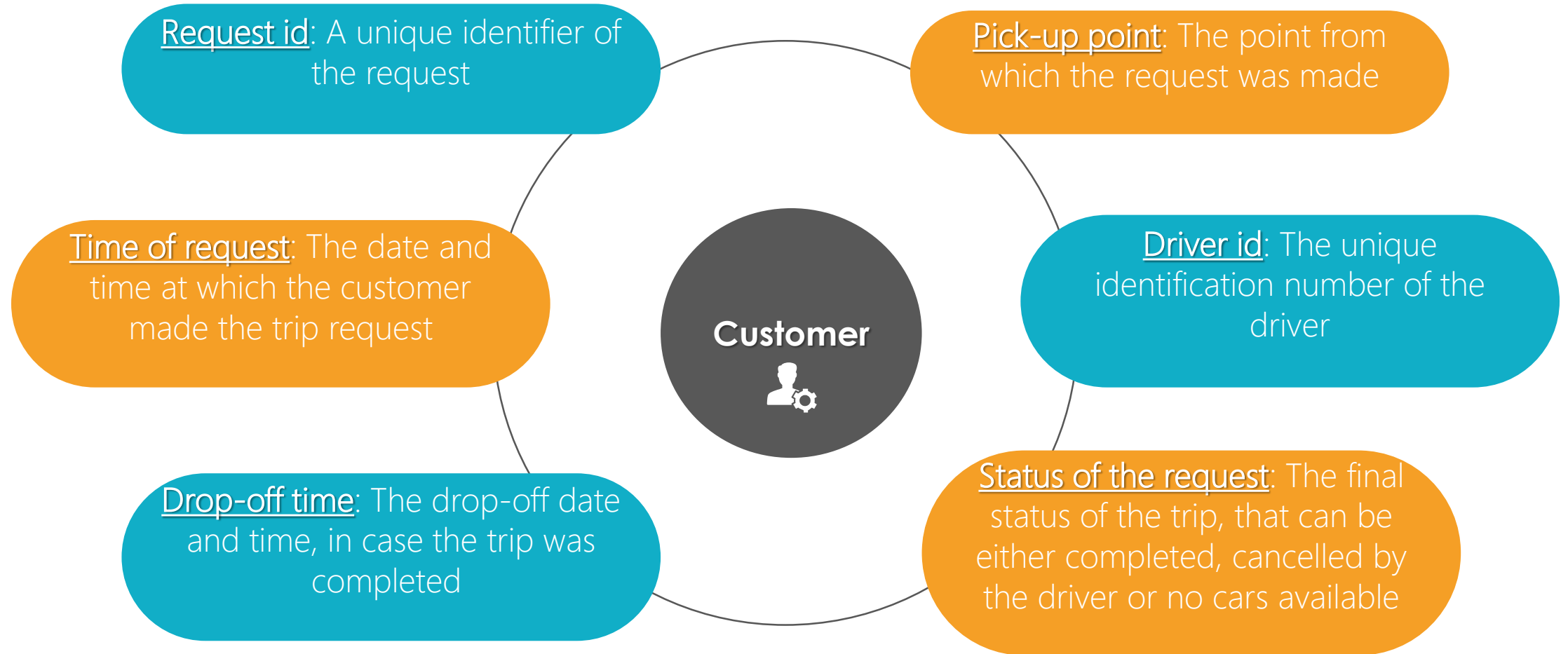




Uber Case Study

Problem Statement

Uber is facing driver-cancellation and non-availability of cars issues due to which it is losing out on its potential revenue. The dataset consists of the following six attributes associated with each customer request.



To analyse this problem only City-to-Airport and Airport-to-City data is being considered.

Analysis : Data Cleaning and Derived Metrics

- Data Cleaning :

The Request and Drop Timestamps were not in the correct format. Hence , they were changed to datetime format so that they are of a uniform format for the ease of observation and calculation. Request id was dropped as it was not important to our analysis.

