Mobile Phone Market

Analysis Report

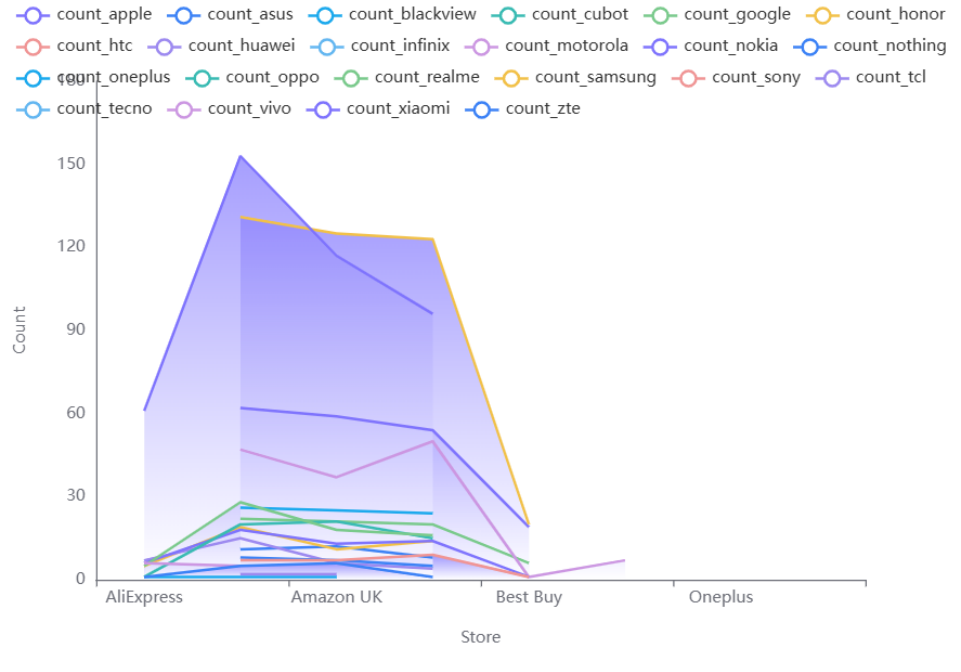
Created By:

Malothu Sagar malothusagar03@gmail.com

Relevant inquiries

Q1. What is the distribution of phone brands across different stores?

Phone Brand Distribution Across Stores



Data Analysis

- **Phone Brands**: The dataset includes brands like Apple, Asus, Nokia, Motorola, Samsung, and others.
- **Stores**: The stores listed are Amazon DE, Amazon UK, Amazon US, AliExpress, Best Buy, Motorola, Oneplus, and Samsung.
- **Count Statistics**: The average count of phone brands across stores is 23.49, with a standard deviation of 34.19. The counts range from 1 to 153.

Visualization Insights

- **High Distribution**: Some brands, such as Apple and Samsung, have higher counts in stores like Amazon DE and Amazon US.
- **Varied Presence**: There is a noticeable variation in the presence of different brands across the stores, with some brands being more prominent in specific stores.

Conclusion and Insights

- **Prominent Brands**: Apple and Samsung are among the most frequently occurring brands across multiple stores.
- **Store Preferences**: Certain stores like Amazon DE and Amazon US have a higher distribution of popular phone brands compared to others.

Q2. How does the price range (low, medium, high) vary with different phone brands?

Price Range Distribution by Phone Brand

Price Range Distribution

- **High Price**: Brands like Apple and Samsung have a significant number of high-priced models, with Apple having 54 and Samsung 57.
- **Medium Price**: Xiaomi and Samsung dominate the medium price range, with Xiaomi having 352 and Samsung 335 models.
- **Low Price**: Xiaomi leads in the low price category with 67 models, followed by Motorola with 24.

