```
import pandas as pd

df=pd.read_csv('apple.csv')
df.head()
```

	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 GB)	https://www.flipkart.com/apple-iphone-8-plus-g...	Apple	49900	49900	0	3431	356	MOBEXRGV7EHHTGUH	4.6	2 GB
1	APPLE iPhone 8 Plus (Space Grey, 256 GB)	https://www.flipkart.com/apple-iphone-8-plus-s...	Apple	84900	84900	0	3431	356	MOBEXRGVAC6TJT4F	4.6	2 GB
2	APPLE iPhone 8 Plus (Silver, 256 GB)	https://www.flipkart.com/apple-iphone-8-plus-s	Apple	84900	84900	0	3431	356	MOBEXRGVGETABXWZ	4.6	2 GB

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

```
df.tail()
```

	Product Name	Product URL	Brand	Sale Price	Mrp	Discount Percentage	Number Of Ratings	Number Of Reviews	Upc	Star Rating	Ram
57	APPLE iPhone SE (Black, 64 GB)	https://www.flipkart.com/apple-iphone-se-black...	Apple	29999	39900	24	95909	8161	MOBFWQ6BR3MK7AUG	4.5	4 GB
58	APPLE iPhone 11 (Purple, 64 GB)	https://www.flipkart.com/apple-iphone-11-purpl...	Apple	46999	54900	14	43470	3331	MOBFWQ6BTFFJKGKE	4.6	4 GB
59	APPLE iPhone 11 (White, 64 GB)	https://www.flipkart.com/apple-iphone-11-white...	Apple	46999	54900	14	43470	3331	MOBFWQ6BVWVEH3XE	4.6	4 GB

Top 5 star rating apple phones

```
df_sorted_highest=df.sort_values('Star Rating',ascending=False).head(10)
df_sorted_highest
```

	Product Name	Product URL	Brand	Sale Price	Mrp	Discount Percentage	Number Of Ratings	Number Of Reviews	Upc	Star Rating	Ram
20	APPLE iPhone 11 Pro Max (Midnight Green, 64 GB)	https://www.flipkart.com/apple-iphone-11-pro-m...	Apple	117100	117100	0	1078	101	MOBFKCTSRYPAQNYT	4.7	4 GB
17	APPLE iPhone 11 Pro Max (Space Grey, 64 GB)	https://www.flipkart.com/apple-iphone-11-pro-m...	Apple	117100	117100	0	1078	101	MOBFKCTSKDMKCGQS	4.7	4 GB
16	APPLE iPhone 11 Pro Max (Midnight Green, 256 GB)	https://www.flipkart.com/apple-iphone-11-pro-m...	Apple	131900	131900	0	1078	101	MOBFKCTSCAAKGQV7	4.7	4 GB
15	APPLE iPhone 11 Pro Max (Gold, 64 GB)	https://www.flipkart.com/apple-iphone-11-pro-m...	Apple	117100	117100	0	1078	101	MOBFKCTSAPAYNSGG	4.7	4 GB
14	APPLE iPhone 11 Pro Max (Gold, 256 GB)	https://www.flipkart.com/apple-iphone-11-pro-m...	Apple	131900	131900	0	1078	101	MOBFKCTS7HCHSPFH	4.7	4 GB
0	APPLE iPhone 8 Plus (Gold, 64 GB)	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_sorted_highest | View recommended plots | New interactive sheet

Lowest 5 star rating apple phones

```
df_sorted_lowest=df.sort_values('Star Rating').head(10)
```

Apple phone has highest number of reviews

```
df_highest_reviews=df.sort_values('Number Of Reviews',ascending=False)
df_highest_reviews.head(10)
```

