SUPPLY AND DEMAND GAP ANALYSIS FOR UBER

Using Power BI

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Aim:

The aim of this project is to conduct a supply and demand gap analysis for Uber, a ride-hailing company, in order to identify the gap between the demand for its services and the supply of drivers. The objective of this project is to provide insights into the factors that contribute to the gap and to make recommendations for reducing it.

Introduction:

Uber is a ride-hailing company that provides transportation services through its mobile app. It was founded in 2009 and has since expanded to more than 700 cities worldwide. Uber's business model relies on the availability of a large number of drivers to meet the demand for its services.

However, there have been instances where the demand has exceeded the supply of drivers, leading to longer wait times and higher prices for customers.

Problem Statement:

The problem statement for this project is to identify the gap between the demand for Uber's services and the supply of drivers, and to provide recommendations for reducing the gap.

Methodology:

The methodology for this project involves the following steps:

1. Data Importing: The dataset of UBER Request Data was collected from Kaggle and loaded to Power BI Desktop.
2. Data cleaning: The data was cleaned and pre-processed by removing or filling appropriate values for the missing values, duplicates and error values, and started working on the data.
3. Data visualization: The was visualized using Power BI Desktop software to identify trends and patterns using different kinds of charts, graphs, cards and table.
4. Data analysis: The data was analysed to identify insights and recommendations.

Visualization and Analysis:

The dataset contains the following columns

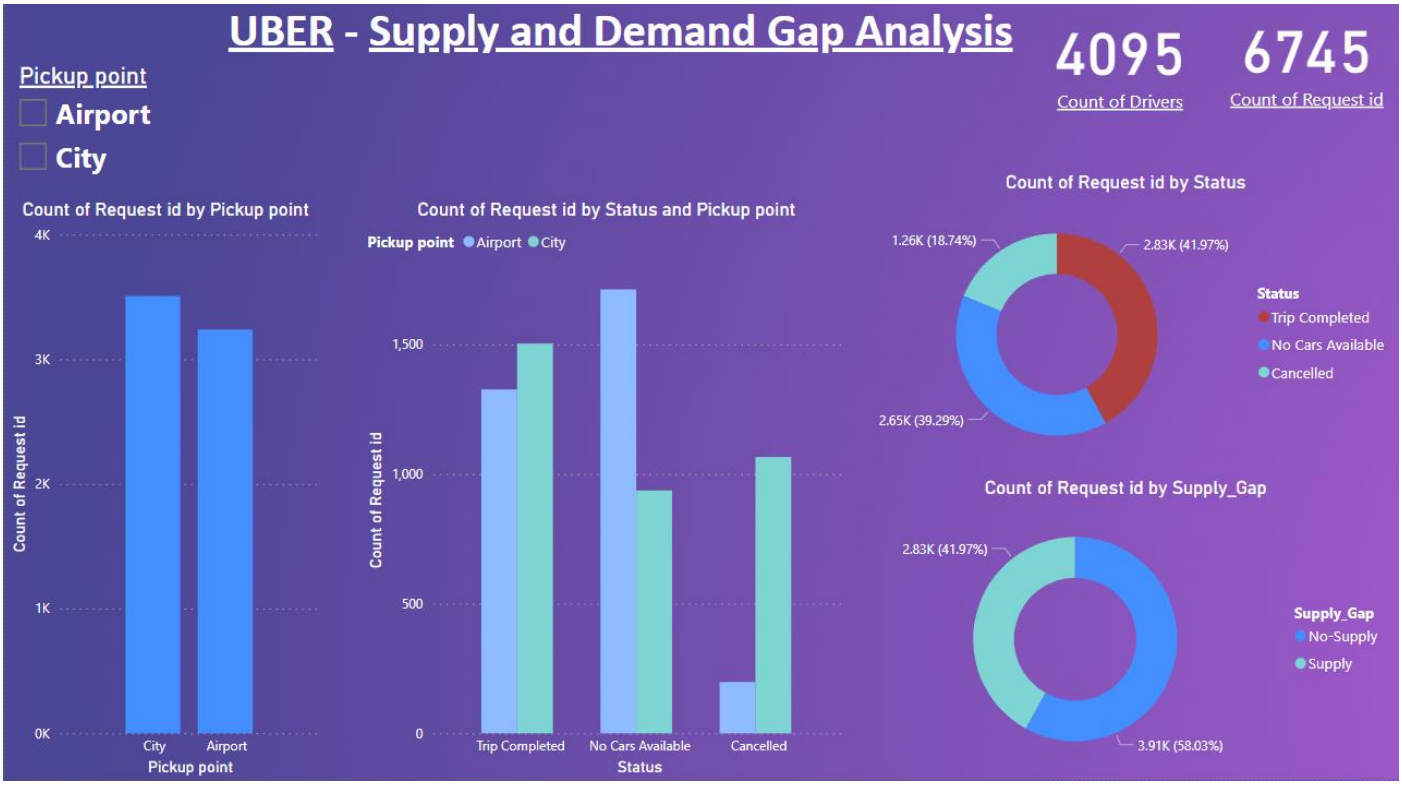
- Request ID - It is a unique ID generated when the customer makes a request for the cab.
- Pickup Point – It is the point of pickup of the customer (airport or city).
- Status – It is the status of the request whether the trip was completed or no cars available or cancelled.
- Driver ID – It is the ID of the driver who got the request if cars were available.
- Request Timestamp – It is the date and time of the request.
- Drop timestamp – It is the date and time of the drop.

