Uber Supply Demand Gap Assignment

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Data Exploration

- There are six attributes associated with each request made by a customer:

1. Request id: A unique identifier of the request

2.Time of request: The date and time at which the customer made the trip request

3.Drop-off time: The drop-off date and time, in case the trip was completed

4.Pick-up point: The point from which the request was made

5.Driver id: The unique identification number of the driver

6.Status of the request: The final status of the trip, that can be either completed, cancelled by the driver or no cars available

- There are 6745 such requests

Data Cleaning and Manipulation

- In order to do analysis the data must be clean.
- To clean the data the following steps must be taken:

➢Rename the columns of the data frame properly

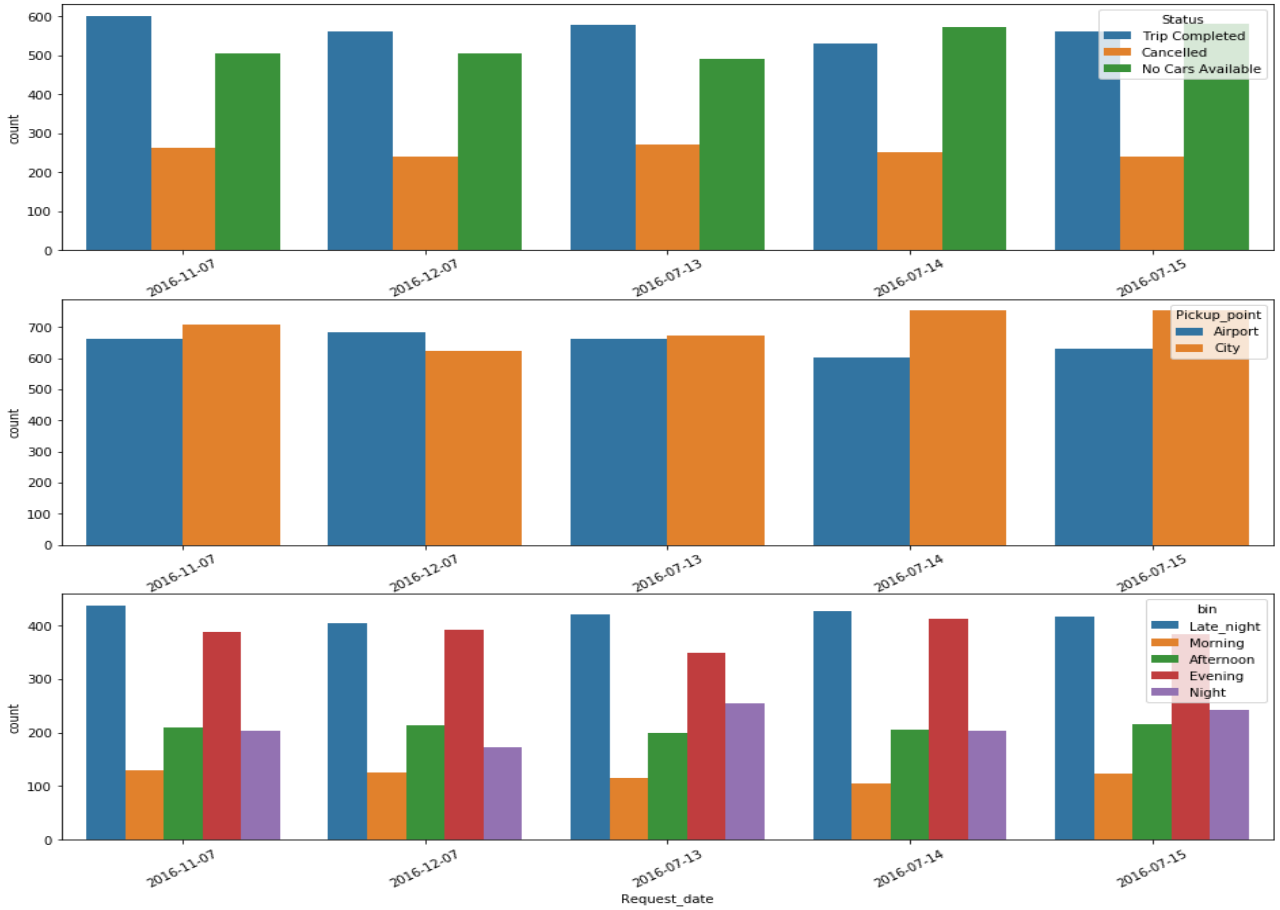
➢Find the attribute that is unique The number of unique attribute should be equivalent to the number of rows in the dataset.

