UBER CASE STUDY

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Program : PGDDS by IIIT-B

Cohort : 07

UBER – a Transportation Technology company

- Uber Technologies Inc.is a technology company headquartered in San Francisco, California, United States.
- It operates in 570 cities worldwide.
- It develops, markets and operates the Uber car transportation and food delivery mobile apps.
- Uber drivers use their own cars, although drivers can rent a car to drive with Uber too.

Business Objectives

- To identify the root cause demand and supply gapproblem (i.e. cancellation and non-availability of cars) and
- Recommend ways to improve the situation.
- Limitations:
  - Only to and fro traffic fromAirport and City is considered

Understanding Data

- There are six attributes associated with each request made by a customer :
  - Request id: A unique identifier of the request
  - Pick-up point: The point from which the request was made (i.e. either City or Airport)
  - Driver id: The unique identification number of the driver
  - Status: Whether the trip was completed, cancelled or there were no cars available
  - Time of request: The date and time at which the customer made the trip request
  - Drop-off time: The drop-off date and time, in case the trip was completed

Methodology for Case Analysis

1. Gather data for the analysis (download and import in R)
2. Clean and Format the data for readability
3. Understand the data by visual Inspection
4. Correcting Data formats and Separating relevant Information (like hour of the day,Trip Duration, filter data suitable for analysis.)
5. Extrapolate the Derived Metrics
6. Filter Data Set on, Pickup Point and Hour of trip
7. Perform Univariate and Segmented Univariate analysis on the Data.
8. Plot the results of analysis and understand the root cause of the issue.
9. Final Recommendations

