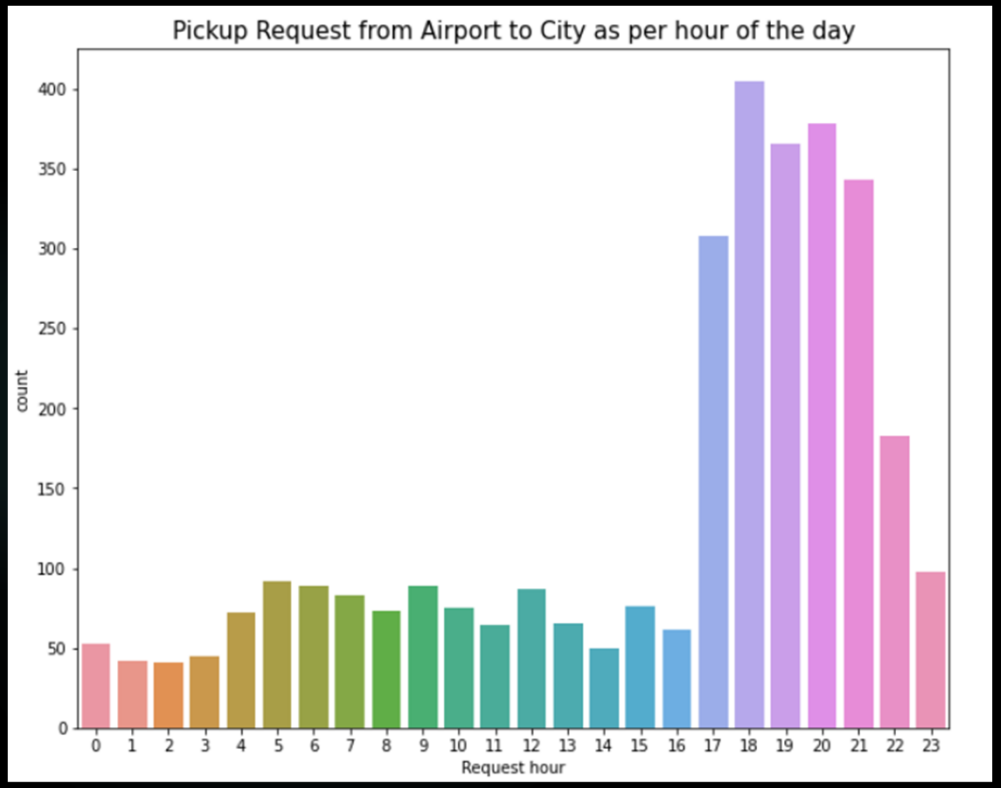
The demand supply gap is mainly between 5am-9am in the morning from city to airport.

