

# Final Project



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# What is the purpose of our project?



? which phone to buy?

? which phone is better?

? what about the price?





The screenshot displays a grid of six smartphone products, each with a discount tag, a rating, a title, a price, a financing option, and a 'В корзину' (Add to cart) button. The interface is decorated with festive snowflake and tree icons at the top.

Product	Discount	Rating	Price (₸)	Financing (₸ x 60 мес)
Смартфон Vivo Y21 64Gb Metallic Blue	-20%	5.0	79 990	2 371
Смартфон Vivo Y33s 128GB Mirror Black	-15%	5.0	109 990	3 261
Смартфон OPPO A17 64GB Black	0 - 0 - 20	5.0	79 990	2 371
Смартфон WIKO T10 Rally 64GB Black	-20%	4.8	59 990	-
Смартфон Samsung Galaxy A13 64GB Black	-17%	4.8	99 990	-
Смартфон OPPO Reno 7 128GB Cosmic Black	-9%	4.9	199 990	-

# 1 Data Collection with Web scraping

- collected links for every phone

- name
- price
- rating

The screenshot displays a product page for a Vivo Y21 64Gb Metallic Blue smartphone. The page includes a search bar at the top, a product image, a 5.0-star rating, a price of 79,990 ₸ (reduced from 99,990 ₸), and a 'Добавить в корзину' button. A typography inspection tool is overlaid on the product title, showing details like 'h1.Typography.Typography\_\_Title', 'Color #212427', and 'Font 28px MuseoSansCyril, serif'. The DevTools console on the right shows the DOM tree, highlighting the product title element with the class 'h1.Typography.Typography\_\_Title.Typography\_\_Title\_Small'. The 'Styles' panel shows the 'h1' class being applied to the title element.

Смартфон Vivo Y21 64Gb Metallic Blue

5.0 ★★★★★ 5 отзывов

Гарантия низкой цены

0 - 0 - 20

79 990 ₸ ~~99 990 ₸~~

до 3 999 бонусов -20%

Добавить в корзину

Сообщить о снижении цены

В кредит 2 371 ₸ x 60 мес

В рассрочку 4 444 ₸ x 18 мес

Цвет: Синий

Объем памяти 64 GB

h1.Typography.Typography\_\_Title.Typography\_\_Title\_Small

Color #212427

Font 28px MuseoSansCyril, serif

ACCESSIBILITY

Contrast Aa 15.59

Name Смартфон Vivo Y21 64Gb Metallic Blue

Role heading

Keyboard-focusable

DevTools is now available in Russian!

Always match Chrome's language Switch DevTools to Russian Don't show again

Elements Console Sources Network

...</div>

<main class="Page\_block\_main\_RmRed page\_main product-page">

<section class="Container\_block\_rapZf container">

<ul class="Breadcrumbs\_block\_PCUSG product-page\_breadcrumbs" itemscope itemtype="https://schema.org/BreadcrumbList">...</ul>

<article class="product">

<div class="product\_wrapper">

<div class="product\_main-info">

<div class="product\_info product-info">

<div class="product-info\_header">

<h1 class="Typography Typography\_\_Title Typography\_\_Title\_Small">Смартфон Vivo Y21 64Gb Metallic Blue</h1>

<p class="Typography product-info\_sku Typography\_\_Caption">Артикул: 255378</p>

</div>

<div class="product-info\_body">...</div>

</div>

<div class="product\_recommendation">...</div>

</div>

... ct-info div.product-info\_header h1.Typography.Typography\_\_Title.Typography\_\_Title\_Small ...

Styles Computed Layout Event Listeners DOM Breakpoints Properties Accessibility

Filter :hov .cls + -

Console What's New

Highlights from the Chrome 108 update

Hints for inactive CSS properties

Identify CSS styles that are entirely valid but have no visible effect.

Auto-detect XPath and text

new

## 2 Data Cleaning

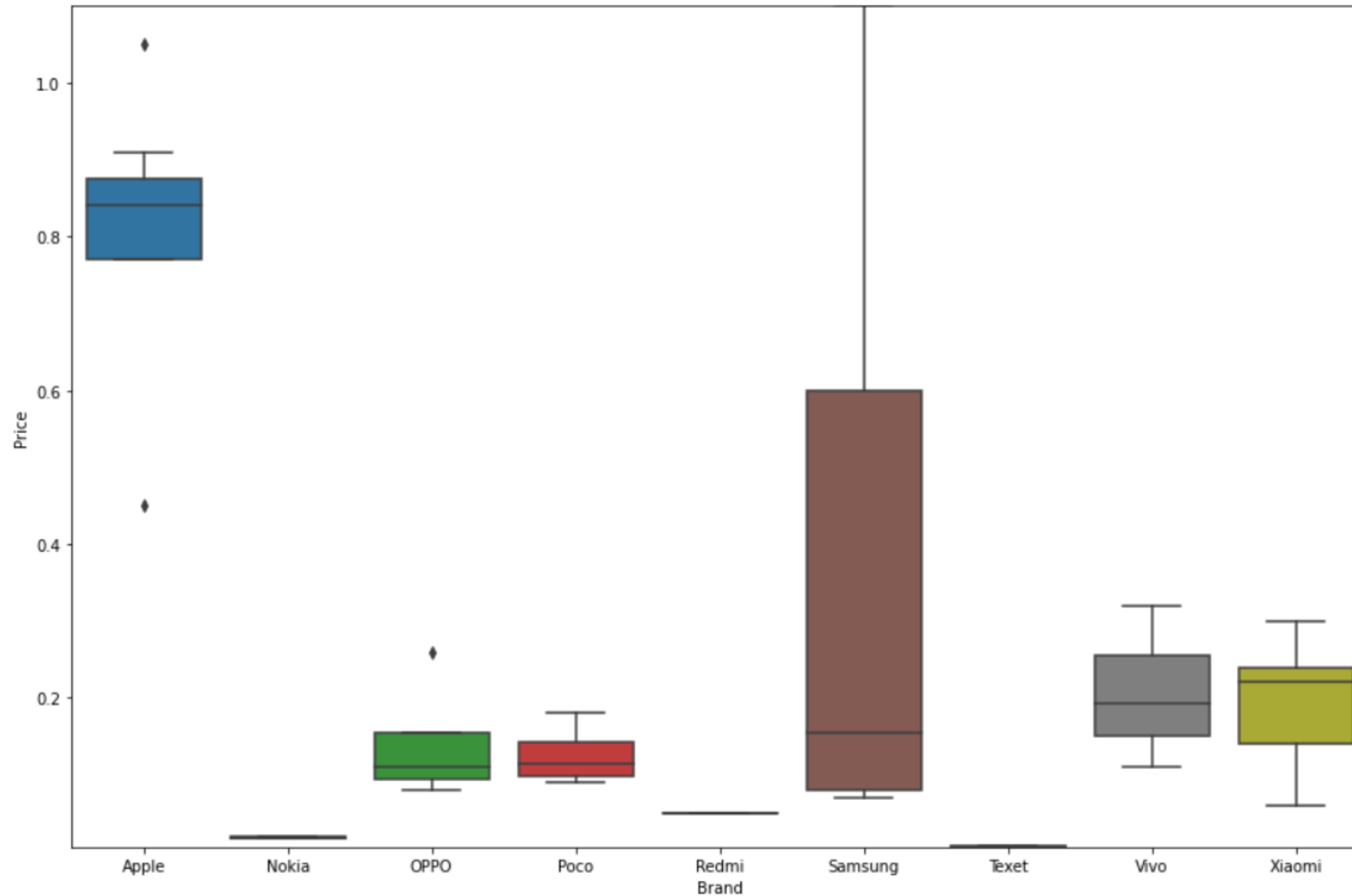
- Phones that are out of stock did not have a price on the site

