# Data Analytics Project

# Topic Name :- iPhone Sale Analysis

# Topic Sr. No. :- 5

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- **Tools Used :** Google Colaboratory, Tableau Public

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## ***CLEANING AND PRE-PROCESSING GIVEN DATA :-***

**Google Colaboratory Code :** This code is used to clean and pre-process the given dataset.

```
import pandas as pd
data=pd.read_csv('/content/apple_products.csv')
data
data.shape
data.info()
data.nunique()
data.columns
data1=data.sort_values("Star Rating", axis=0, ascending=False,
inplace=False)
data1
data2=data1.head(10)
data2
next=data2.to_csv('apple_top10.csv', encoding='cp1252')
next
```

After implementing this code on the given dataset, it is found that the dataset is clean and has no NaN or null values. Now, the dataframe of the dataset is arranged in descending order of the Star Rating of the iPhones and the top 10 highest rated iPhones are obtained from it. This is the actual dataframe required for the concerned hypotheses. It is downloaded, and hypotheses are analyzed using the 'Tableau Public' software.

Link of Jupyter Notebook :-
https://colab.research.google.com/drive/13wVsYGuA1zNoHxU0U2arSTUw5ebCN_yc#scrollTo=qY5QZz9q0Pue

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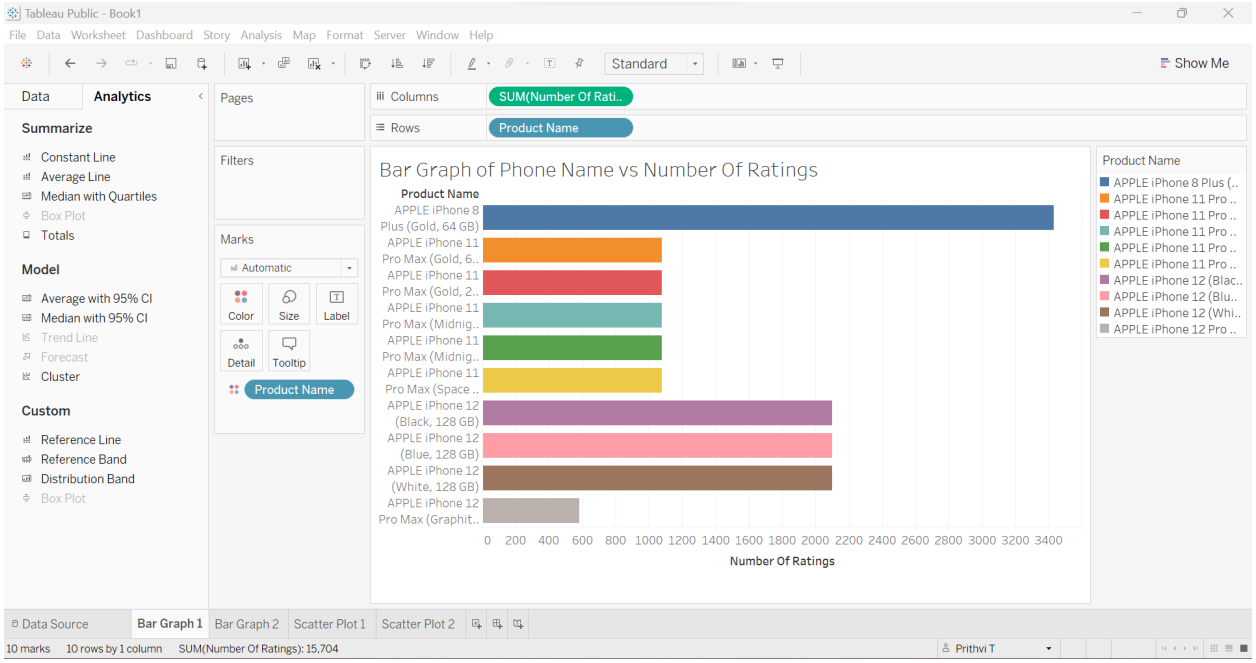
## ***HYPOTHESES :-***

**Hypothesis 1 :** Comparison of Number of Ratings of various phones in the dataset

**Output from Tableau Public :**




**Conclusions :**

**Conclusion 1 of Hypothesis 1 :** It is observed that the APPLE iPhone 8 Plus (Gold, 64 GB) has the highest number of ratings, which is 3431 ratings while

APPLE iPhone 12 Pro Max (Graphite, 128 GB) has the lowest number of ratings which is 580 ratings .

