# AIRLINE PASSENGER SATISFACTION

**Final Data Analysis Project**

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# TECHNICAL SKILLS /PROJECT TOOLS






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# DATA ANALYTIC-PROJECT

- My Dataset is about Airline Passenger Satisfaction scores from 120,000+ airline passengers, including additional information about each passenger, their flight, and type of travel, as well as their evaluation of different factors like cleanliness, food & drink, room-leg seat, entertainment, luggage handling, accessibility service, support service with baby/children and overall experience.
- **SOURCE:**
- Kaggle.com/content/airline-passenger-satisfaction

# AIMS & OBJECTIVES

The aim of this analysis is to evaluate different level of satisfaction on services received

Before boarding services

While on-board services

After arrival services

By Airline Passengers based on

Type of travel, Class of travel, Age, Gender etc

**Insights** – Is level of satisfaction obtain by Airline passengers related most to Class of travel (Business, Economy & Economy Plus) or other factors

# EXCEL ANALYSIS

I have used my understanding of Excel formula to know the number of different gender in the dataset; using COUNTIF formula.

Number of Male = COUNTIF(B2:B129881,"Male")

Number of Female = COUNTIF(B2:B129881,"Female")

Using SUM formula =SUM(AA3:AA4) to find the total number of Male and Female to see if it correspond to the number of the whole dataset.

Likewise, counting the number of "First-time" & "Returning" customer.

Using MAX & MIN Function to find the Age range in the dataset;

=MAX(C2:C129881)
=85(Maximum Age)

=MIN(C2:C129881)
=7(Minimum Age)

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# Data Preparation-Data Cleaning using PYTON CODING

Import and read the data using pandas & Numpy libraries of python.

Import Pandas as pd

Import Numpy as np

Import  pyplot as plt from Matplotlib

Import Seaborn as sns

To bring the understanding of my dataset and exploration purpose through visualization.

# SQL ANALYSIS using BigQuery

- Using techniques such as: **SUM, COUNTS, GROUP BY, WHERE** to filter my dataset**, CASE WHEN** to add additional column (AgeCategory**), SUB queries** to find;

➢Satisfaction by Type of travel

➢Count Class of travel

➢Count Class of travel by Gender

➢Age related to Satisfaction on Ease of Online Booking/ Online boarding/ Check-in service

➢Class of travel related to Satisfaction on all Onboard service

➢AgeCategory that is least satisfied with Gate Location & Baggage handling

➢Finding ReturnCustomer by Agecategory

➢Most Satisfied in Departure-Arrival-Time-Convenience by Class of travel

➢Maximum Age of Passenger

➢Minimum Age of Passenger

➢Gender related to Satisfaction on all Onboard service

## Details of some queries in Appendix

# VISUALIZATION on DASHBOARDS & SQL QUERY

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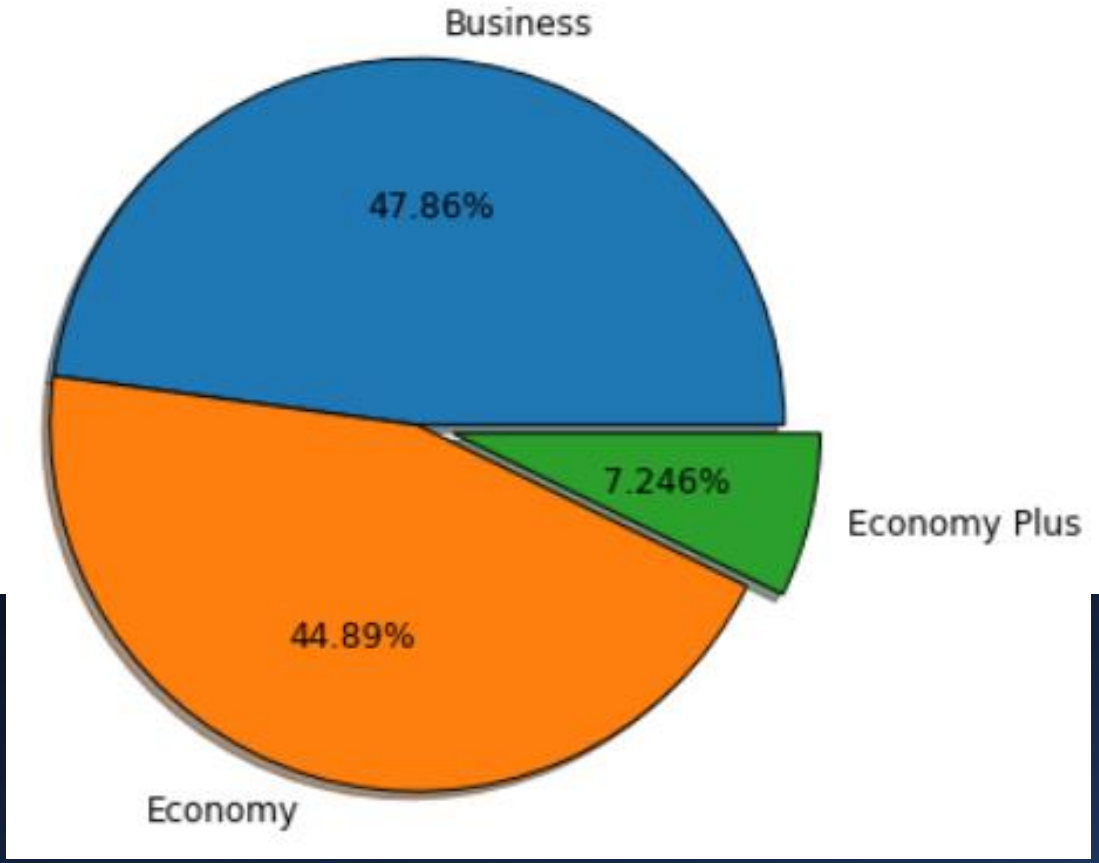
I created 3 Dashboards for my Dataset Visualization, which are:

- Visualization from Excel Analysis
- Visualization from Python Coding
- Visualization Using PowerBI
- SQL queries and Results
- Full Detail of Insight in the Appendix

# Percentage Proportion of Class of travel




- ‘First’ Class of travel not included in dataset.
- This 3 Class of travel are either ‘Business’ or ‘Personal’ type of travel.
- Gender is either ‘Male’ or ‘Female’ in this dataset.
- Age range between 7 and 85.

# Data MININIG USING POWERBI

- INSIGHT: From Left Column to Right Column

- Passenger proportion of 'Business' type of travel is greater than 'Personal' type of travel and they travel more in Business class while 'Personal' type of travel passenger travel more in Economy class or Economy Plus class.

- Business class passenger are more satisfied with all Airline services than Economy class especially in Food & Drink service ( Value for the high-ticket price).

- Regardless of type and class of travel, of the 3 services before boarding, passengers are less satisfied with the Ease of Online booking compared to Online boarding & Check-in-service. Because the 3 services involved the use of technology, analysis shows that Age > 70 are less satisfied with online services before boarding. But Age between 19 AND 70 are more satisfied which could be as a result of their frequent usage of the platform as a Returning customer while Age < 19 are satisfied than Age > 70, though they are more of First-time customers, using technology to obtain Online services could be easier as a result of Tech-Age or being supported by adult. (Min Age =7 and Max Age =85)

- The level of satisfaction of services while passenger are On-board varies, 'Seat Comfort' has the highest average satisfaction follow by' Leg room', next is cleanliness'. and in 4th place is 'Food & Drink.

- The Departure and Arrival Time convenience satisfied the "Business" type of travel than "Personal" type of trave.

- When it comes to after arriving services "Gate location" and "Baggage Handling" . The satisfaction received across all ages (Age 7 – Age 85) is less in Gate location compared to Baggage Handling and it worst off relatively from Age 78.

- In general, it can be concluded that , Airline Passenger Satisfaction is related to Class of travel.