	Name	Price	Rating out of 5
0	Смартфон Apple iPhone 14 Pro 1TB Gold	1 049 990 ₸	0.0
1	Смартфон HUAWEI Mate XS2 512GB Black	Sold Out	0.0
2	Смартфон Samsung Galaxy Z Flip4 128GB Blue	549 990 ₸	3.6
3	Смартфон Samsung Galaxy S22 Ultra 128GB Green	Sold Out	4.5
4	Смартфон Samsung Galaxy S22 Ultra 256GB Phanto...	Sold Out	4.2

- converted the rating type to float
- the tenge icon was removed from the price and also converted to float

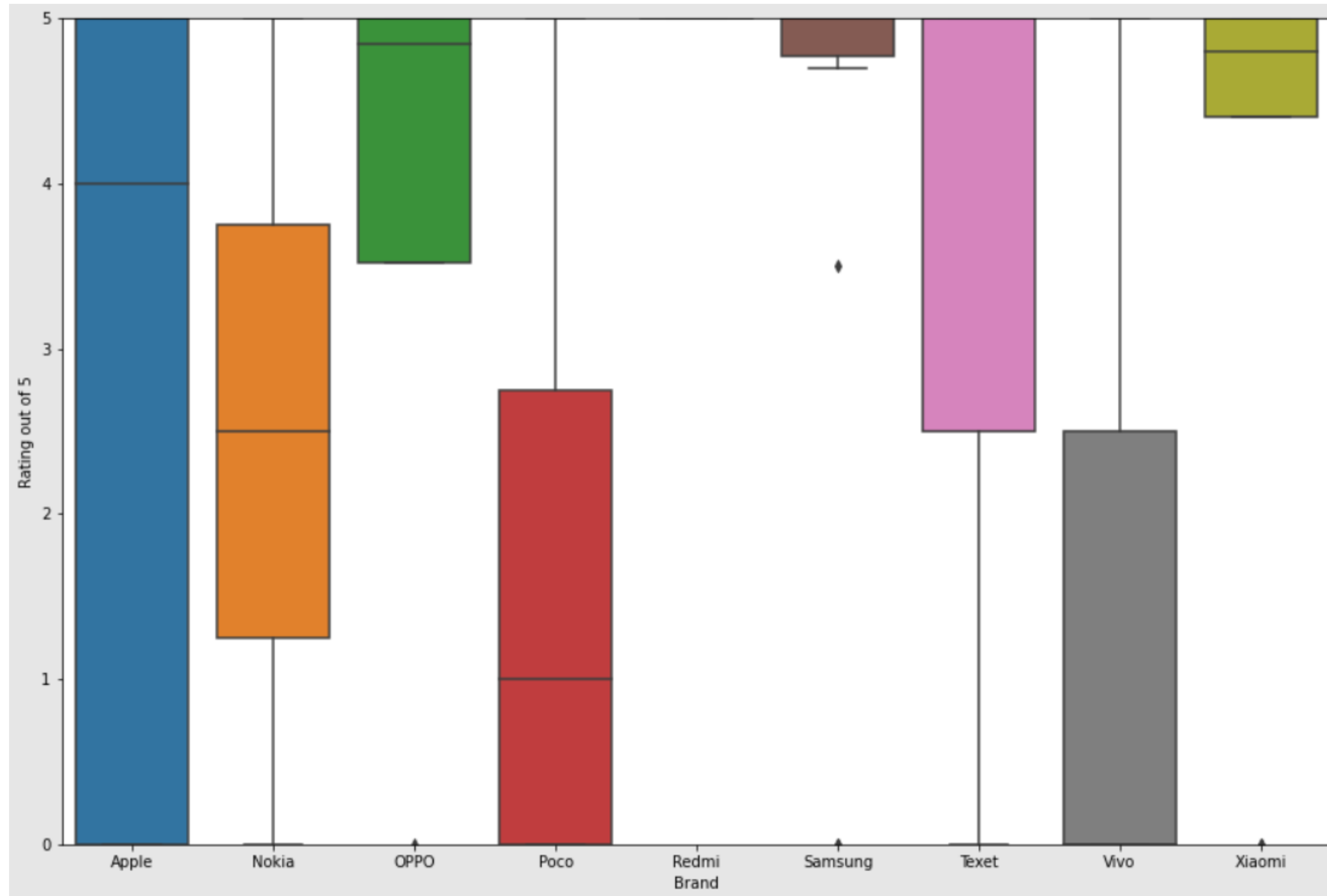
## 3

## Data Statistics and Visualization



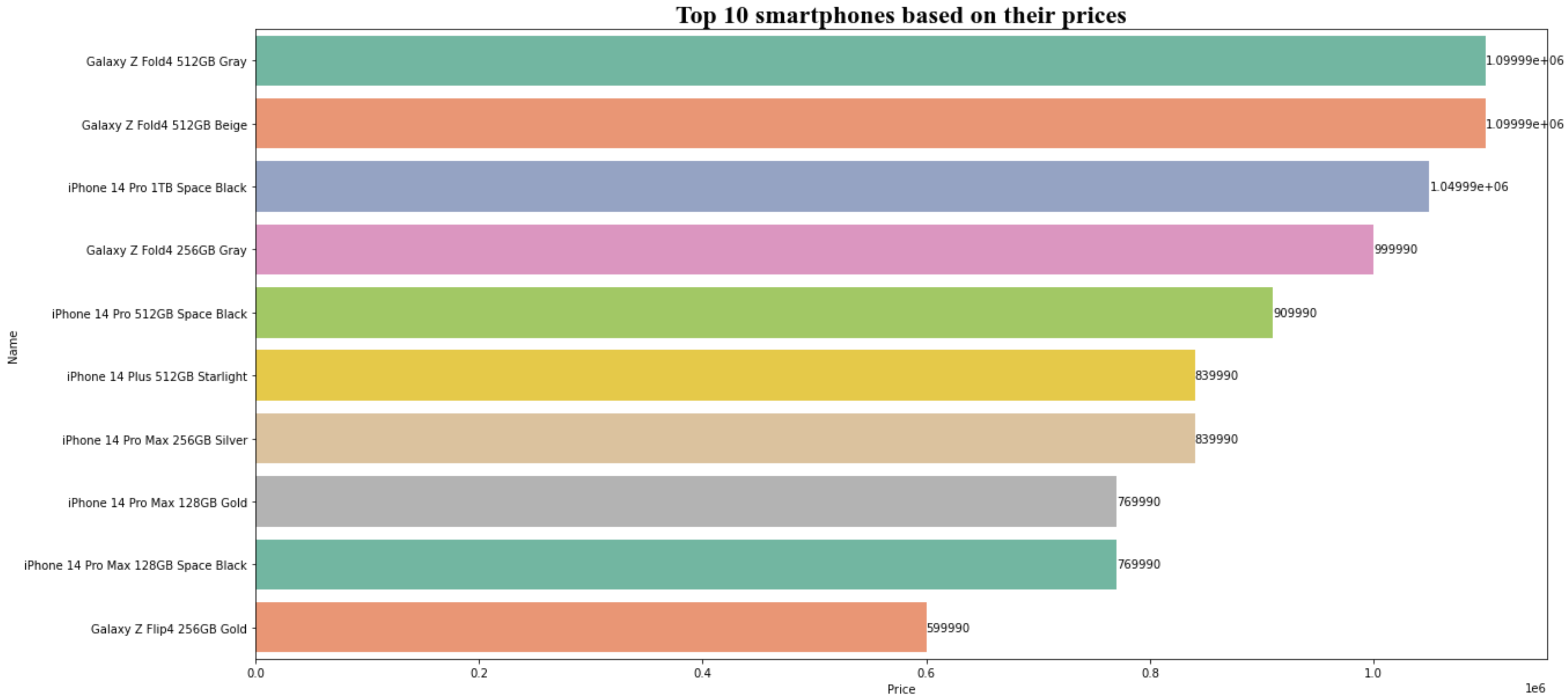
which smartphone brand is better in terms of price

