

Uber Cast Study

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Abstract

Business Problem

Uber India is facing problem with lot's of trip cancellation and Not Availability problem. Due to that Uber-India is bleeding revenue, even though there is good demand.

Analysis Objective

Objective is to find the reason behind **Demand and Supply gap** and provide a probable solution to minimise it. As a result we can prevent the revenue leakage due to caused due to the gap.

A blue downward-pointing arrow containing the text "Define the Problem".

Define the Problem

- Define Business Problems and decide goals.

A teal downward-pointing arrow containing the text "Data Understanding".

Data Understanding

- Data understanding at initial level.

A green downward-pointing arrow containing the text "Cleaning Data".

Cleaning Data

- Cleaning data
- Derive and Formatting as per requirement.

A dark green downward-pointing arrow containing the text "Implement EDA".

Implement EDA

- EDA to understand behavior of variables.
- Plot graphs, Uni variate, Bi variate analysis.

An olive green downward-pointing arrow containing the text "Conclusion".

Conclusion

- Final conclusion and Solution

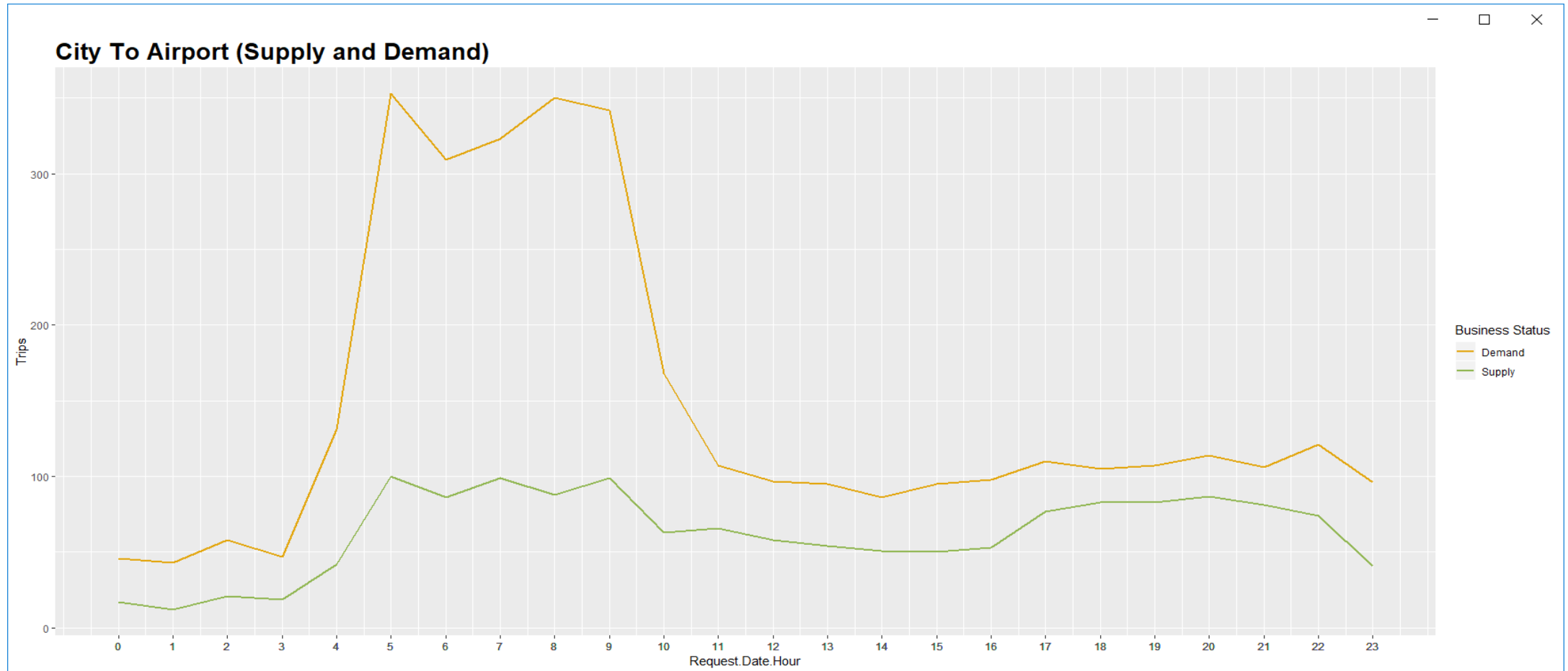
Analysis for Supply-Demand gap

- During Initial analysis, we found supply and demand is having different behavior for trips From “Airport to City” and “City to Airport”.
- We have segmented the [data](#) into two.
 - Airport to City
 - City to Airport
- Supply and Demand gap Analysis is divided into two part, based on the segment.

Important Assumptions and Logic

- Wait time is calculated for trips only from City to Airport.
- For all the trips where we can not find Wait time, those are replaced with Average wait time during that Hour
 - E.g. If trip has missing wait time, requested on 4 a.m. morning. It will be replaced with Average Wait time for trips completed during that hour.
- Cancellation is only happening from drivers and not from customers.