	Product Name	Product URL	Brand	Sale Price	Mrp	Discount Percentage	Number Of Ratings	Number Of Reviews	Upc	Star Rating	Ram
23	Apple iPhone SE (White, 256 GB) (Includes EarP...	https://www.flipkart.com/apple-iphone-se-white...	Apple	44999	54900	18	95909	8161	MOBFRFXHPZCHAPEH	4.5	2 GB
53	APPLE iPhone SE (Black, 128 GB)	https://www.flipkart.com/apple-iphone-se-black...	Apple	34999	44900	22	95909	8161	MOBFWQ6BHUEVZPXD	4.5	2 GB
55	APPLE iPhone SE (Red, 128 GB)	https://www.flipkart.com/apple-iphone-se-red-1...	Apple	34999	44900	22	95909	8161	MOBFWQ6BJTVFKPEJ	4.5	2 GB
57	APPLE iPhone SE (Black, 64 GB)	https://www.flipkart.com/apple-iphone-se-black...	Apple	29999	39900	24	95909	8161	MOBFWQ6BR3MK7AUG	4.5	4 GB
52	APPLE iPhone SE (White, 64 GB)	https://www.flipkart.com/apple-iphone-se-white...	Apple	29999	39900	24	95807	8154	MOBFWQ6BGWDVGF3E	4.5	2 GB
54	APPLE iPhone SE (White, 128 GB)	https://www.flipkart.com/apple-iphone-se-white...	Apple	34999	44900	22	95807	8154	MOBFWQ6BJEHMUUZY	4.5	2 GB

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

Apple phone has lowest number of reviews

```
df_lowest_reviews=df.sort_values('Number Of Reviews').head(10)
df_lowest_reviews
```

	Product Name	Product URL	Brand	Sale Price	Mrp	Discount Percentage	Number Of Ratings	Number Of Reviews	Upc	Star Rating	Ram
30	APPLE iPhone 12 Pro (Graphite, 128 GB)	https://www.flipkart.com/apple-iphone-12-pro-g...	Apple	110900	119900	7	545	42	MOBFWBYZBZ7Y56WD	4.5	6 GB
27	APPLE iPhone 12 Pro (Graphite, 256 GB)	https://www.flipkart.com/apple-iphone-12-pro-g...	Apple	120900	129900	6	545	42	MOBFWBYZBA36UB7G	4.5	6 GB
24	APPLE iPhone 12 Pro (Silver, 512 GB)	https://www.flipkart.com/apple-iphone-12-pro-s...	Apple	140900	149900	6	542	42	MOBFWBYZ5UY6ZBVA	4.5	4 GB
46	APPLE iPhone 12 Pro (Pacific Blue, 128 GB)	https://www.flipkart.com/apple-iphone-12-pro-p...	Apple	110900	119900	7	545	42	MOBFWBYZXYSCEEEH	4.5	6 GB
41	APPLE iPhone 12 Pro (Pacific Blue, 512 GB)	https://www.flipkart.com/apple-iphone-12-pro-p...	Apple	140900	149900	6	545	42	MOBFWBYZTHSXKMGW	4.5	4 GB
25	APPLE iPhone 12 Pro Max (Pacific Blue, 256 GB)	https://www.flipkart.com/apple-iphone-12-pro-m...	Apple	130900	139900	6	580	45	MOBFWBYZ8STJXCVT	4.6	6 GB

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

Relationship between sale price and number of ratings

Relationship between sale price and number of reviews

```
correlation = df['Sale Price'].corr(df['Number Of Reviews'])
print(correlation)
```

```
-0.6960291835220087
```

Relationship between discount percentage and number of ratings

```
correlation = df['Discount Percentage'].corr(df['Number Of Ratings'])
print(correlation)
```

```
0.6848270553540624
```

Relationship between discount percentage and number of ratings

```
correlation = df['Discount Percentage'].corr(df['Number Of Reviews'])
print(correlation)
```

```
0.6858769720978277
```

Most expensive and least expensive apple phone

New Section

```
df_sorted=df.sort_values('Sale Price',ascending=False)
most_expensive_phone=df_sorted.iloc[0]
most_expensive_phone
```

