UBER CASE STUDY

SUBMISSION

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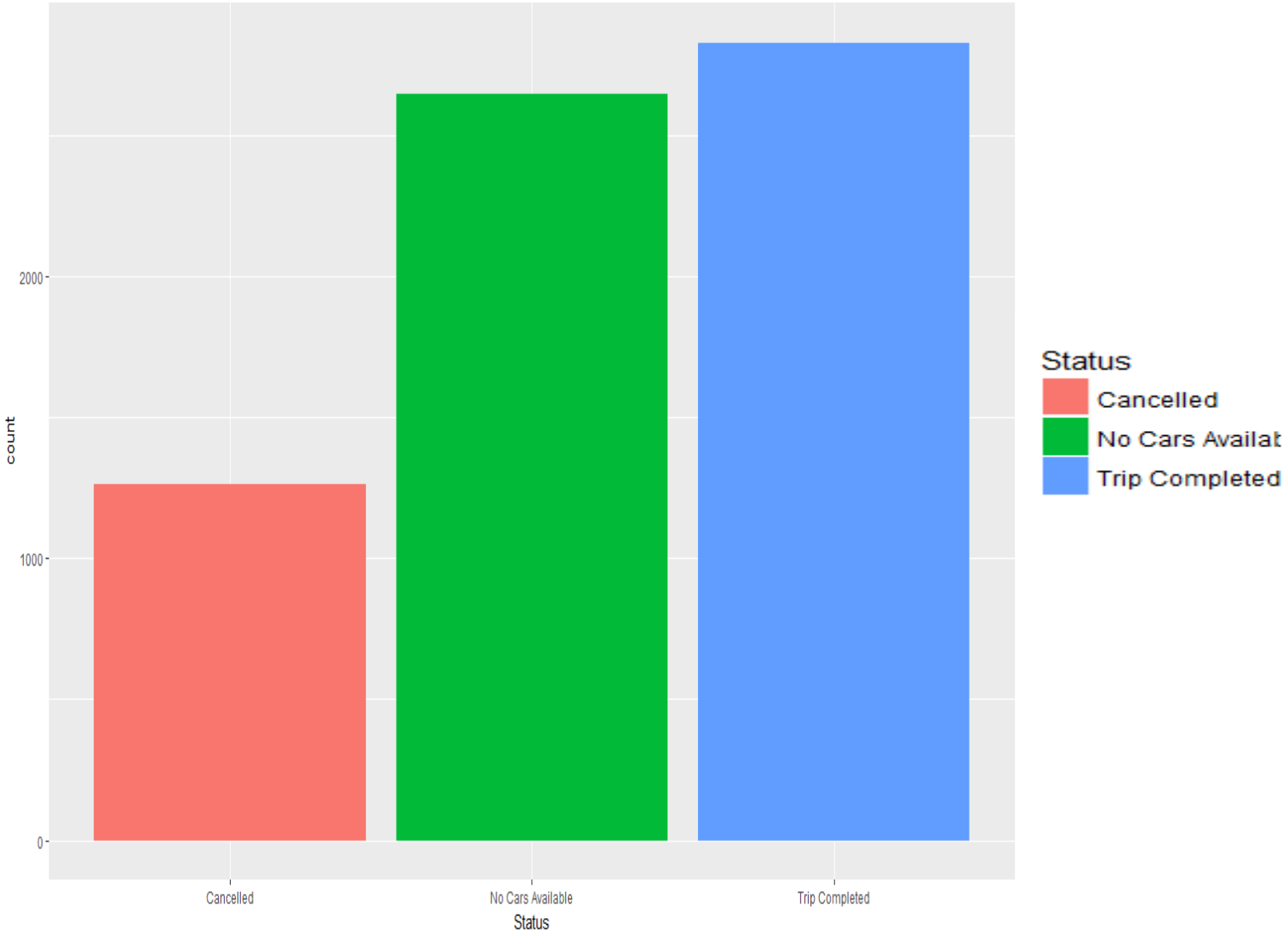
Abstract

