iPhone Sales Analysis

Big-Data Analysis with Python

This project involves analyzing sales data for Apple iPhones to identify trends and insights.

The dataset was sourced from Apple's quarterly sales reports and is available on the Kaggle website for free.

In [91]:

```
import pandas as pd
import numpy as np
import plotly.express as px
import plotly.graph_objects as go
```

In [92]:

```
data = pd.read_csv("apple_products.csv")
```

In [93]:
```
1 data.head(10)
```

Out[93]:

	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
3	APPLE iPhone 8 (Silver, 256 GB)	https://www.flipkart.com/apple-iphone-8-silver...	Apple	77000	77000	0	11202	794	MOBEXRGVMZWUHCBA	4.5	2 GB
4	APPLE iPhone 8 (Gold, 256 GB)	https://www.flipkart.com/apple-iphone-8-gold-2...	Apple	77000	77000	0	11202	794	MOBEXRGVPK7PFEJZ	4.5	2 GB
5	APPLE iPhone 8 Plus (Silver, 64 GB)	https://www.flipkart.com/apple-iphone-8-plus-s...	Apple	49900	49900	0	3431	356	MOBEXRGVQGYYP8FV	4.6	2 GB
6	APPLE iPhone 8 Plus (Space Grey, 64 GB)	https://www.flipkart.com/apple-iphone-8-plus-s...	Apple	49900	49900	0	3431	356	MOBEXRGVQKBREZP8	4.6	2 GB
7	APPLE iPhone 8 (Space Grey, 256 GB)	https://www.flipkart.com/apple-iphone-8-space-...	Apple	77000	77000	0	11202	794	MOBEXRGVZFZGZEWV	4.5	2 GB
8	APPLE iPhone XS Max (Silver, 64 GB)	https://www.flipkart.com/apple-iphone-xs-max-s...	Apple	89900	89900	0	1454	149	MOBF944E2XAHW8V5	4.6	4 GB
9	Apple iPhone XR ((PRODUCT)RED, 128 GB) (Includ...	https://www.flipkart.com/apple-iphone-xr-produ...	Apple	41999	52900	20	79512	6796	MOBF9Z7ZHQC23PWQ	4.6	4 GB

Task 1. Find and remove missing value in data set.

In [94]:
```
1 print(data.isnull().sum())
```

```
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
```

Task 2. Show the discripted analysis of the data set.

In [95]:
```
1 print(data.describe())
```

```
          Sale Price            Mrp  Discount Percentage  Number Of Ratings  \
count      62.000000      62.000000            62.000000          62.000000
mean    80073.887097   88058.064516             9.951613       22420.403226
std     34310.446132   34728.825597             7.608079       33768.589550
min     29999.000000   39900.000000             0.000000         542.000000
25%     49900.000000   54900.000000             6.000000         740.000000
50%     75900.000000   79900.000000            10.000000        2101.000000
75%    117100.000000  120950.000000            14.000000       43470.000000
max    140900.000000  149900.000000            29.000000       95909.000000

       Number Of Reviews  Star Rating
count          62.000000    62.000000
mean         1861.677419     4.575806
std          2855.883830     0.059190
min            42.000000     4.500000
25%            64.000000     4.500000
50%           180.000000     4.600000
75%          3331.000000     4.600000
max          8161.000000     4.700000
```