➢Fill in the unnecessary missing values.

➢Change the type of Request timestamp and Drop timestamp

Analysing Trends For Each Day

- For given data, convert the Request timestamp into str format and split it on " " into Request_date and Request_time.
- Perform a group_by on Request_date and analyze the data.
- Visualise the data
- We see that data is given for the dates- 7-11-2016 , 7-12-2016 , 13-7-2016, 14-7-2016 , 15-7-2016.
- We see that majority of the requests are made on 15th of July.
- Let us see day by day-



Analysing Trends For Each Day

- 15-7-2016(1381 requests)
  - for 561 number of requests the trip was completed
  - for 580 number of requests there were no cars available(which is not an appreciable scenario)
  - and 240 number of requests were cancelled
- 7-11-2016(1367 requests)
  - for 601 number of requests the trip was completed
  - for 504 number of requests there were no cars available
  - and 262 number of requests were cancelled
- 14-7-2016(1353 requests)
  - for 530 number of requests the trip was completed

Analysing Trends For Each Day

- for 571 number of requests there were no cars available(which is again not appreciable)
- and 262 number of requests were cancelled

❑ 13-7-2016(1337 requests)

- for 577 number of requests the trip was completed
- for 490 number of requests there were no cars available
- and 270 number of requests were cancelled

❑ 7-12-2016(1307 requests)

- for 562 number of requests the trip was completed
- for 505 number of requests there were no cars available
- and 240 number of requests were cancelled

Combining Data For All Days

- When we look at the data as a whole

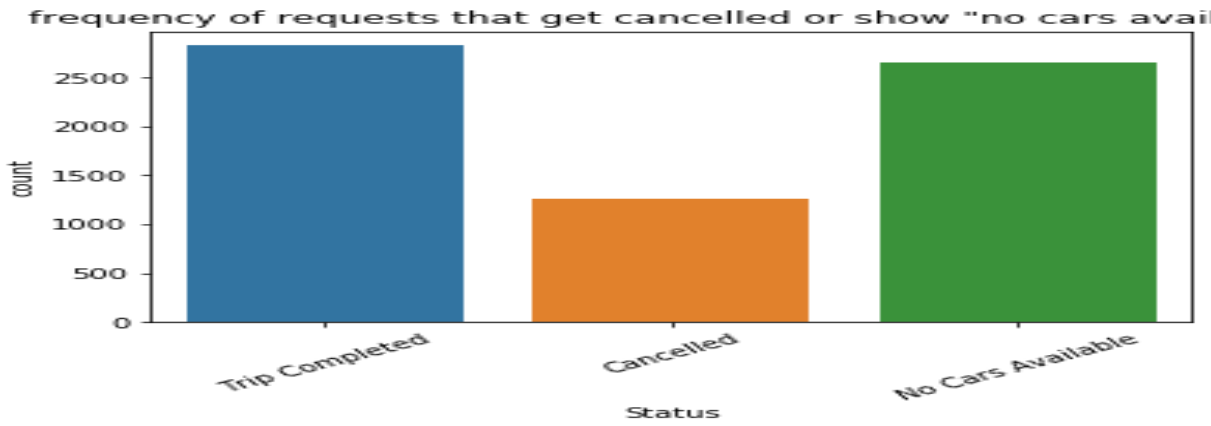
the following points can be seen.

