Uber Assignment

SUBMISSION

Presenter Name:

Saurav Kumar

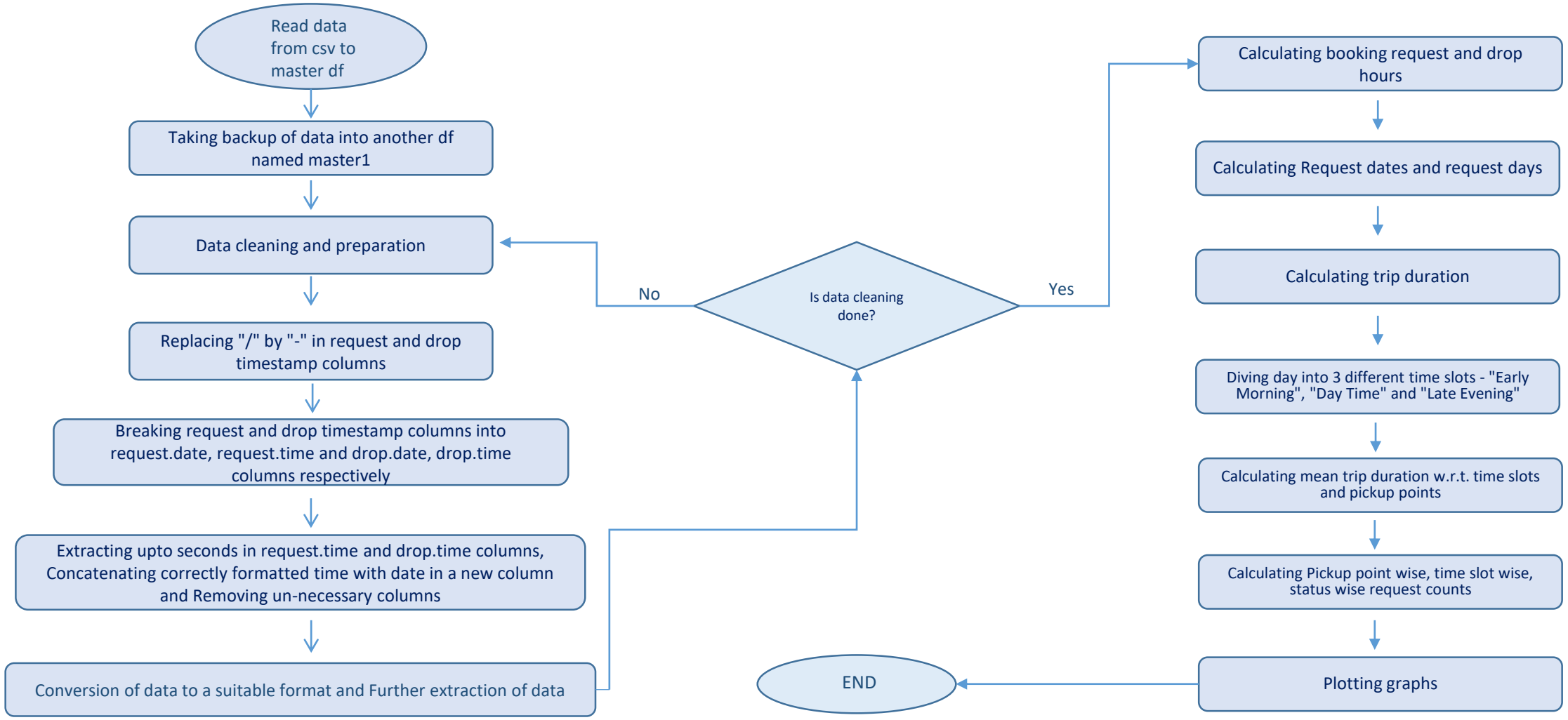
Business Objective

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.

Summary –

Given data at hand presents the problem that Uber is facing, demand and supply gap due to unavailability of cabs at airports and too many cabs getting cancelled in the city in different time slots.

