

Uber Supply-Demand Gap

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Problem Statement :

- Identify the root cause of the cancellation and non-availability of Uber cars .
- Recommend ways to improve the situation

Data Points Available:

1. Request.id
2. Pickup.point
3. Driver.id
4. Status
5. Request.timestamp
6. Drop.timestamp

Area of Analysis:

Based on the problem statement following data points are considered for analysis:

- Pickup point
- Status of the trip
- DriverID
- Request Time Stamp

Data Cleaning :

As part of data cleaning activity following checks were carried out :

1. Duplicate entries

Result- There were no duplicate records in the data set provided.

2. Checking NAs values

Result: There were NAs value only in the columns Driver.id and Drop.timestamp. On investigating it was found that all NAs are as per the business rule. i.e. Driver.id was NA for the “no cars available “ status and Drop.timestamp was NA for the “cancelled” and “no cars available” status.

Data Preparation Steps

Following Steps were followed :

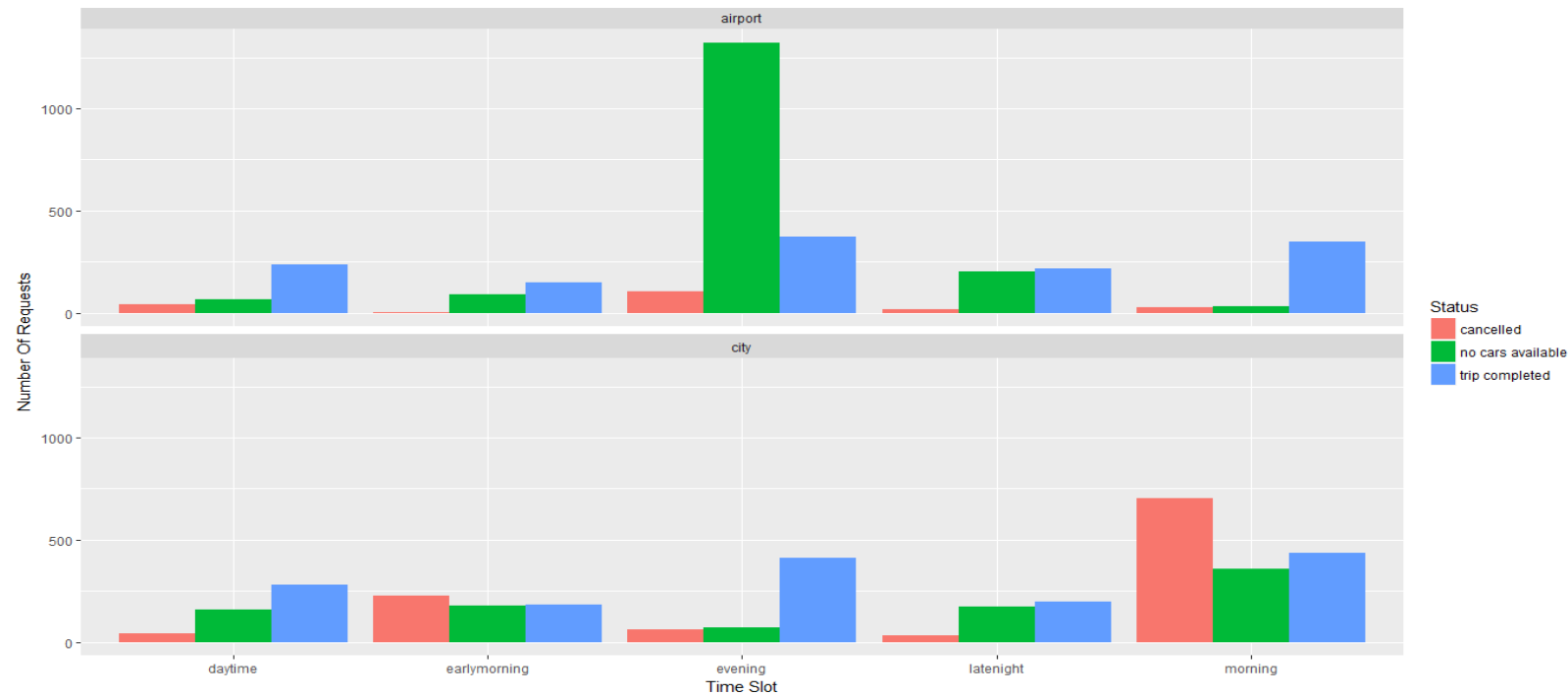
1. Converting all the characters variable to uniform case-(lower case).
2. Converting all the date fields to uniform date time format.
3. Extracting the day of the week from request time field.
4. Extracting request hour, drop hour and the trip duration(trip completed).
5. Binning the entire day in 5 bins