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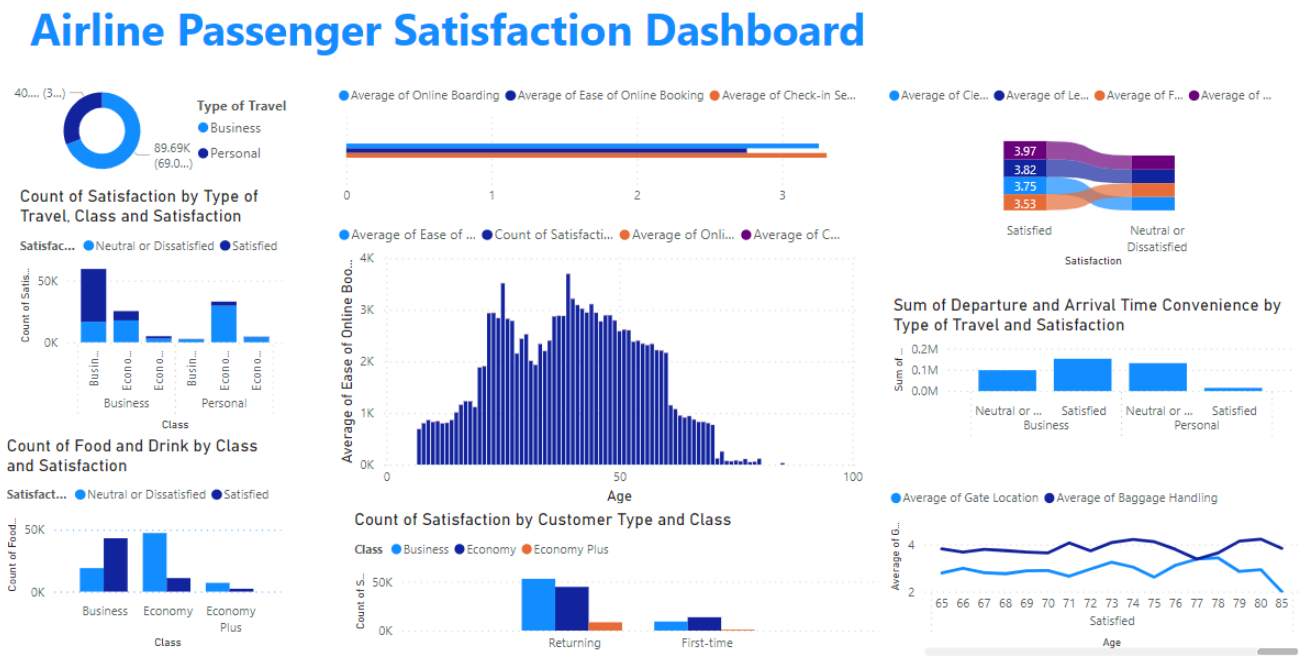