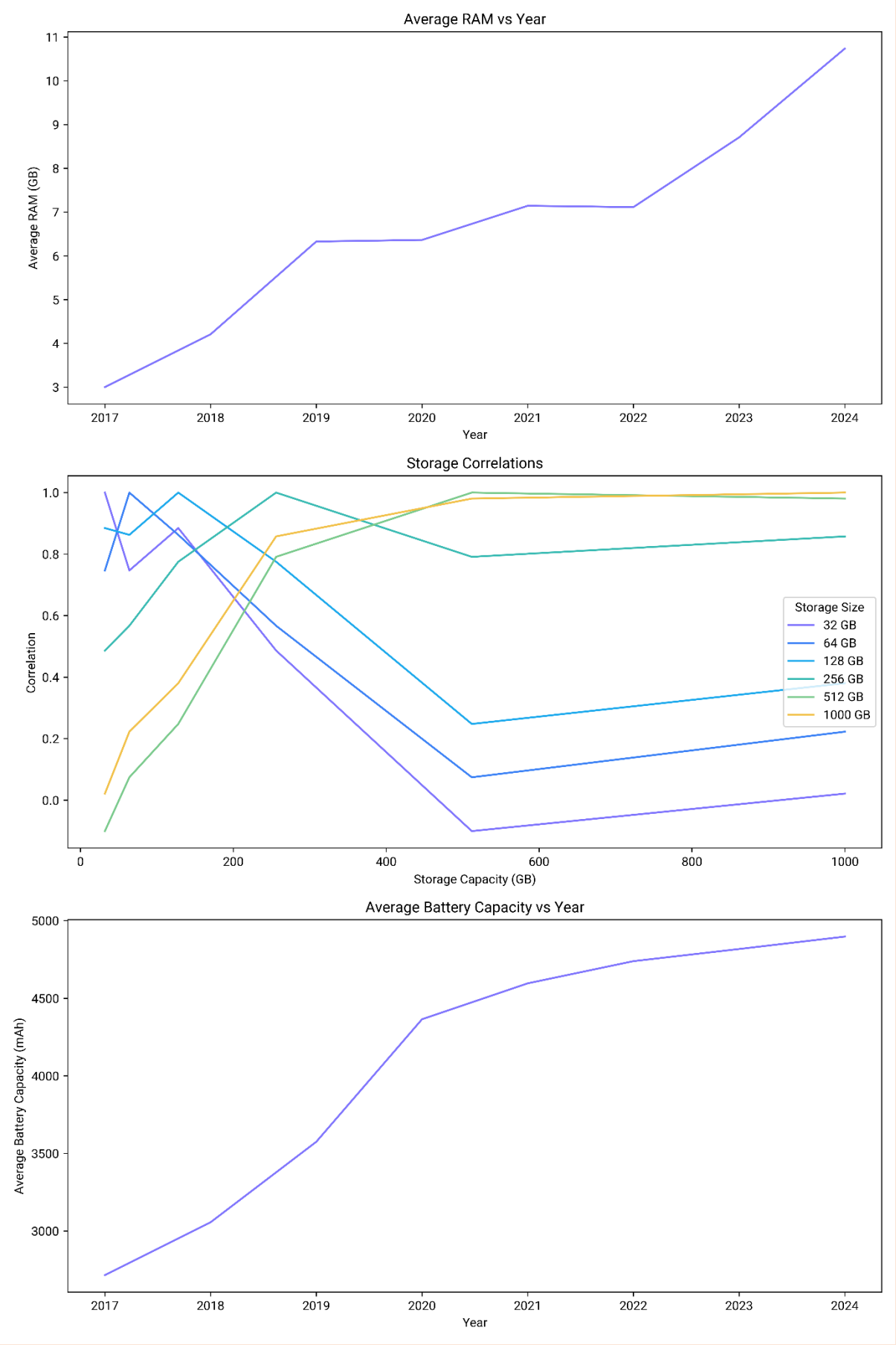
Visualization Insights

- **Dominance in Medium Range**: The bar chart shows that Xiaomi and Samsung have a strong presence in the medium price range.
- **Varied Distribution**: Apple and Samsung have a balanced distribution across all price ranges, while brands like Blackview and Cubot focus more on the medium range.

Conclusion and Insights

- **Brand Strategy**: Xiaomi and Samsung focus heavily on the medium price range, indicating a strategy to capture the mid-market segment.
- **Market Positioning**: Apple maintains a strong presence in the high-price segment, aligning with its premium brand image.

Q3. Analyze the correlation between the launch year and other features such as RAM, storage, and battery capacity to see if there are any trends or patterns over time.



RAM Trends

- **Increasing Trend**: The average RAM has shown a consistent increase from 3.0 GB in 2017 to 10.74 GB in 2024.
- **Steady Growth**: There is a noticeable steady growth in RAM capacity, particularly from 2019 onwards.

Storage Trends

- **Correlation Patterns**: Storage capacities of 128 GB and above show strong positive correlations with each other, indicating a trend towards higher storage options.
- **Diverse Options**: Lower storage options like 32 GB and 64 GB have weaker correlations, suggesting a decline in popularity.

