Import Library

```
import pandas as pd
import plotly.express as px
import plotly.graph_objects as go
from plotly.subplots import make_subplots
```

Reading The Dataset

```
df=pd.read_csv("/content/apple_products.csv")
```

```
df.head(2)
```

	Product Name	Product URL	Brand	Sale Price	Mrp	Discount Percentage	Number Of Ratings	Number Of Reviews	Upc	Star Rating	Ram
0	APPLE iPhone 8 Plus (Gold, 64	https://www.flipkart.com/apple-iphone-8-plus-g...	Apple	49900	49900	0	3431	356	MOBEXRGV7EHHTGUH	4.6	2 GB

Next steps: Generate code with df | View recommended plots | New interactive sheet

Checking The Dataset Inforamation of Columns Data-Type

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 62 entries, 0 to 61
Data columns (total 11 columns):
 #   Column               Non-Null Count  Dtype  
---  ------               --------------  -----  
 0   Product Name         62 non-null     object 
 1   Product URL          62 non-null     object 
 2   Brand                62 non-null     object 
 3   Sale Price           62 non-null     int64  
 4   Mrp                  62 non-null     int64  
 5   Discount Percentage  62 non-null     int64  
 6   Number Of Ratings    62 non-null     int64  
 7   Number Of Reviews    62 non-null     int64  
 8   Upc                  62 non-null     object 
 9   Star Rating          62 non-null     float64
 10  Ram                  62 non-null     object 
dtypes: float64(1), int64(5), object(5)
memory usage: 5.5+ KB
```

Checking The Name Of Columns In The Dataet

```
df.columns
```

```
Index(['Product Name', 'Product URL', 'Brand', 'Sale Price', 'Mrp',
       'Discount Percentage', 'Number Of Ratings', 'Number Of Reviews', 'Upc',
       'Star Rating', 'Ram'],
      dtype='object')
```

Checking For Null Values

```
df.isnull().sum()
```

	0
Product Name	0
Product URL	0
Brand	0
Sale Price	0
Mrp	0
Discount Percentage	0
Number Of Ratings	0
Number Of Reviews	0
Upc	0
Star Rating	0
Ram	0

dtype: int64