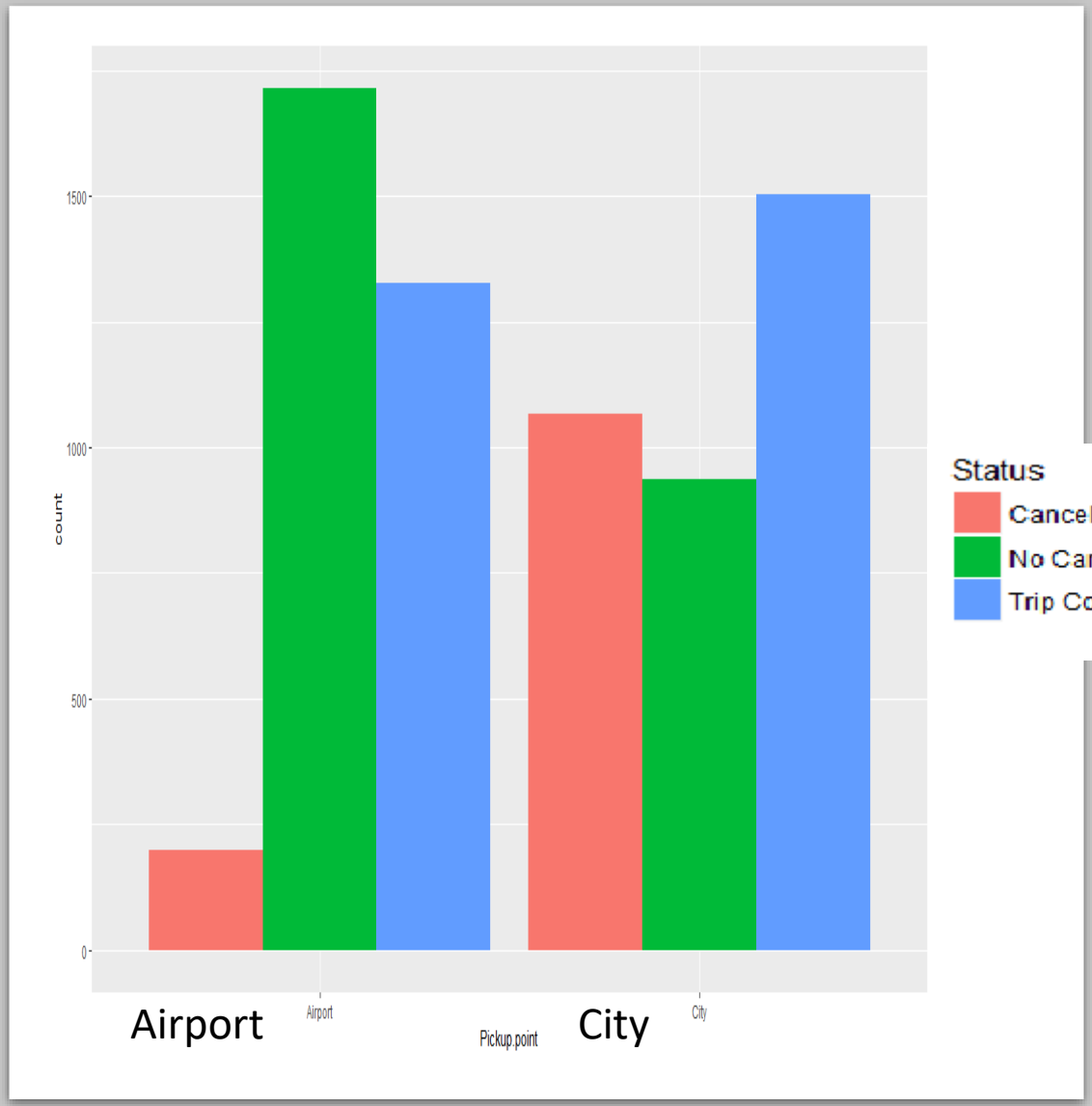
Uber, a very popular raid hailing service wants to improve its business by analyzing the data they have collected. Particularly Uber is interested in knowing the issues faced by customers such as problem of cancellation by cab drivers , non availability of cabs in any hour of the day. These very issues also impact the business of Uber. If drivers cancel the request of riders or if cars are unavailable, Uber loses out on its revenue. In this analysis I tried to address some pressing problems faced by Uber and provide some possible solutions.

Plot showing the number of requests Uber has got from either City to Airport or vice versa. In our further analysis we break down this available data into many different types of segments (in other words perform segmented univariate analysis) to really address the most pressing problems faced by Uber.



As we can see here Uber is having quite an issue with supply demand problem i.e., company is not able to honor most of the requests made by customers due to non availability of cabs. Also added to the problem is the Cancellations made by cab drivers.

Lets look into the reasons for the cancellation and cabs unavailability.



Total number of request broken down based on the Pickup points. Also we can see the Status of the cab requests made by the customers.