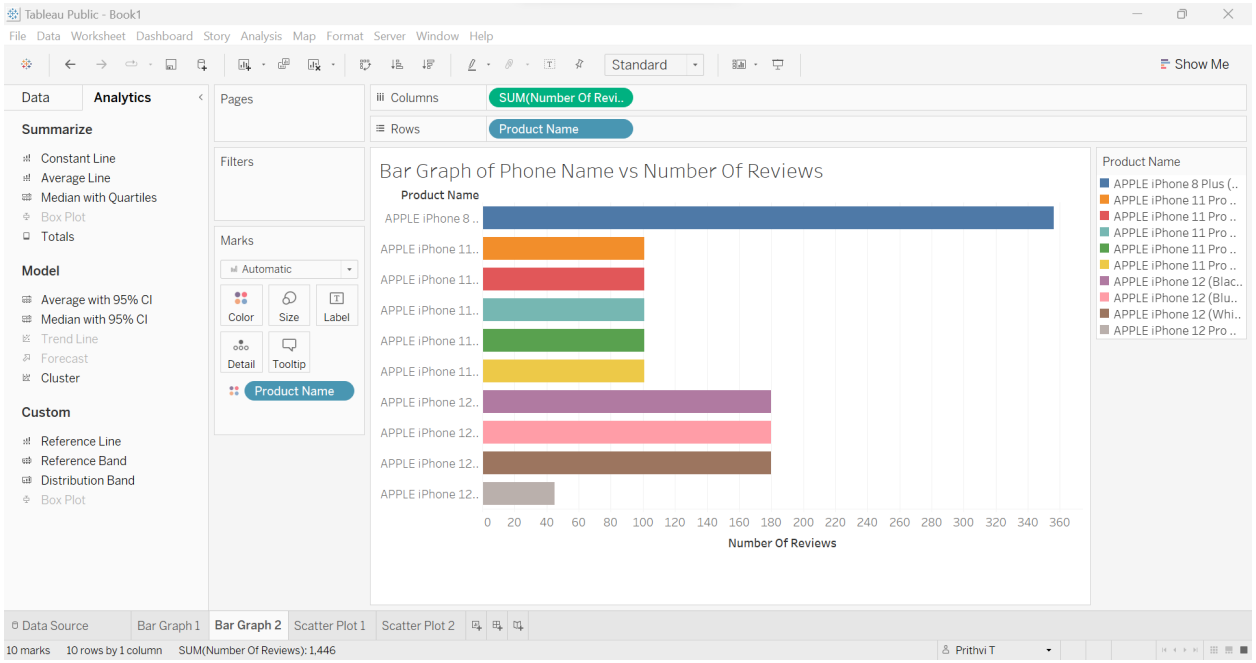
**Conclusion 2 of Hypothesis 1 :** The mean number of ratings, for the top 10 iPhones is 1570.4 ratings and standard deviation is 849.811901 ratings i.e. approximately 850 ratings.

**Conclusion 3 of Hypothesis 1 :** 5 of the top 10 iPhones : APPLE iPhone 11 Pro Max (Gold, 64 GB), APPLE iPhone 11 Pro Max (Gold, 256 GB), APPLE iPhone 11 Pro Max (Midnight Green, 64 GB), APPLE iPhone 11 Pro Max (Midnight Green, 256 GB) and APPLE iPhone 11 Pro Max (Space Grey, 64 GB) have same number of ratings, i.e. 1078 ratings.

**Conclusion 4 of Hypothesis 1 :** 3 of the top 10 iPhones : APPLE iPhone 12 (Black, 128 GB), APPLE iPhone 12 (Blue, 128 GB) and APPLE iPhone 12 (White, 128 GB), have same number of ratings, i.e. 2101 ratings.