```
df.duplicated().sum()
```

```
0
```

Checking The Descriptive Statistics of Our Dataset

```
df.describe()
```

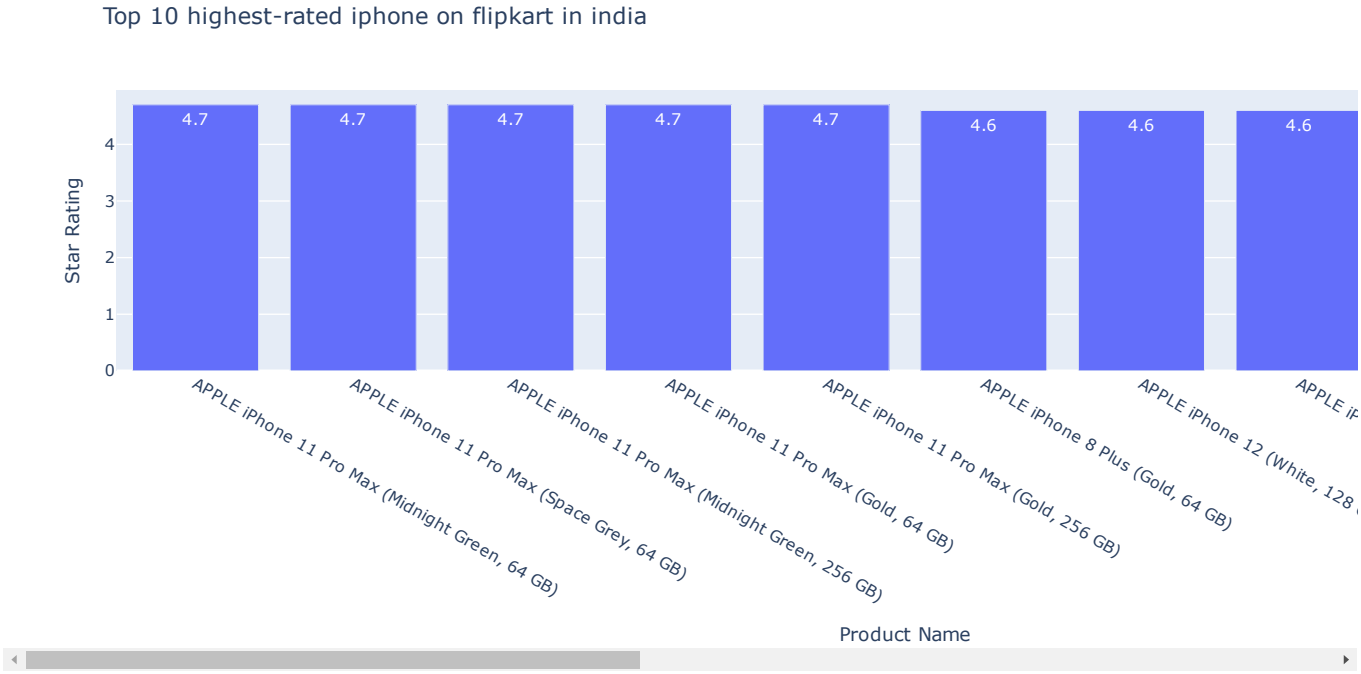
	Sale Price	Mrp	Discount Percentage	Number Of Ratings	Number Of Reviews	Star Rating
count	62.000000	62.000000	62.000000	62.000000	62.000000	62.000000
mean	80073.887097	88058.064516	9.951613	22420.403226	1861.677419	4.575806
std	34310.446132	34728.825597	7.608079	33768.589550	2855.883830	0.059190
min	29999.000000	39900.000000	0.000000	542.000000	42.000000	4.500000
25%	49900.000000	54900.000000	6.000000	740.000000	64.000000	4.500000
50%	75900.000000	79900.000000	10.000000	2101.000000	180.000000	4.600000
75%	117100.000000	120950.000000	14.000000	43470.000000	3331.000000	4.600000
max	140900.000000	149900.000000	29.000000	95909.000000	8161.000000	4.700000

Which are Top 10 highest-rated iphone on flipkart in india ?

```
high_rated = df.sort_values(by=['Star Rating'], ascending=False).head(10)
top_10_iPhones = high_rated['Product Name']
print(top_10_iPhones)
```

```
20     APPLE iPhone 11 Pro Max (Midnight Green, 64 GB)
17         APPLE iPhone 11 Pro Max (Space Grey, 64 GB)
16    APPLE iPhone 11 Pro Max (Midnight Green, 256 GB)
15               APPLE iPhone 11 Pro Max (Gold, 64 GB)
14              APPLE iPhone 11 Pro Max (Gold, 256 GB)
0                    APPLE iPhone 8 Plus (Gold, 64 GB)
29                     APPLE iPhone 12 (White, 128 GB)
32          APPLE iPhone 12 Pro Max (Graphite, 128 GB)
35                     APPLE iPhone 12 (Black, 128 GB)
36                      APPLE iPhone 12 (Blue, 128 GB)
Name: Product Name, dtype: object
```