Battery Capacity Trends

- **Significant Increase**: The average battery capacity has increased from 2716 mAh in 2017 to 4897.91 mAh in 2024.
- **Consistent Growth**: There is a consistent upward trend in battery capacity, reflecting consumer demand for longer battery life.

Visual Correlations

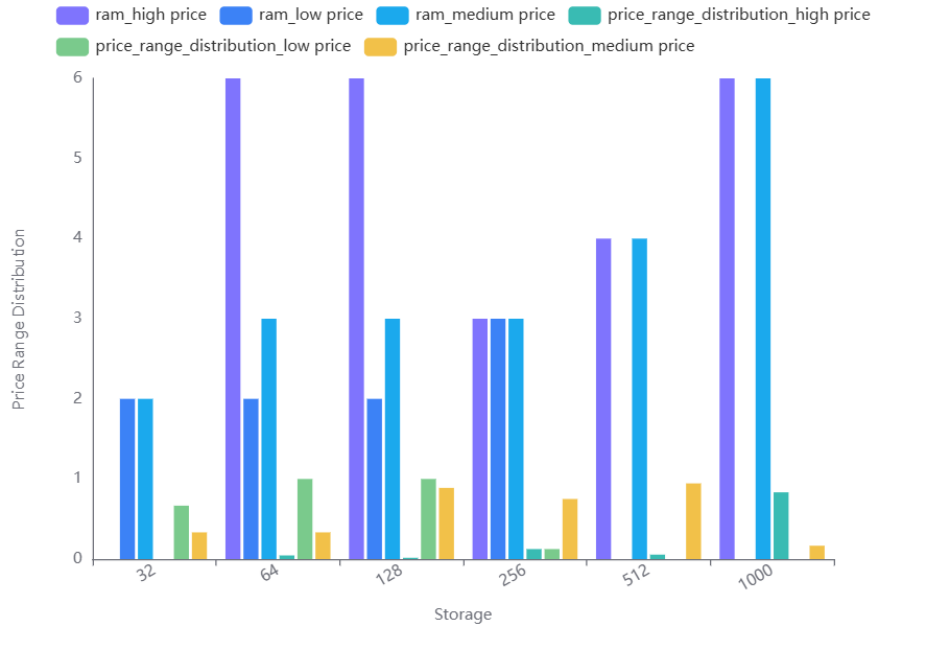
- **Graphical Representation**: The visualizations confirm the numerical trends, showing clear upward trajectories for RAM and battery capacity.
- **Storage Variability**: The storage correlation graph highlights the shift towards higher storage capacities over time.

Conclusion and Insights

- **Technological Advancements**: The data indicates significant advancements in RAM and battery technology over the years.
- **Consumer Preferences**: There is a clear shift towards devices with higher storage capacities, reflecting changing consumer preferences.
- **Future Implications**: These trends suggest that future devices will likely continue to offer increased RAM, storage, and battery capacities to meet evolving user needs.

Q4. Analyze the relationship between storage and RAM configurations and the price range of the phones. Are certain configurations more likely to be found in high, medium, or low price categories?

Price Range Distribution by Storage and RAM



Distribution Analysis

- **Low Storage and RAM**: Phones with lower storage (e.g., 32 GB) and RAM (e.g., 2-3 GB) are predominantly found in the **low price** category, with a distribution of around 66% for low price and 33% for medium price.
- **Medium Storage and RAM**: As storage and RAM increase, the distribution shifts slightly towards the **medium price** category, but low price remains significant.
- **High Storage and RAM**: Higher configurations (e.g., 1000 GB storage) are more likely to be associated with the **high price** category.