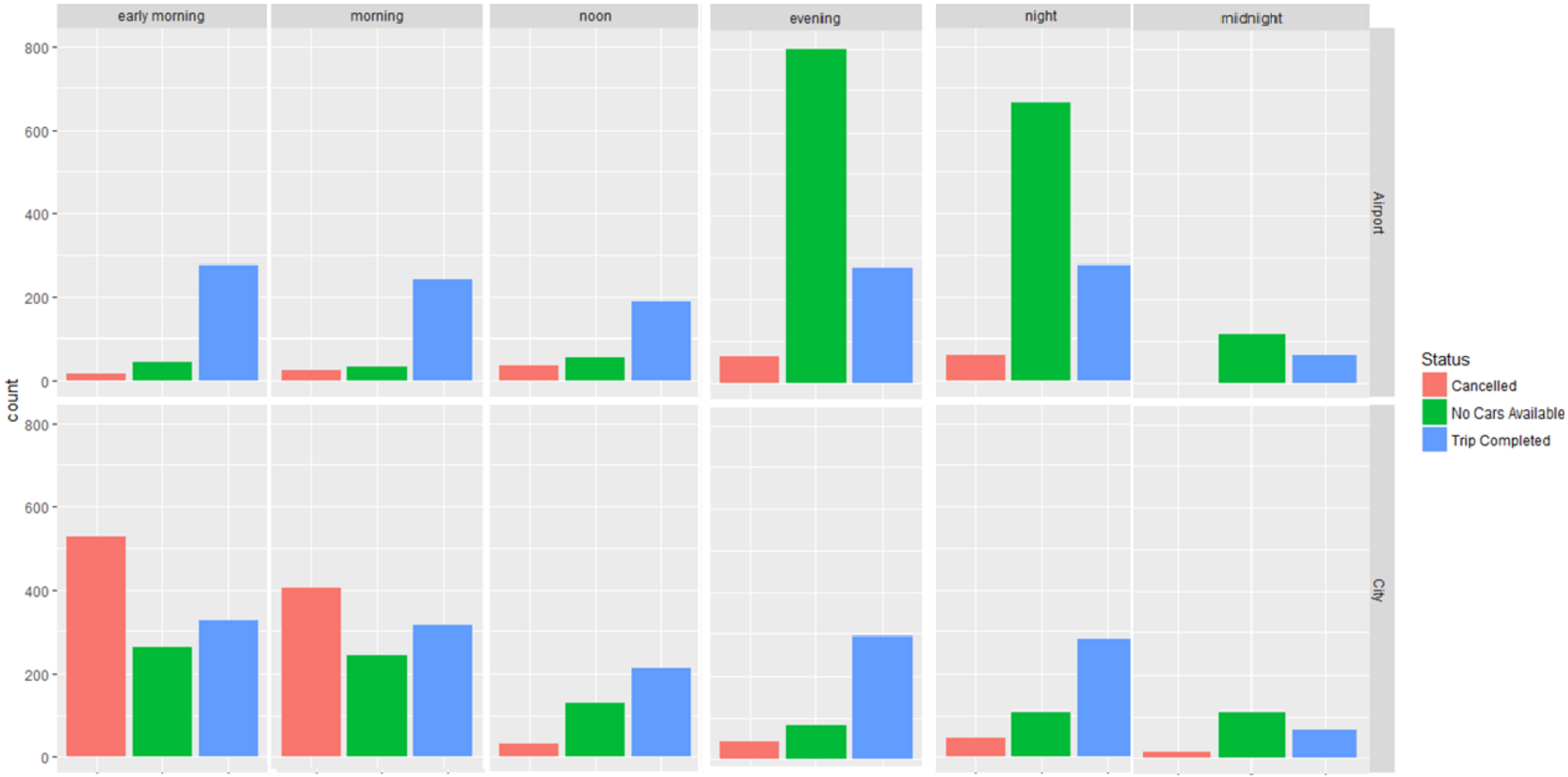
Customer requests cancelled by cab drivers

It looks like most cab drivers don't want to drive to airport from city. This might be because of higher wait time at the airport due of lower flight frequency. We can certainly answer more by breaking the data into time slots which is done in the next slides.

Problem of non-availability of cabs

It looks like Uber is having a huge supply demand problem. Time slot analysis might reveal more about the problem. Lets do the same in the next slides.

Complete Time Slot Analysis of the Uber data



Summary statistics of Uber Cab request status along with supply demand problem at Airport

	Status	TimeSlot	noOfReq
	<fct>	<chr>	<int>
1	Cancelled	early morning	15
2	Cancelled	evening	63
3	Cancelled	morning	24
4	Cancelled	night	60
5	Cancelled	noon	36
6	No Cars Available	early morning	44
7	No Cars Available	evening	801
8	No Cars Available	midnight	114
9	No Cars Available	morning	34
10	No Cars Available	night	665
11	No Cars Available	noon	55
12	Trip Completed	early morning	277
13	Trip Completed	evening	276
14	Trip Completed	midnight	67
15	Trip Completed	morning	243
16	Trip Completed	night	277
17	Trip Completed	noon	187

early mrg	evening	midnight	mrg	night	noon
233	-525	-47	209	-388	132

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Uber is facing a huge supply demand problem during evening, night and midnight at the Airport

Summary statistics of Uber Cab request status along with supply demand problem at City

	Status	TimeSlot	noOfReq
	<fct>	<chr>	<int>
1	Cancelled	early morning	526
2	Cancelled	evening	42
3	Cancelled	midnight	14
4	Cancelled	morning	406
5	Cancelled	night	45
6	Cancelled	noon	33
7	No Cars Available	early morning	263
8	No Cars Available	evening	82
9	No Cars Available	midnight	111
10	No Cars Available	morning	245
11	No Cars Available	night	109
12	No Cars Available	noon	127
13	Trip Completed	early morning	327
14	Trip Completed	evening	296
15	Trip Completed	midnight	69
16	Trip Completed	morning	316
17	Trip Completed	night	283
18	Trip Completed	noon	213