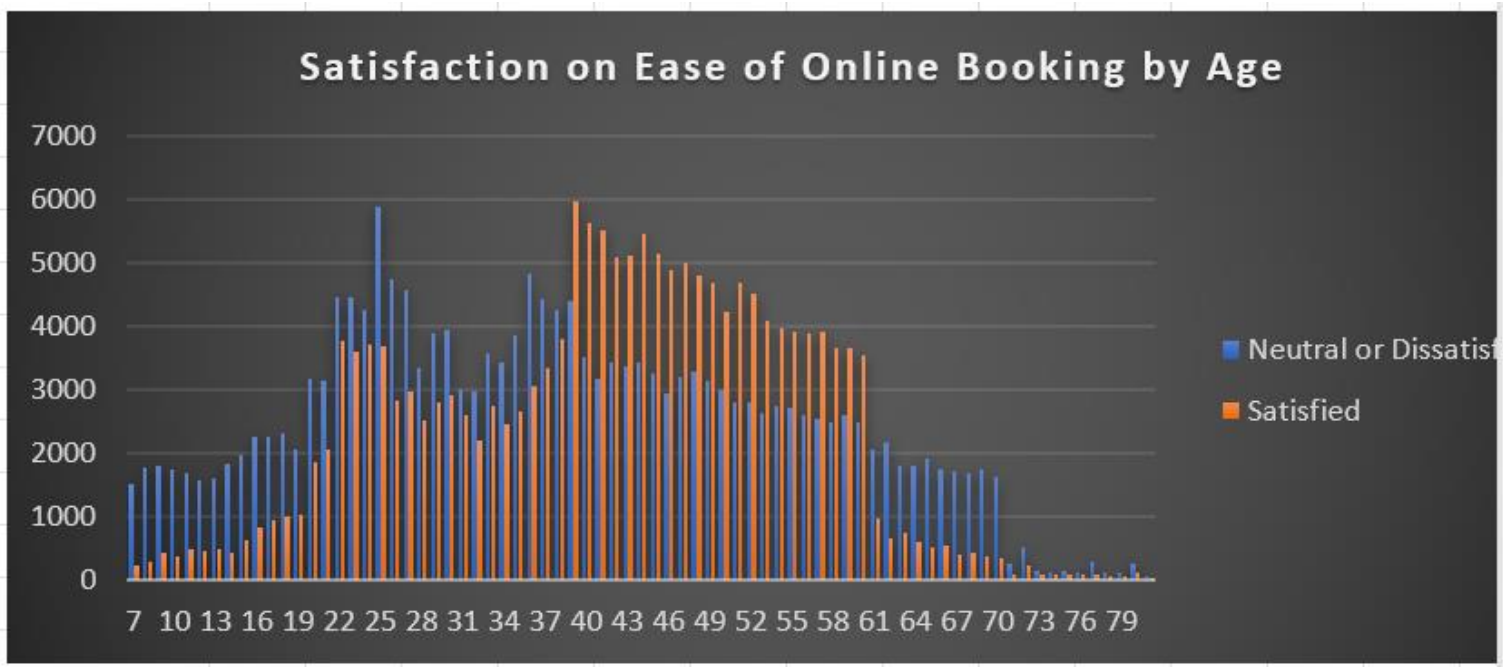
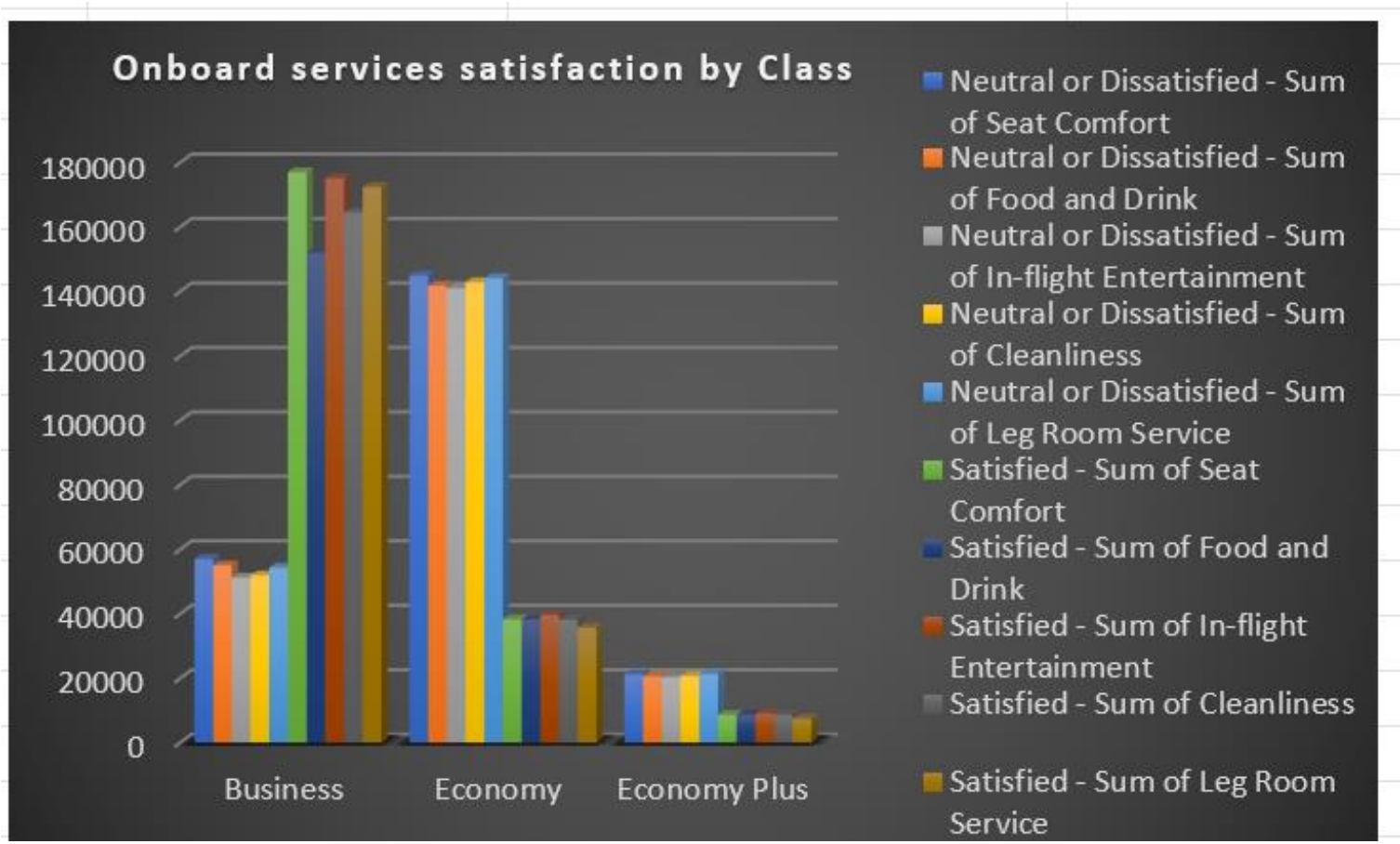