	41
Product Name	APPLE iPhone 12 Pro (Pacific Blue, 512 GB)
Product URL	https://www.flipkart.com/apple-iphone-12-pro-p...
Brand	Apple
Sale Price	140900
Mrp	149900
Discount Percentage	6
Number Of Ratings	545
Number Of Reviews	42
Upc	MOBFWBYZTHSXKMGW
Star Rating	4.5
Ram	4 GB

dtype: object

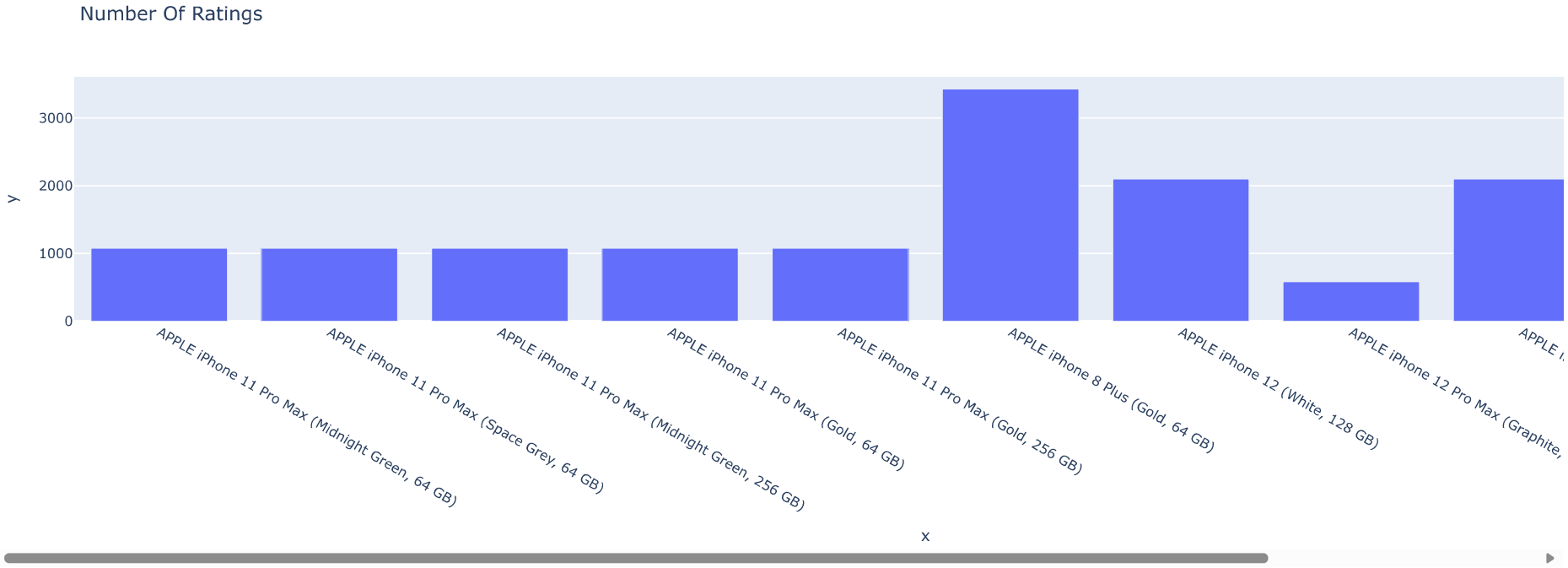
```
product_rating = df['Product Name']
product_rating
```

	Product Name
0	APPLE iPhone 8 Plus (Gold, 64 GB)
1	APPLE iPhone 8 Plus (Space Grey, 256 GB)
2	APPLE iPhone 8 Plus (Silver, 256 GB)
3	APPLE iPhone 8 (Silver, 256 GB)
4	APPLE iPhone 8 (Gold, 256 GB)
...	...
57	APPLE iPhone SE (Black, 64 GB)
58	APPLE iPhone 11 (Purple, 64 GB)
59	APPLE iPhone 11 (White, 64 GB)
60	APPLE iPhone 11 (Black, 64 GB)
61	APPLE iPhone 11 (Red, 64 GB)