early mrg	evening	midnight	mrg	night	noon
64	214	-42	71	174	86

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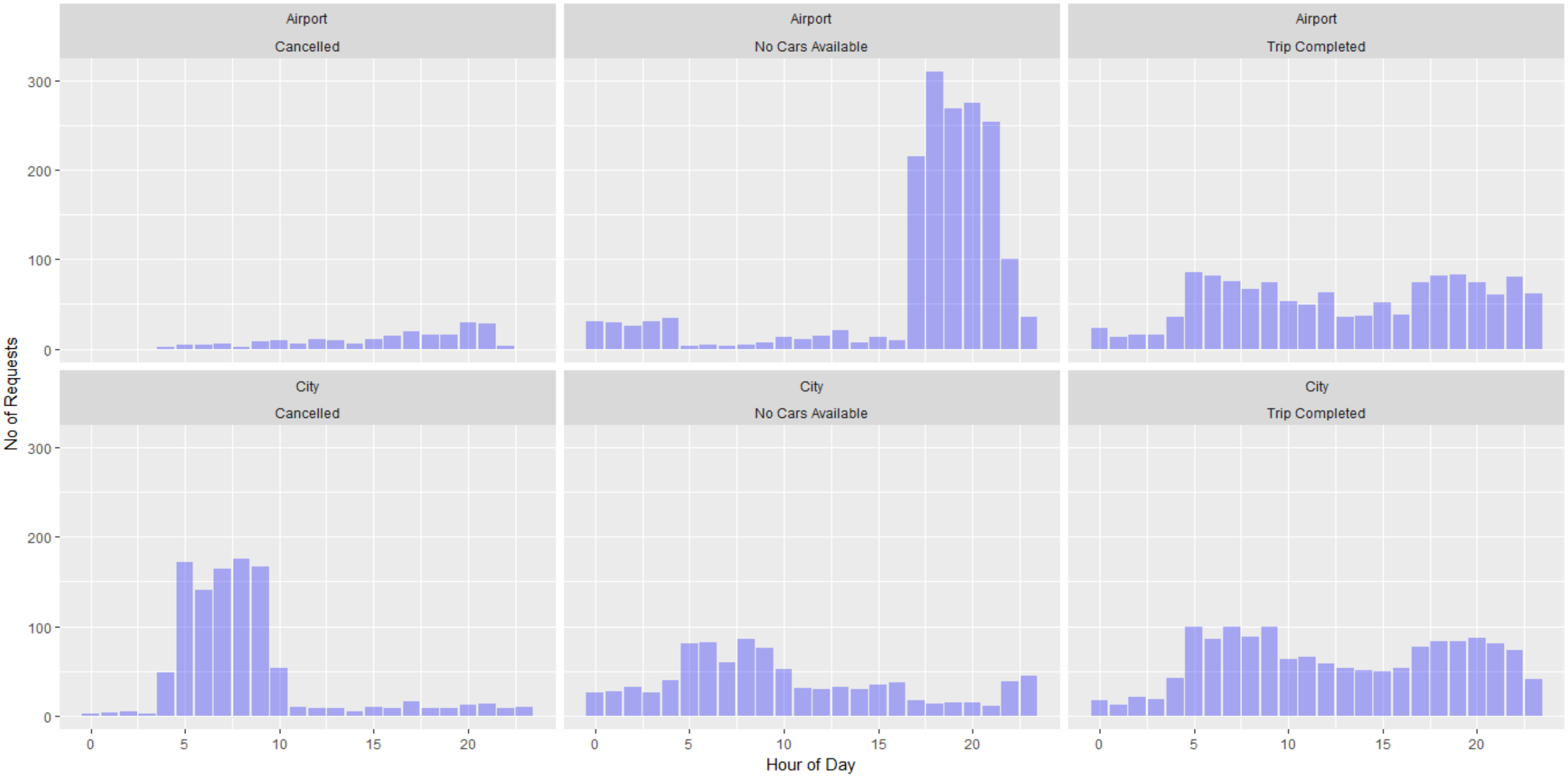
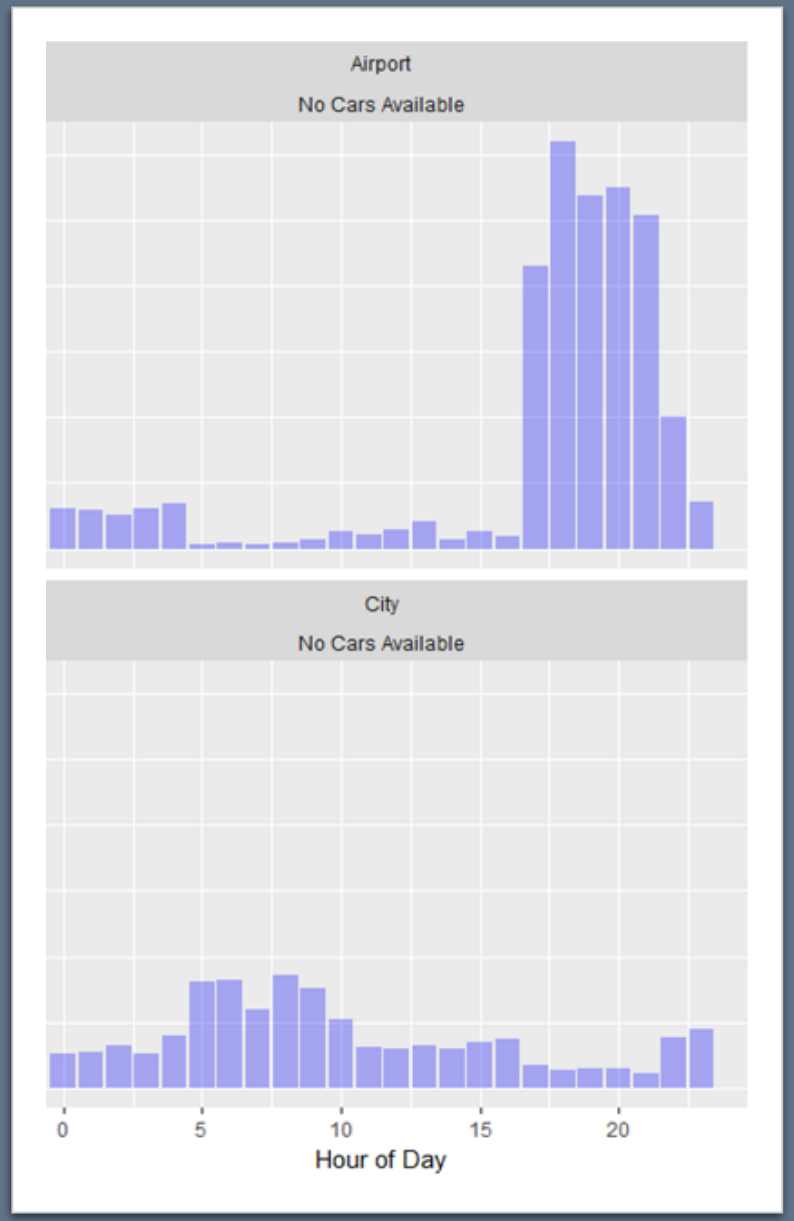
Uber is facing a moderate supply demand problem at midnight in the City.