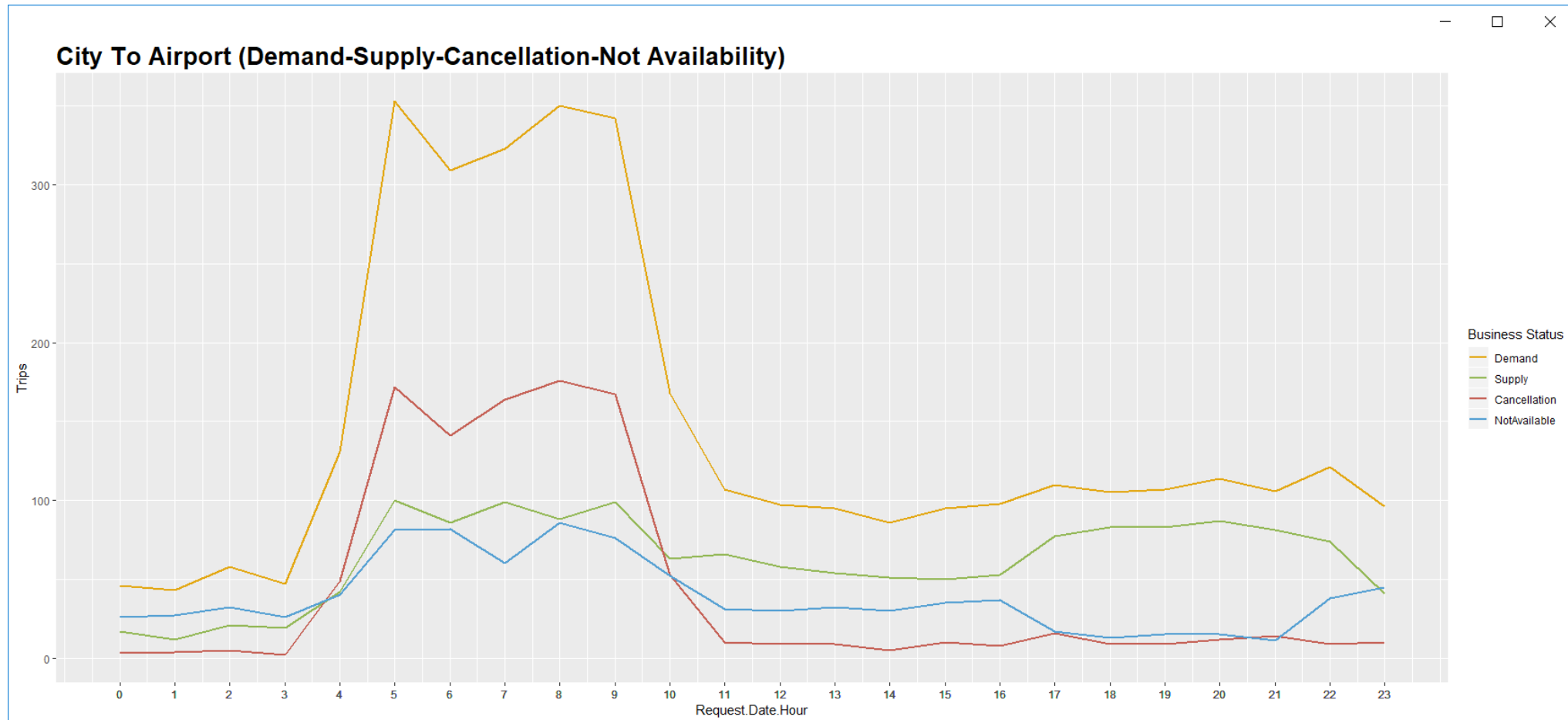
City To Airport Analysis



Note:

- Demand (Trips Requested)
- Supply (Trips Completed)
- Hours (Requested Time stamp hours)

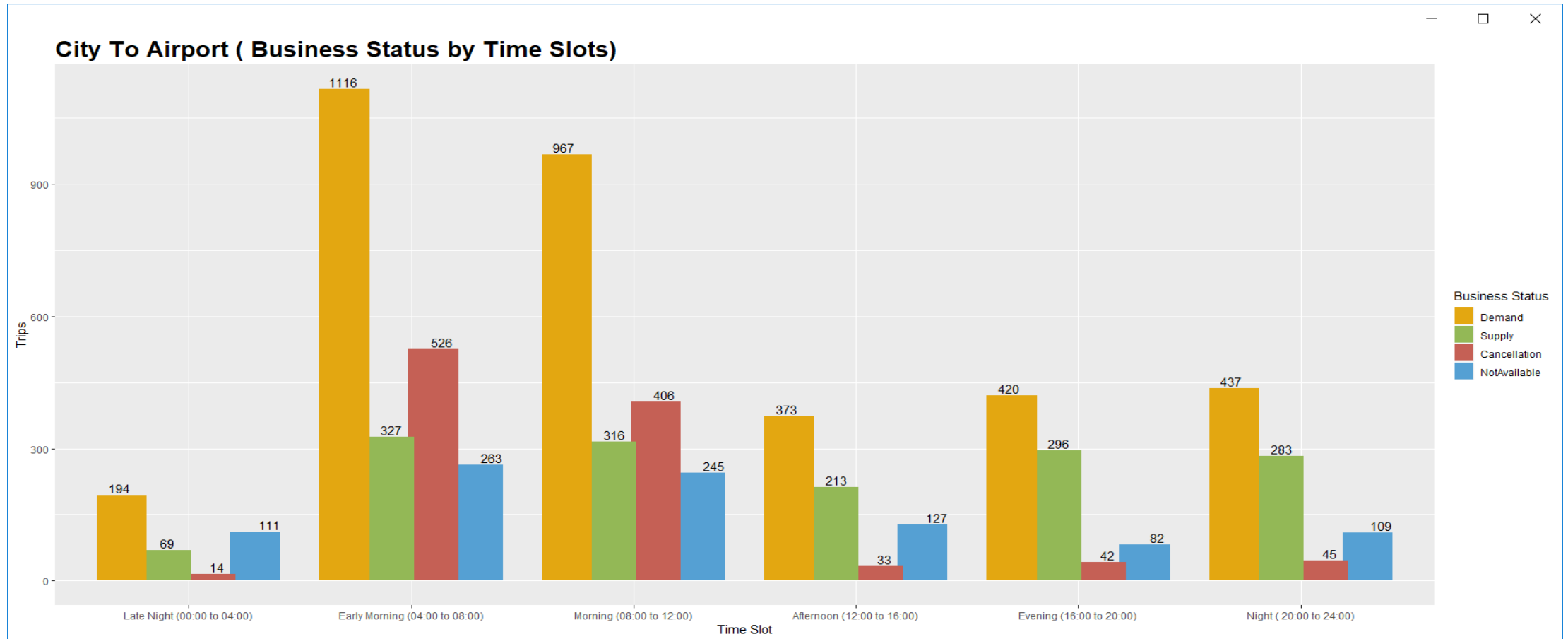
Supply-Demand gap Analysis (City To Airport)



Note:

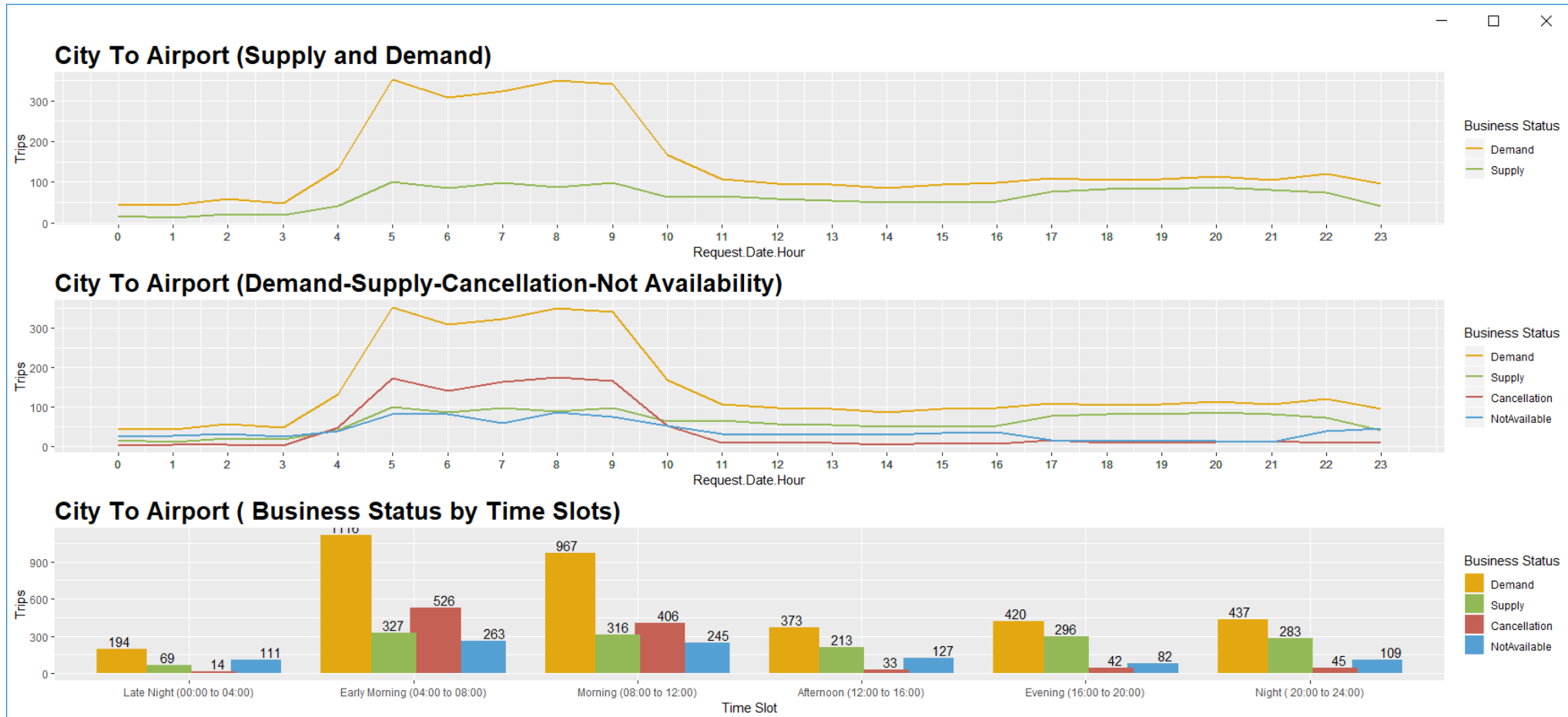
- Demand (Trips Requested)
- Supply (Trips Completed)
- Hours (Requested Time stamp hours)

Supply-Demand gap Analysis (City To Airport)



Binning Time Considered :

- Time Slot ("Late Night (00:00 to 04:00)", "Early Morning (04:00 to 08:00)", "Morning (08:00 to 12:00)", "Afternoon (12:00 to 16:00)", "Evening (16:00 to 20:00)", "Night (20:00 to 24:00)")



Note:

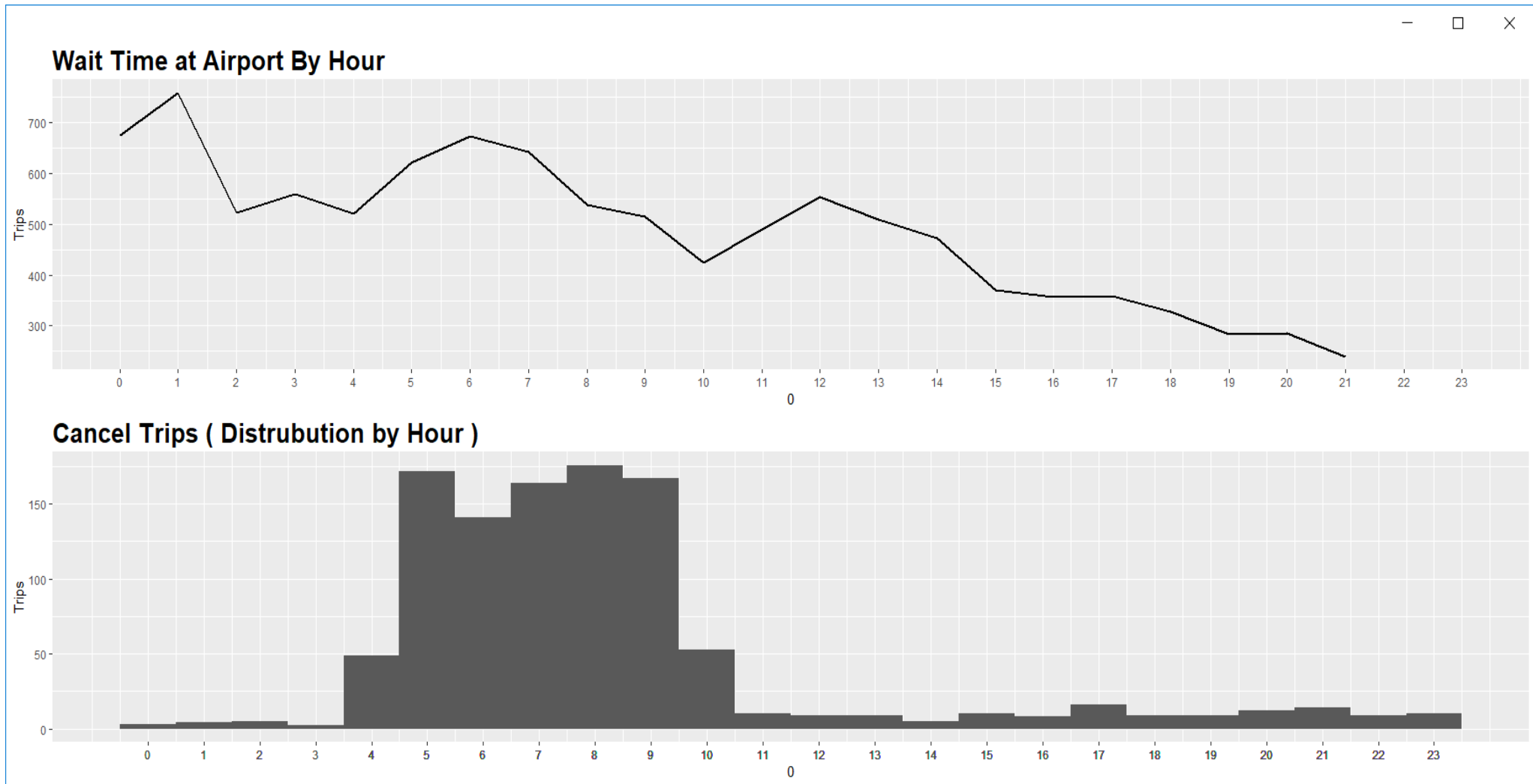
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Supply-Demand gap Analysis (City To Airport)

