ASSIGNMENT

UBER SUPPLY-DEMAND GAP ANALYSIS

Submitted By:

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Addressing problems leading to loss of revenue to UBER

Driver cancellation & Non-Availability of cars

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.

Data Preparation Process

Loaded the Data Set and performed below steps:

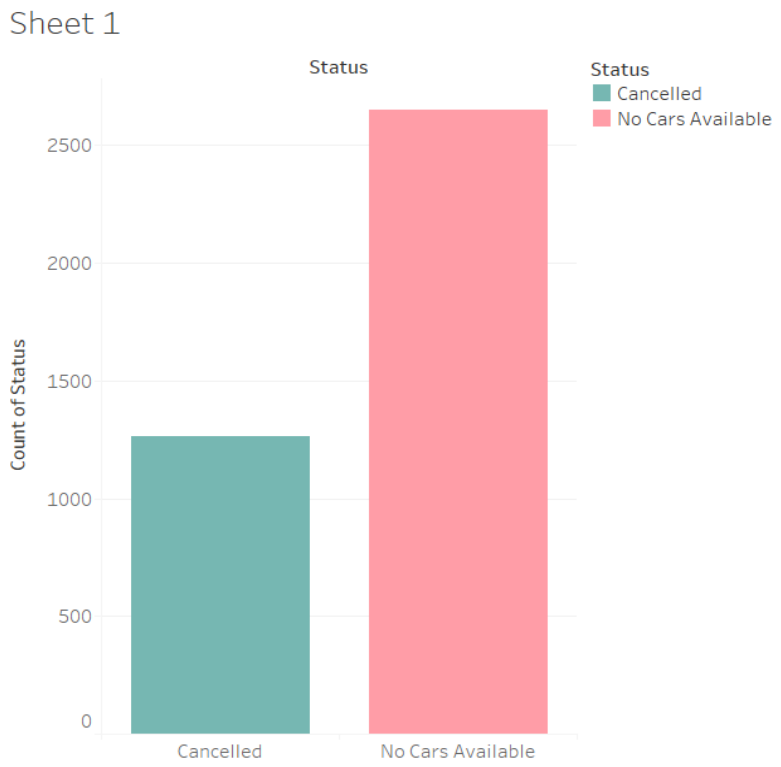
- Dropped 'Driver id' and 'Drop timestamp' columns as they have no importance related to our analysis .
  - 'Driver id' has 2650 NaN values
  - ‘Drop timestamp' has 3914 NaN values

- 'Request timestamp' has object type format, which was converted to datetime data type.
- Created column ‘Request_TimeSlot’ making 4 slots of 6 hours each i.e 'Early Morning', 'Morning', 'Afternoon', & 'Late Evening‘.
- Created column ‘Day of Week’ which stores the weekday.