Problem solving methodology-Flow chart



Pickup point wise and Day wise Analysis

Pick up location	Observation
City	Most cabs get cancelled in city in morning and day time
Airport	Most cabs are unavailable on airport during late evening
Day	There is no significant impact of day on bookings or status of cabs and trip duration. There is no weekend.
Request	There are total 6745 requests.

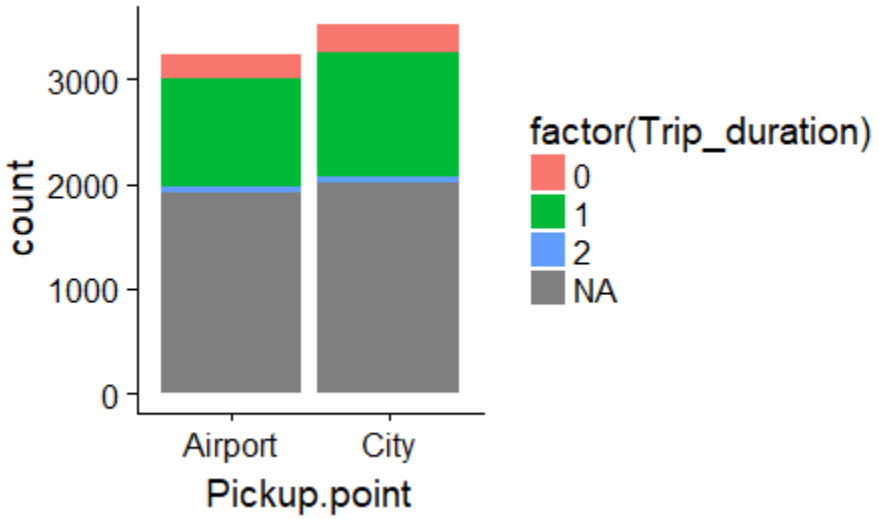
Observations –

- ✓ From airport, most cabs are not available between – 4 o'clock in the evening to 11 o'clock in the night. On an average ~300 cabs are not available in this time span.
- ✓ From city most cabs get cancelled in the between – 12 AM in the night to 3 PM in the evening. On an average ~100 cabs get cancelled in this time period.
- ✓ There is no major effect of day on booking, cancellation, cabs unavailability and trip duration and demand – supply gap, probably because none are weekend. There are 5 different days given in the data ranging from Monday to Friday.
- ✓ There are total 6745 requests, out of which 2831 trips were completed, 1264 requests got cancelled and 2650 cabs were not available.