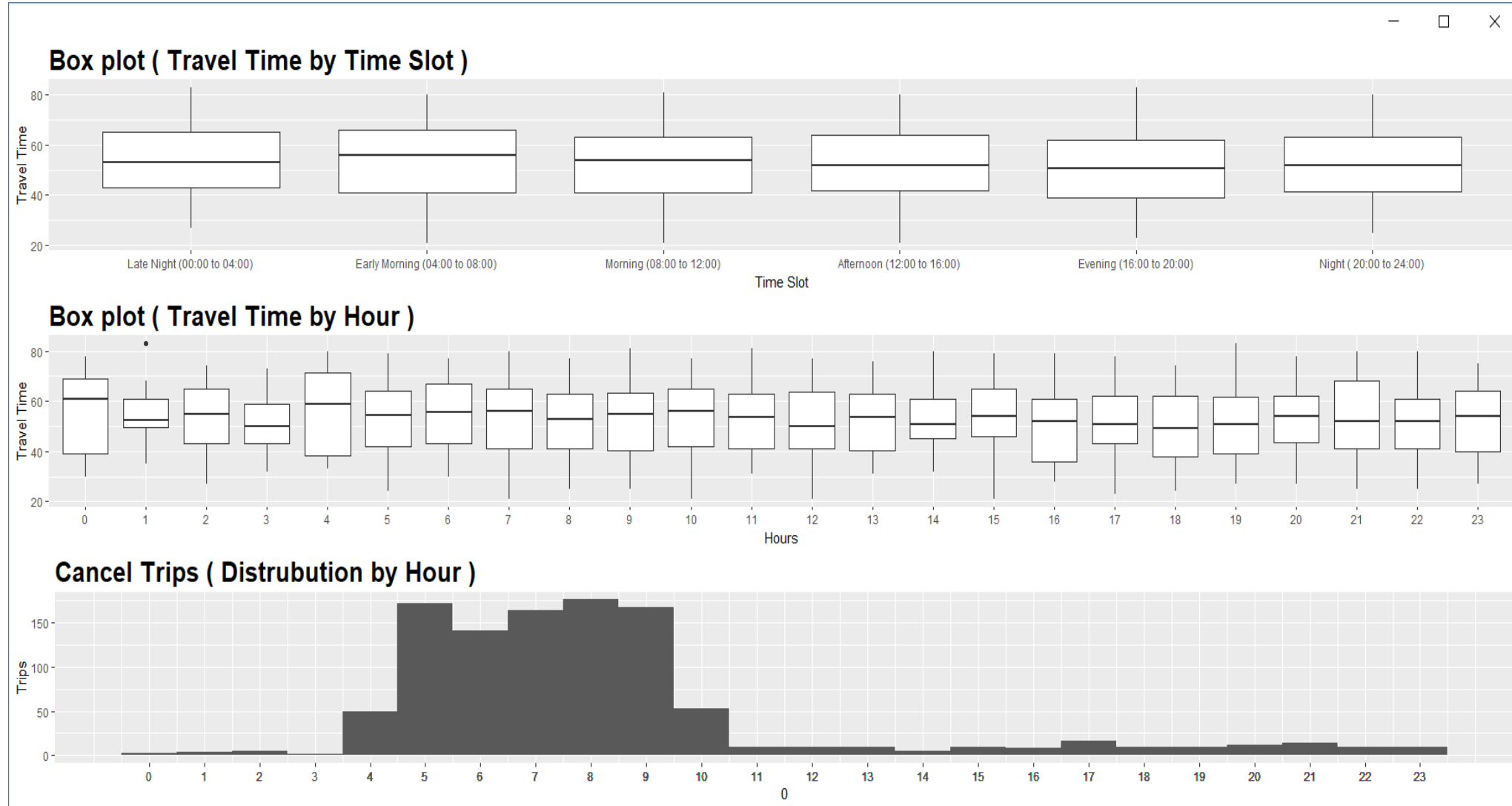
Analysis Based on the Graphs

- Average Supply and demand gap is **51%** for whole day.
- Supply and demand gap is **44.38%**, Removing 5 a.m. to 10 a.m information.
- But it's very high during 5 a.m. to 10 p.m. **70.26%**. This causes overall gap to raise around **51%**
- Demand is at pick between 5 to 10 morning, means two slots (**Early Morning and Morning**).
- Cancellation and Non Availability are problems. But cancellation is very high.
- Cancellation is almost double the Not Availability.