**Hypothesis 2 :** Comparison of the Number of Reviews received by various iPhones

## Output from Tableau Public :




## Conclusions :

**Conclusion 1 of Hypothesis 2 :** It is observed that the APPLE iPhone 8 Plus (Gold, 64 GB) has the highest number of reviews, which is 356 reviews while

APPLE iPhone 12 Pro Max (Graphite, 128 GB) has the lowest number of reviews, which is 45 reviews .

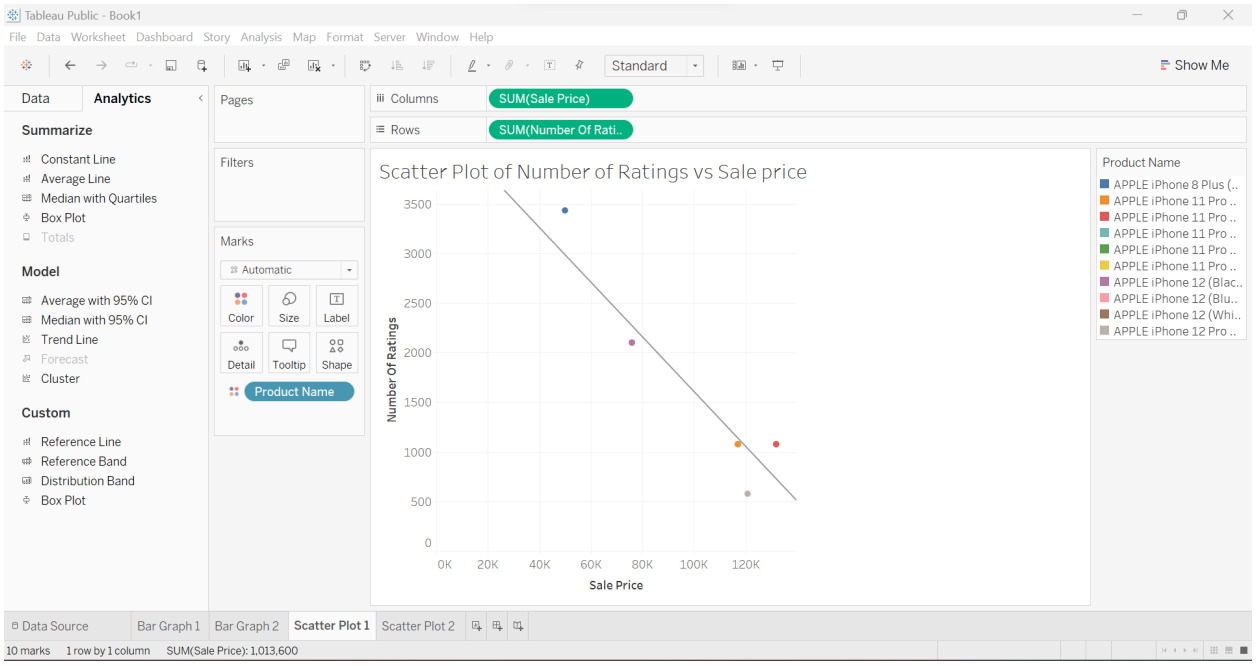
**Conclusion 2 of Hypothesis 2 :** The mean number of reviews, for the top 10 iPhones is 144.6 reviews a d the standard deviation is 84.842386 reviews i.e. approximately 85 reviews.

**Conclusion 3 of Hypothesis 2 :** 5 of the top 10 iPhones : APPLE iPhone 11 Pro Max (Gold, 64 GB), APPLE iPhone 11 Pro Max (Gold, 256 GB), APPLE iPhone 11 Pro Max (Midnight Green, 64 GB), APPLE iPhone 11 Pro Max (Midnight Green, 256 GB) and APPLE iPhone 11 Pro Max (Space Grey, 64 GB) have same number of reviews, i.e. 101 reviews.