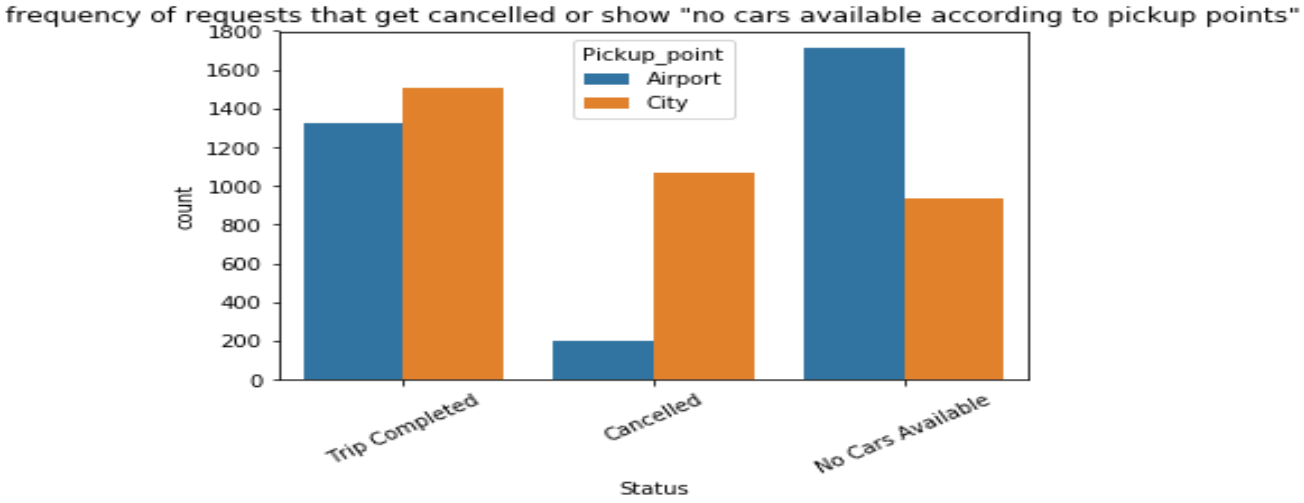
❖ for 2831 number of requests the trip was completed , 1327 from airport to city and 1504 from city to airport.

❖For 2650 number of requests there were no cars available

❖And 1264 number of requests were cancelled , 198 from airport to city and 1066 from city to airport.

- We can see that not many drivers are willing to go to airport and there are not many cars available at airport.