Analysis

More pressing problem for Uber - Cancelled Rides or Car Not Available

A bar plot showing the difference clearly between the two issues

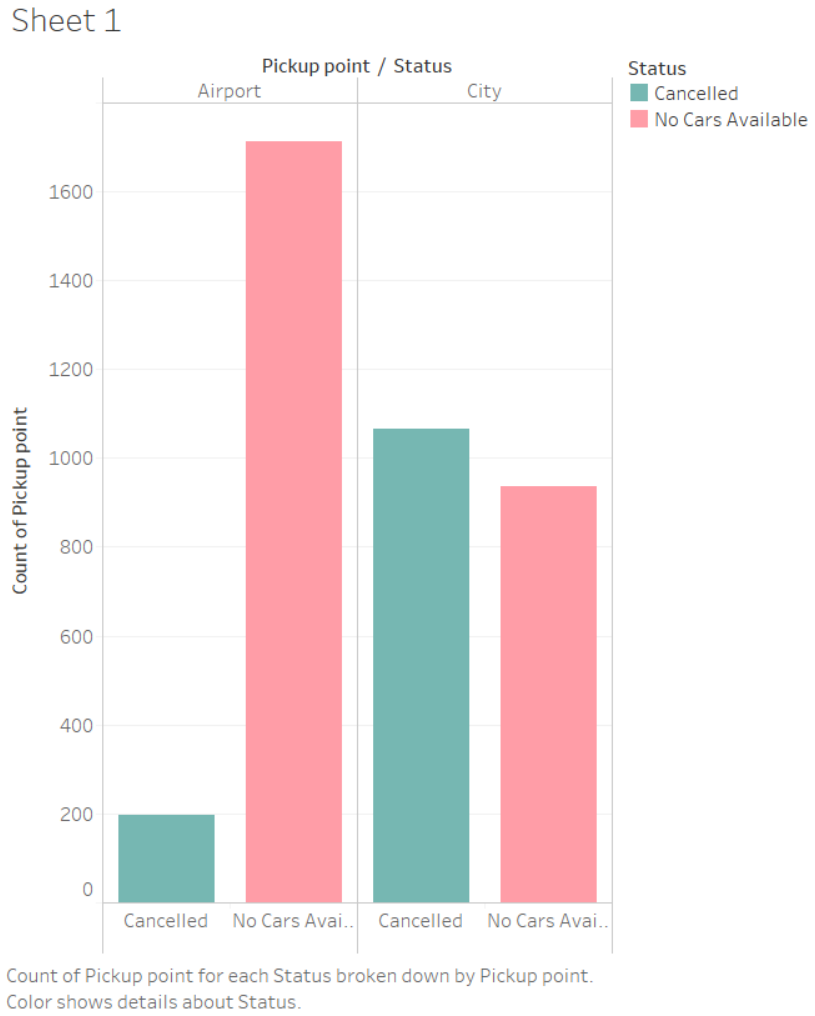


- This shows that frequency of “No Cars Available” is much higher that “Cancelled” booking requests.
- Therefore, Uber should work on making more cars available.

Analysis

More pressing problem for Uber - Cancelled Rides or Car Not Available

Plot that shows frequency of cancelled and no cars available with respect to pickup point



- This shows that frequency of “No Cars Available” is much higher when a request originates at the airport
- It also shows that frequency of “Cancelled” is much higher when a request originates at the city
- It means that drivers are not willing to drive from city to airport maybe because of traffic conditions or because they are not able to get requests when they are waiting on the airport.

Analysis

More pressing problem for Uber - Cancelled Rides or Car Not Available

Bar plot to differentiate the unfulfilled rides based on Pickup Point and duration of the Day

- This plot shows that the frequency of Cancelled requests is much more when the pickup is from City in the morning hours. Also, during the morning hours, No Cars available from city to airport is also higher then the rest of the day.
- The second plot is for Airport-City and it shows that during late evening hours the frequency of No Car Available is higher.

Analysis

More pressing problem for Uber - Cancelled Rides or Car Not Available

Bar plot to differentiate the unfulfilled rides based on Pickup Point and hour of the Day

Analysis

More pressing problem for Uber - Cancelled Rides or Car Not Available

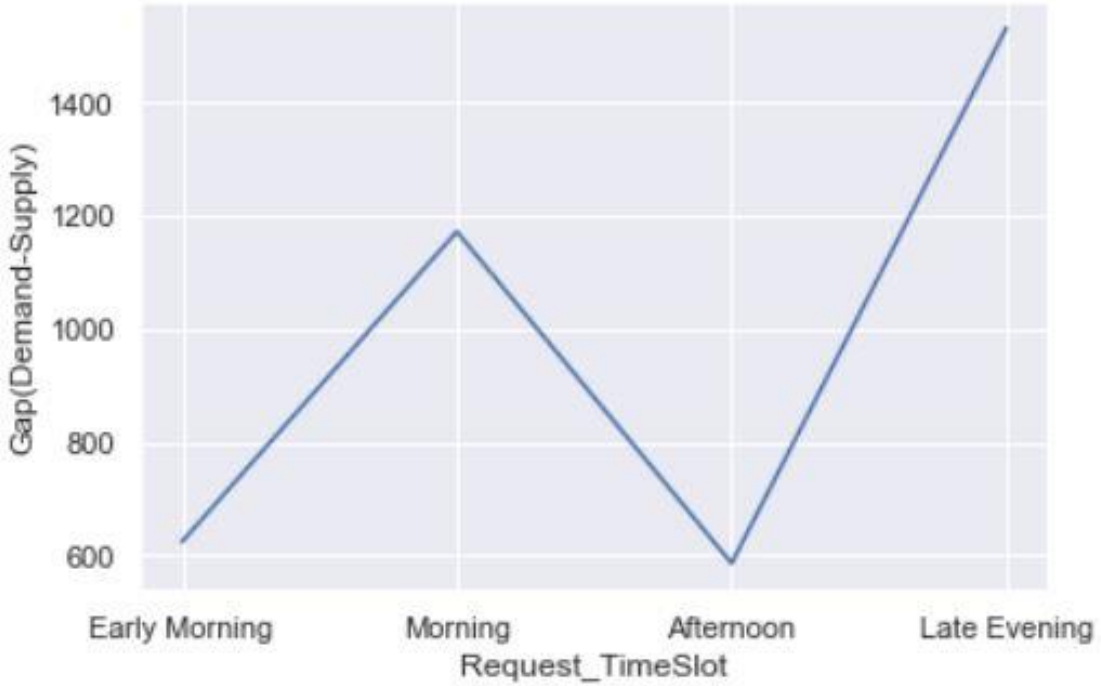
- “No cars available” during 16:00 to 22:00 at airport can be due to high number of demand than usual hours because of multiple flights coming in at evening hours.
- “No cars available” during 16:00 to 22:00 at airport can also be due to drivers unwilling to go far-off locations at night. So they turn their incoming request off near airport area.