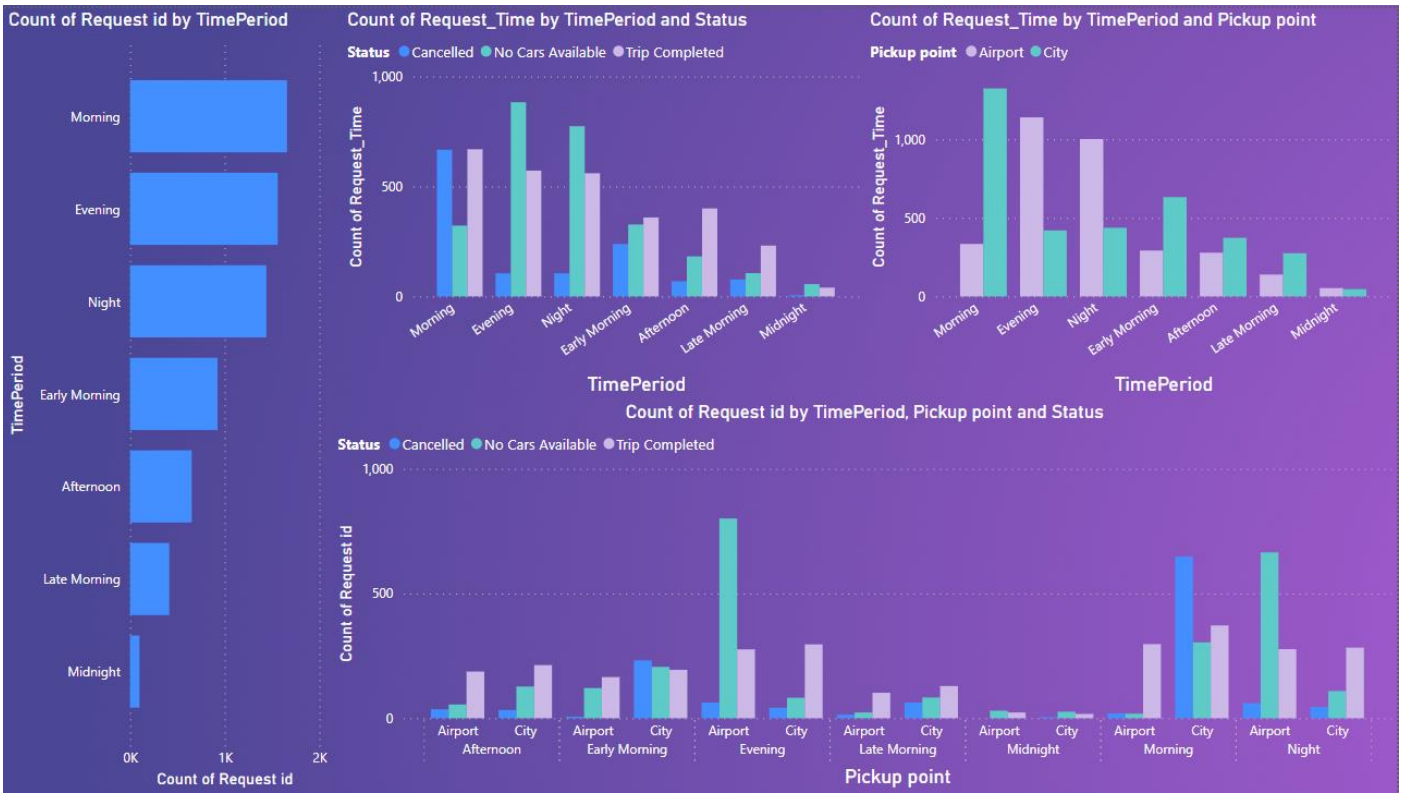
The dataset contains null values in the driver id when there are no cars available and contains null values in the drop timestamp when the trip was cancelled or when no cars are available.