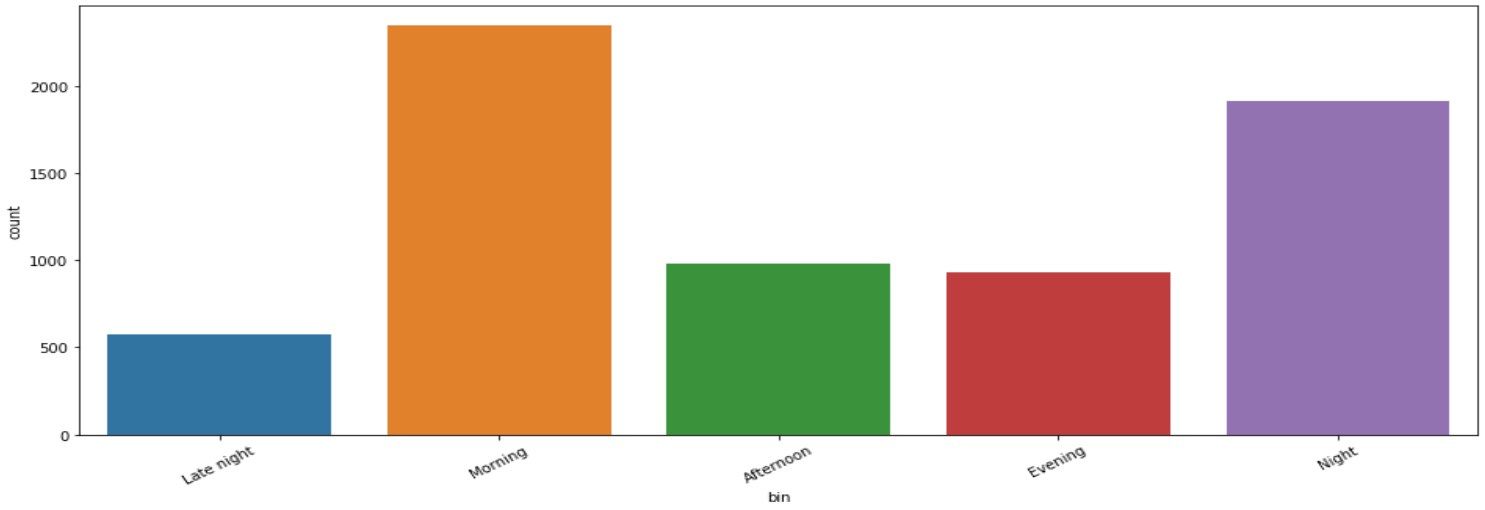


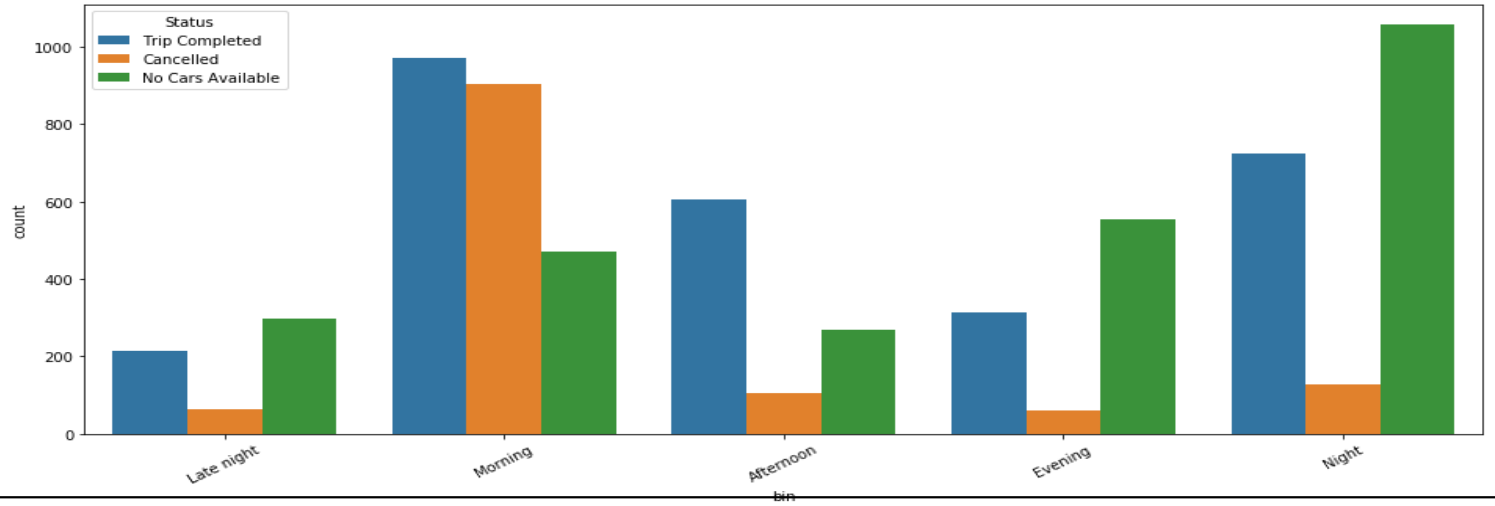
Binning Time Into 5 Categories

- Now divide the Requests according to the day times
- bins = [0, 5, 11, 17, 19, 24]
- labels = ['Late night’ , 'Morning’ , 'Afternoon’ , 'Evening’ , 'Night']
- 1.Morning(5 am -11am)
- 2.Afternoon(11 am – 5 pm)
- 3.Evening (5 pm – 7 pm)
- 4.Night (7 pm – 12 am)
- 5.Late night (12 am – 4 am)