Time	Category
2 AM - 6 AM	Early Morning
6 AM – 11 AM	Morning
11 AM- 4PM	Daytime
4PM- 11 PM	Evening
11 PM- 2 AM	Late night

Request Status Breakdown based on the Pick up point and Time Slot

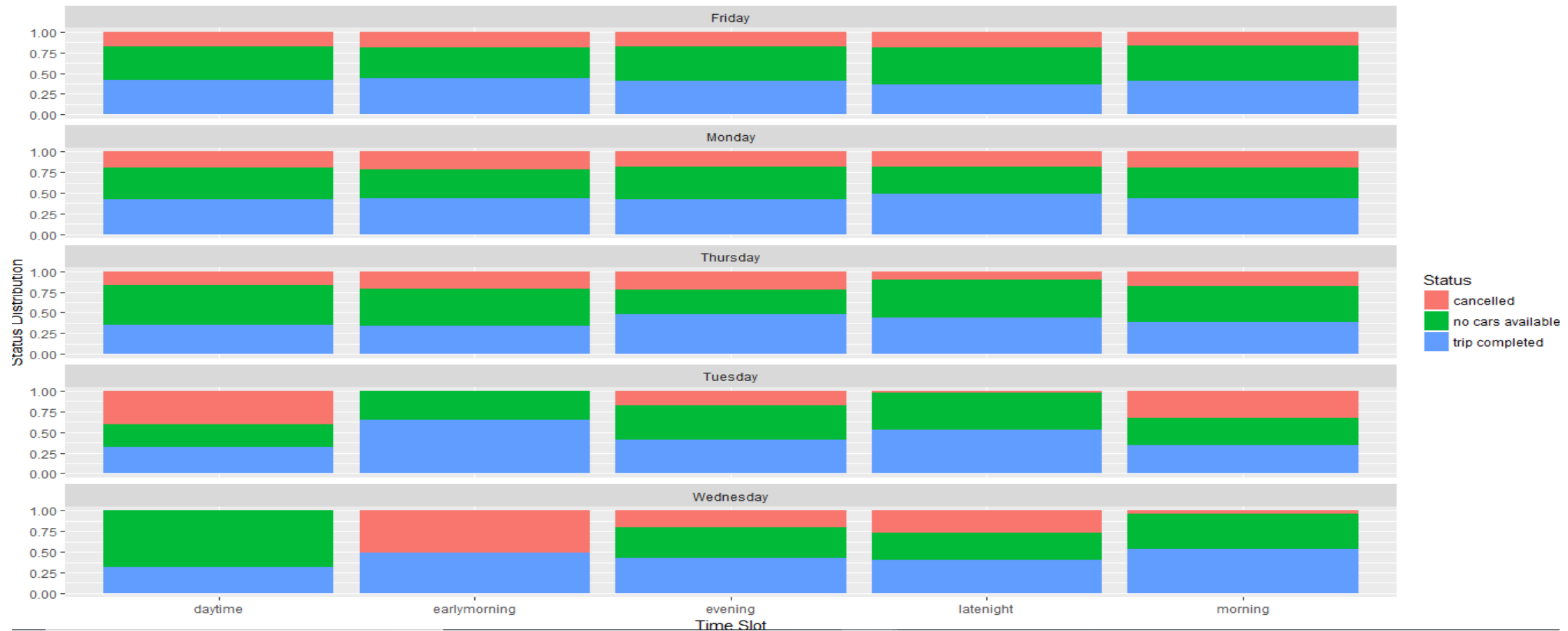
Based on the graph two problems can be seen:

1. Higher cancellations of the trips in city during morning time.
2. Higher non- availability of the cars at Airport during evening



Similar Request Status Distribution on all days

From the graph it is evident that there is not subtle difference in the ratios of the trip status based on the day of the week. Hence ignoring the affect of the day of the week in the root cause analysis.