- which smartphone brand is better in terms of rating

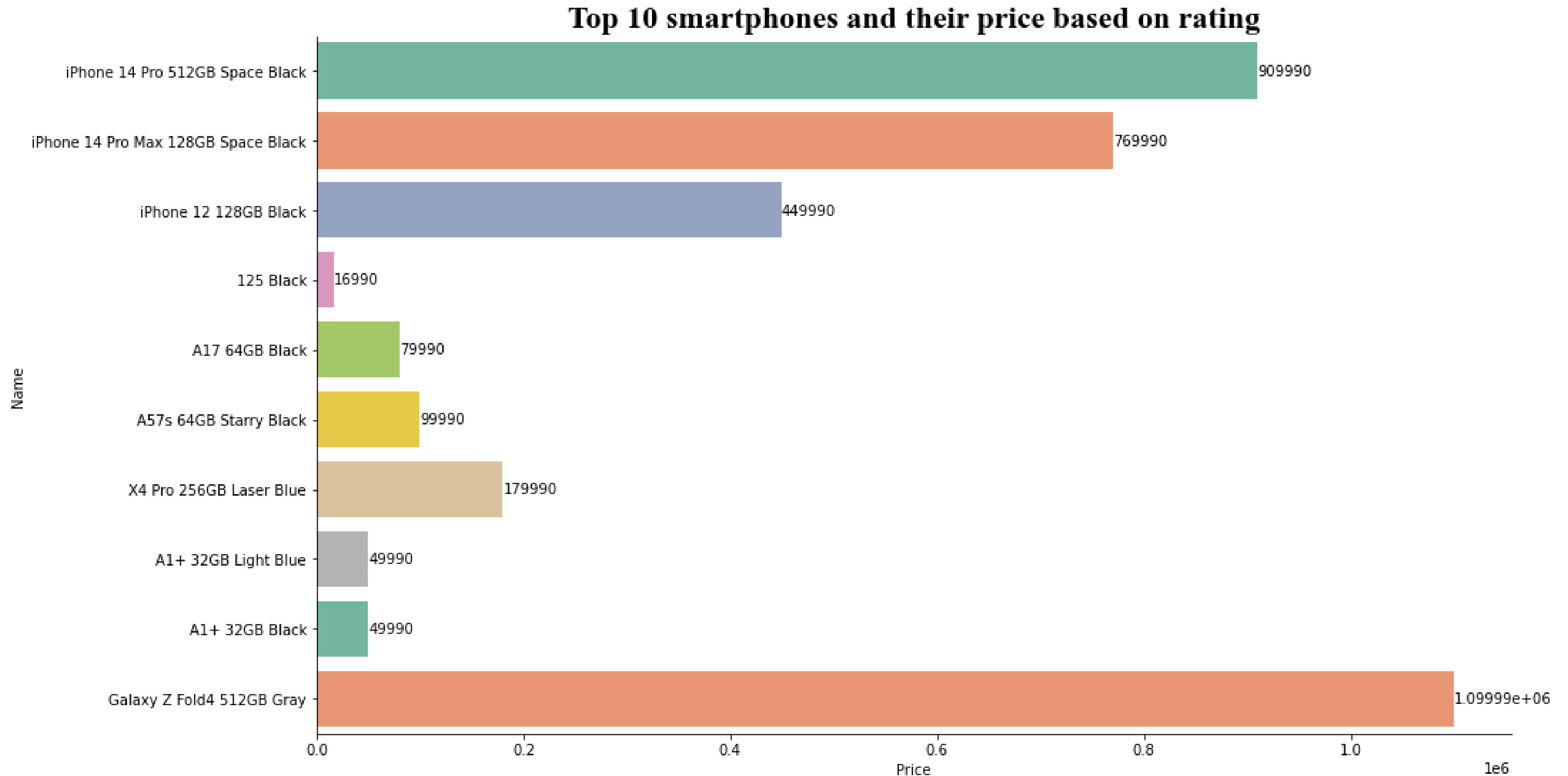




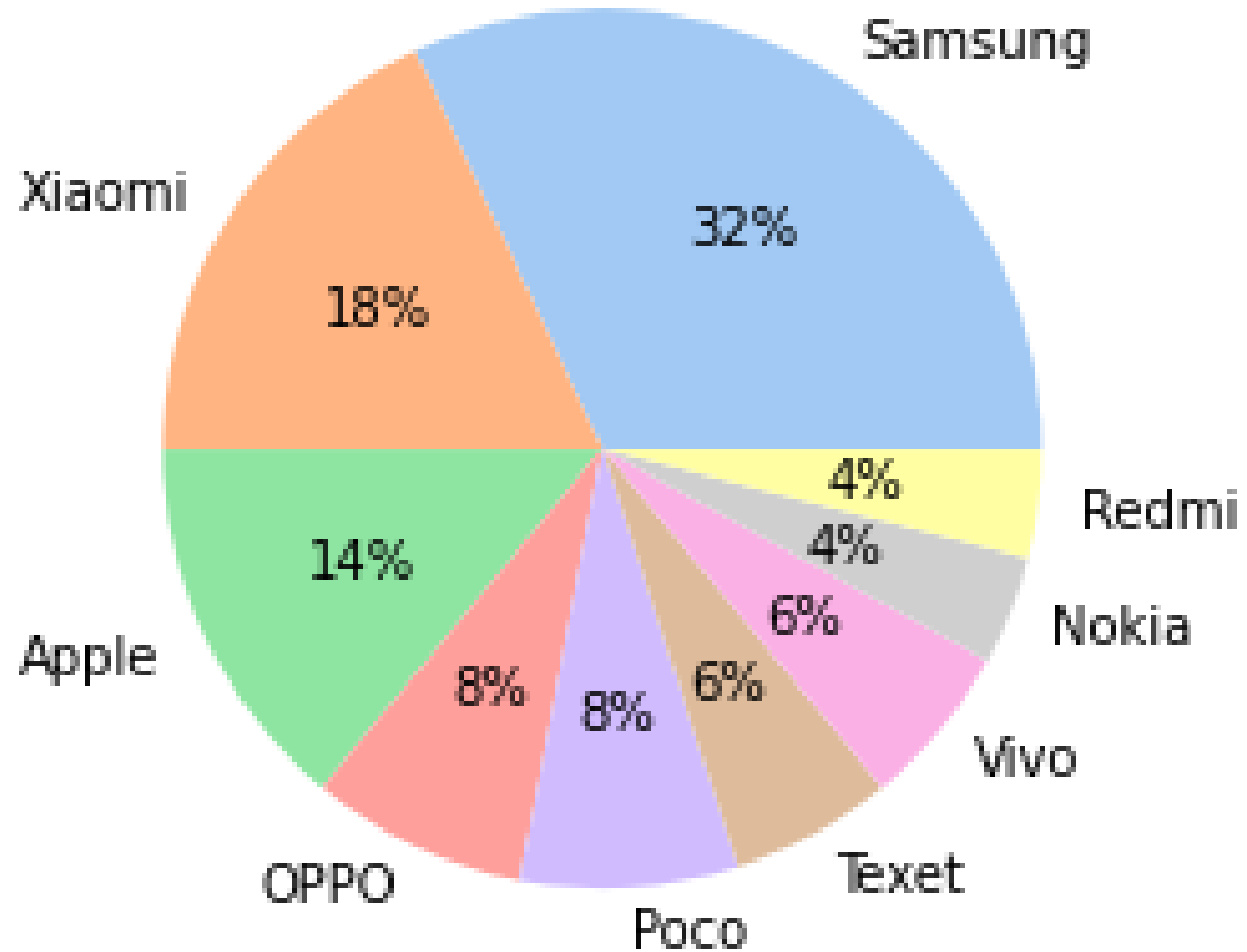
- Top 10 smartphones based on their prices