- “Cancelled” during 06:00 to 13:00 at airport can be due to drivers unwilling to go to airport because they might not be getting a trip back during day time. Maybe this is due to lesser number of incoming flights during these hours.
- “Cancelled” during 06:00 to 13:00 at airport can be due to drivers unwilling to go on a long ride to airport. Rather they prefer to complete multiple short rides in that duration.

Analysis

Gap between demand and supply for Uber

Plot that shows gap in supply and demand with respect to timeslots/hours

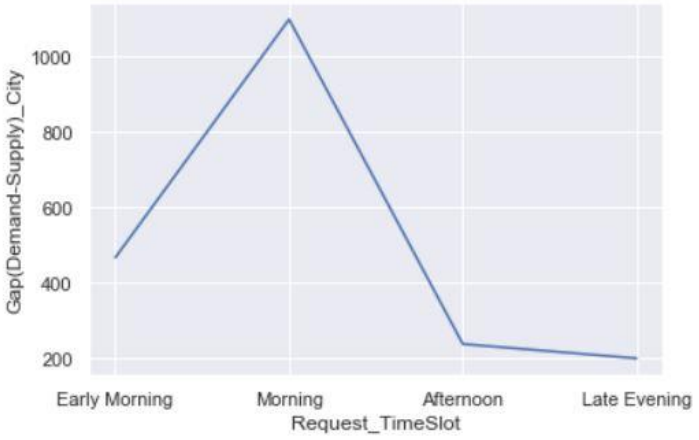


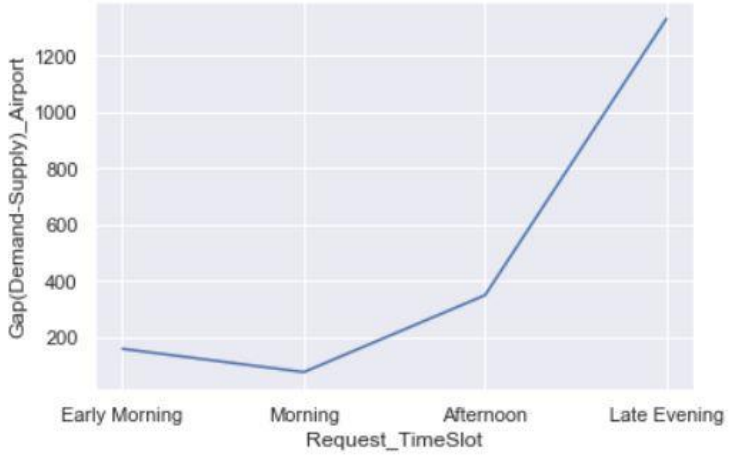
- This line plot shows that gap between the Demand and Supply is highest during the late Evening hours and keeps on increasing until midnight.
- Also, there is another high at Morning hours as well which reduces till the afternoon.

