Statistical Analysis of Apple Store App Reviews

# 1. Dataset Overview

The dataset contains 1000 Apple Store app reviews. It includes details such as App Name, User Age, Review Date, Rating, Review Text, Likes, Device Type, Version Used, Country, Purchase Amount, and Category. The analysis aims to understand user ratings, spending behavior, and relationships between variables.

# 2. Central Tendency of Ratings

Mean Rating: 2.87

Median Rating: 3.00

Mode Rating: 1.00

The median is the best measure of central tendency for ratings because it is less affected by skewness and outliers.

# 3. Spread of Purchase Amounts

Minimum: 0.00

Maximum: 19.97

Range: 19.97

The wide range suggests that in-app spending varies greatly among users.

# 4. Variance & Standard Deviation of Likes

Variance: 822.85

Standard Deviation: 28.69

A high standard deviation indicates that the number of likes received on reviews varies widely.

# 5. Correlation Between Likes & Ratings

Correlation Coefficient: 0.84 (Strong positive relationship)

This means higher-rated reviews tend to receive more likes.

# 6. Distribution of Ratings

Skewness: Positive (Right-skewed)

Interpretation: There are more low ratings than high ratings, suggesting possible dissatisfaction among some users.

# 7. Hypothesis Test: Instagram vs WhatsApp Ratings

Null Hypothesis (H₀): Instagram’s average rating is less than or equal to WhatsApp’s average rating.

p-value: 0.786 (> 0.05)

Conclusion: Fail to reject H₀ → No significant evidence that Instagram’s average rating is higher.

# 8. Central Limit Theorem in Action

By taking 1000 random samples of 30 ratings each, the sampling distribution of the mean was approximately normal, even though the population distribution was skewed. This supports the Central Limit Theorem, which states that the distribution of sample means tends to be normal regardless of the population's distribution.

# 9. Key Insights

- Median rating best represents user experience.  
- Purchase amounts vary widely among users.  
- Strong positive correlation between likes and ratings.  
- No statistical difference between Instagram & WhatsApp ratings.  
- Sampling distribution confirms the Central Limit Theorem.