- Derived Metrics :

Two more columns namely 'New_Date' and 'Request_Time' were created consisting of Customer Request dates and times. Another column called 'Category_Day' was created which consisted of clusters of time into different groups based on Time Of Day.

Analysis : Identifying the most pressing problems for Uber

- Frequency Of Requests :

Irrespective of the pickup points – City or Airport , and Time Of Day , No Cars Available is higher compared to Cancellation of requests.

- Frequency Of Requests based on Pickup point and Time Of Day

- Cancellations :

- a) City to Airport :

The highest is during Early Morning followed by Day , Evening , Afternoon and Late Night . Cancellations are the most pressing problem here , especially during the Day and Early Morning.

- b) Airport to City :

The highest is during Evening followed by Afternoon , Day , Early Morning and Late Night. Cancellations are not the most pressing problem here.

- No Cars Available :

- a) City to Airport :

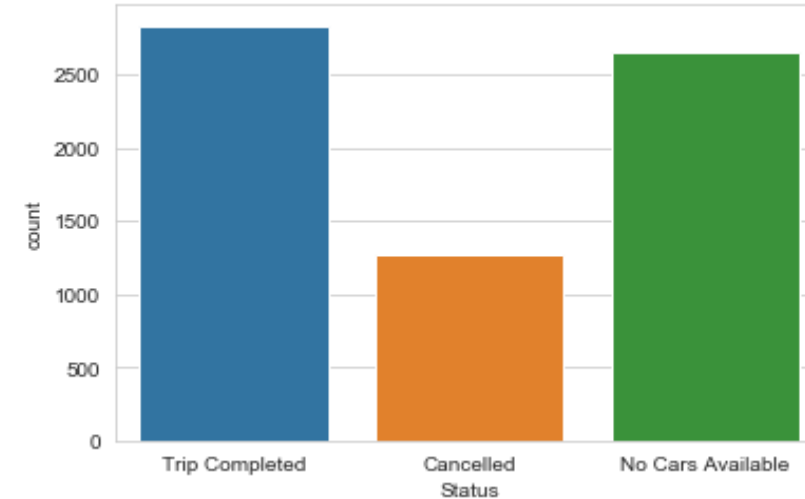
The highest is during Early Morning followed by Day , Afternoon , Late Night and Evening. This problem is also significant here but not as compared to Airport requests.

- b) Airport to City :

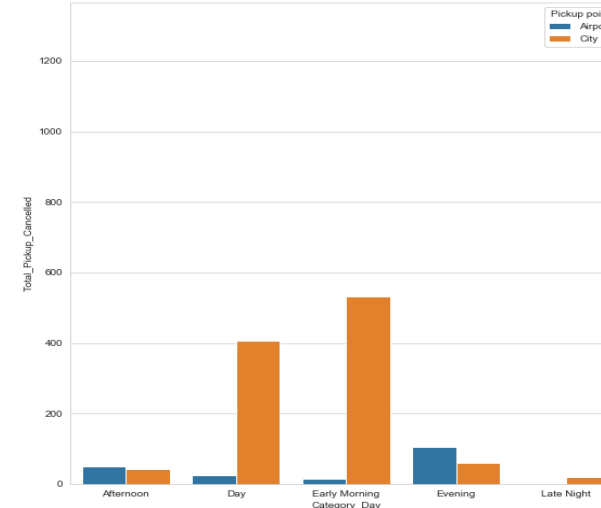
The highest is during Evening followed by Late Night , Early Morning , Afternoon and Day. This is the most pressing problem here , especially during the Evening as compared to other time of the day.