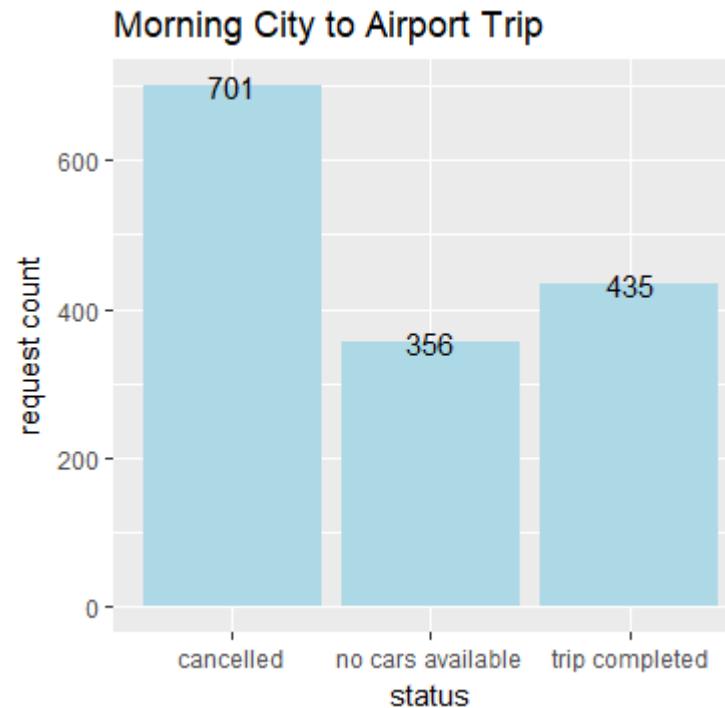
Morning Higher city to Airport trip cancellation

- From the plot it is evident that there is more cancellation than the trip completed

Total requests= $(701+356+435)$ 1492

Total completed trips= 435

Percentage Trip Completion= 29 %



Higher non availability of cars at Airport in Evening

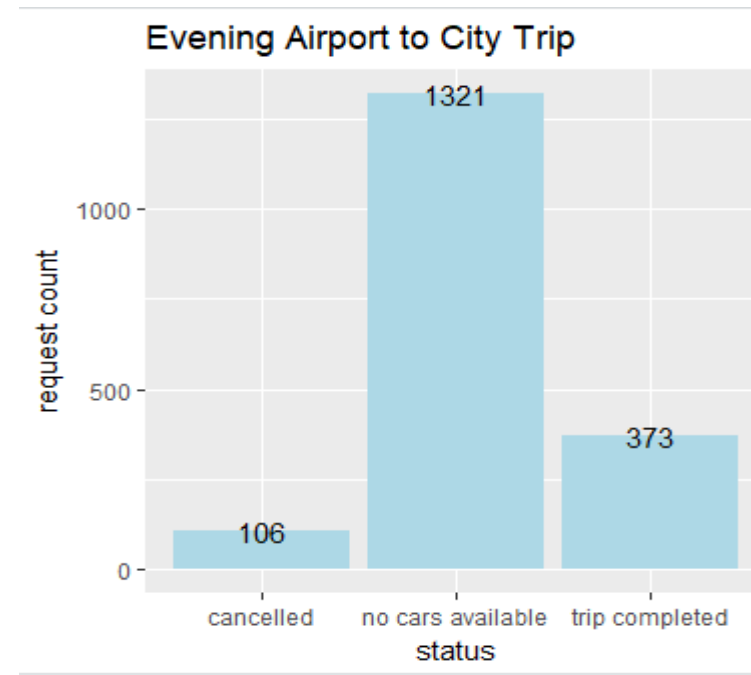
- From the plot it is evident that there is more non availability of cars than the trip completed