```
top_10_iPhones
figure=px.bar(high_rated,x=top_10_iPhones,y="Star Rating",title="Top 10 highest-rated iphone on flipkart in india",text=high_rated
figure.show()
```

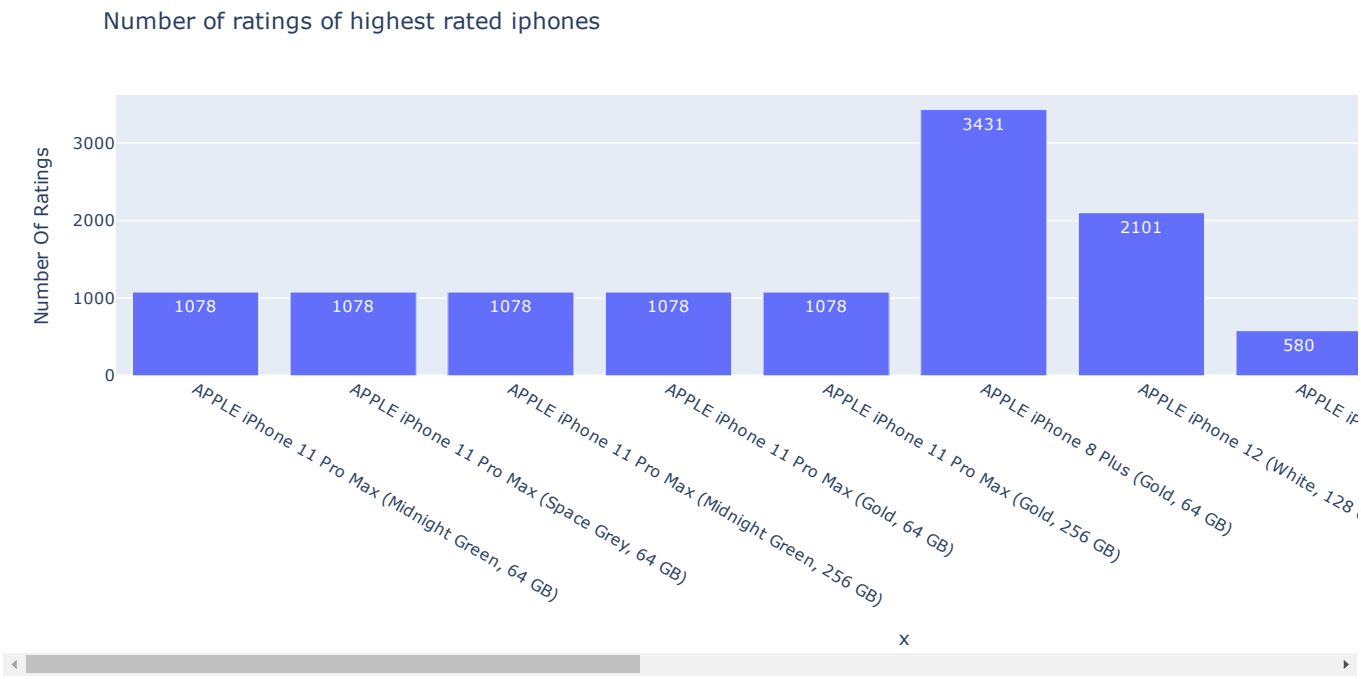


Observation: Five iPhone 11 Pro/Pro Max models (Midnight Green, Space Grey, Gold) share the highest star rating of 4.7 on Flipkart. Among these, the Apple iPhone 11 Pro Max (Midnight Green, 64 GB) has the highest number of ratings and reviews, indicating greater popularity or customer preference. All top 10 iPhones still maintain star ratings above 4.5 and a substantial number of ratings and reviews, highlighting overall positive reception

How Many Rating do-highest-rated iphones on flipkart have ?

```
iphones=high_rated["Product Name"].value_counts()
label=iphones.index
counts=high_rated["Number Of Ratings"]