A column of Request time is created, which is the time taken from Request Timestamp for ease of analysis. Another column, Time Period which says at what Time period (Morning, Afternoon, Evening, Night) was the trip request. Another column called Supply Gap was created which shows “successful trips” as “supply” and “no cars available” and “cancelled” trips as “no-supply”.

The Supply and Demand gap analysis for Uber was be analysed using **Power BI**.

1. Below Image is Dashboard of UBER Supply and Demand Gap Analysis with 4095 Drivers and 6745 Requests.



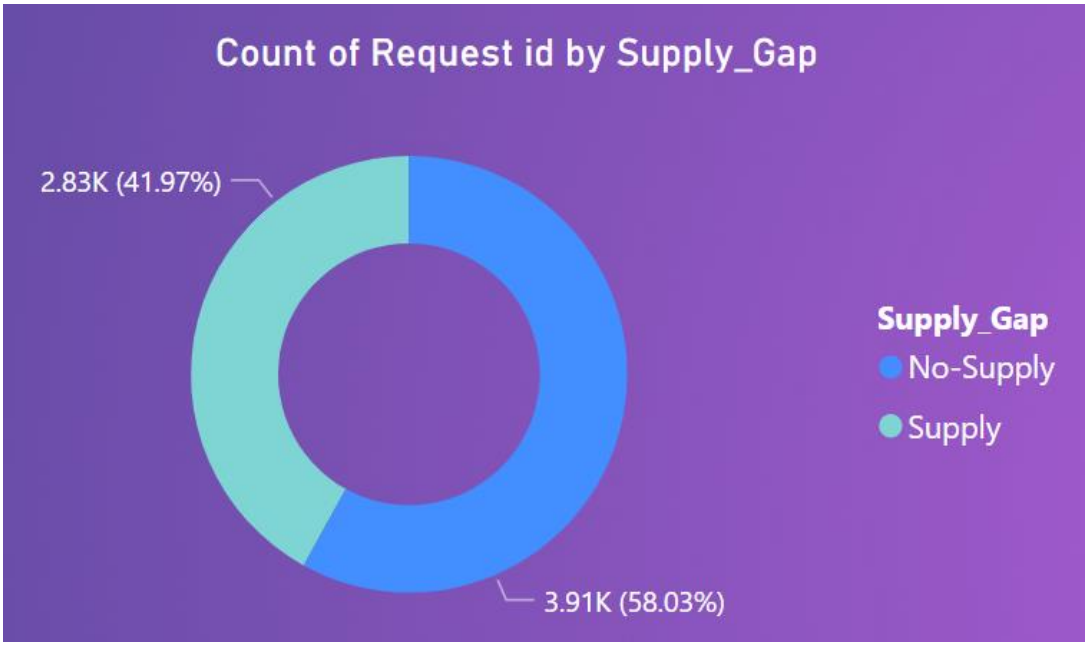


2. Below bar chart shows the Count of Requests made by Pickup point and a clustered bar chart that shows the Count of Requests made by Pickup point and Status.

From the above charts,

- No. of requests made at the city is higher as compared to Airport.
- No. of “No cars Available” is more at the Airport.
- No. of “Cancelled Requests” is more at the city.

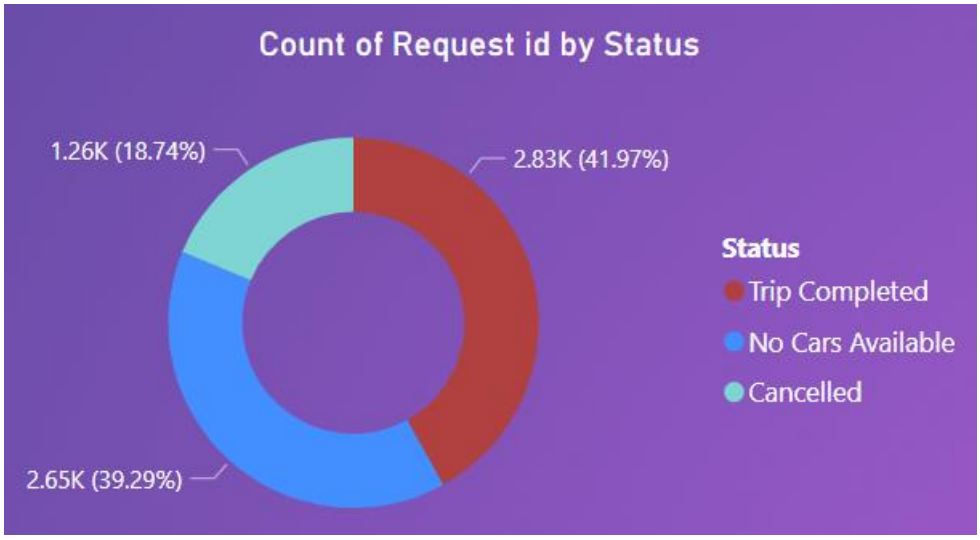
3. Below Donut Chart Shows the Count of Requests made by Supply Gap.