**Conclusion 4 of Hypothesis 2 :** 3 of the top 10 iPhones : APPLE iPhone 12 (Black, 128 GB), APPLE iPhone 12 (Blue, 128 GB) and APPLE iPhone 12 (White, 128 GB), have same number of reviews, i.e. 180 reviews.

**Hypothesis 3 :** Comparison of the Number Of Ratings vs Sale Price

## Output from Tableau Public :



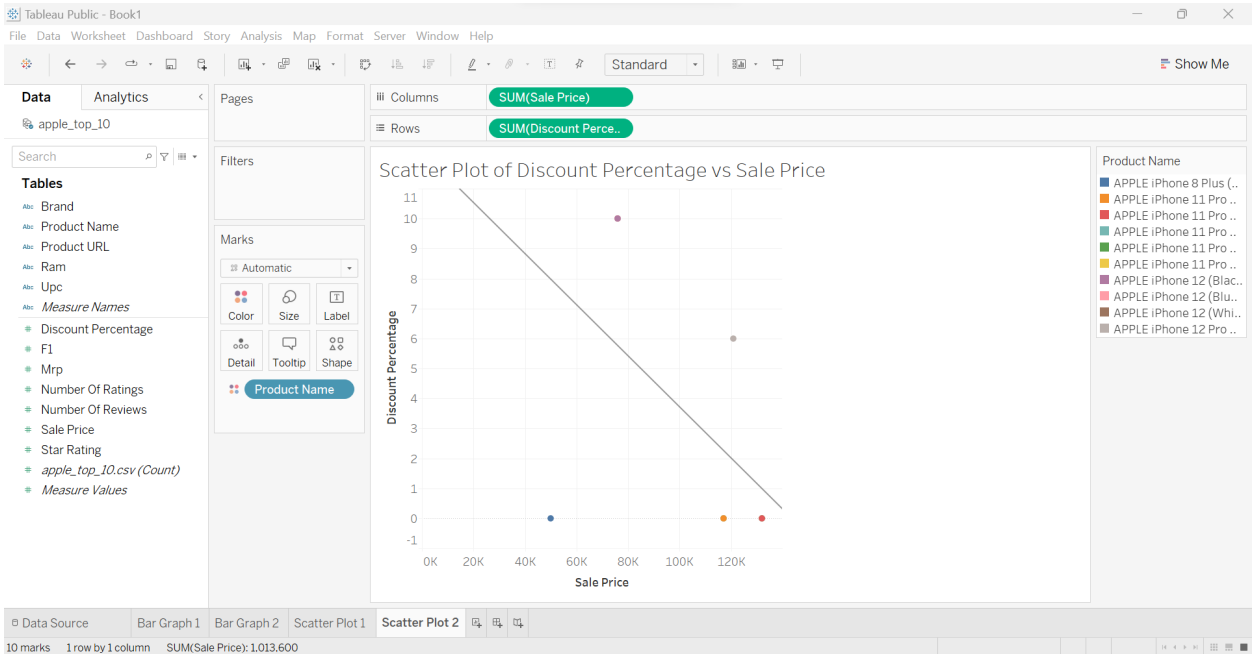

## Conclusions :

**Conclusion 1 of Hypothesis 3 :** It is observed from this scatter Plot, that iPhones with higher price have relatively lower number of ratings and vice versa.

**Conclusion 2 of Hypothesis 2 :** The relationship between the number of reviews of an iPhone and its sale price, is observed to be linearly decaying.

**Hypothesis 4 :** Comparison of the discount percentage vs sale price

## Output from Tableau Public :




## Conclusions :

**Conclusion 1 of Hypothesis 4 :** It is observed from this Scatter Plot, that higher the Sale Price of an iPhone, higher is the percentage of discount offered on it.
**Conclusion 2 of Hypothesis 4 :** The relationship between the discount percentage of an iPhone and its sale price, is observed to be linearly decaying.

Note: In both the scatter plots, though there are 10 iPhones considered, but fewer datapoints are visible in the plots, as datapoints for some of the iPhones coincide.

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END OF PROJECT