Cancellation Analysis (City To Airport) (Wait Time)



Cancellation Analysis (City To Airport) (Travel Time)

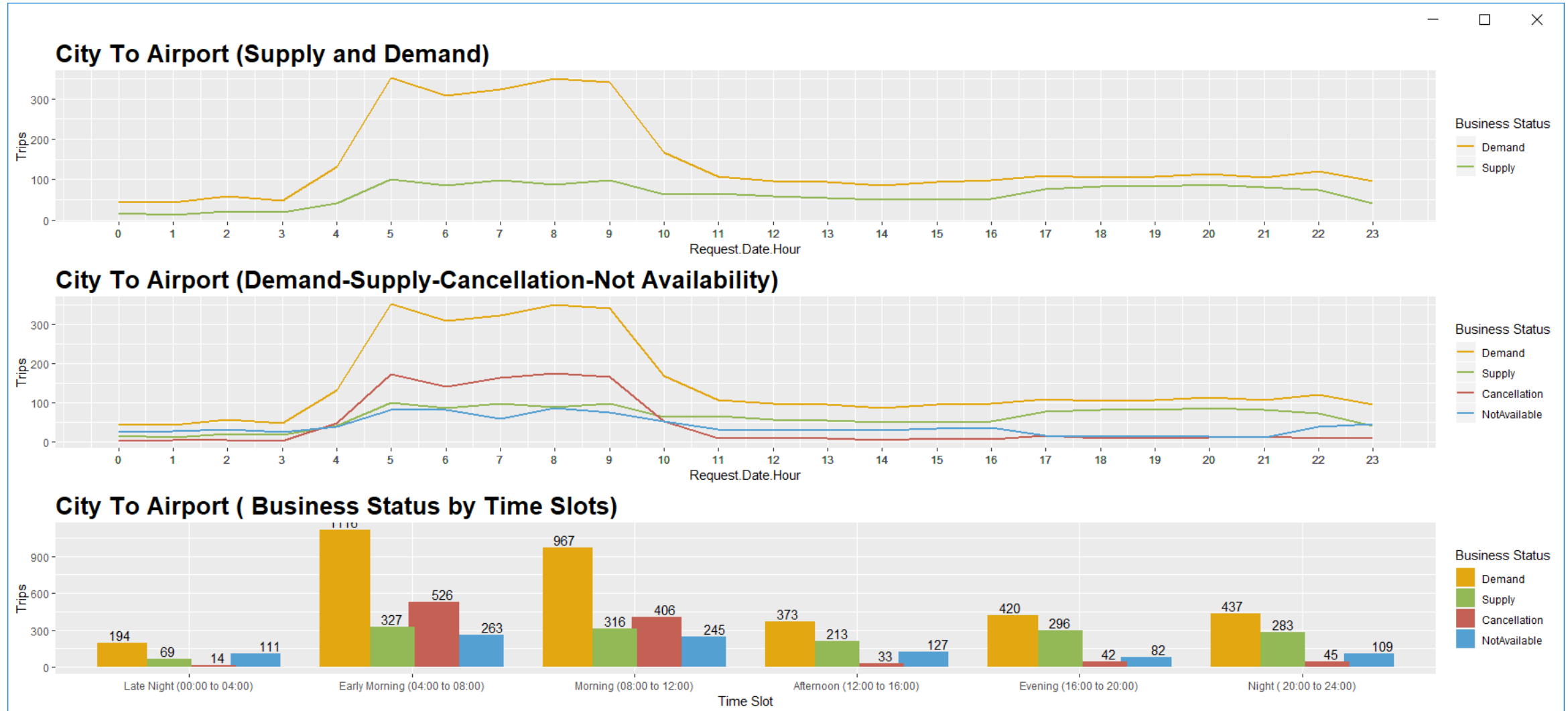


Cancellation Analysis (City To Airport)

Analysis based on the Graphs

- Average Travel time is same through out the day from City To Airport.
- There is some increase at 4 am morning, but no major impact on cancellation.
- Trips are cancelling due to high wait time at airport for completed trips.
- "Early Morning (04:00 to 08:00)" and "Morning (08:00 to 12:00)" is high.
- It's not economical for drivers to wait on Airport for long hours.

Non Availability Analysis (City To Airport)