Images corresponding to the Analysis

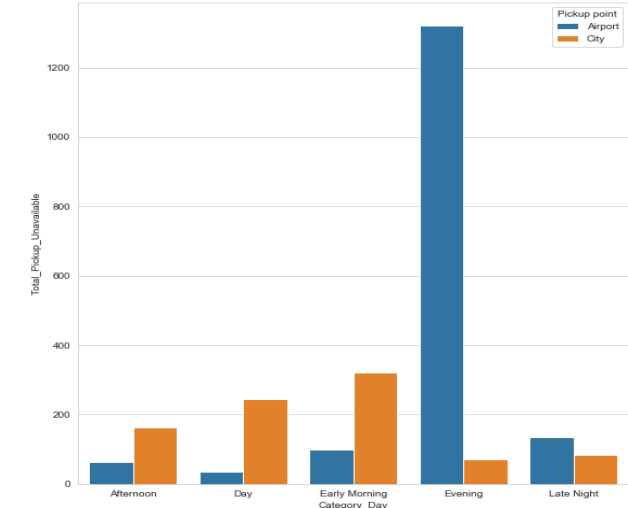
Frequency of Requests Comprising of Trip Completed , Cancelled and No Cars Available



Total Cancellations for Airport and City during different Time Of Day



Total Unavailability for Airport and City during different Time Of Day



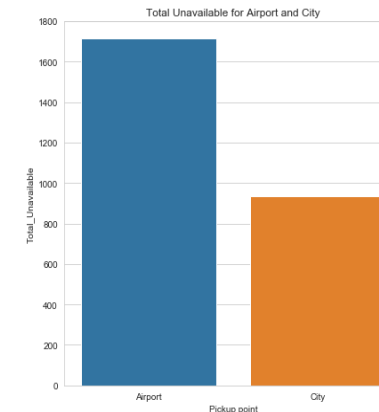
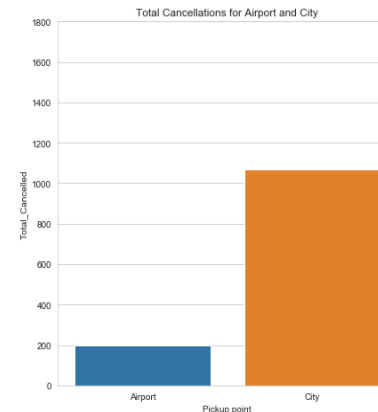
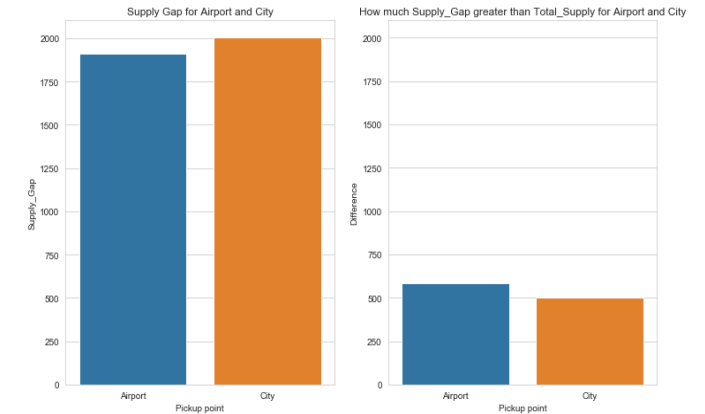
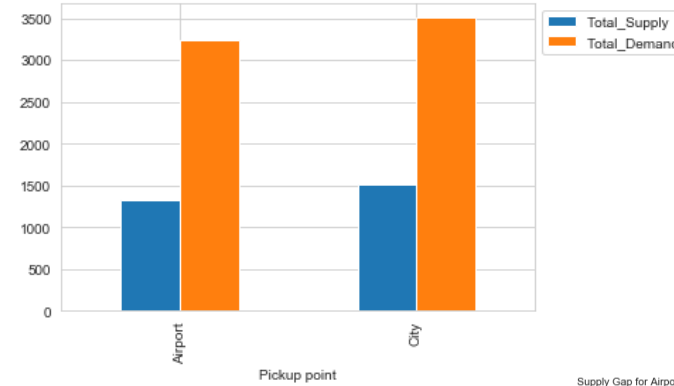
Analysis : Supply and Demand Gap for Uber (Pickup point)

Total Demand , Total Supply and Supply Gap are first calculated irrespective of Pickup point and Time frames.