- Top 10 smartphones and their price based on rating

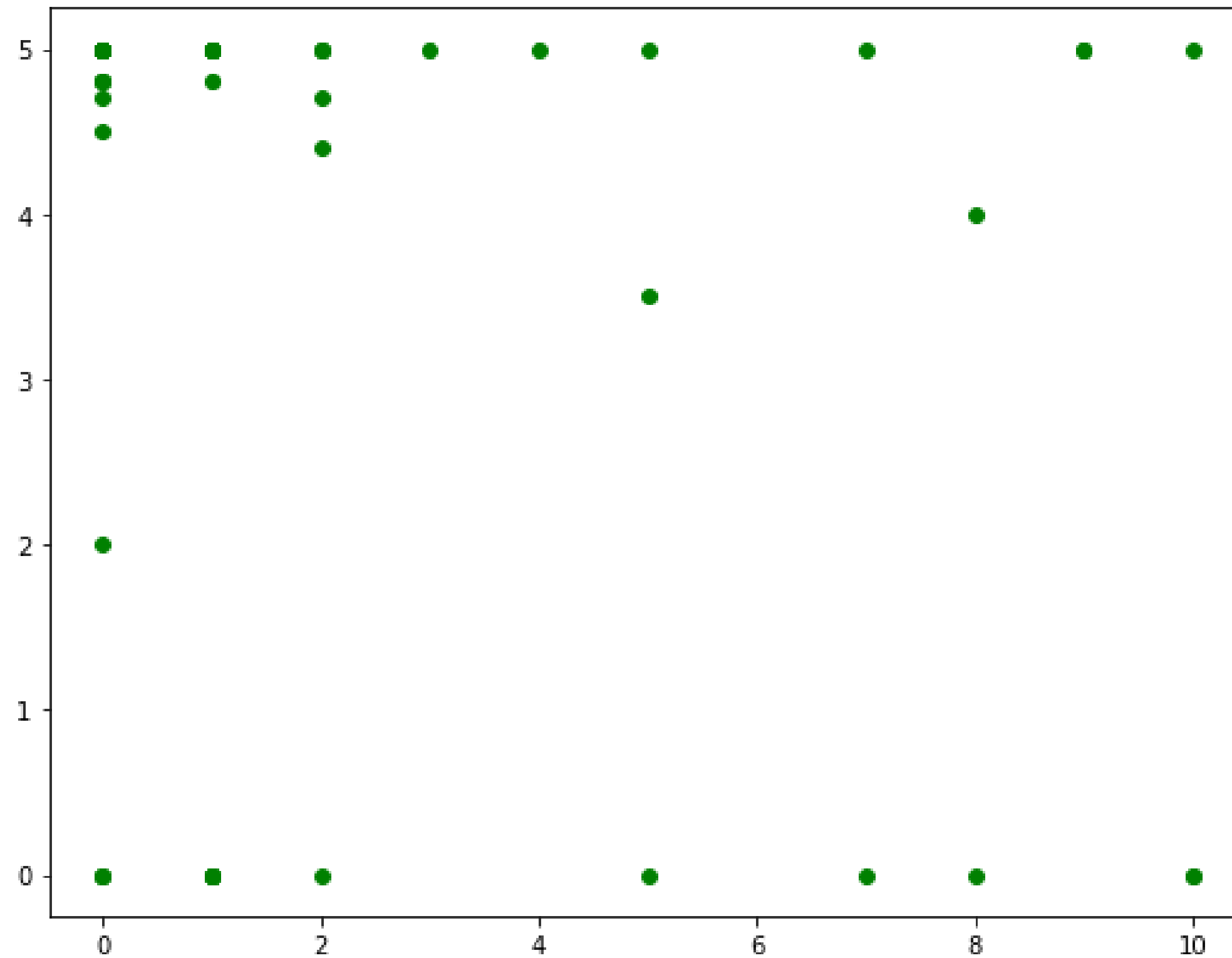


- Pie chart to calculate which phone brands are many



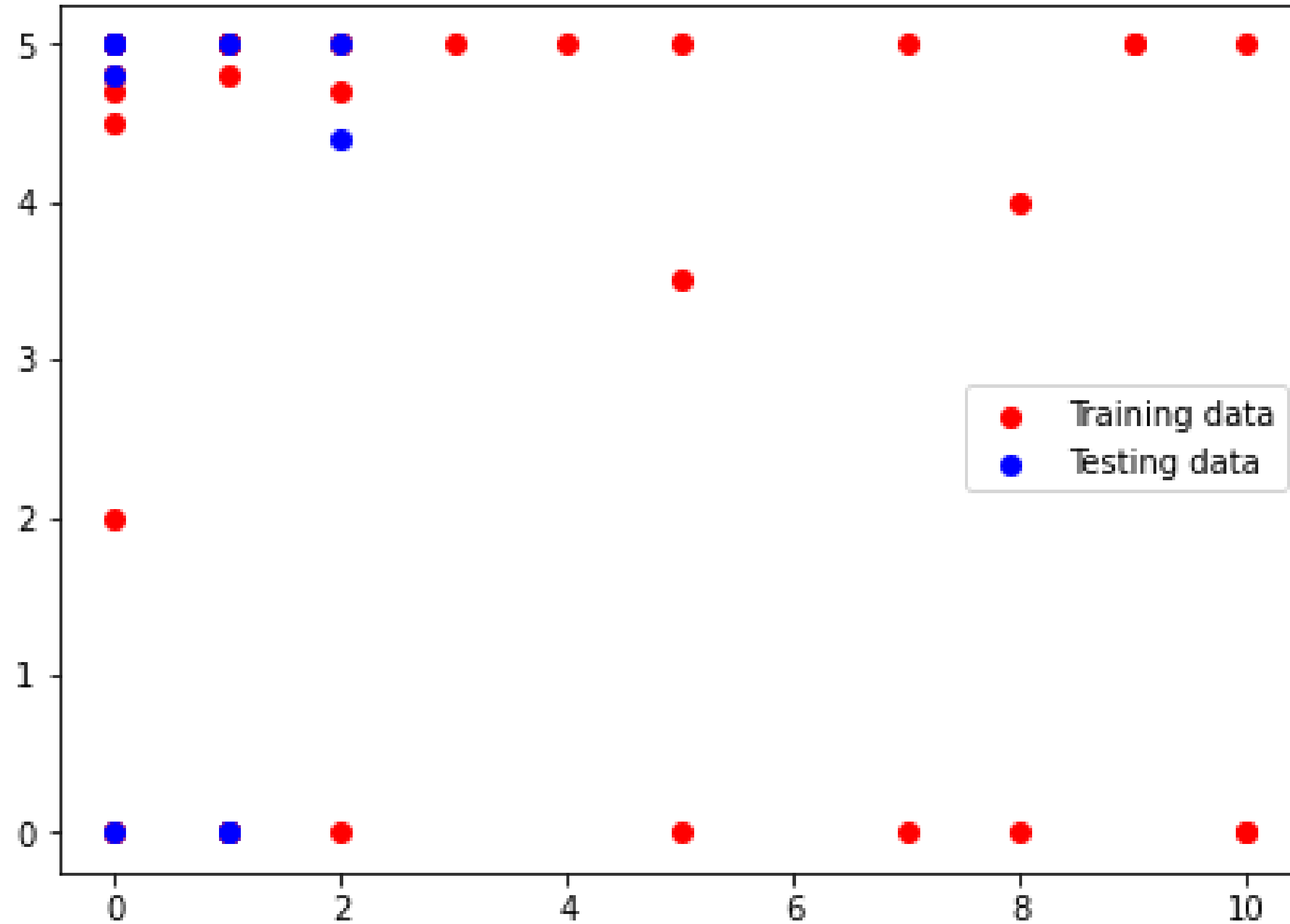