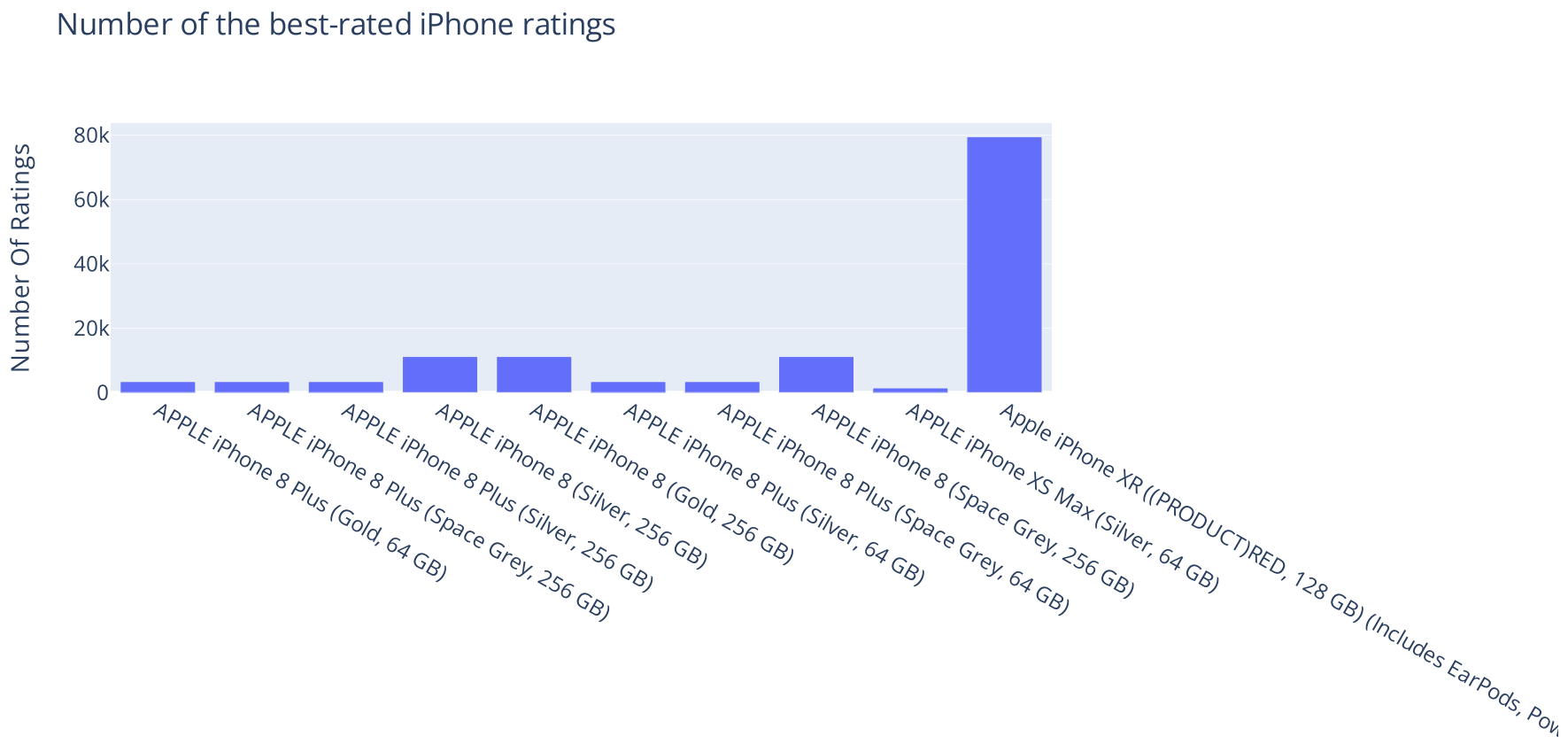
Task 3. Find the top 10 iPhones on sale in india with their rating and names.

In [96]:
```
highest_Rated = data.sort_values(by = ['Star Rating'], ascending = False)
highest_Rated = data.head(10)
print(highest_Rated['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)
5                   APPLE iPhone 8 Plus (Silver, 64 GB)
6                APPLE iPhone 8 Plus (Space Grey, 64 GB)
7                   APPLE iPhone 8 (Space Grey, 256 GB)
8                   APPLE iPhone XS Max (Silver, 64 GB)
9    Apple iPhone XR ((PRODUCT)RED, 128 GB) (Includ...
Name: Product Name, dtype: object
```