figure=px.bar(high_rated,x=label,y=counts,title="Number of ratings of highest rated iphones",text=counts)
figure.show()
```



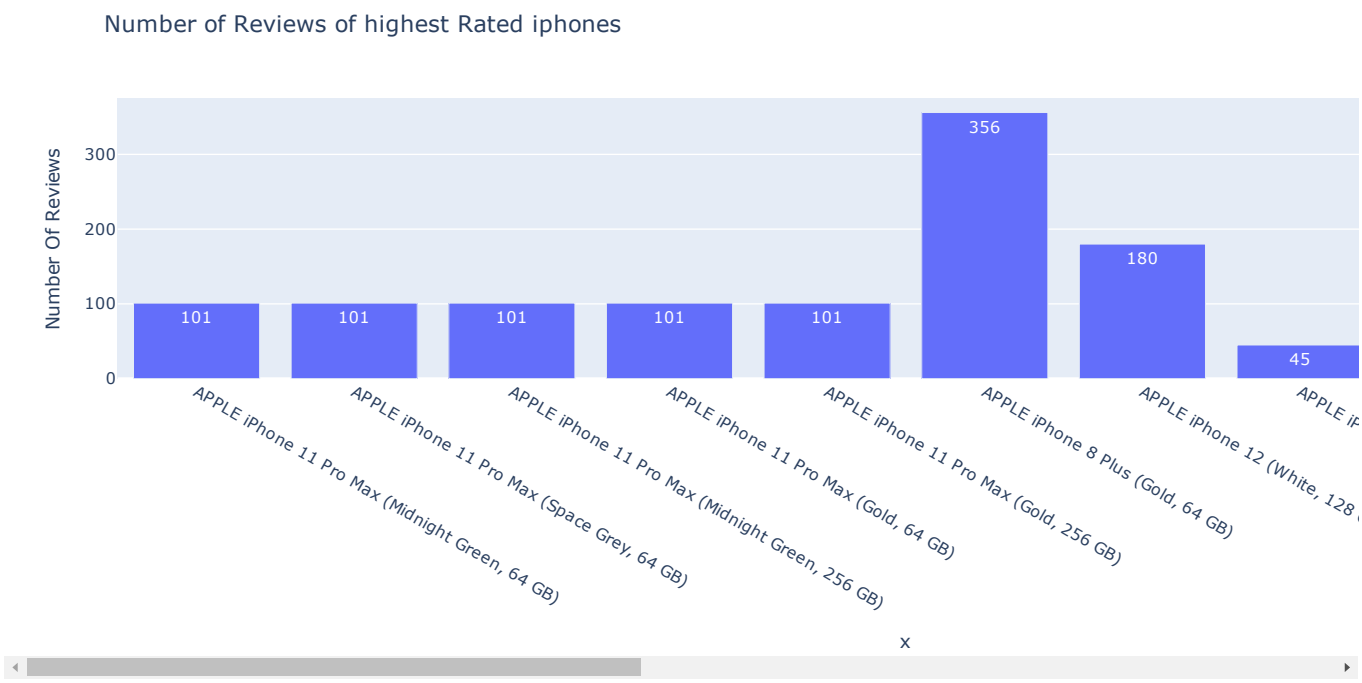
Observation:

The bar chart displays the number of ratings for each of the top 10 highest-rated iPhones. APPLE iPhone 8 Plus (Gold, 64 GB) has the highest number of ratings. All the top 10 iPhones have received a substantial number of ratings.

Which Iphone has the Highest number of Review on Flipkart?

```
iphones=high_rated["Product Name"].value_counts()
label=iphones.index
counts=high_rated["Number Of Reviews"]