## 4

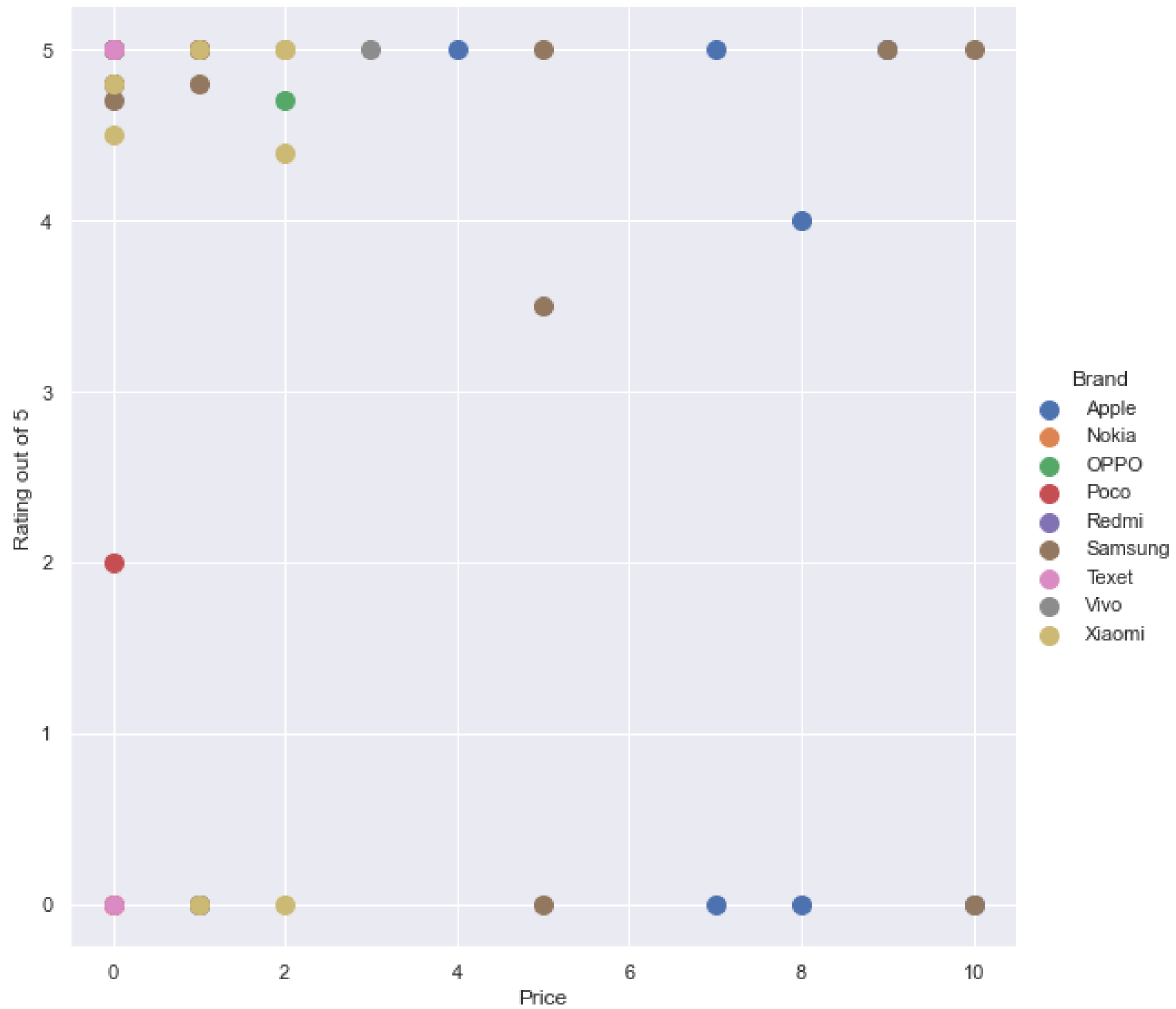
## Data Analytics | ML Part



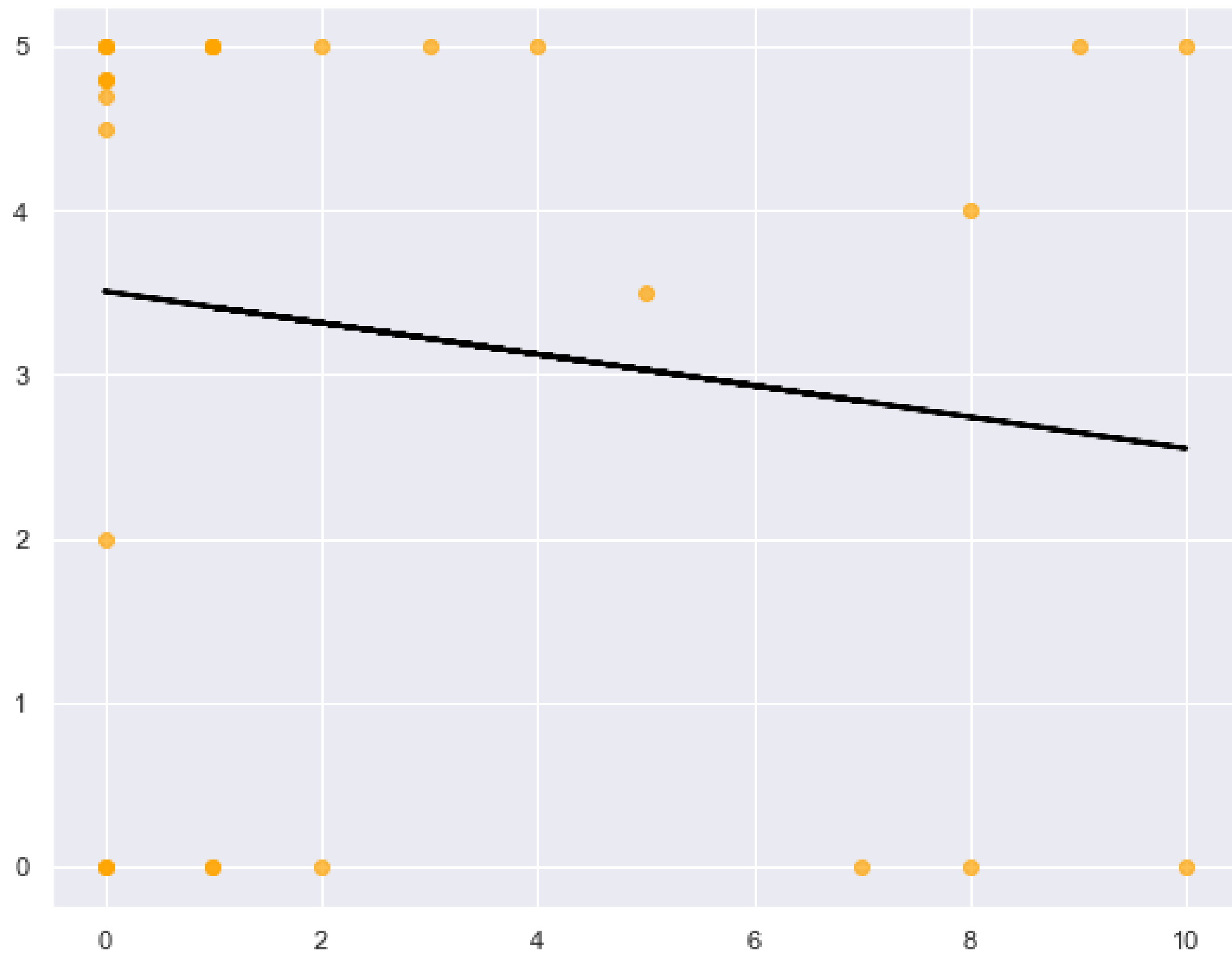
## 4

## Data Analytics | ML Part

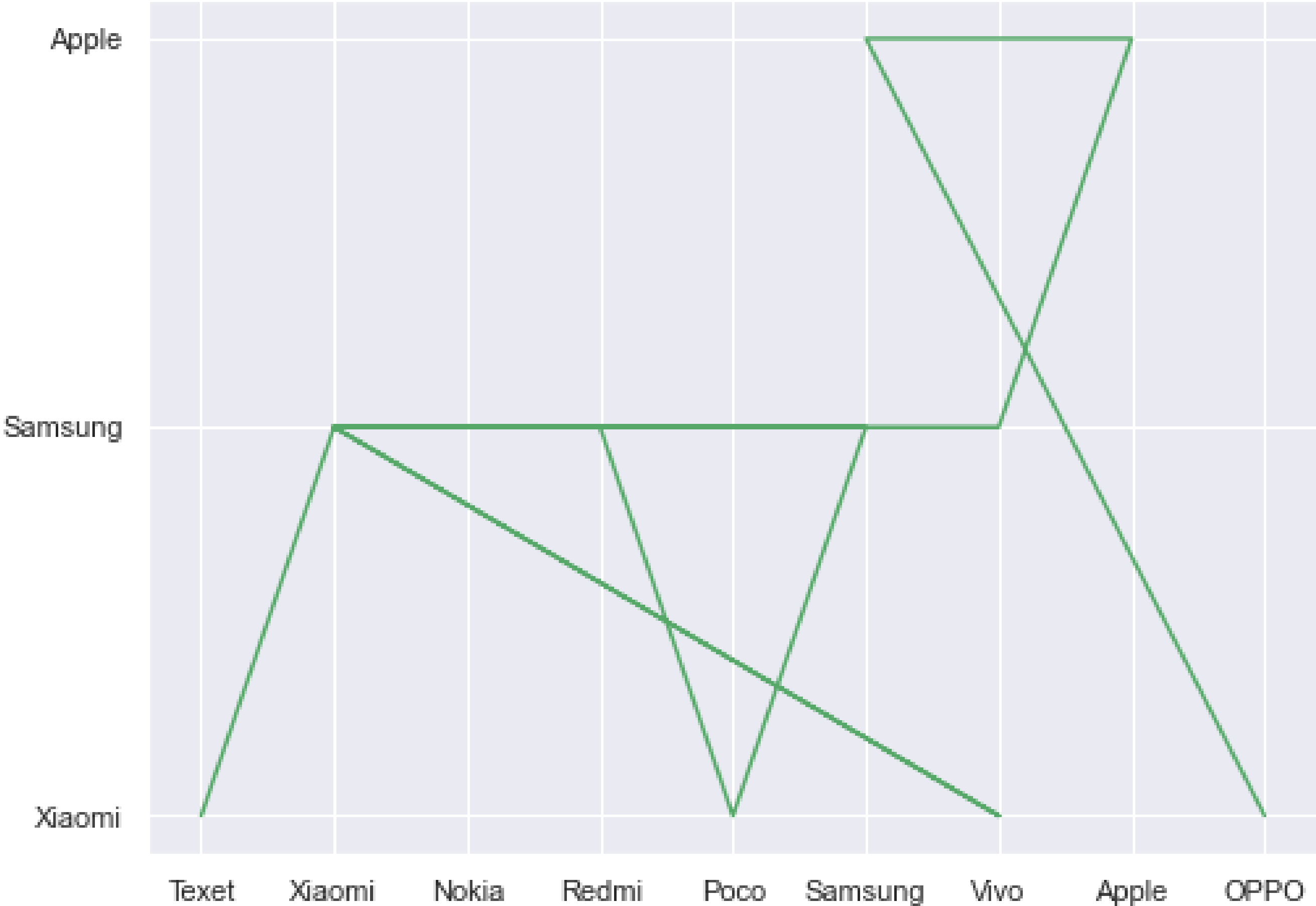