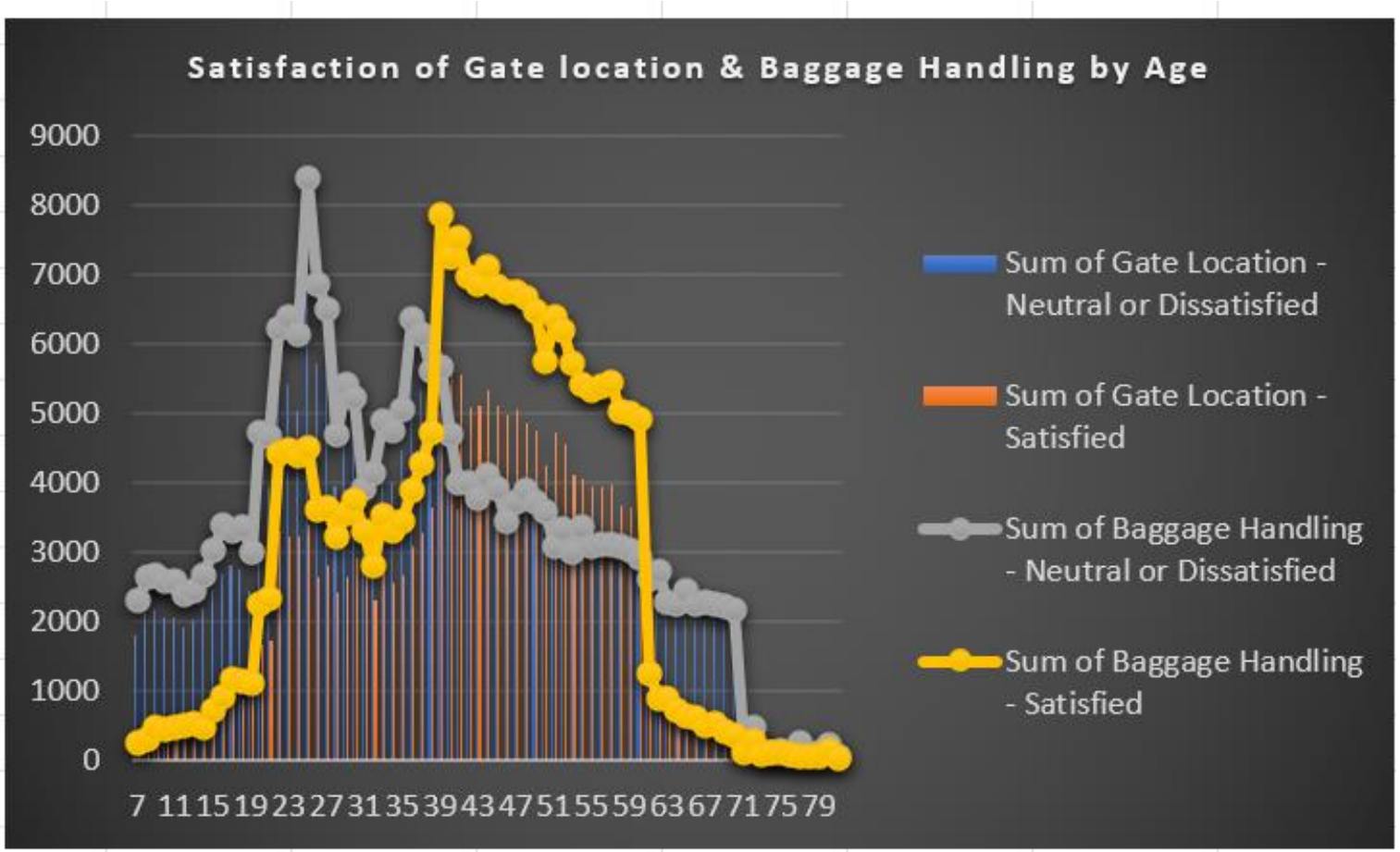
Ease of online booking is the least satisfied of the 3 services before boarding but Age between 40 and 60 are most satisfied