Trip duration wise Analysis

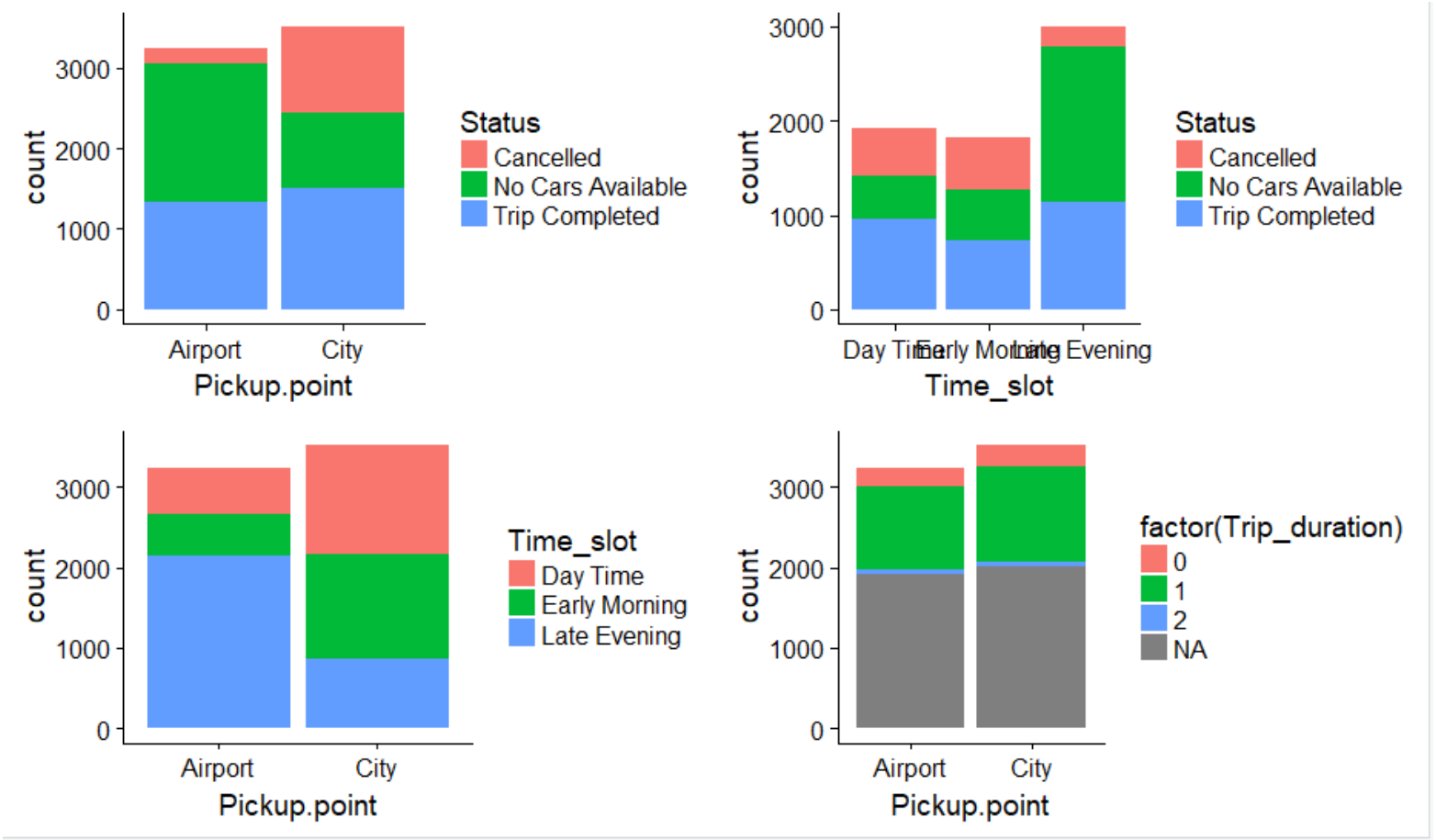
- Observations -

✓ Avg. trip duration is <1 hour for different timeslots and pickup points. Max. trip duration is between 1 – 2 hours.