Problem Identification – Morning and Evening

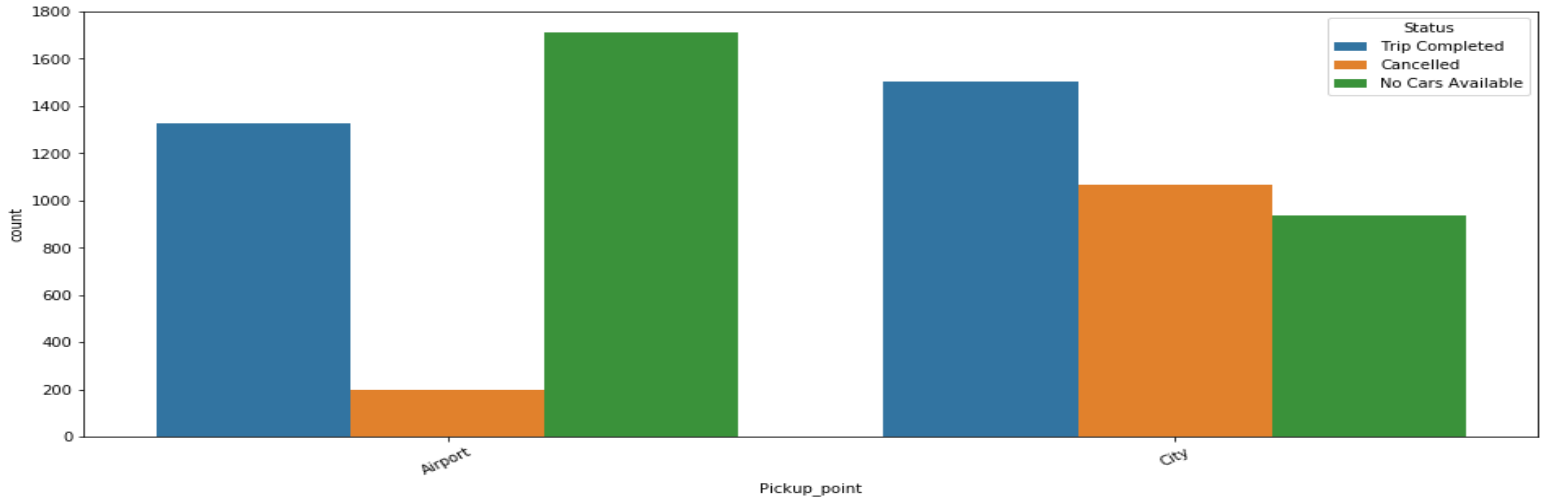
- We now know that most of the requests have been made in the morning.
- However we also see that for more number of requests the response is that there are ’no cars available’ in later half of the day starting from sunrise i.e., from 5 pm to 4 am.