Considering the proportion of class of travel, we can say that, ‘Business’ Class received peak of satisfaction compared to ‘Economy’ Class. This is likely due to compensating for the high-ticket price pay by ‘Business’ class passenger compared to ticket price paid by ‘Economy’ class passenger.



Age 40 and 60 are most satisfied, likely due to the same Age range more in ‘Business’ as shown in the next slide.

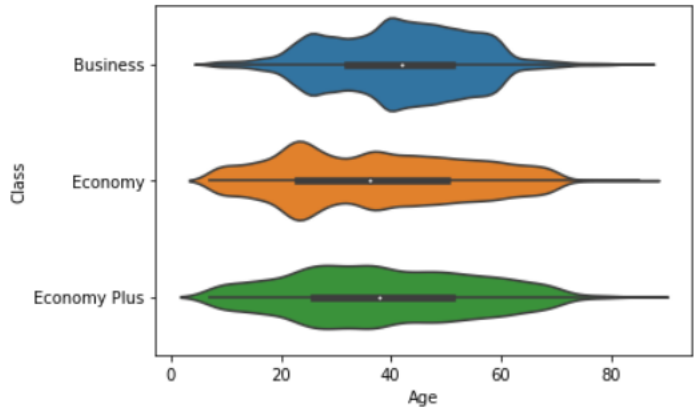


# Relationship between class of travel and Age

To find the relationship between Class of travel and Age of Airline passenger.

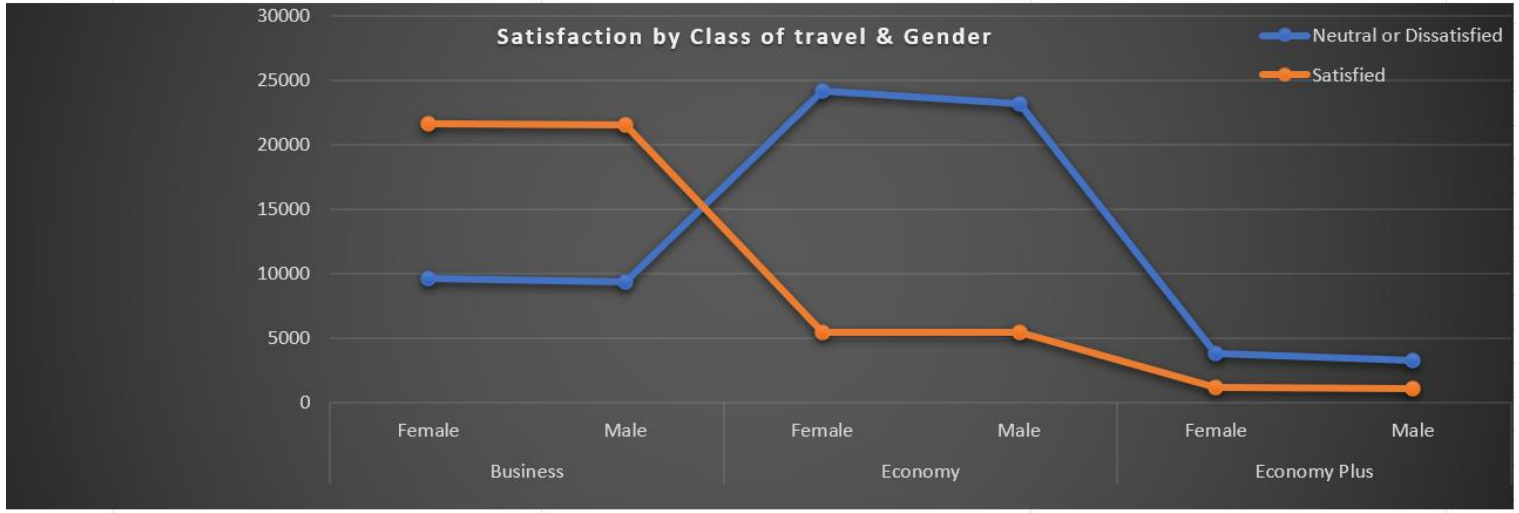
```
[ ]  sns.violinplot(data=df, x= 'Age', y= 'Class', pallete = 'Magma')
```

```
<Axes: xlabel='Age', ylabel='Class'>
```




'Age' between 40 and 60 is most related to 'Business'Class 'Age' in 20s are most related to 'Economy' Class 'Age' between 30 and 40 are most related to 'Economy plus' Class

Highest level of Satisfaction received by both Gender in ‘Business’ Class of travel compared to ‘Economy’ and ‘Economy Plus’ class of travel.



# Challenges

- I got challenge on using Advance SQL query  to create ‘Proportion’ insight on my dataset.

# Conclusion

https://github.com/Ebun5

**In general, it can be concluded that , Airline Passenger Satisfaction is related to Class of travel. Which implies that Airline Passenger received ‘Value for money’ in relation to the high-price ticket paid**

# THANK YOU FOR LISTENING