From the above charts,

- Out of 100 Requests UBER has a Capacity to accept only 42 Requests.

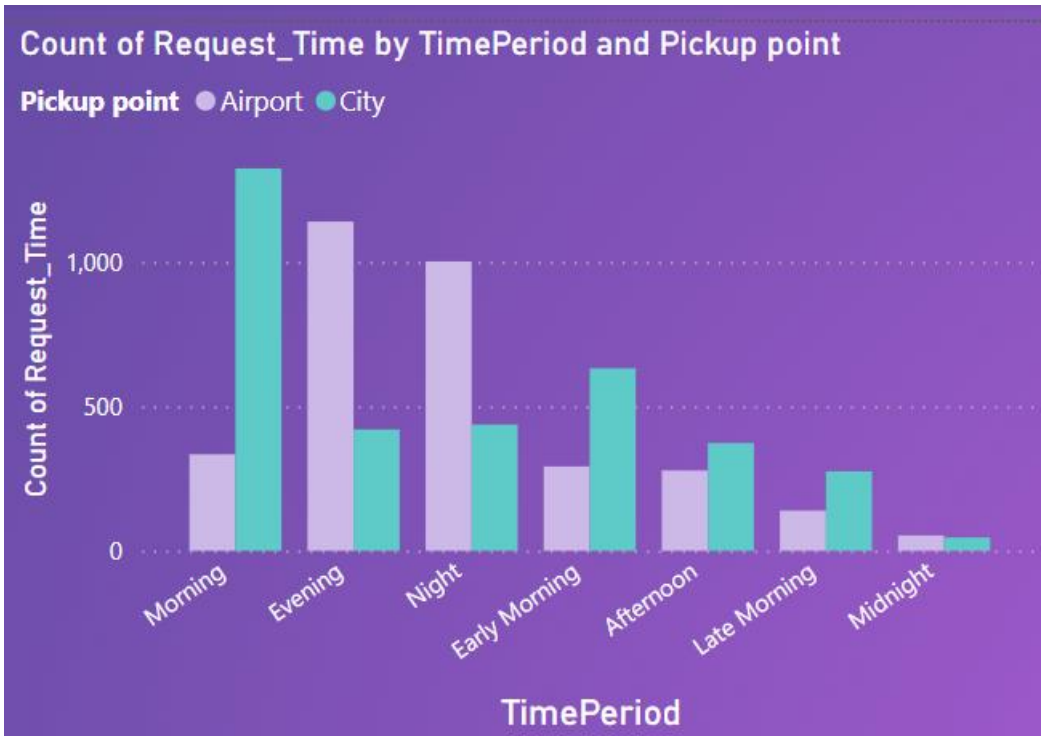
4. Below Donut Chart Shows the Count of Requests made by Status of the trip.



From the above charts,

- Out of 100 Requests, only 42 Complete the trip, 39 Do not find car and 18 Cancelled requests.