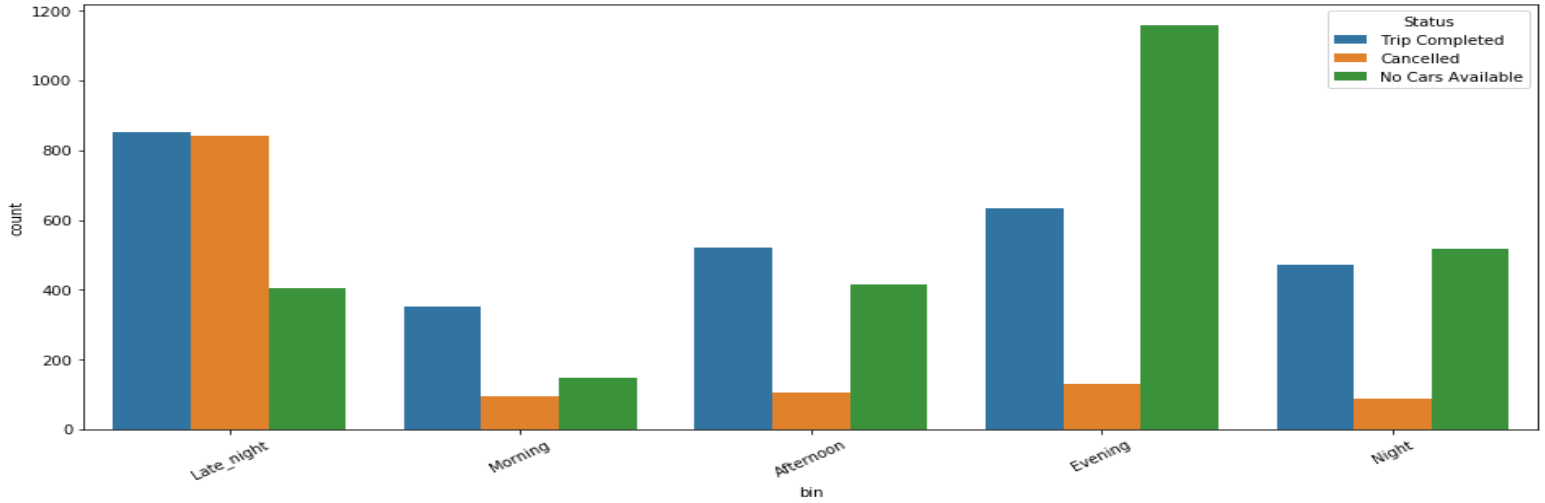




Problem 1 - Cancelled trips

- The majority of requests are cancelled from city to airport for they have to wait for customers who would book the car to go back to the city.
- The majority of requests are cancelled from 12 am to 4 am.