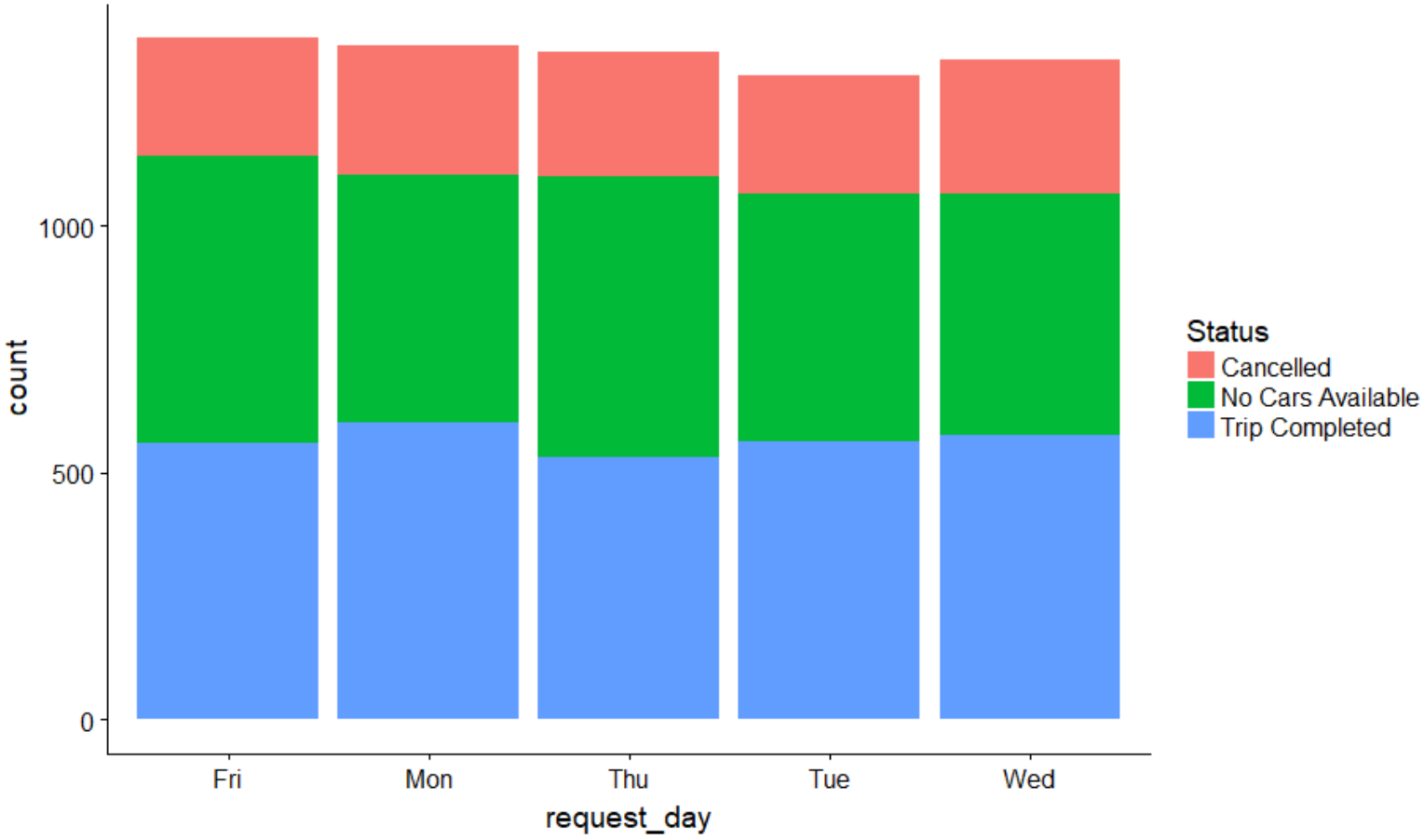



```
> master1 %>% group_by(Time_slot,Pickup.point) %>% summarise("mean trip duration" =
+             mean(Trip_duration,na.rm = TRUE))
# A tibble: 6 x 3
# Groups:   Time_slot [?]
      Time_slot Pickup.point `mean trip duration`
         <fctr>       <fctr>                <dbl>
1      Day Time      Airport            0.8720930
2      Day Time         City            0.8544423
3 Early Morning      Airport            0.8808140
4 Early Morning         City            0.9065657
5  Late Evening      Airport            0.8752260
6  Late Evening         City            0.8635579
```