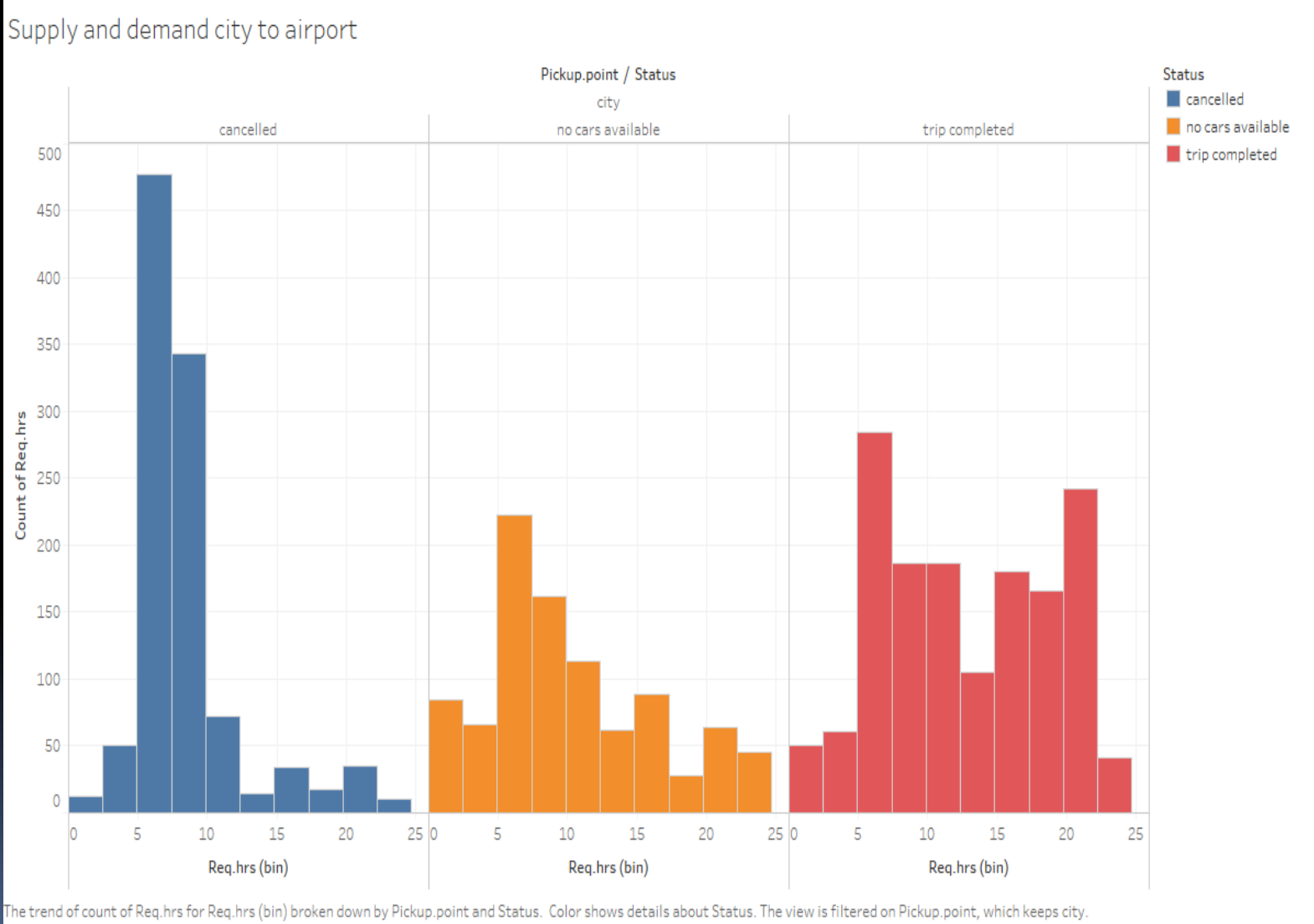
Assumptions

- Cabs at the airport only take new trips originating from the airport, i.e. do not leave the airport until they get a trip.
- City Cabs may have different trips but we will take them now to Airport only.

Tools

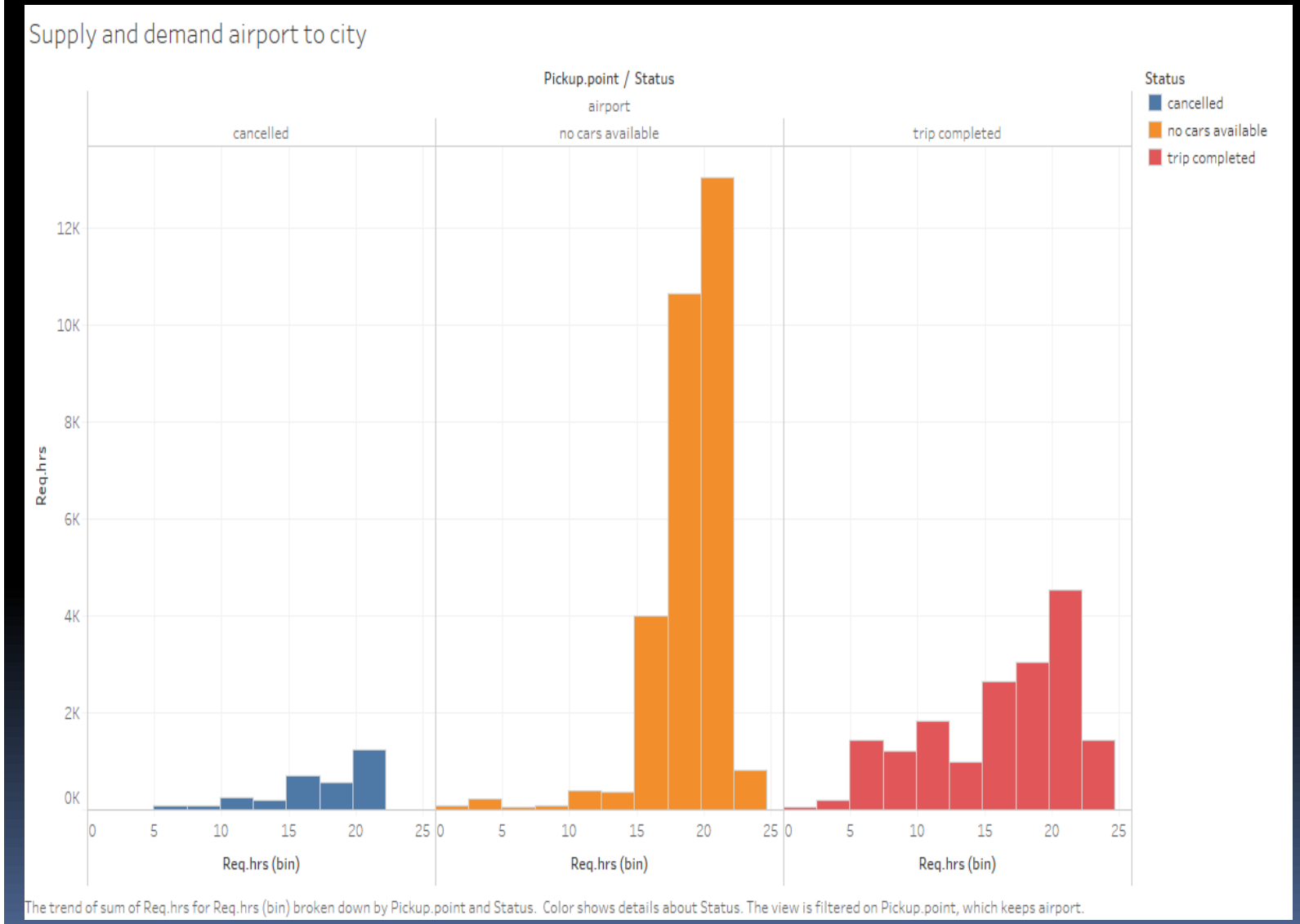
- Rstudio for
  - Data Import
  - Data Cleaning
  - Modelling
  - Analysis &Visualisation
- Tableau for visualization