Visualization Insights

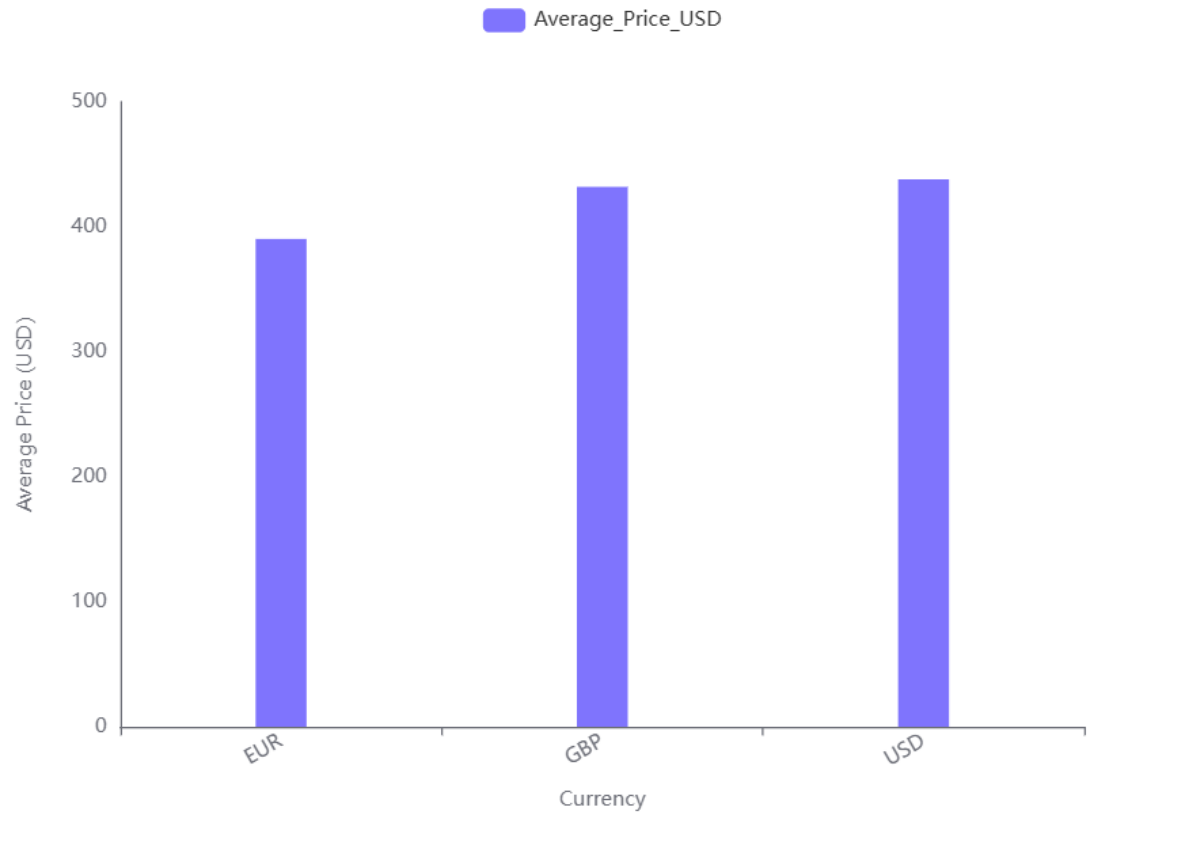
- **Trend Observation**: The plot shows a clear trend where higher storage and RAM configurations are associated with higher price ranges.
- **Price Range Distribution**: The distribution lines for low, medium, and high price categories indicate that as storage and RAM increase, the likelihood of a phone being in the high price category also increases.

Conclusion and Insights

- **Configuration Impact**: There is a strong relationship between higher storage and RAM configurations and higher price categories. Lower configurations are more common in low price ranges.
- **Market Segmentation**: Manufacturers likely target different market segments with varying configurations, aligning higher specs with premium pricing.

Q5. How does the average price in USD differ across different currencies?

Average Price in USD by Currency



Average Price Calculation

- **EUR**: The average price in USD is approximately **390.33**.
- **GBP**: The average price in USD is approximately **432.03**.
- **USD**: The average price in USD is approximately **438.03**.