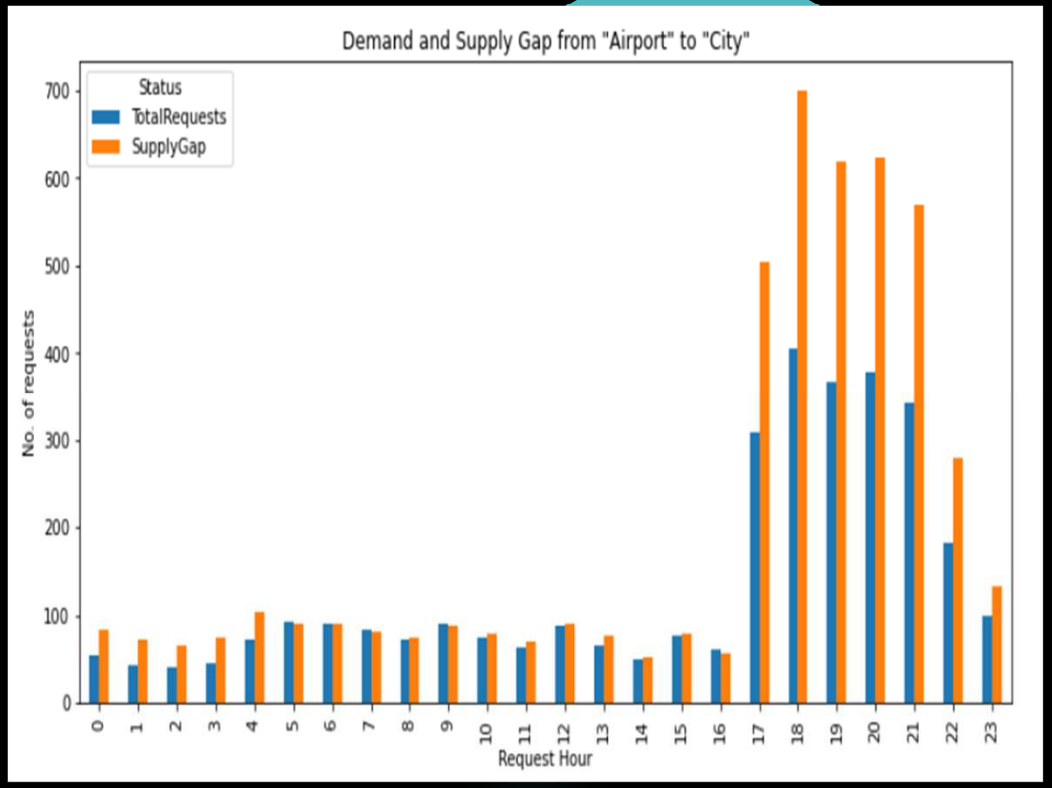




EDA

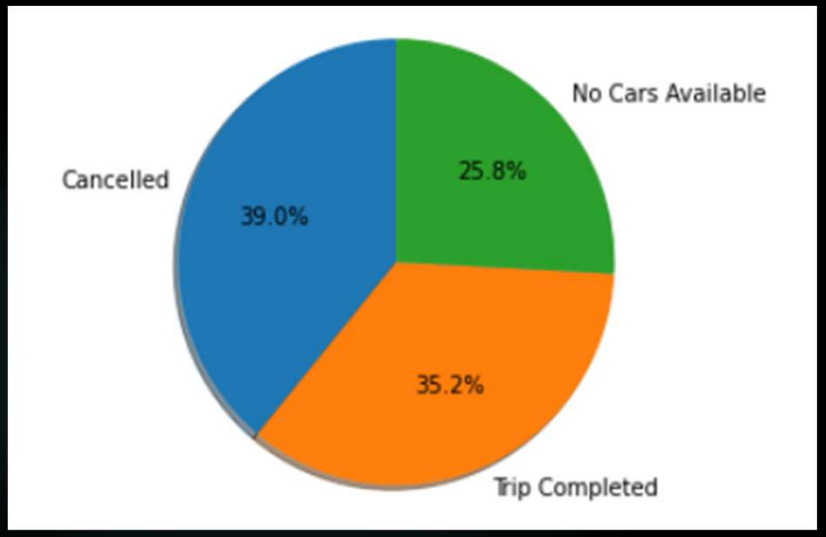
The demand supply gap is mainly between 5pm-9pm in the morning from airport to city.



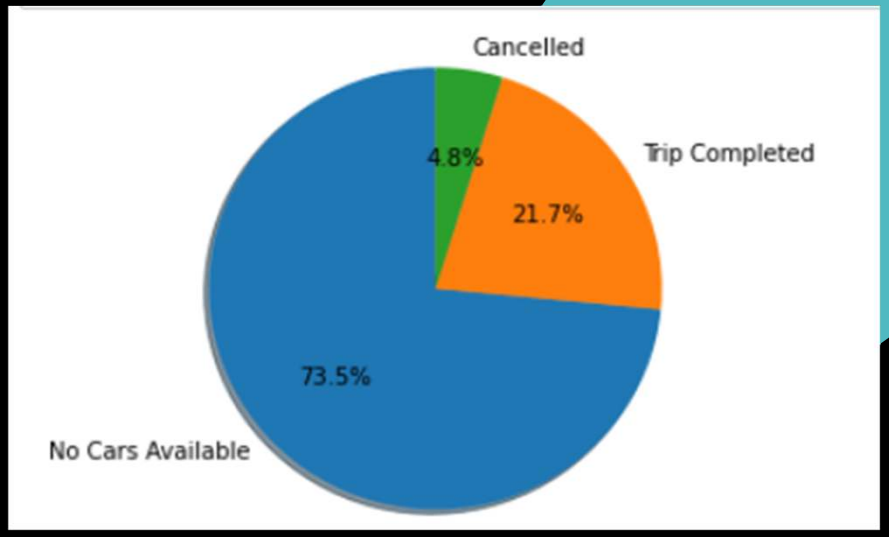


Hypotheses

Only 35.2% trips are completed in the morning while only 21.7% trips are completed in the evening when they are at their rush hours.



Status of trips in Morning where pickup point is City



Status of trips in Evening where pickup point is Airport

Hypotheses

	Airport	City	Overall
Demand	3238	3507	6745
Supply	1327	1504	2831
Supply-Demand	1911	2003	3914
Percentage Gap	40.98	42.88	41.97

Thus, there's a 41% supply demand gap for trips from airport.
A 43% supply demand gap for trips from city.
A 42% supply demand gap for overall trips.

Recommendations

1. Incentives for drivers driving regularly at peak hours.
2. Increase the prices at peak hours to compensate the losses inferred.
3. Special offers provided to encourage customers to travel at non peak hours.
4. Advanced booking feature can be introduced.
5. Penalty and strict actions can be taken against the driver who keeps cancelling.
6. Reward point system can be introduced amongst the drivers driving at peak hours.
7. A ML model can be introduced to predict the quantity of customers present at the airport. This would motivate the drivers to drive often to the airport. Just like customers can see the cars available, the drivers will be able to see the customers available. This can be an independent app too or a feature for the drivers.