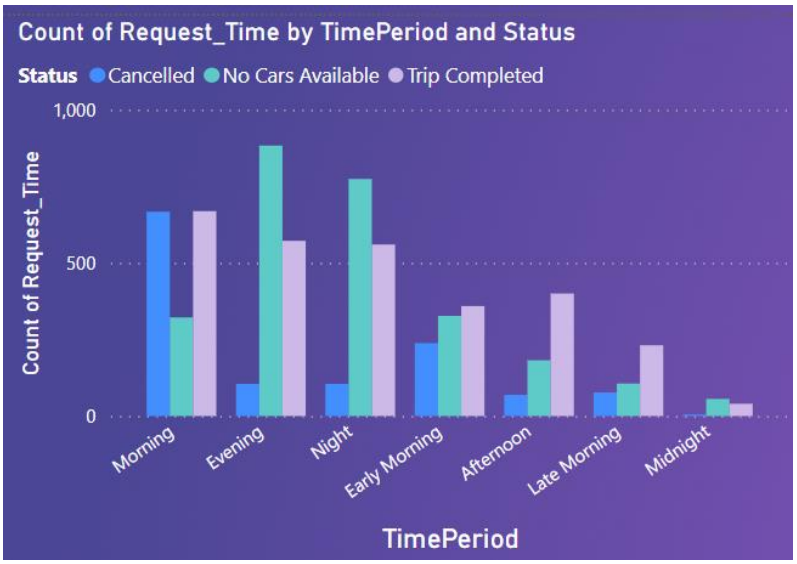
5. Below Clustered Bar Chart Shows the Count of Requests made by Request Time period and Pickup point.



From the above charts,

- The Demand for Cars at the City is max. during the morning.
- The Demand for Cars at the Airport is max. during the Evening and Night.

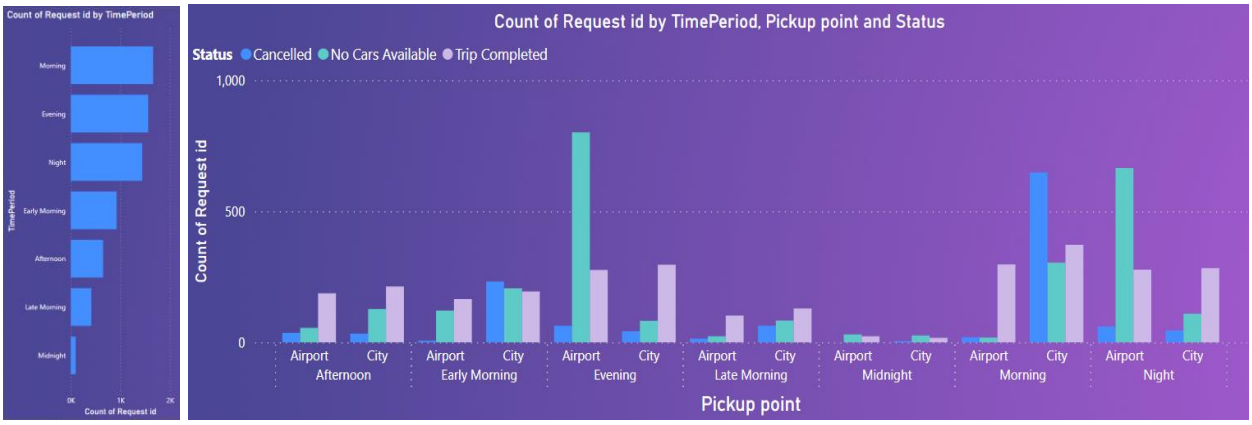
6. Below Clustered Bar Chart Shows the Count of Requests made by Request Time period, and Status.



From the above charts,

- The probability of finding a Car is less during the Evening, Night.
- Max. no. of trips are completed during Morning, Evening, Night.
- The probability of cancelling Car request is high during the Morning.

7. Below Clustered Bar Chart Shows the Count of Requests made by Request Time period, Pickup point and Status.



From the above charts,

- The Demand for Cars are more during Morning, Evening, Night.
- The probability of finding a Car is less during the Evening, Night at the airport and Morning at the city.
- The probability of cancelling Car request is high during the Morning at the city.

Insights:

The Supply and Demand gap Analysis for Uber data provides the following insights:

- There are 2 peaks (Morning and Evening) where there is a max. demand for cars.
- During Morning where the demand for car is high at the city, there are maximum number of trip cancellations which lead to Gap in the Demand & Supply.
- During Evening where the demand for car is high at the Airport, there are maximum number of "No Cars Available" which lead to Gap in the Demand & Supply.

Recommendations:

Based on the insights gained from the Analysis, the following recommendations can be made:

- Increase the no. of cars so that the people find cars.
- Uber should provide higher rewards Peak Morning and Evening so they don't cancel.

Conclusions:

Based on the Supply and Demand gap Analysis for Uber,

The demand during Morning and Afternoon from the Airport to City is low, a driver who completed a trip from City to Airport in the morning should wait a long time to get a ride back to the city, or he must come back without passengers. Uber can provide some incentives to the drivers who complete the trip from city to airport in the morning part. This might result the driver to not cancel the request from city to airport trips. And, Increase the No. of Drivers.