Visualization of Average Prices

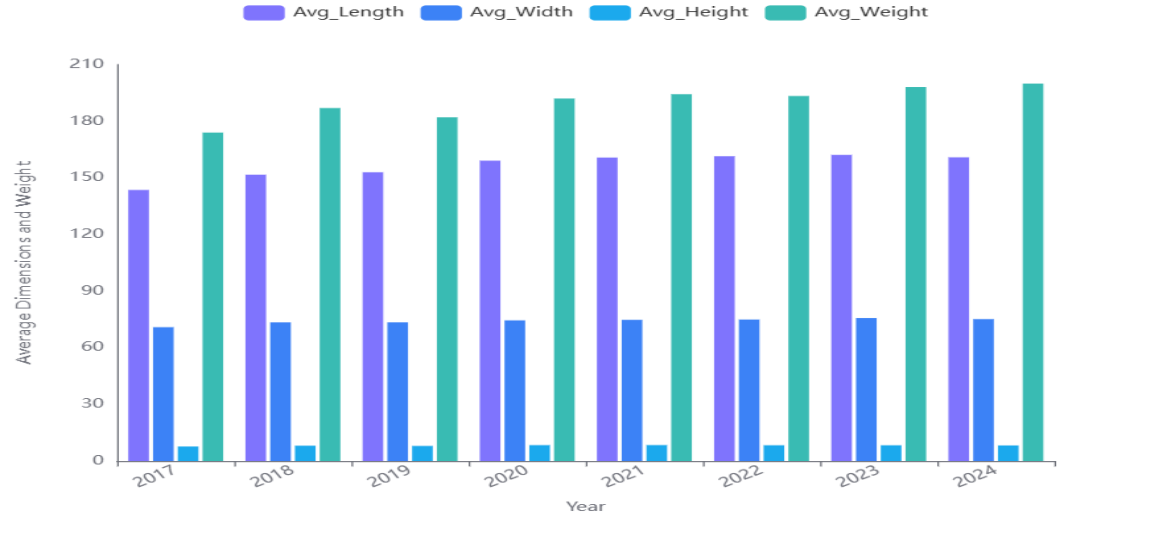
- The bar chart illustrates that **USD** has the highest average price, followed by **GBP**, and then **EUR**.

Conclusion and Insights

- **USD has the highest average price**: This indicates that items priced in USD tend to be more expensive on average compared to those priced in EUR and GBP.
- **EUR has the lowest average price**: This suggests that items priced in EUR are generally less expensive on average.

Q6. Are there any noticeable trends in phone dimensions and weight over the years?

Trends in Phone Dimensions and Weight Over the Years



Analysis of Data

- **Average Length**: There is a noticeable increase in average length from 143.6 mm in 2017 to 162.19 mm in 2023, indicating a trend towards longer phones.
- **Average Width**: The width shows a slight increase from 70.9 mm in 2017 to 75.75 mm in 2023, suggesting a trend towards wider phones.
- **Average Height**: The height remains relatively stable, with minor fluctuations around 8 mm.
- **Average Weight**: There is a significant increase in weight from 174 g in 2017 to 199.96 g in 2023, indicating that phones are becoming heavier over the years.