Time Slot Analysis of the Uber data (HOUR WISE)



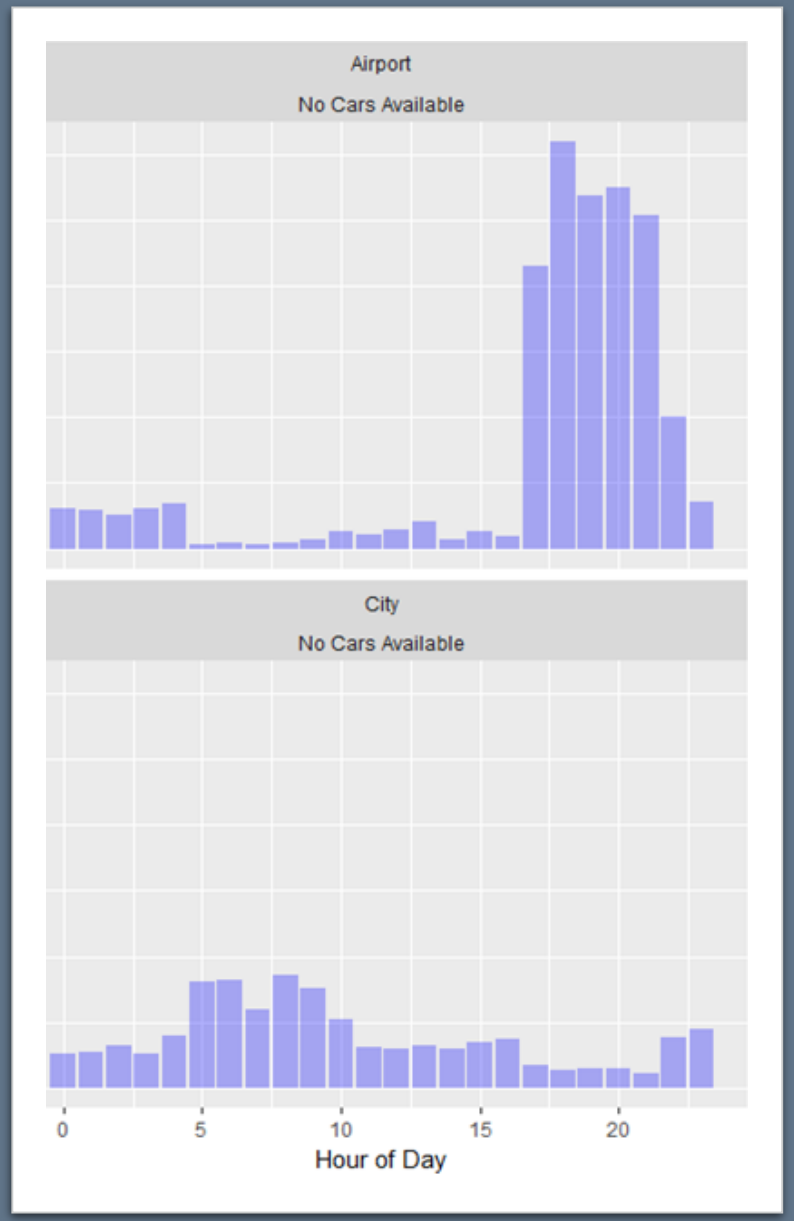
Hourly analysis of ‘No Cars Available’ request status (at City): Problem and possible solution

- It looks like there is a moderate demand supply problem in the city between 5am -10am. This might be because the drivers are yet to start their day. Most of the drivers might be starting their day job after 10am. Other possible reason might be because of high demand in the city. Also note that since most of the people start going to their offices or businesses during these times the city is facing a supply demand problem.
- Possible solution might be to bring more number of cabs during these hours to handle higher customer requests there by minimizing the negative impact on the Uber business.