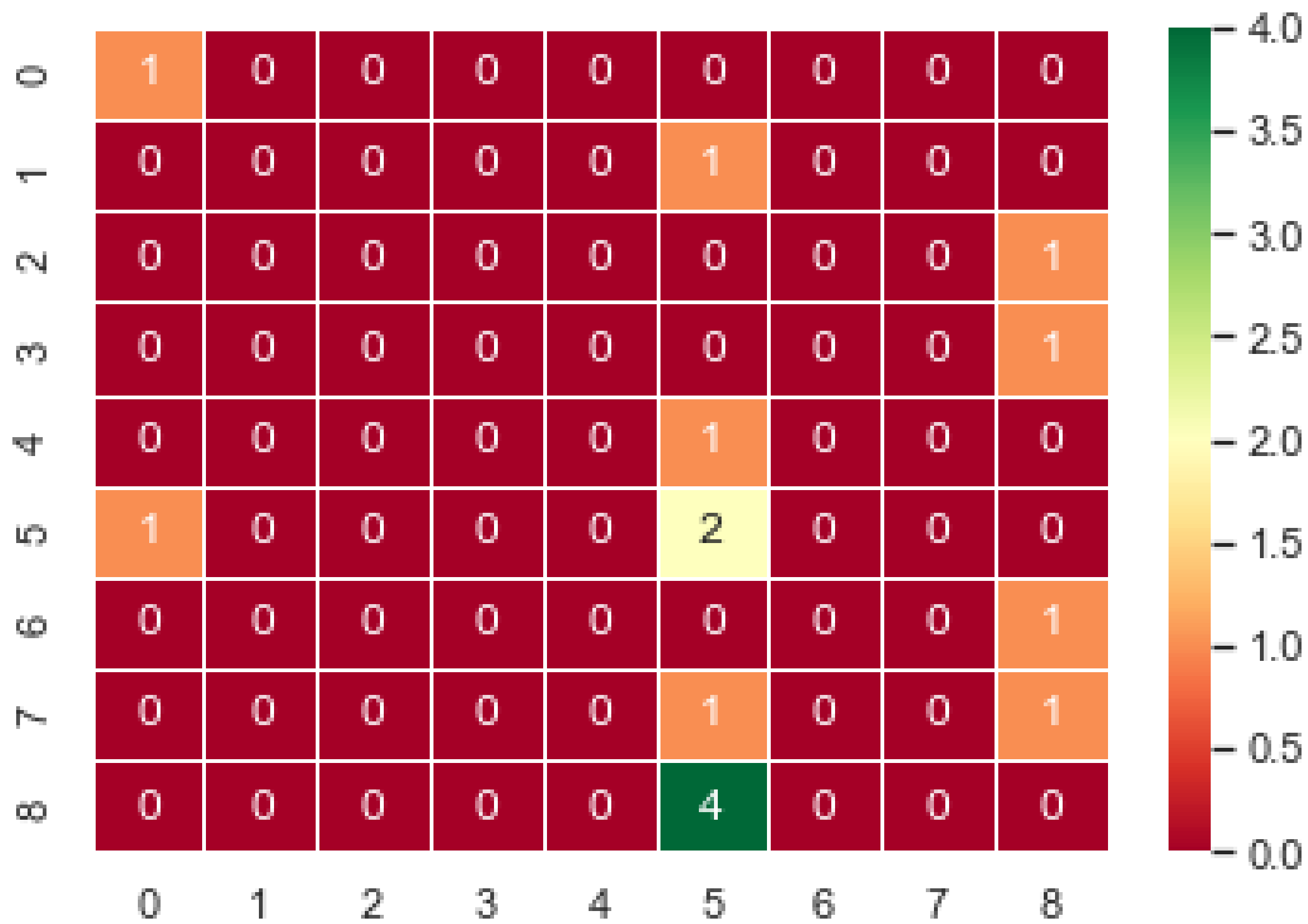
# Linear Regression



# SVM classifier







## 5

## Results



- **has some of the best smartphones**
- **prices have a wide range of choices**



- **high rating**
- **low price**

**5**

## Results



**OPPO A17 64GB Black  
(79990 tenge and 5/5)**



**Poco X4 Pro 256GB Laser Blue  
(179990 in 5/5)**

**Thank You for  
your  
attention!**