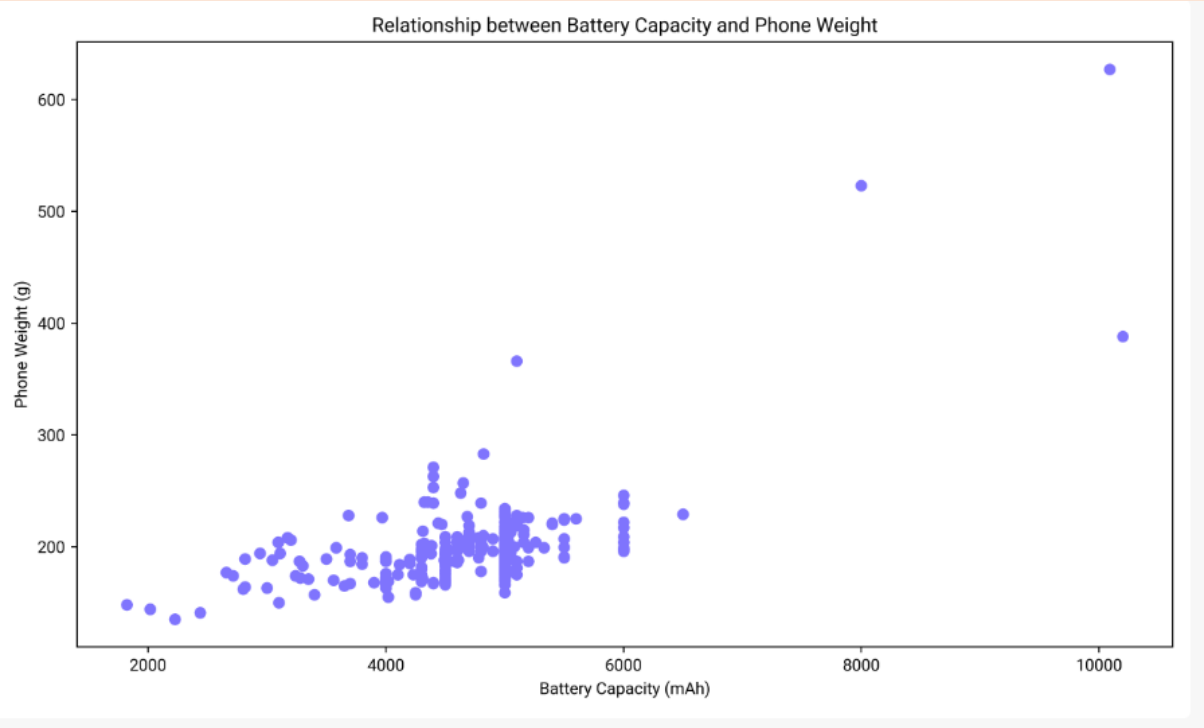
Visualization Insights

- **Length and Width Trends**: The line chart shows a steady increase in both length and width, reflecting the data analysis.
- **Weight Trend**: The weight line also shows a clear upward trend, consistent with the data findings.
- **Height Stability**: The height line remains mostly flat, confirming the stability observed in the data.

Conclusion and Insights

- **Increasing Size**: Phones are becoming larger in both length and width over the years.
- **Heavier Devices**: The increase in weight suggests that newer phones might be incorporating more features or larger batteries.
- **Stable Height**: The height remains stable, indicating that the thickness of phones is not changing significantly.

Q7. What is the relationship between battery capacity and phone weight?



Correlation Analysis

- **Correlation Value**: The correlation between battery capacity and phone weight is approximately **0.44**. This indicates a moderate positive relationship, suggesting that as battery capacity increases, phone weight tends to increase as well.

Visualization Insights

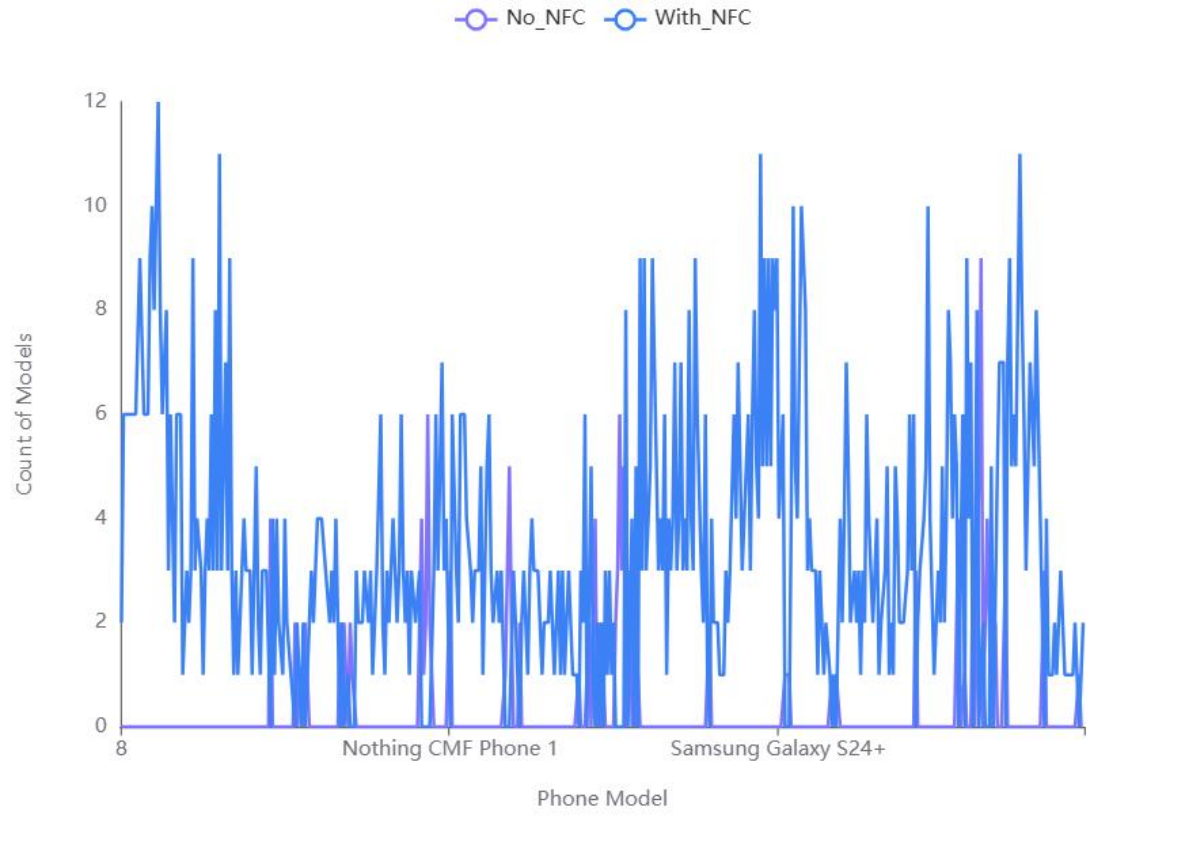
- **Scatter Plot Observation**: The scatter plot shows a general upward trend, supporting the correlation analysis. Most data points cluster around the lower to mid-range of battery capacities and weights, with a few outliers at higher values.