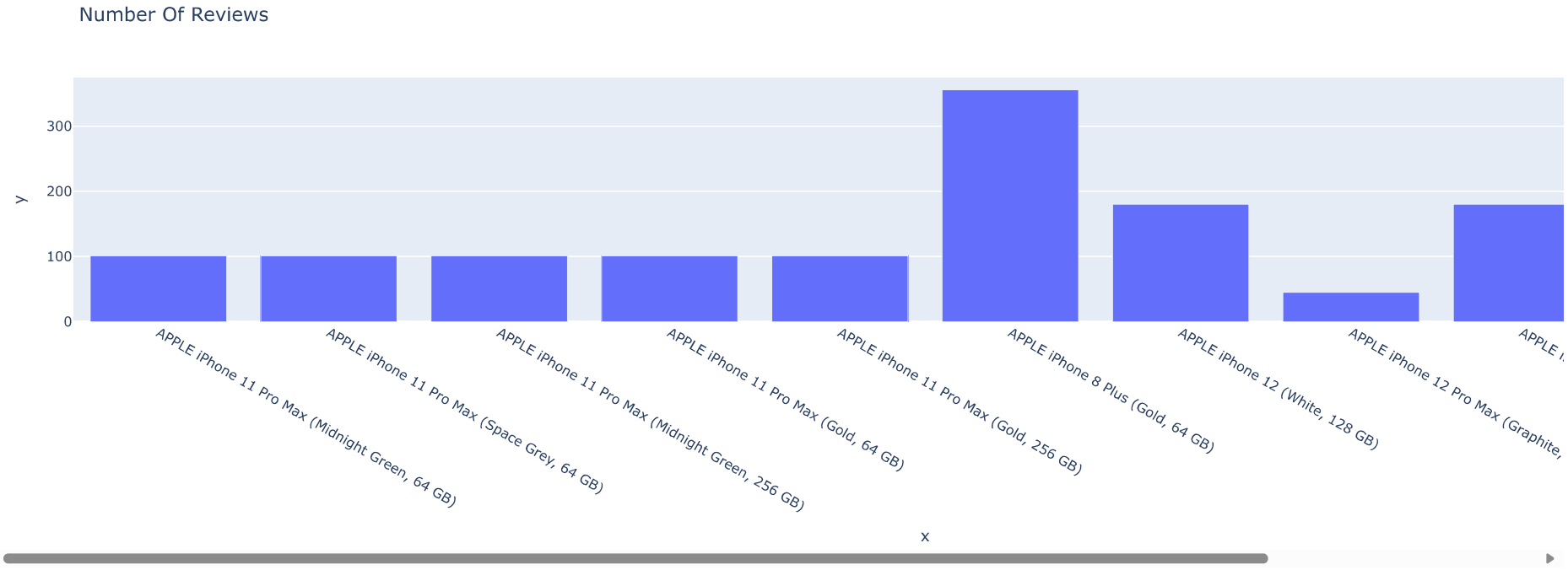
62 rows × 1 columns

dtype: object

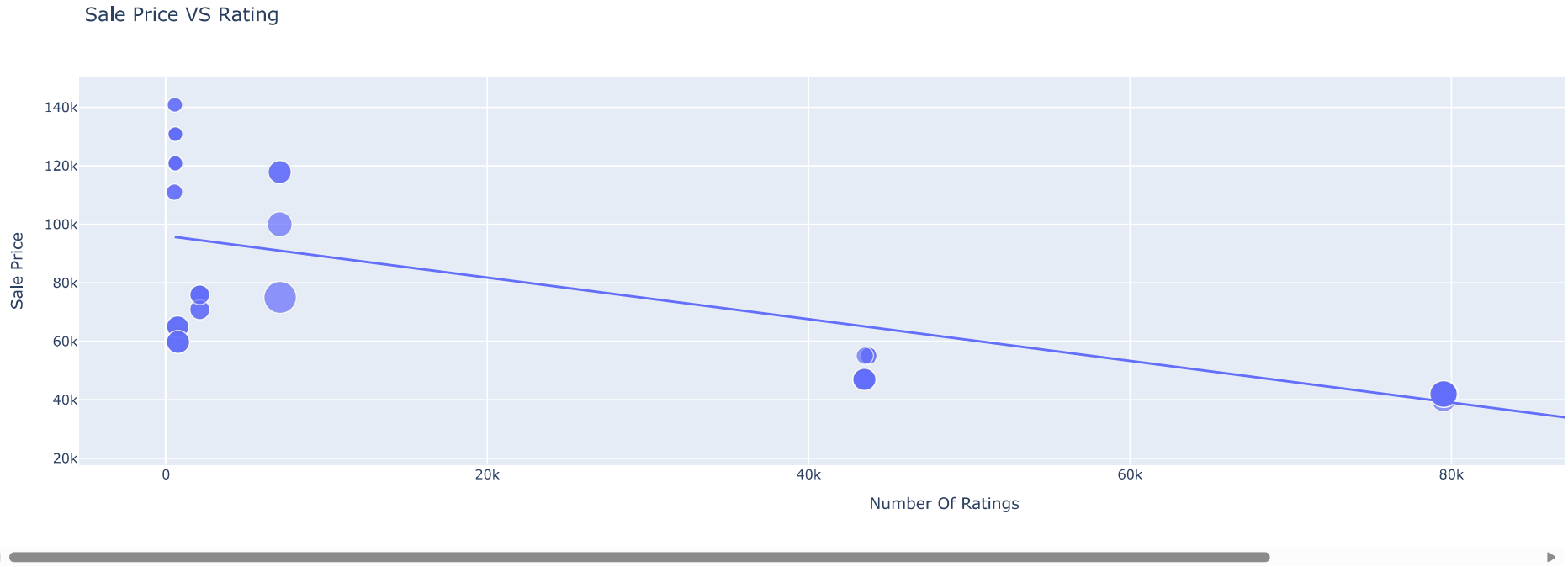
```
import plotly.express as px
label = df_sorted_highest['Product Name']
counts = df_sorted_highest['Number Of Ratings']
fig = px.bar(x=label, y=counts, title='Number Of Ratings')
fig.show()
```




```
label = df_sorted_highest['Product Name']
counts = df_sorted_highest['Number Of Reviews']
fig = px.bar(x=label, y=counts, title='Number Of Reviews')
fig.show()
```




```
# Iphone Sale Price and Rating Relationship
fg = px.scatter(data_frame=df, x='Number Of Ratings', y='Sale Price', size='Discount Percentage', trendline='ols',title='Sale Price VS Rating')
fg.show()
```




```
# Iphone Discount Percentage and Rating Relationship
fg = px.scatter(data_frame=df, x='Number Of Ratings', y='Discount Percentage', size='Sale Price', trendline='ols',title='Discount Percentage VS Rating')
fg.show()
```

Discount Percentage VS Rating

```
#Most Expensive and Least Expensive Iphone
product_sale_price = df[['Product Name','Sale Price']]
product_sale_price
```

	Product Name	Sale Price
0	APPLE iPhone 8 Plus (Gold, 64 GB)	49900
1	APPLE iPhone 8 Plus (Space Grey, 256 GB)	84900
2	APPLE iPhone 8 Plus (Silver, 256 GB)	84900
3	APPLE iPhone 8 (Silver, 256 GB)	77000
4	APPLE iPhone 8 (Gold, 256 GB)	77000
...	...	...
57	APPLE iPhone SE (Black, 64 GB)	29999
58	APPLE iPhone 11 (Purple, 64 GB)	46999
59	APPLE iPhone 11 (White, 64 GB)	46999
60	APPLE iPhone 11 (Black, 64 GB)	46999
61	APPLE iPhone 11 (Red, 64 GB)	46999

62 rows × 2 columns