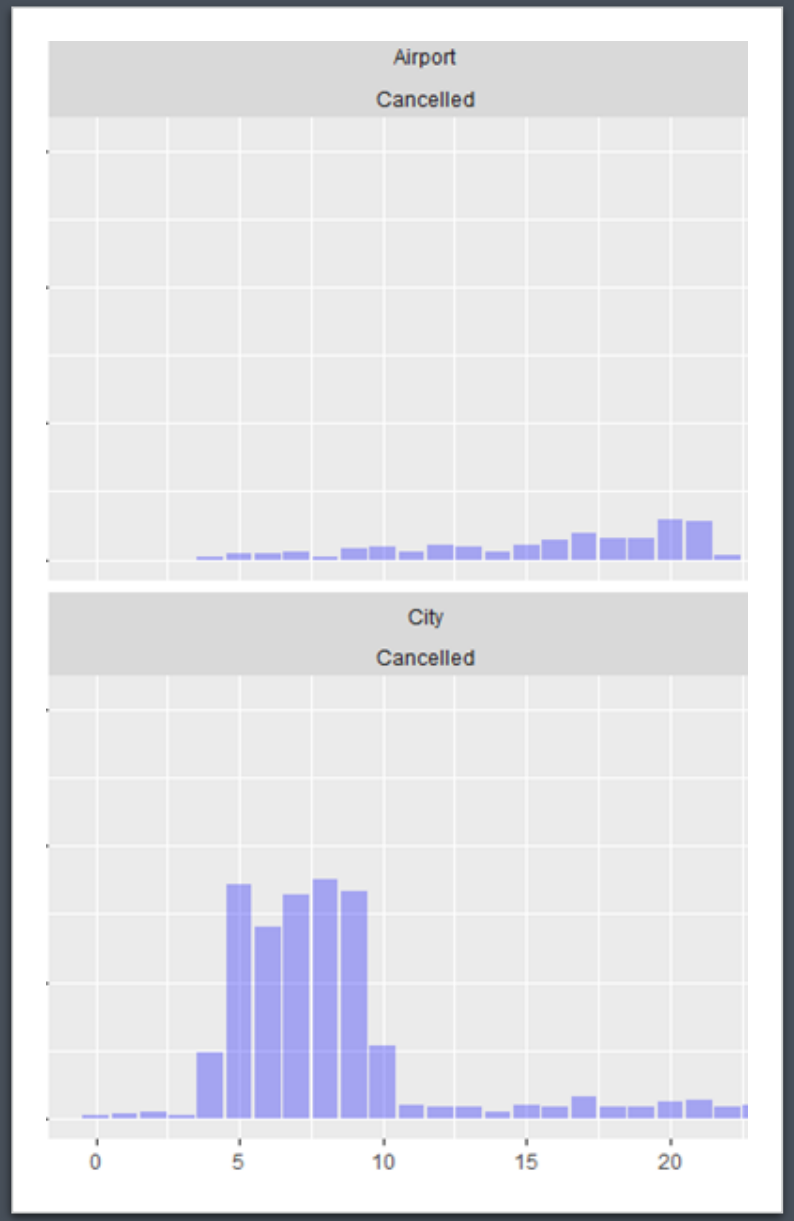
Hourly analysis of ‘No Cars Available’ request status (at Airport): Problem and possible solution

Uber is facing the worst supply demand problem at the Airport between 5pm – 10pm which will have a definite impact on the company business.
We can hypothesize two possible reasons.
1. One, the number of cabs available at the airport is just not sufficient to handle the customer requests. This is because only moderate number of cabs are entering the airport before 5pm(can be understood from next slide).
2. Secondly, the airport is facing a very high frequency of incoming flights and therefore more people are booking cabs which Uber is not able to handle.
Possible solutions is to have a large fleet of cabs available on stand-by between these hours in order to handle huge customer requests.