Analysis

Gap between demand and supply for Uber

Plot that shows gap in supply and demand with respect to pickup point & timeslots/hours



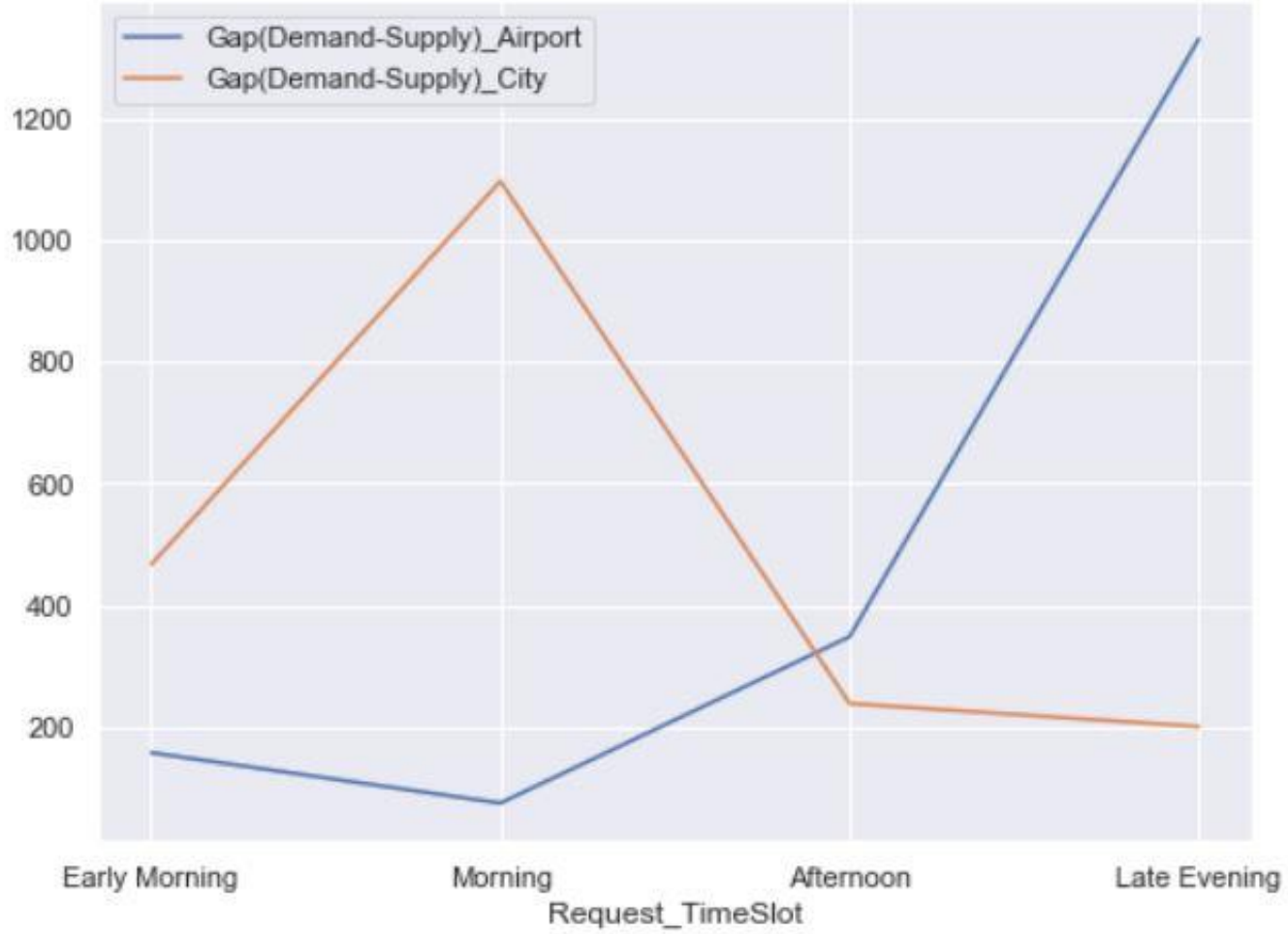


- This shows that gap is higher during morning hours when request is from city
- This shows that gap is higher during late hours when request is from airport

Analysis

Gap between demand and supply for Uber

Plot showing the difference between the Gap in Supply - Demand From Airport and from City



Analysis

Gap In demand and supply for Uber

- The Gap in Demand-Supply at the morning hours for City-Airport trips indicates that the drivers are not willing to take this ride during morning hours. Generally the trip to airport is long and if they do not get a request while they return, they see it as a loss.

- The Gap in Demand-Supply at the late evening hours for Airport-City means that there are less driver available near the airport during the evening hours or less drivers who are willing to go anywhere in the city. These rides could be far from the places where they actually intend to go towards.

Recommendation

Ways to resolve supply-demand gap

- Drivers can be incentivized for picking up requests from airport at night so that availability of cars can be improved there.
- For “Cancelled” trips from city, drivers can be given some penalty for cancelling without giving any valid reason.

~ Thank You ~