figure=px.bar(high_rated,x=label,y=counts,title="Number of Reviews of highest Rated iphones",text=counts)
figure.show()
```

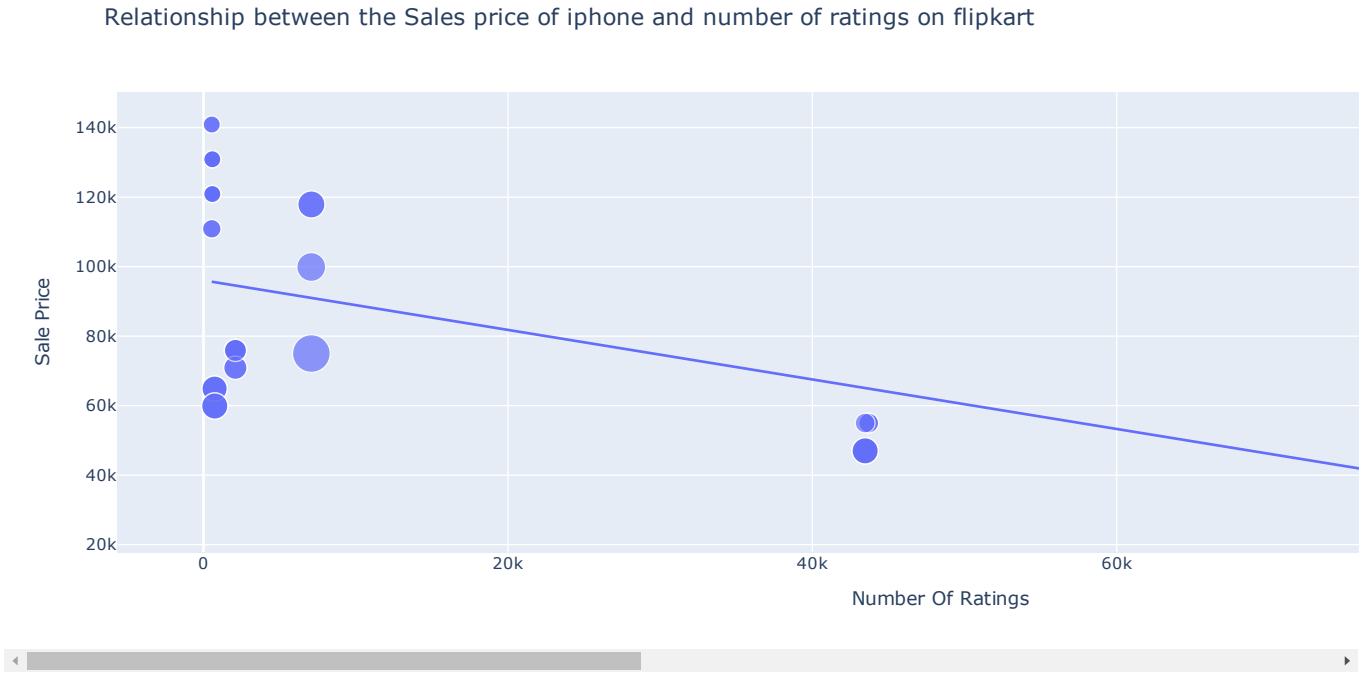


Observation:

The bar chart shows the number of reviews for each of the top 10 highest-rated iPhones. APPLE iPhone 8 Plus (Gold, 64 GB) has the highest number of reviews. All the top 10 iPhones have a considerable number of reviews.

What is the Relationship between the Sales price of iphone and number of ratings on flipkart?