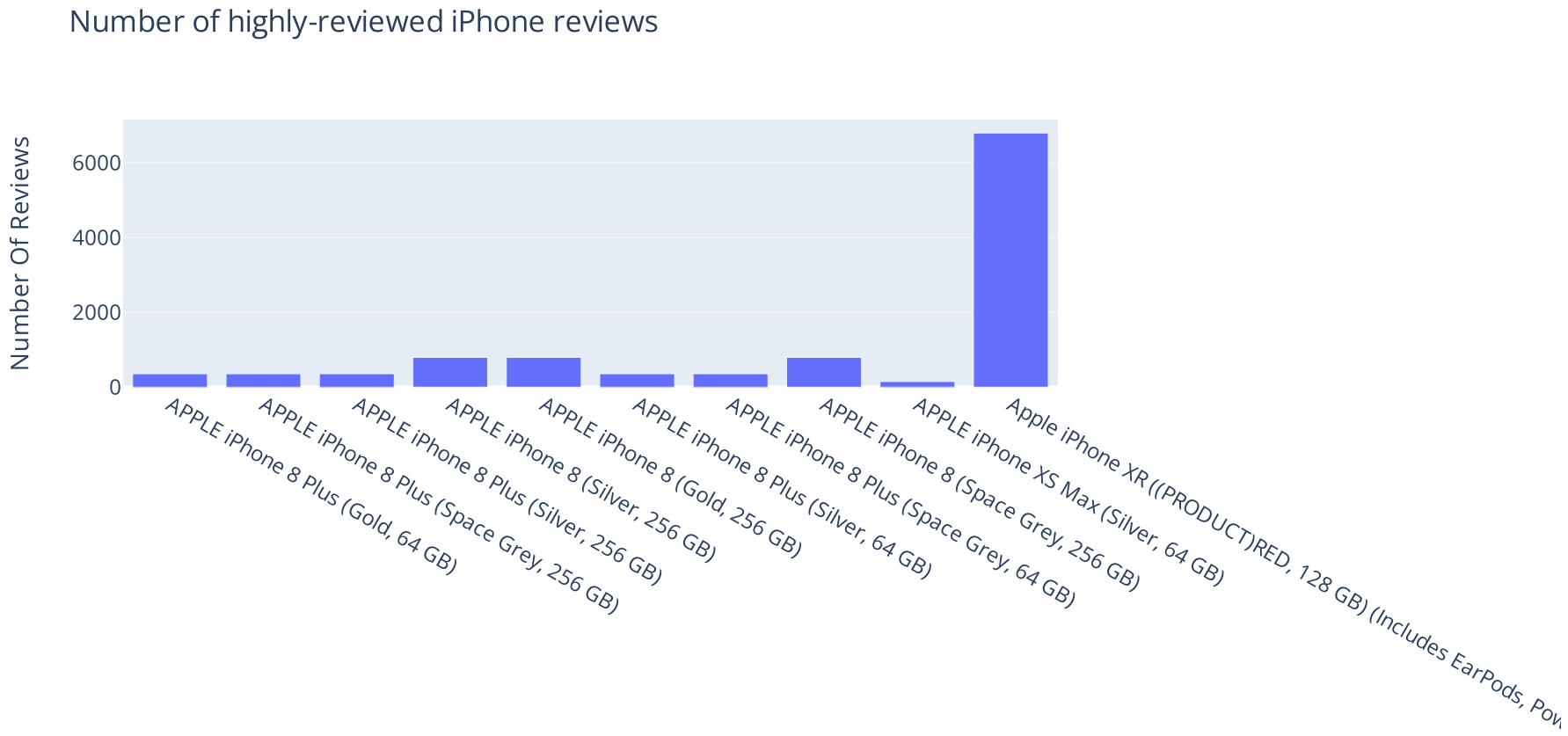
Task 4. Find how many people have rated the best iPhones on Flipkart.

In [97]:
```
iphones = highest_Rated["Product Name"].value_counts()
labels = iphones.index
counts = highest_Rated["Number Of Ratings"]
figure = px.bar(highest_Rated, x = labels, y = counts, title = "Number of the best-rated iPhone ratings")
figure.show()
```