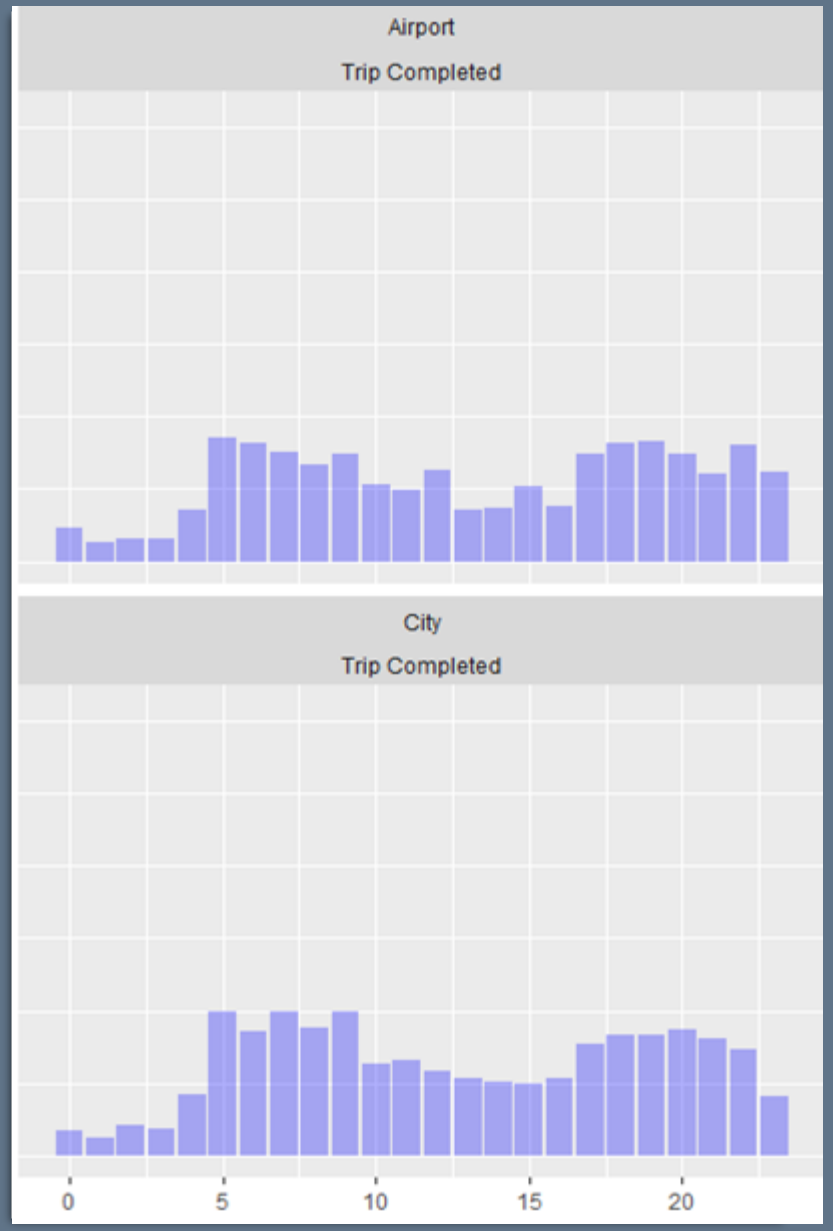
Hourly analysis of ‘Cancelled’ requests: Problem and possible solution

- The analysis reveals quite an interesting insights. It looks like cab drivers are reluctant to accept airport requests between 4 am – 10 am . This might be because of lower flight frequency during these hours at the airport and as such higher wait times for the cab drivers.
- Even though there are very less number of cabs entering the airport during these hours it looks like there is almost no supply demand problem(which is evident in the next slide) therefore confirming our hypothesis that there is little passenger movement at the airport during these hours.
- Possible solution might be to offer higher incentives to cab drivers who accept trip from city to airport between 4am – 10am or reimbursing for their return trip to the city.