Plot 1 Supply and demand city and airport



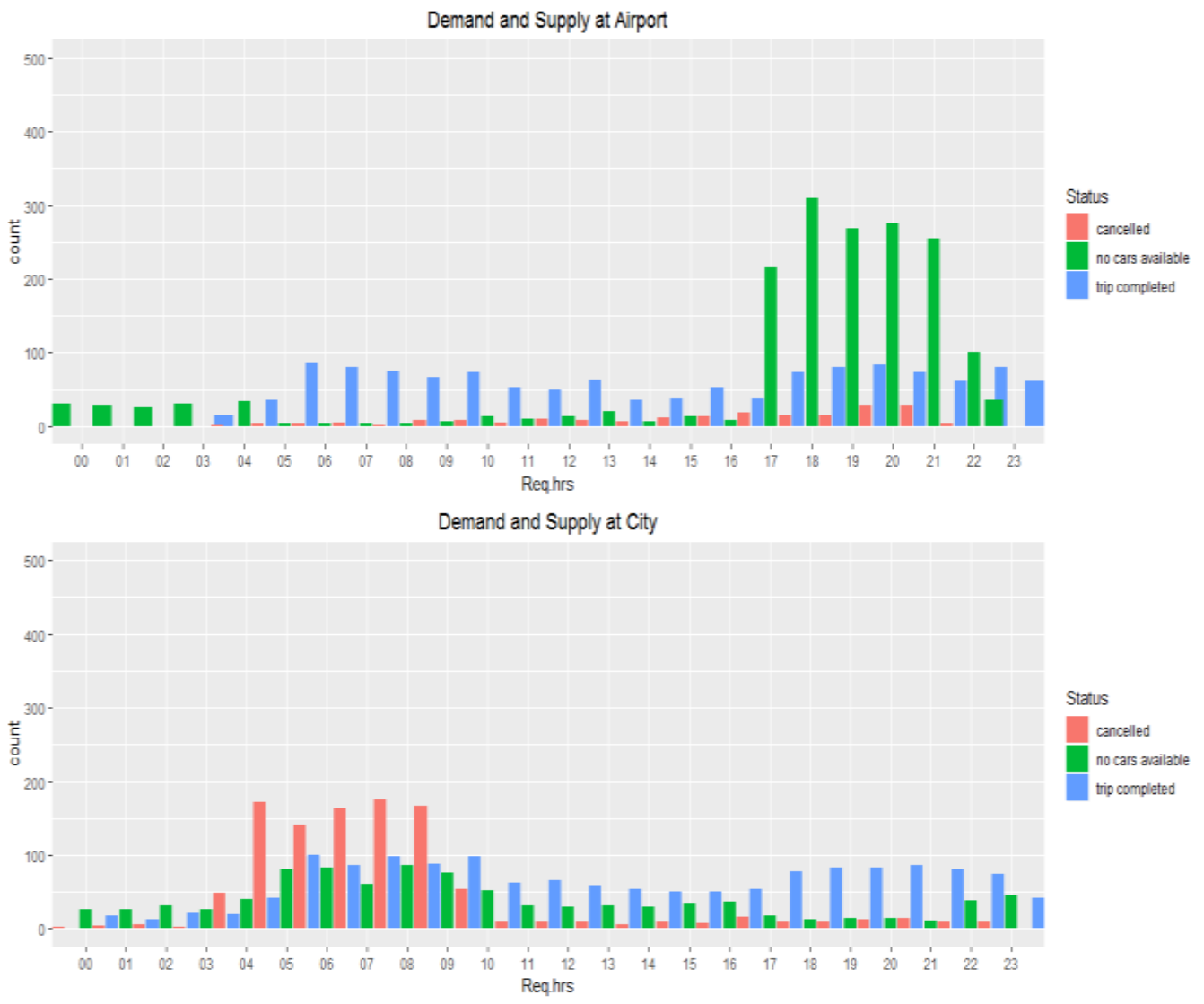
- There is high demand scenario (**Peak Time**) at Airport between **04:00am to 08:00am in airport-city requests.**
- **There is a huge gap between demand and supply with main cause cancellation.**