Total Supply and Demand : Both are higher for City-to-Airport as compared to Airport-to-City.

Supply Gap and Difference : Both are higher for City-to-Airport indicating that although there are high cancellations and No Cars Available issues , there is a high amount of demand that is fulfilled , which is contrary to Airport-to-City where both are low , implying that most demands are not met.

Total Cancellations and Unavailability : The main contributors of the Supply Gap for City was mostly Cancellations followed by a significant amount of Non-Availability. For Airport, the main contributor to Supply Gap was Non-Availability(hence justifying that most demands are not met as stated above) as compared to Cancellations which is not of a concern here.

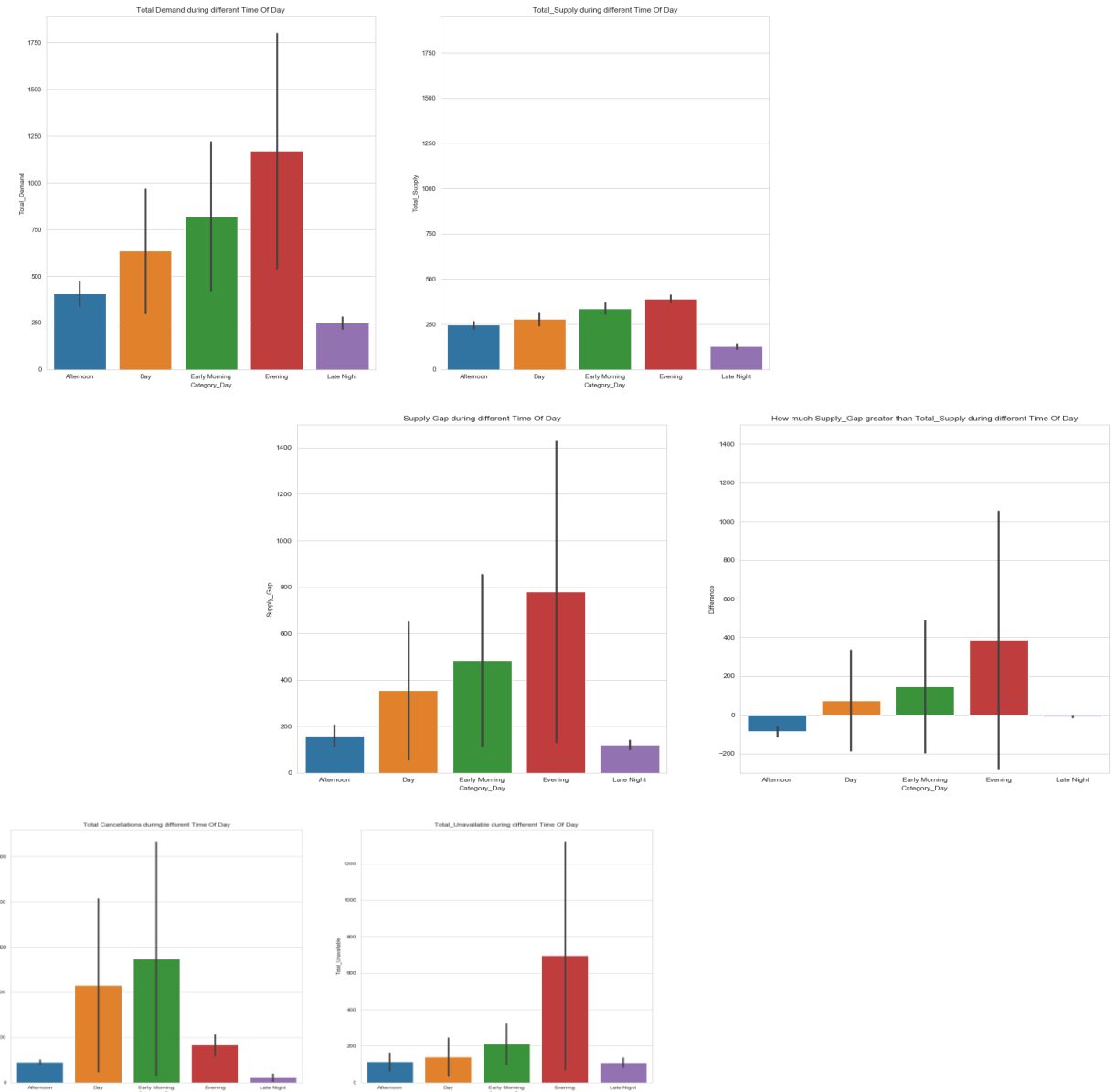


Analysis: Total Supply and Demand Gap for Uber (Time Of Day)