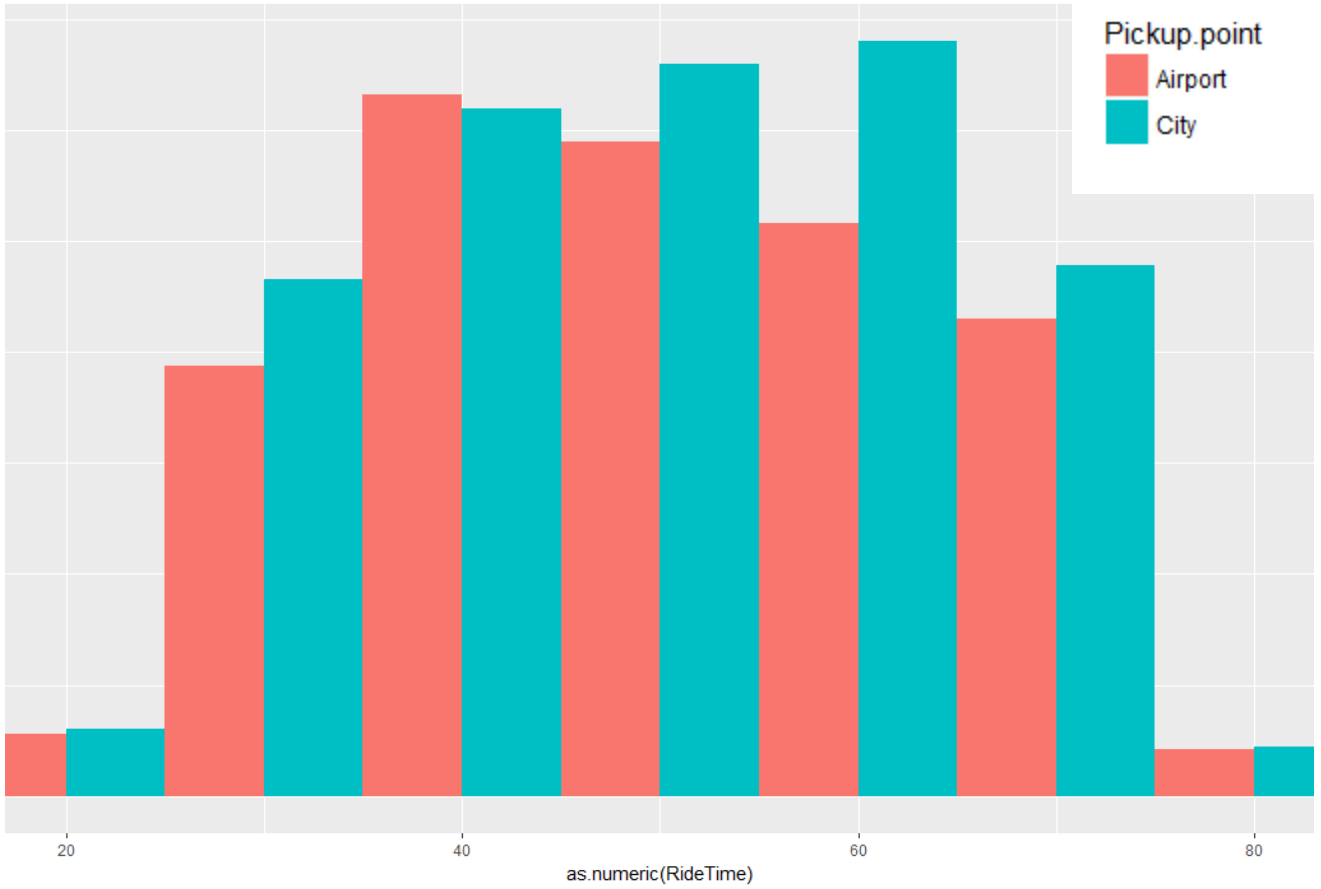
Hourly analysis of successful ‘Trip Completions’

It looks like Uber can try to improve their services between 12midnight – 4am where the there are less number of cabs on road. This might be because less number of drivers are interested working in night shifts(and hence less cabs are available) or it is because most of the people are asleep and hence less number of requests. Possible solution is to offer higher incentives to cab drivers working in night sifts and also offer discounts to passengers in order to encourage cab bookings during these odd hours.



Total ride time analysis of cab trips

- It looks like most of the people who opt for cabs have a ride times between 40 – 60 minutes indicating people are willing to take cabs for moderate distances..
- On the other hand very less people are using cabs for very short and very long distances. –
- People coming from short distances might be using their own transportation like two-wheelers etc.
- For people coming from long distances Uber can increase their cab usage by giving certain discounts to these customers there by encouraging long distance trips.



Airport request cancellations made by Drivers

- It is already revealed that most of the cab drives are not willing to accept airport trips. But it looks like certain cab drivers are more stubborn in accepting the airport requests. Lets look the top drivers who have cancelled more number of airport requests. I would suggest that these drivers should be penalized in some appropriate ways for repeatedly cancelling customer requests and thereby negatively impacting the business.

	Pickup.point	Driver.id	TimesCancelled
	<fct>	<int>	<int>
1	City	84	11
2	City	54	10
3	City	142	10
4	City	27	8
5	City	131	8
6	City	177	8
7	City	206	8
8	City	44	7
9	City	70	7
10	City	114	7
11	City	138	7
12	City	190	7
13	City	197	7
14	City	256	7

Drivers who are willing to take Airport trips

- Certain number of drivers are comfortable taking airport trips contrary to our assumptions that drivers reject airport trips. These drivers must be given some sort of appreciation for their efforts to further encourage them (there by other drivers might follow suit).

	Pickup.point	Driver.id	TripsCompleted
	<fct>	<int>	<int>
1	City	22	10
2	City	23	10
3	City	25	10
4	City	107	10
5	City	184	10
6	City	197	10
7	City	274	10
8	City	70	9
9	City	119	9
10	City	185	9
11	City	204	9

Conclusions

- Uber is facing heavy supply-demand problem during evening and late evening hours. This is because less number of cabs are entering the airport in the noon hours and also because of high flight frequency at the airport. Having additional cabs at the airport during these hours will have positive impact on the Uber's business.
- It is observed that some cab drivers are very much reluctant to accepting the airport trip requests. Uber should penalize these drivers. On the other hand some cab drivers are comfortable with airport trips. These drivers should be appreciated by Uber so that other cab drivers will follow suit.
- Very less number of people are preferring cabs for ride times less than 20 min(short distances) and greater than 70 min(long distances). Uber can come up with some schemes to encourage more such people to utilize the cab service.