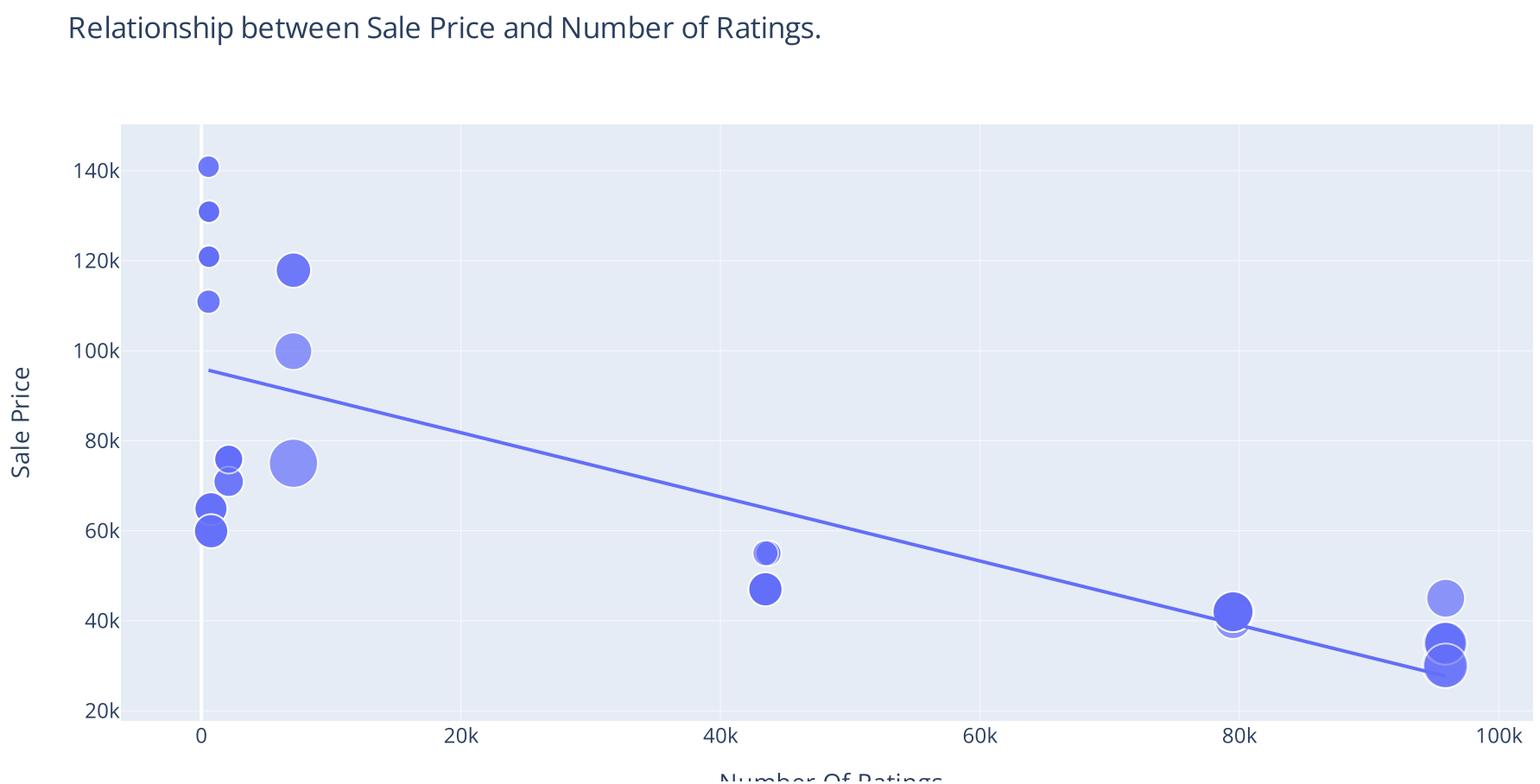
Task 5. Find how many people have reviews the best iPhones on Flipkart.

In [98]:
```
iphones = highest_Rated["Product Name"].value_counts()
labels = iphones.index
counts = highest_Rated["Number Of Reviews"]
figure = px.bar(highest_Rated, x = labels, y = counts, title = "Number of highly-reviewed iPhone reviews")
figure.show()
```



Task 6. Find the relationship between sale price and number of ratings with the help of graph.

In [99]:
```
figure = px.scatter(data_frame = data, x = 'Number Of Ratings', y = 'Sale Price', size = 'Discount Percentage
                    trendline = 'ols', title = 'Relationship between Sale Price and Number of Ratings.')
figure.show()
```



Task 7. Find the Relationship between Discount Percentage and Number of Rating.

In [100]:
```
figure = px.scatter(data_frame = data, x = 'Number Of Ratings', y = 'Discount Percentage', size = 'Sale Price
                    trendline = 'ols', title = 'Relationship between Discount Percentage and Number of Rating.
figure.show()
```