```
figure=px.scatter(df,x="Number Of Ratings",y="Sale Price",size="Discount Percentage",trendline='ols',title="Relationship between tl
figure.show()
```

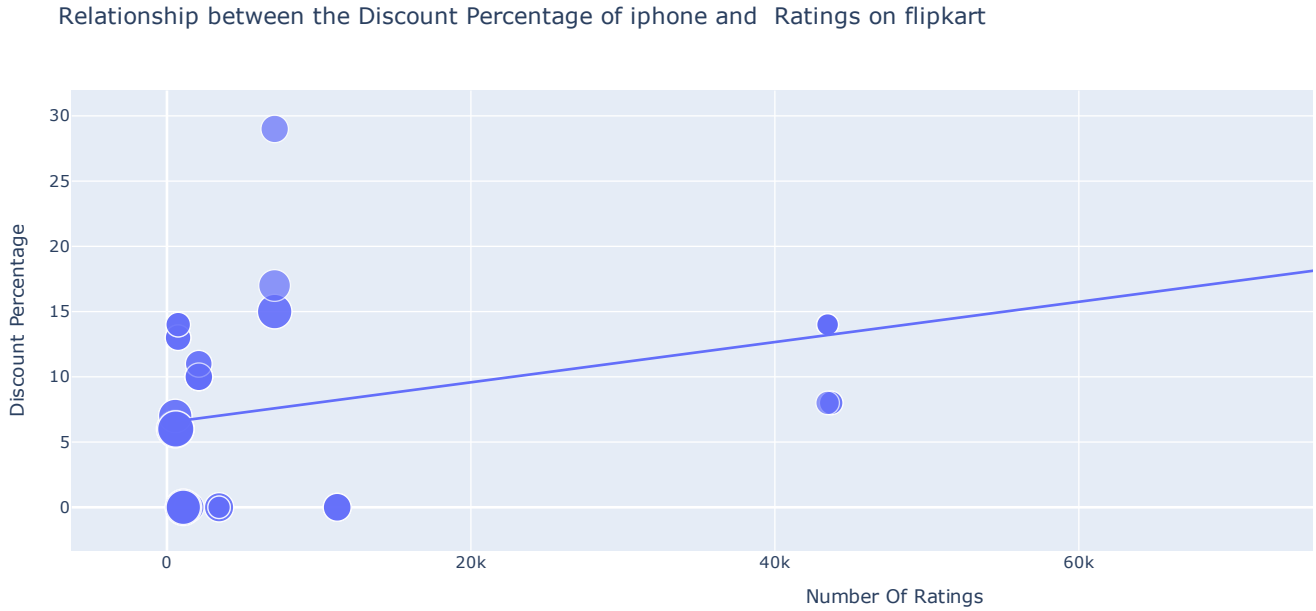


Observation:

The scatter plot reveals a negative linear relationship between the sales price and the number of ratings. This indicates that iPhones with lower sales prices tend to have more ratings on Flipkart. This observation suggests that affordability plays a role in the purchase decisions of customers, leading to higher sales and more ratings for lower-priced iPhones.

What is Relationship between Discount Percentage and Number of Rating of Iphones on Flipkart?

```
figure=px.scatter(df,x="Number Of Ratings",y="Discount Percentage",size="Sale Price",trendline='ols',title="Relationship between tl
figure.show()
```



Observation:

The scatter plot shows a negative linear relationship between the discount percentage and the number of ratings. This implies that iPhones with higher discount percentages tend to have fewer ratings. This observation suggests that customers may be more cautious about purchasing iPhones with very high discounts, possibly due to concerns about quality or authenticity, resulting in fewer ratings for such products.

can you Figure least Expensive and Most Expensive iphone in indian Market, along With all their Specification?

```
least_expensive = df.loc[df['Sale Price'].idxmin()]
print("Least Expensive iPhone:")
print(least_expensive)
```

```
Least Expensive iPhone:
Product Name                                APPLE iPhone SE (White, 64 GB)
Product URL            https://www.flipkart.com/apple-iphone-se-white...
Brand                                                              Apple
Sale Price                                                         29999
Mrp                                                                39900
Discount Percentage                                                   24
Number Of Ratings                                                  95807
Number Of Reviews                                                   8154
Upc                                                     MOBFWQ6BGWDVGF3E
Star Rating                                                          4.5
Ram                                                                2 GB
Name: 52, dtype: object
```

```
most_expensive = df.loc[df['Sale Price'].idxmax()]
print("\nMost Expensive iPhone:")
print(most_expensive)
```

```
Most Expensive iPhone:
Product Name                          APPLE iPhone 12 Pro (Silver, 512 GB)
Product URL            https://www.flipkart.com/apple-iphone-12-pro-s...
Brand                                                              Apple
Sale Price                                                        140900
Mrp                                                               149900
Discount Percentage                                                    6
Number Of Ratings                                                    542
Number Of Reviews                                                     42
Upc                                                     MOBFWBYZ5UY6ZBVA
```

```
Star Rating                                                    4.5
Ram                                                          4 GB
Name: 24, dtype: object
```

**** Thank You*****

```
Start coding or generate with AI.
```

Observations:

Price: The most expensive iPhone has a significantly higher original and sale price compared to the least expensive iPhone. Discount: The least expensive iPhone generally has a much higher discount percentage, indicating a greater price reduction. Ratings and Reviews: The most expensive iPhone often receives higher ratings and has more reviews, suggesting a potential correlation between price and perceived quality or popularity.