Conclusion and Insights

- **Moderate Positive Relationship**: There is a moderate positive correlation between battery capacity and phone weight, meaning larger batteries are generally associated with heavier phones.
- **Design Considerations**: Manufacturers may need to balance battery capacity with weight to optimize user experience, as heavier phones might be less desirable despite longer battery life.

Q8. How does the presence of NFC technology vary across different phone models?

NFC Presence Across Phone Models



NFC Presence Analysis

- **Models with NFC**: On average, phone models have a higher count of NFC presence, with a mean of 3.33 models having NFC technology.
- **Models without NFC**: The average count of models without NFC is significantly lower, with a mean of 0.30.
- **Sample Data**: Models like the Apple iPhone 11 series consistently show NFC presence, with no models lacking this feature.

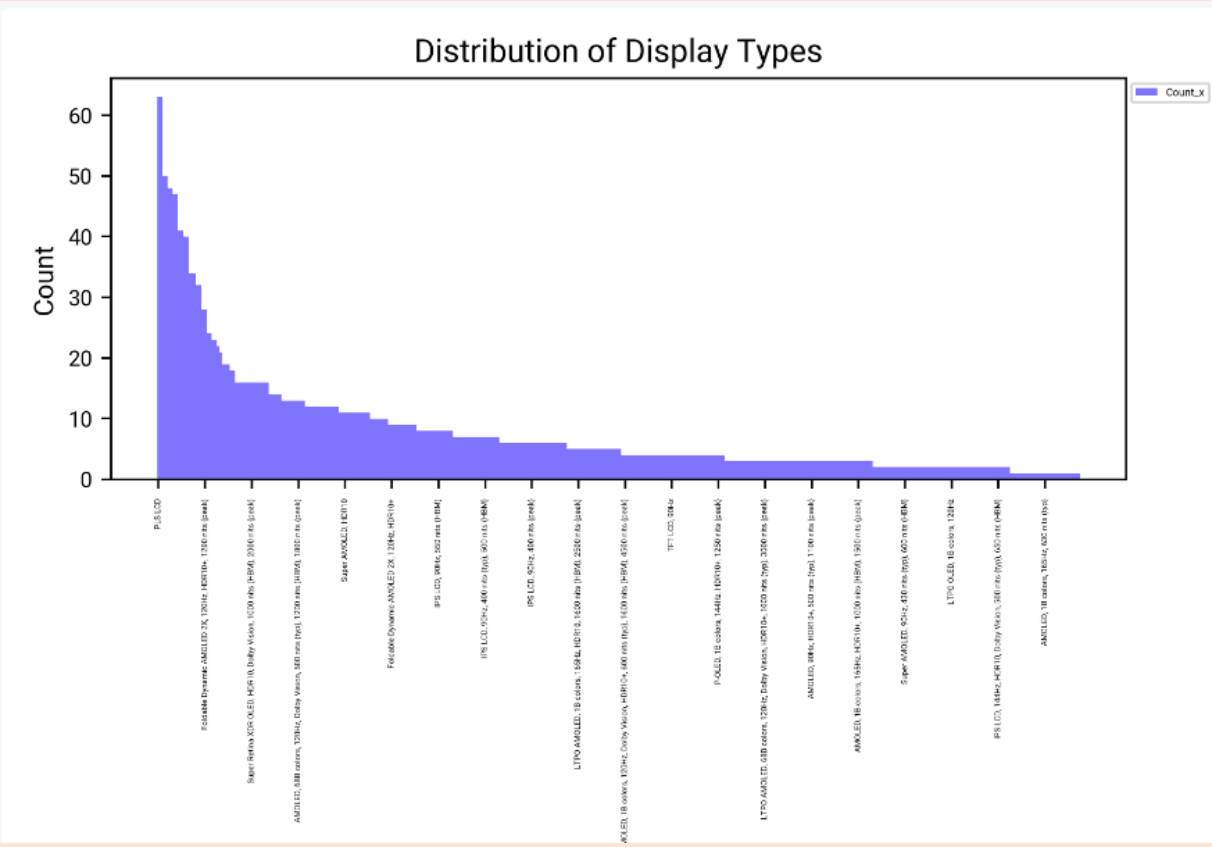
Visualization of NFC Presence

- **Bar Chart Overview**: The bar chart illustrates a clear trend where most phone models have NFC technology.
- **Model Distribution**: There are few models without NFC, and these are sparsely distributed across different brands.