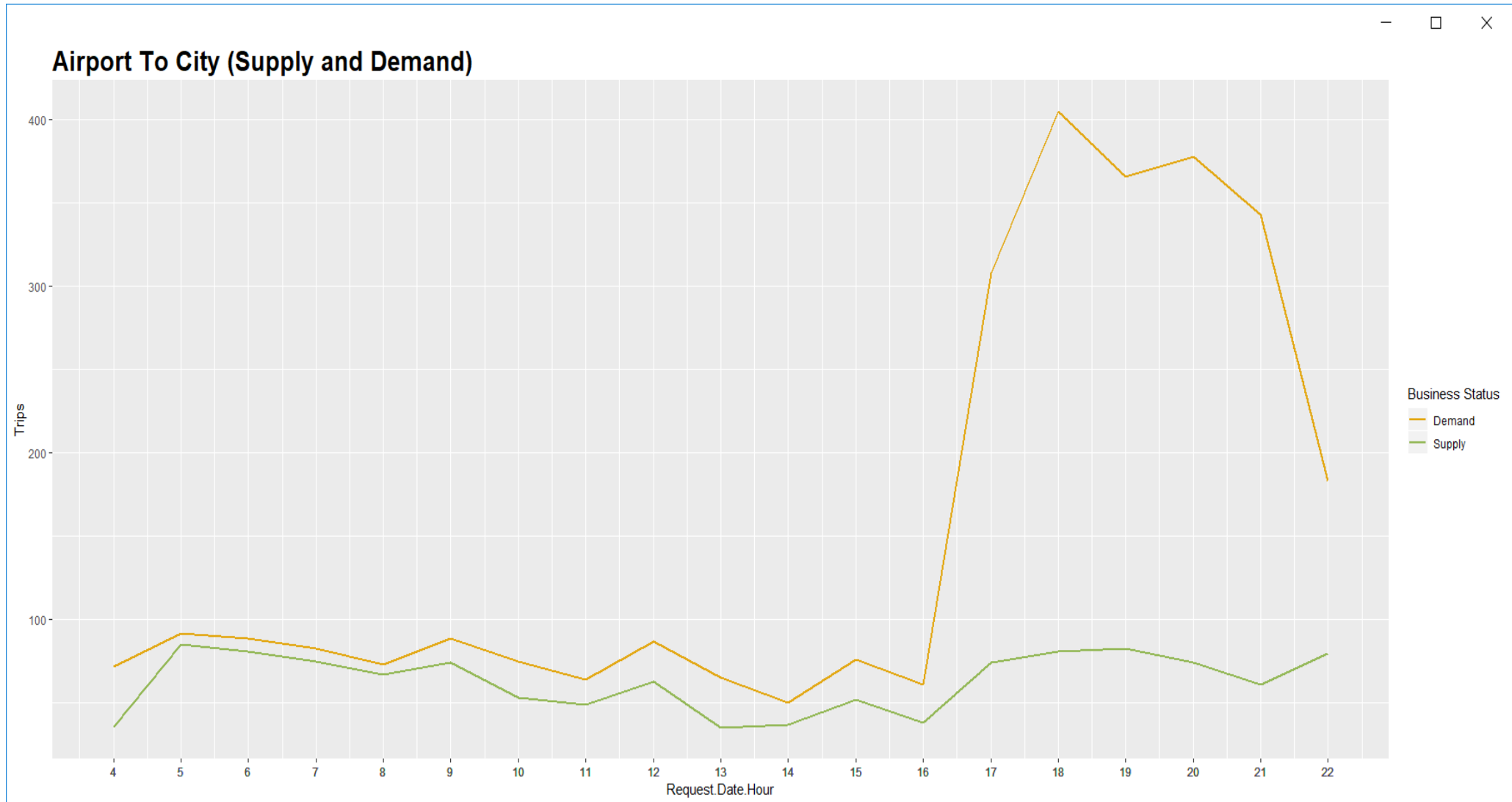


Conclusion Based on The Graph

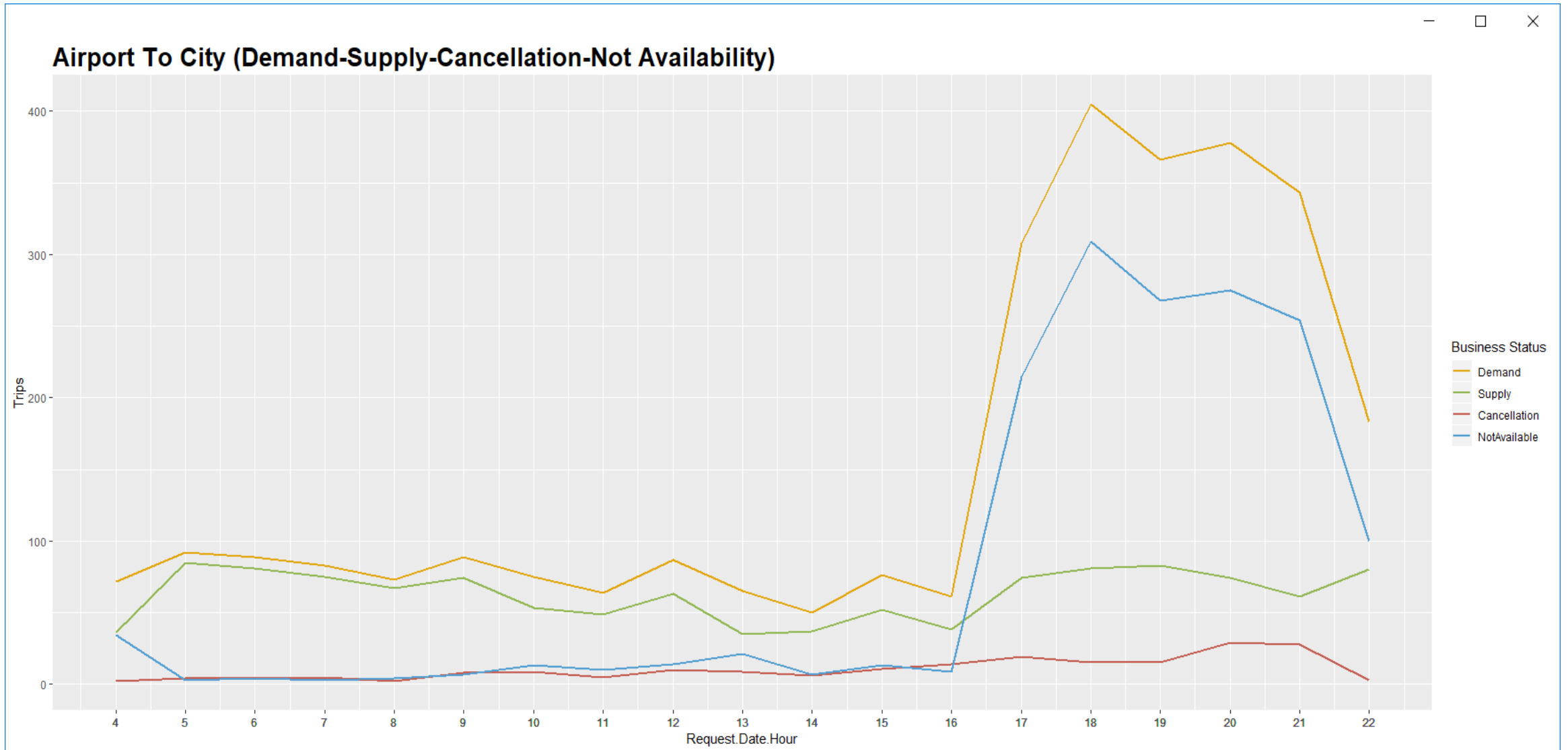
- Not Availability of Cars are bit High in "Early Morning (04:00 to 08:00)" and "Morning (08:00 to 12:00)" compare to other slots.
- In morning slots, Drivers might be busy serving other routes in the city and hence rides are not easily available.