Total requests= $(106+1321+373)$ 1800

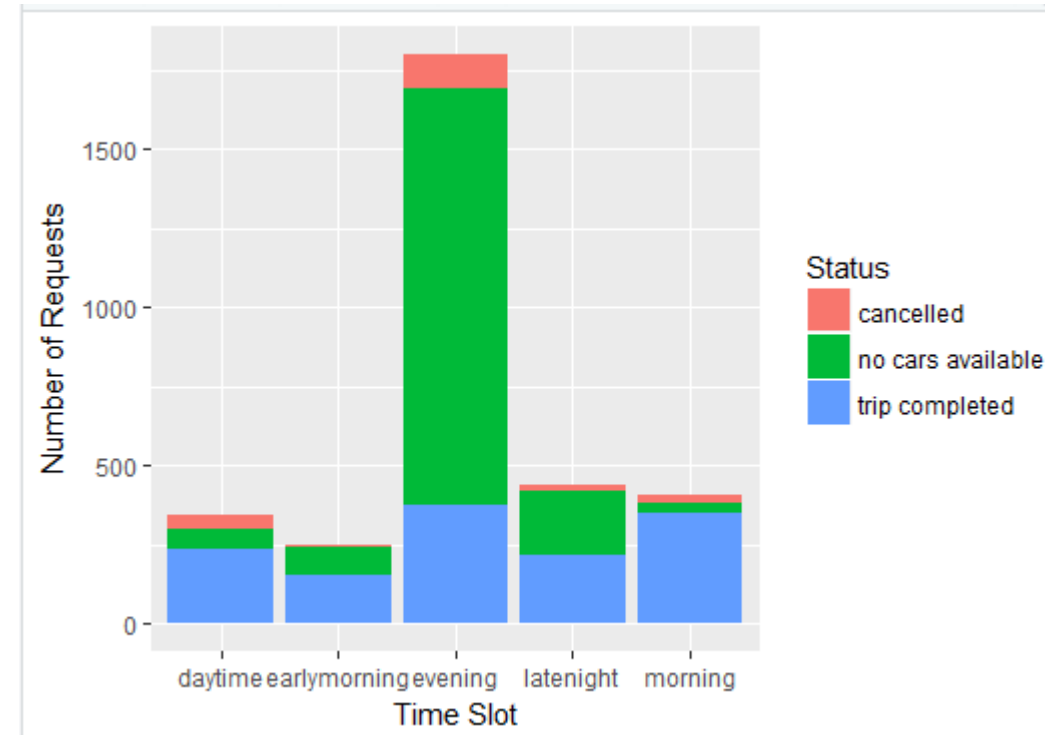
Total completed trips= 373

Percentage Trip Completion= 21 %

- Such big supply demand gap is leading to huge opportunity lost.



- Low request at airport till the evening.
- On an average it takes 53 min to reach the airport
Hence the cab driver either have to wait at airport or come back without any trip. In both cases they will be in loss- so they cancel the morning trips to Airport from city.
- As more trips are cancelled during morning and cabs are busy in city. There is a supply gap created at the airport which leads to higher non-availability of cabs during evening hours.



Recommendations

- Share the fuel expense if they come back to the city without any passenger from airport or vice versa.
- Shift management should create shifts in such a way that certain number of drivers' shift get over in the morning so that they could complete the trip and relax at the airport till evening. Uber should create relaxation point near to the airport for this.
- Identify the drivers with higher number of cancellations during morning for the city to airport trip. Try to find out reasons by getting in touch with them and address the issue if it is genuine else put some penalty.
- Award the drivers with good incentives if they complete certain number of trips to airport from the city during morning hours.
- Award the drivers with good incentives if they complete certain number of trips to city from the Airport during evening hours.
- Encourage people to use ride sharing features by offering attractive offers during evening for the airport to city trip.