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In [1]: import pandas as pd
import numpy as np
import plotly.express as px
import plotly.graph_objects as go

In [12]: data=pd.read_csv((r"C:\Users\alamm\Downloads\apple_products.csv"))
```

In [13]: data

| | 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 | MOBEXRGVMZVUHCBA | 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 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 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 | MOBFWQ6BVVWEH3XE | 4.6 4 GB | |
| 60 | APPLE iPhone 11 (Black, 64 GB) | https://www.flipkart.com/apple-iphone-11-black... | Apple | 46999 | 54900 | 14 | 43470 | 3331 | MOBFWQ6BXGJCEYNY | 4.6 4 GB | |
| 61 | APPLE iPhone 11 (Red, 64 GB) | https://www.flipkart.com/apple-iphone-11-red-6... | Apple | 46999 | 54900 | 14 | 43470 | 3331 | MOBFWQ6BYVY3FCU7 | 4.6 4 GB | |

62 rows x 11 columns

```
In [14]: 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

In [15]: print(data.describe())

      Sale Price      Mrp  Discount Percentage  Number Of Ratings \
count      62.000000      62.000000      62.000000      62.000000
mean     80073.887097    88055.064516      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
```

i phone sales analysis in India

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In [16]: highest_rated=data.sort_values(by=["Star Rating"],ascending =False)
highest_rated=highest_rated.head(10)
print(highest_rated['Product Name'])

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
```

lets have a look at the number of ratings of the highest rated i phone on flipkart