Airport To City

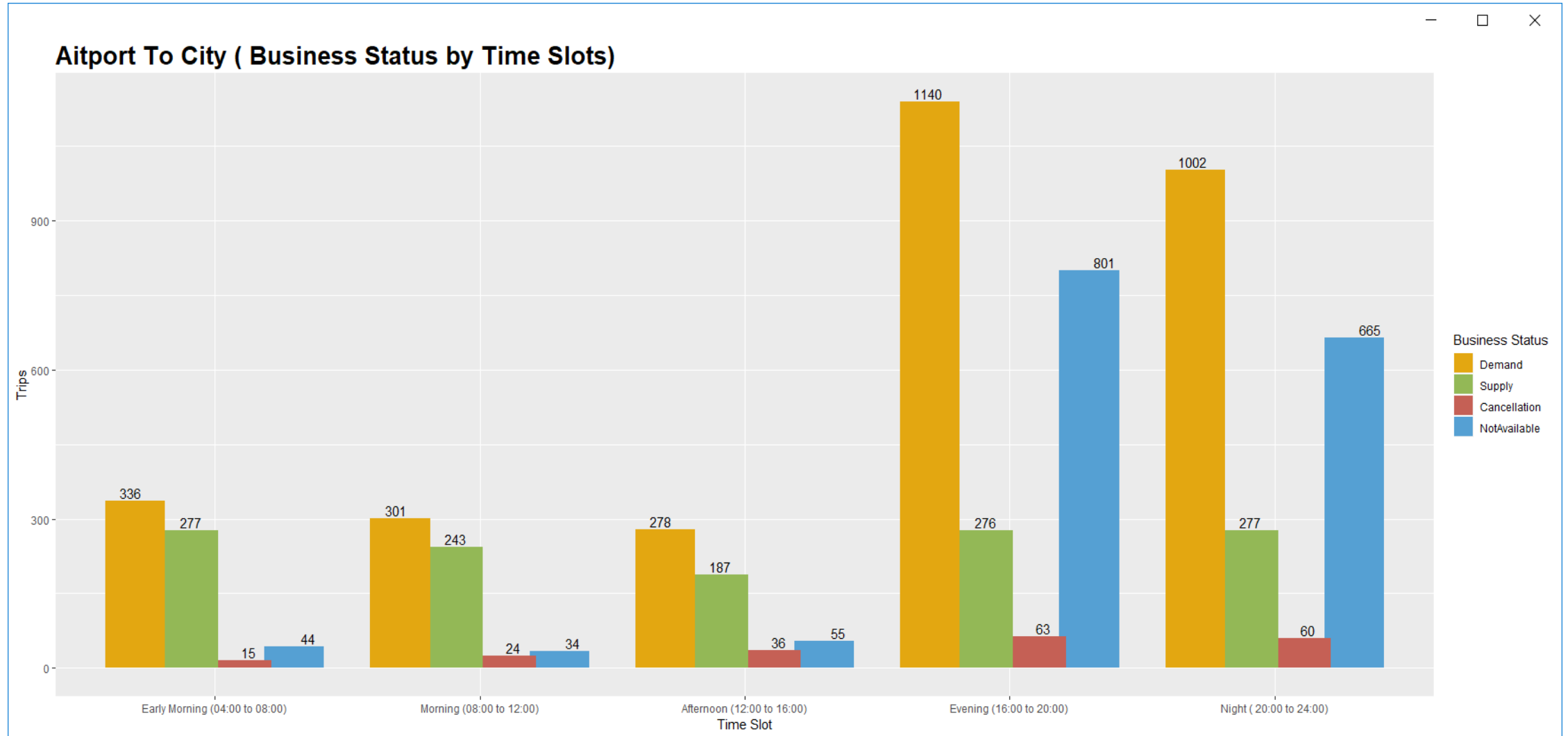
Supply-Demand gap Analysis (Airport To City)



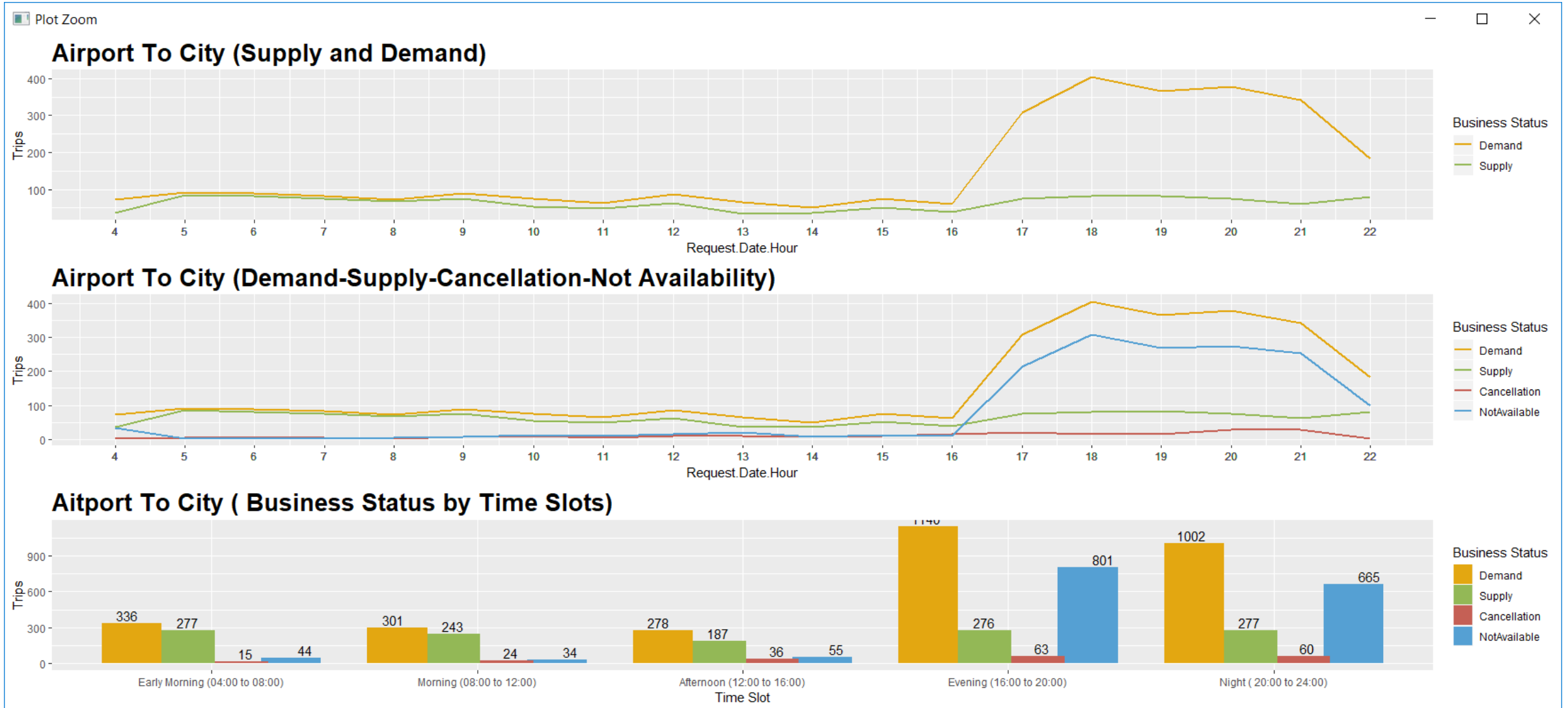
Supply-Demand gap Analysis (Airport To City)