Plot 2 Supply and demand airport to city



- There is high demand scenario (**Peak Time**) at Airport between **5:00 PM to 10:00 PM in airport-city requests.**
- **There is a huge gap between demand and supply with main cause no cars available.**

Plot 3 – Overall trend in supply demand gap



- The "Demand and supply at Airport" plot clearly shows that no cars availability scenarios are main reason in hours: 05:00pm to 10:00pm in airport-city requests
- The "Demand and supply at City" plot clearly shows that cancelled scenarios are main reason in hours: 05:00pm to 10:00pm in airport-city requests.
- But if you observe carefully among both reasons no car availability is the main problem for Uber.

Trip Cancellations at City

- As visualized, in plot no 1, there is a sharp increase in cancelled trips from 4:00am to 08:00 am.
- As visualized in plot no 1 there is less demand of cabs from the Airport during 4:00am to 08:00am.
- Therefore if drivers are asked to accept the trip to airport there are ample chances, that they might have to wait at the airport for a long period of time before they get a new trip.
- The Supply and Demand gap in this duration in the above time frame is very high and is forcing cab drivers to cancel the trips in favor of better business opportunities in city.

No Cars Available at Airport

- As visualized in plot no 2 there is rapid increase "no cars available" cases from 5:00 pm , to 10:00 pm and there is sharp increase demand of cabs From the Airport during 5:00 pm to 10:00 pm.
- As visualized in plot 2 there is a gap in Demand and Supply of Cabs at the Airport.
- This Sharp increase in demand in this timeframe cause Lesser numbers of cars availability at airport.

Recommendations

- Increasing Cabs strength by will surely help in curbing 'no car availabie' situation.
- Also as minimum time to commute is 44.95, strict monitoring of Cabs may help to increase availability there by reducing cancellations.
- For arresting trip cancellation:
  - Drivers can be incentivised to carry out trips between 4:00am to 08:00 am in city.
  - Drivers can also be compensated for their waiting time for above period.
- Having fixed night drivers will also improve the supply

THANKYOU

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