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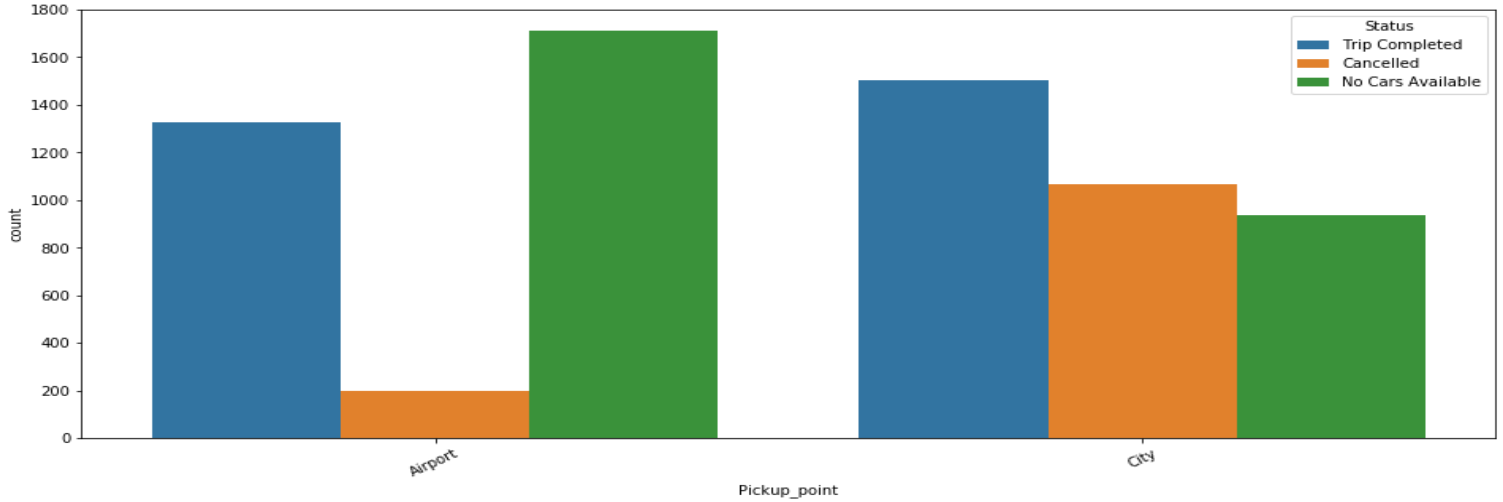
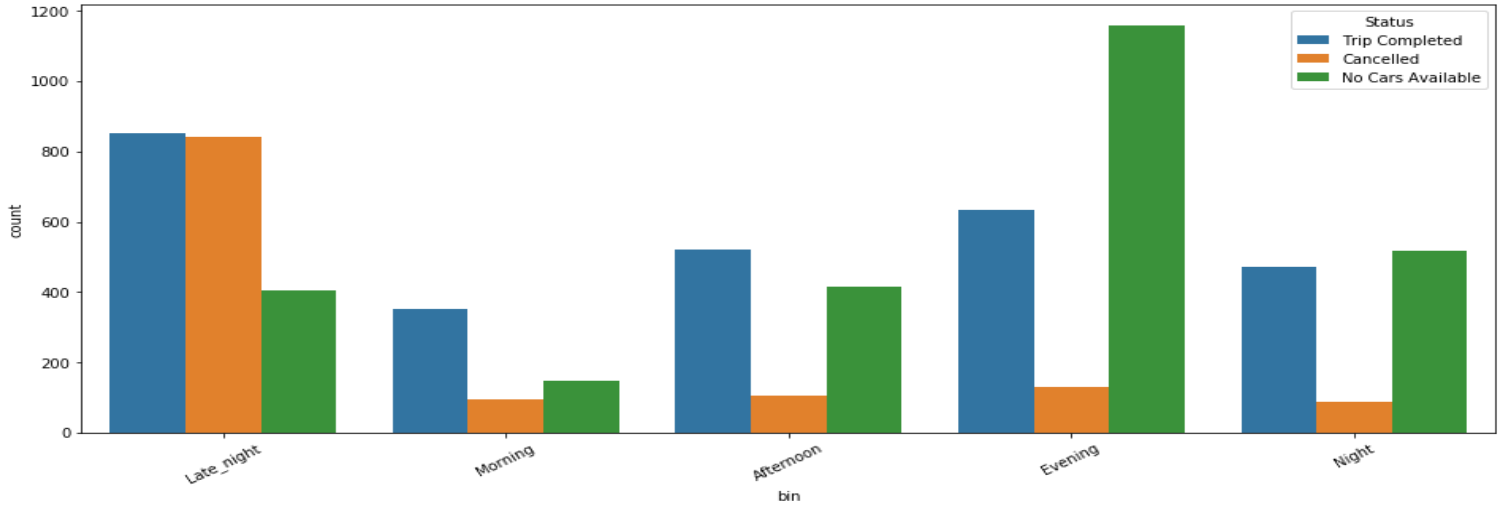
Problem 2 - No Cars Available

- For majority of requests from airport to city the response is ‘no cars available’ as not many are willing to wait for the customers to go back to the city.





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Recommendations

- We know that the above two issues also impact the business of Uber.
- The following steps can be taken to improve the above situation :

✓ Collaborate with other uber drivers for a certain percentage of drivers to make a trip to the airport at a particular time of the day.

✓ Instead of cancelling the request refer to the other driver whose turn it is to make the trip.

✓ Introduce the credit system: In a particular day the driver with less number of cancellations are more likely to get the credits and will get an increase .

✓ The percentage can increase according to the occasions for eg during festivals , summer , winter when people are more likely to travel.