Supply-Demand gap Analysis (Airport To City)

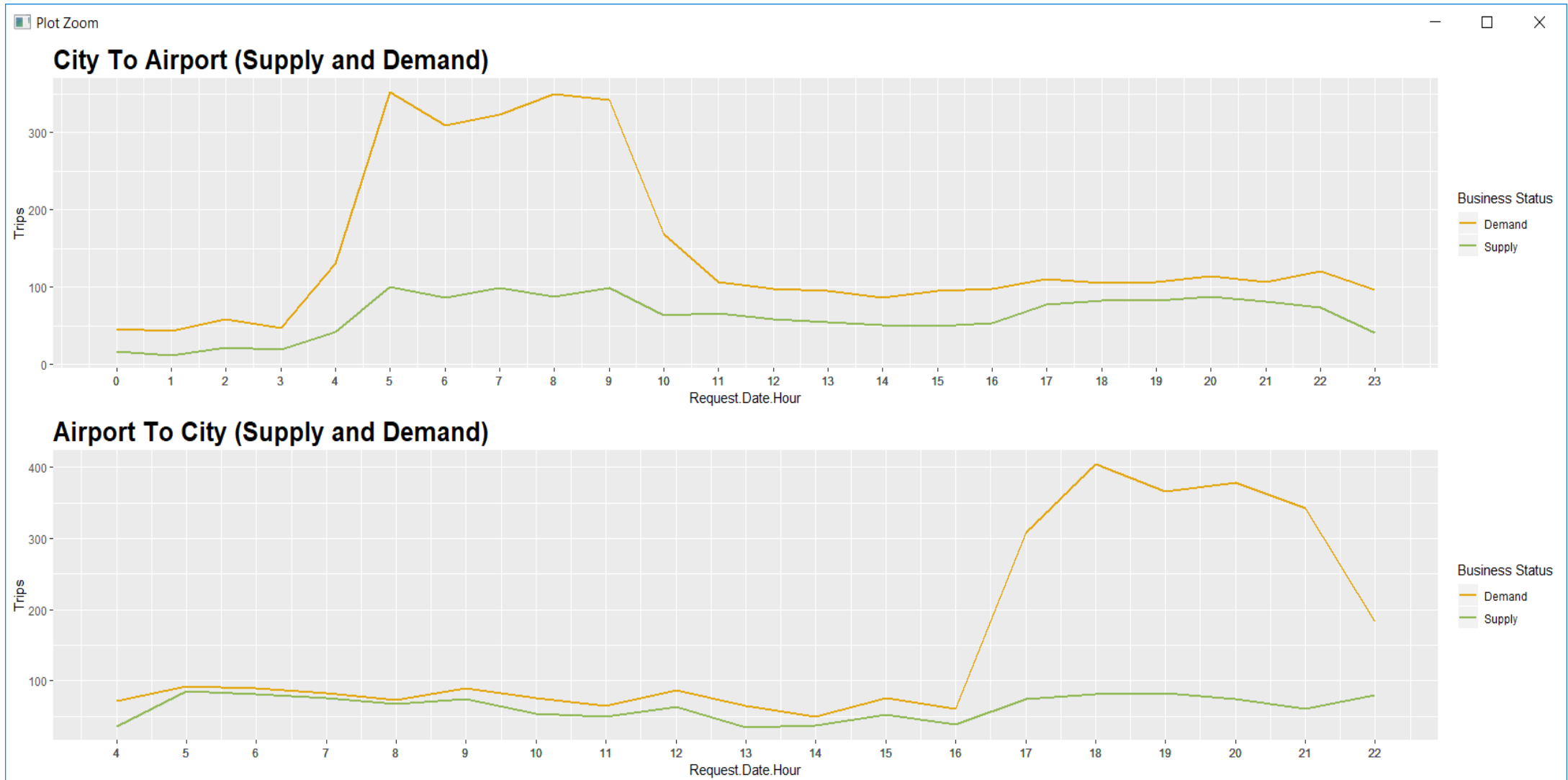


Supply-Demand gap Analysis (Airport To City)



Conclusion Drawn from Graphs

- Average Supply and demand gap is **41%** for whole day.
- Supply and demand gap is **24.85%**, Removing 5 p.m. to 11 p.m. information.
- But it's very high during 5 p.m. to 11 p.m. **75.37%**. This causes overall gap to raise around **41%**
- Two time slot "Evening (16:00 to 20:00)" and "Night (20:00 to 24:00)"
- Supply and Demand gap is due to Not Availability of Rides.



Conclusion Inferred From the Graph

- From the graph we can clearly see. Number of rides coming to Airport are fully utilized for outgoing trips from Airport.
- Not Availability is due to less number of rides available on airport during 4 pm. to 12 pm.
- Reasons behind less number of cars might be as below.
 1. Because of less number of departure from the Airport at night, Rides are not available
 2. Demand is shooting up between 4 p.m. to 12 p.m. , is due to large number of arrival during that period.

Final Conclusion

City to Airport

- During **5 to 10 morning**, We are only **achieving 30% of demand**. We are losing significant revenue during this time interval.
- Supply can not be reached due to **high cancellation** between 5 to 10 morning.

Reason

- Trips are cancelling due to **high wait time** at airport for completed trips.
- It's not economical for drivers to wait on Airport for long hours.

Airport to City

- During **5 to 11 evening**, We are only **achieving 25% of demand**.
- Supply can not be reached due to **high non availability** between 5 to 11 evening.

Reason

- Non Availability of cabs is due to less number of rides available at airport during 4 pm. to 12 pm time period.
- Rides are not available because of less number of departure from the Airport during the night time.