Total Supply and Demand : During the Evening(from 5 P.M. to 9 P.M.) both Supply and Demand are the highest , irrespective of Pickup point , with Demand significantly greater than Supply.

Supply Gap and Difference : During Evening Supply Gap and Difference is highest implying that Demand is highest during this time which is not met. Interestingly , for Afternoon(12 Noon to 5 P.M.) and Late Night(9 P.M. to 12 P.M) , Difference is Negative indicating that most demands are fulfilled during this time frame. During Day and Early Morning , although Difference is less , can't rule it out.

Total Cancellations and Non-Availability: Total Cancellations is highest during Early Morning and Total Non-Availability is highest for Evening , with Total Non-Availability for Evening dominating the Cancellations during Early Morning.

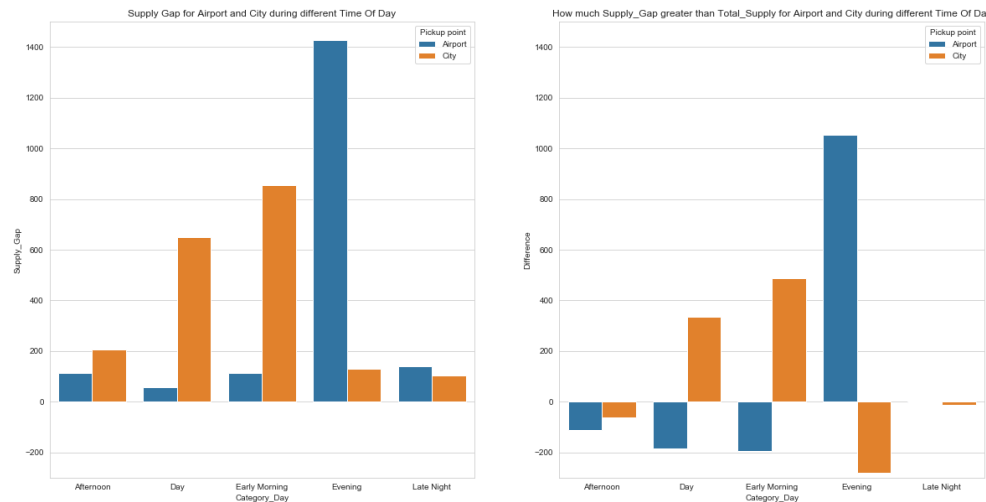


Analysis : Supply and Demand Gap for Uber (Time Of Day and Pickup point)

For the Airport , the Supply Gap is the highest during the Evening and for the City , the Supply Gap is the highest during Early Morning followed by Day.

The Difference is also the highest during Evening for Airport , thereby indicating that most of the demands are not met during these hours. For City , the Difference is the highest during Early Morning followed by Day.

Airport's Supply Gap and Difference dominates the City's Supply Gap and Difference.



Recommendations :

For City the high Supply Gap is mainly due to Cancellations during the Early Morning hours(1 A.M. to 8 A.M.) . This is due to high idle hours of the drivers at the Airport due to very low demand . For this , if the revenue of the drivers are increased during that time which will cover the missed out revenue of the drivers due to long idle hours.

The high Supply Gap for the Airport is mainly due to Non-Availability of Cars during Evening(5 P.M. to 9 P.M.). This is due to lack of Supply inspite of high demand . For this , City pockets close to Airport should be located and availability of cars be increased during that time in those locations as well as Airport.