Conclusion and Insights

- **NFC Adoption**: NFC technology is widely adopted across most phone models, indicating its importance in modern smartphones.
- **Brand Consistency**: Certain brands, like Apple, consistently include NFC in their models, suggesting a standard feature in their product lines.

Q9. What is the distribution of display types among the phones, and how does it relate to the price range?



Display Type Distribution

- **PLS LCD** is the most common display type, with a count of 63.
- **LTPO Super Retina XDR OLED** is also prevalent, especially in high and medium price ranges.
- **Super Retina XDR OLED** is frequently found in high-priced phones.

Display Type and Price Range Relationship

- **PLS LCD** is predominantly found in low and medium price ranges, with 23 in low and 40 in medium.
- **LTPO Super Retina XDR OLED** is mostly associated with high-priced phones, with 31 in high and 19 in medium.
- **Super Retina XDR OLED** is primarily in high-priced phones, with a count of 7.

Visualization Insights

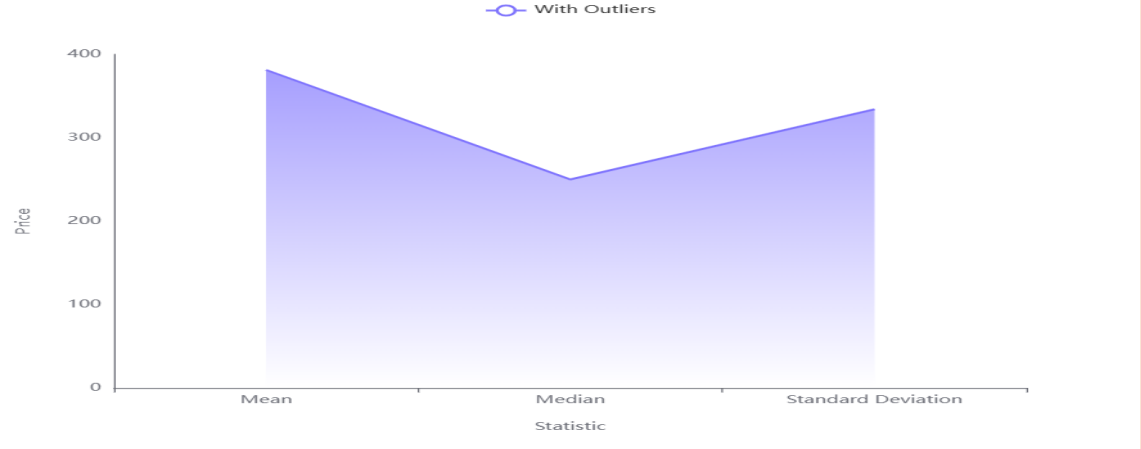
- The bar chart shows a steep decline in the frequency of display types after the top few, indicating a concentration in a few popular types.
- The distribution suggests that more advanced display technologies like OLED are linked to higher price ranges.

Conclusion and Insights

- **Key Point 1**: PLS LCD is the most common display type, especially in lower price ranges.
- **Key Point 2**: Advanced display types like LTPO Super Retina XDR OLED are more common in higher price ranges, indicating a correlation between display technology and price.

Q10. Are there any outliers in the price data, and how do they affect the overall price distribution?

Price Distribution Analysis with Outliers



Summary Statistics

- **Mean with Outliers**: 381.34
- **Mean without Outliers**: 324.53
- **Median with Outliers**: 249.99
- **Median without Outliers**: 237.99
- **Standard Deviation with Outliers**: 334.14
- **Standard Deviation without Outliers**: 235.56

Visualization of Price Distribution

- **Price Distribution with Outliers**: The histogram shows a wider spread, indicating the presence of extreme values.
- **Price Distribution without Outliers**: The histogram is more concentrated, suggesting a more typical distribution without extreme values.

Conclusion and Insights

- **Presence of Outliers**: The data contains outliers, as indicated by the significant differences in mean and standard deviation when outliers are included versus excluded.
- **Impact on Distribution**: Outliers increase the mean and standard deviation, skewing the distribution and potentially misleading interpretations of the data's central tendency and variability.