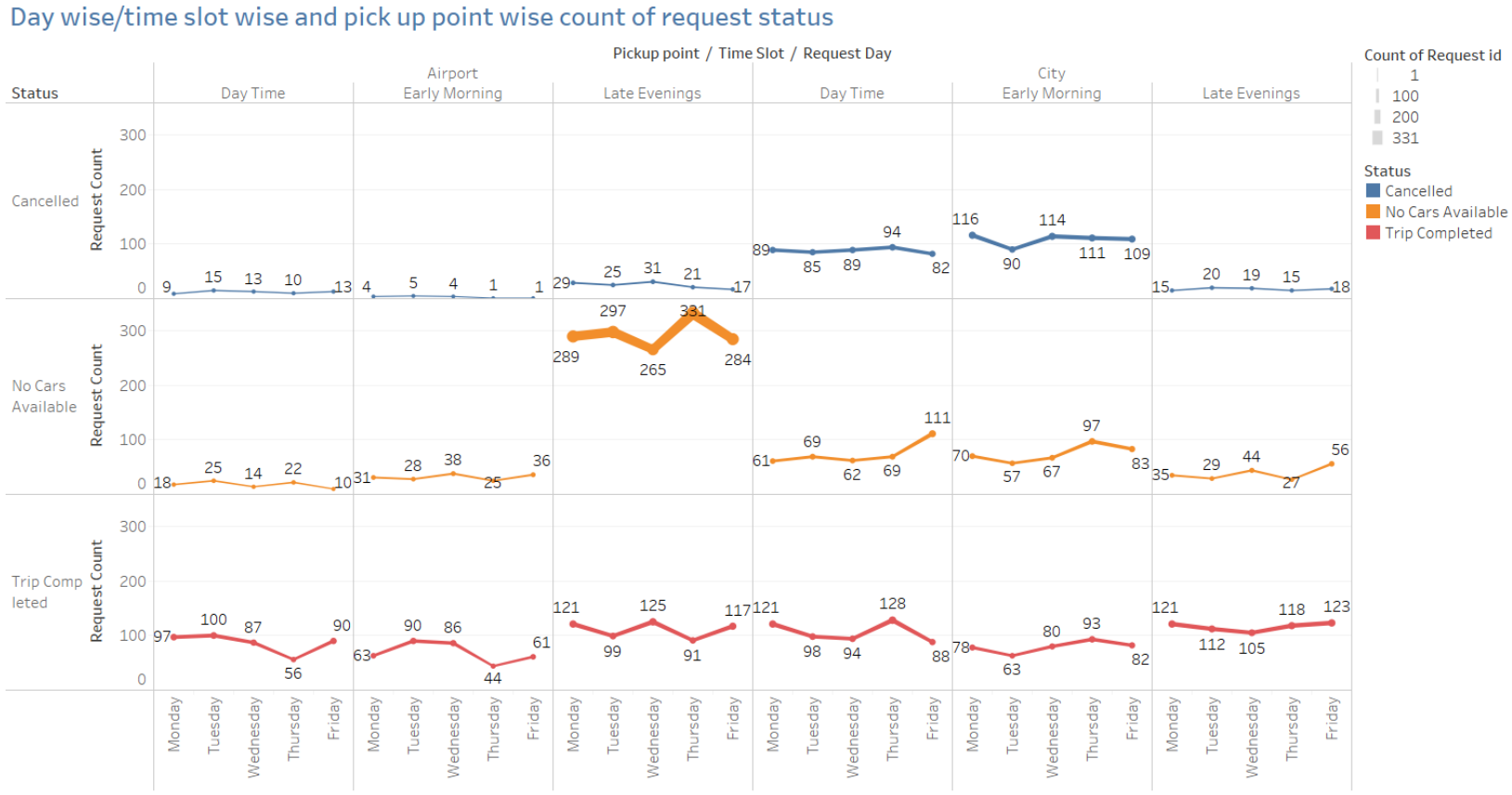
Plots - #1. Pickup point Vs Status, Time_slot Vs Status, Pickup point Vs Time_slot and Pickup point Vs factor(Trip_duration)



