A Report On: -

Statistical Analysis of Numerical Values

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Introduction:

The mobile phone industry has seen rapid advancements in technology, leading to a diverse range of devices with varying specifications. Understanding the key features of these devices is crucial for both manufacturers and consumers. This report presents a statistical analysis of two important numerical features: 'battery_power' and 'clock_speed', extracted from a dataset of mobile phones. The analysis aims to provide insights into the distribution and characteristics of these features.

Objectives:

The main objectives of this statistical analysis are:

- To analyze the ***battery_power*** feature of mobile phones, focusing on its central tendency, dispersion, and distribution.
- To analyze the ***clock_speed*** feature of mobile phones, focusing on its central tendency, dispersion, and distribution.

Analysis:

Analysis on battery_power:

This feature represents the battery capacity of the mobile phones in milliamp hours (mAh). The following statistics were calculated:

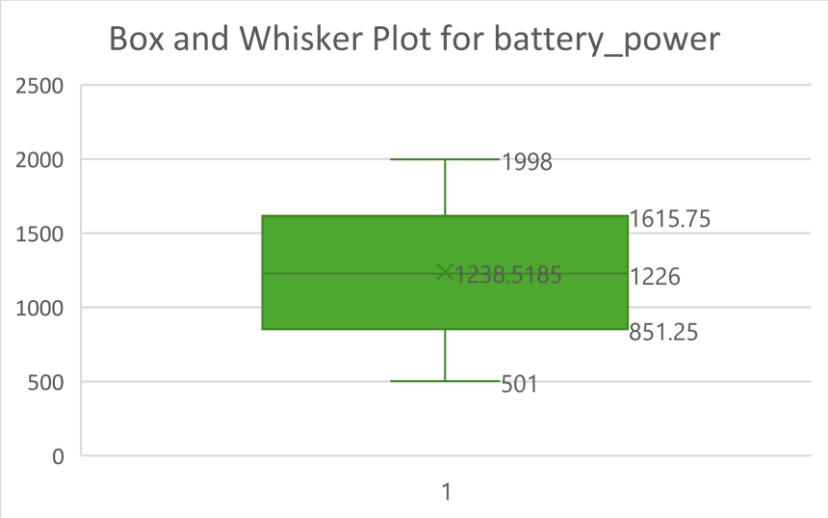
Summary Statistics:

battery_power Summary	
Mean	1238.5185
Standard Error	9.825689794
Median	1226
Mode	1589
Standard Deviation	439.4182061
Sample Variance	193088.3598
Kurtosis	-1.224143883
Skewness	0.031898472
Minimum	501
Maximum	1998
Count	2000

Percentiles:

battery_power Percentile	
10%	634.9
25%	851.75
50%	1226
75%	1615.25
90%	1851
99%	1987

Box and Whisker:



Analysis:

The mean battery power of the mobile phones is 1238.52 mAh, with a median value of 1226 mAh, indicating a symmetrical distribution. The mode of 1589 mAh suggests that this value appears most frequently in the dataset. The standard deviation of 439.42 mAh reflects a considerable spread around the mean. The negative kurtosis (-1.22) indicates a flatter distribution compared to a normal distribution. The skewness value (0.03) close to zero suggests a nearly symmetric distribution of battery power. The percentile values show the distribution of battery power across different points in the dataset.

Analysis on clock_speed:

This feature represents the processor speed of the mobile phones in gigahertz (GHz). The following statistics were calculated.

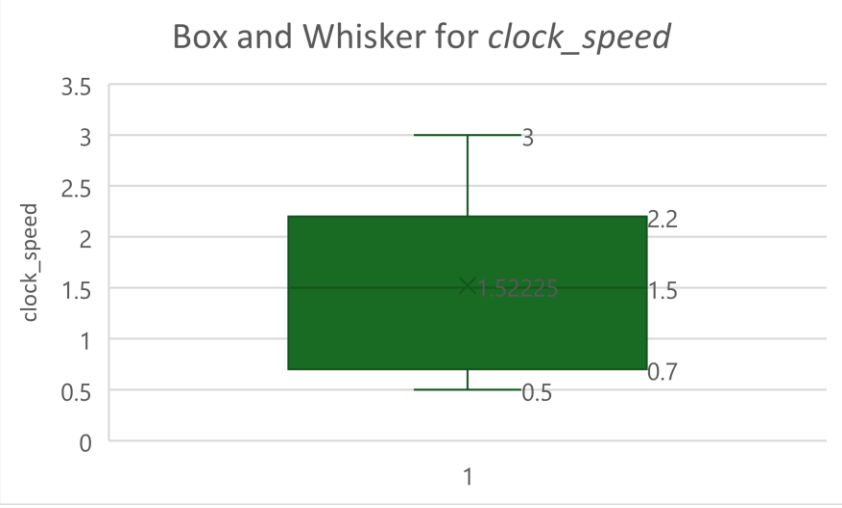
Summary Statistics:

clock_speed Summary	
Mean	1.52225
Standard Error	0.018246409
Median	1.5
Mode	0.5
Standard Deviation	0.816004209
Sample Variance	0.665862869
Kurtosis	-1.323417222
Skewness	0.17808412
Minimum	0.5
Maximum	3
Count	2000

Percentiles:

clock_speed Percentile	
10%	0.5
25%	0.7
50%	1.5
75%	2.2
90%	2.7
99%	3

Box and Whisker:



Analysis:

The mean clock speed of the mobile phones is 1.52 GHz, with a median value of 1.5 GHz, indicating a balanced distribution around the central value. The mode of 0.5 GHz is notably lower than the mean and median, suggesting a significant number of devices with lower clock speeds. The standard deviation of 0.82 GHz indicates moderate variability around the mean. The negative kurtosis (-1.32) implies a flatter distribution than the normal distribution. The skewness value (0.18) indicates a slight right skew in the distribution. The percentile values illustrate the distribution of clock speeds at various points in the dataset.

Conclusion

This statistical analysis provides a comprehensive overview of the battery_power and clock_speed features in the mobile phone dataset. The insights gained from this analysis can inform manufacturers about common battery capacities and processor speeds, helping them make data-driven decisions in product development and marketing.