Plots - #2. Day wise booking status

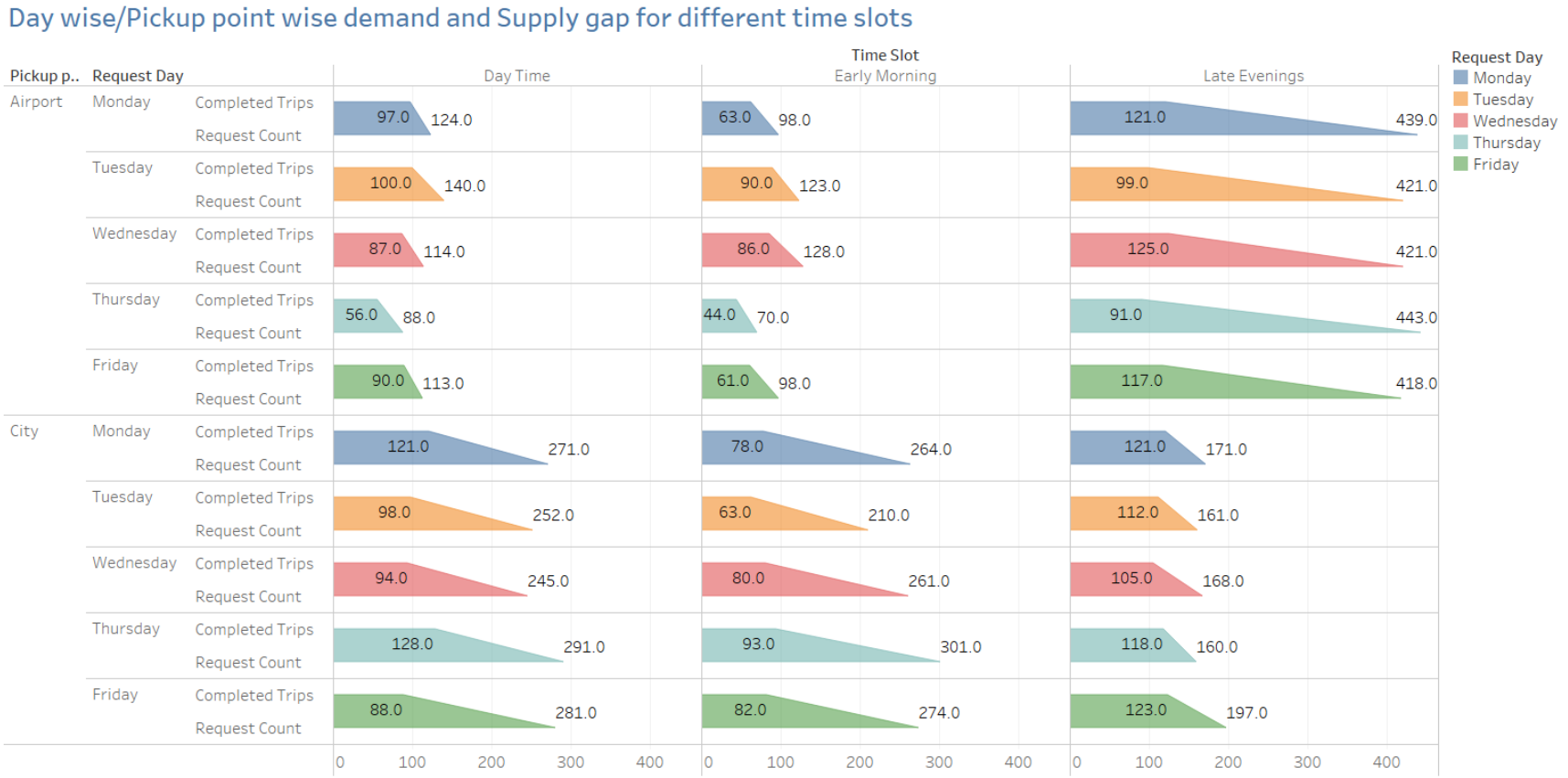


Plots - #3. Day wise/time slot wise and pickup point wise count of request statuses



The trend of count of Request id for Request Day broken down by Pickup point and Time Slot vs. Status. Color shows details about Status. Size shows count of Request id. The marks are labeled by count of Request id.

Plots - #4. Day wise/Pickup point wise demand and supply gap for different time slots



Conclusions and Recommendations

Conclusion -

- ✓ There is a gap in demand and supply as in cities cabs get cancelled during early morning and day time whereas cabs are not available in the late evening from airports.
- ✓ Prime reason behind this could be many cabs get cancelled from city in the day time and early morning because there may be traffic on airport route or they don't get return booking easily. Whereas at airports most cabs show unavailable at late night, because cabs are present in the city and they don't want to come to the airport because of less frequency of flights, resulting in increased waiting time for return trip to city.

Recommendation -

- ✓ Uber should reduce some cabs from city in the early morning and day time as ~100 cabs are getting cancelled per hour in that time period (between 12 AM in the night to 3 PM in the evening) and allot them to airports plus it should reserve some cabs in spare at the airports in the late evenings as many cabs show up as unavailable during late evenings between 4 PM and 11 PM.

Assumptions made –

- ✓ Have divided an entire day into 3 different time slots – a) 12 AM – 7 AM: Early Morning, b) 8 AM – 3 AM: Day Time and c) 4 PM – 11 PM: Late Evening.