



MORINGA
SCHOOL

Apple_Google sentiment Analysis

DATA SCIENCE: NATURAL
LANGUAGE PROCESSING

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BUSINESS PROBLEM

The business's main issues in sentiment analysis include

- Slang in tweets complicates machine learning.
- Abbreviations are hard for stakeholders to interpret.
- Sarcasm makes sentiment classification difficult.
- Spam and irrelevant tweets add noise to analysis.

BENEFITS TO STAKEHOLDERS

- **Insights into public product perception**
- **Key areas for product improvement**
- **Trend-based targeted campaigns**

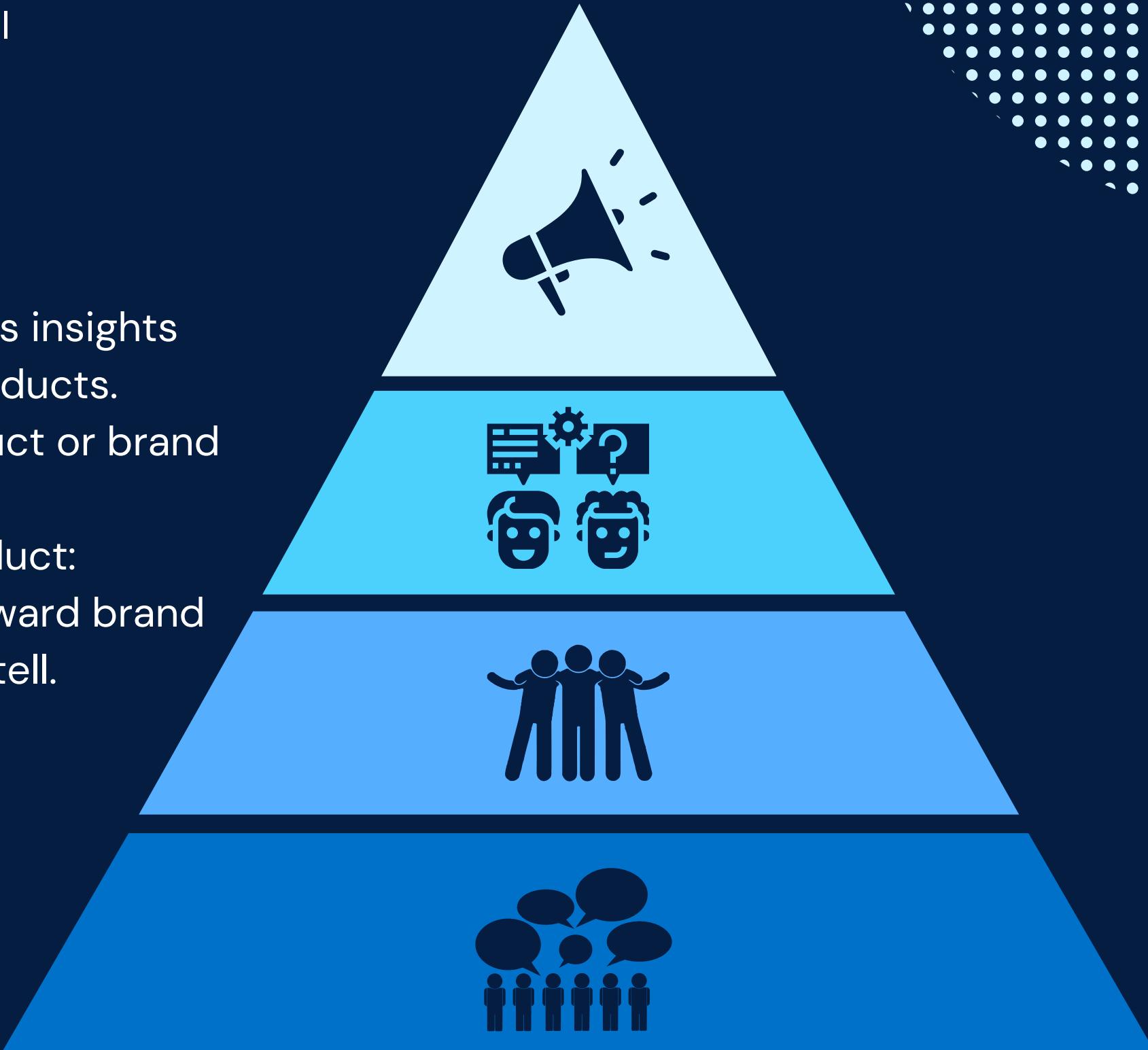


DATA

- Data sourced from Crowd Flower via Data.World
- 9,093 Tweets with sentiment labels: positive, negative, neutral
- Collected in March during the SXSW event
- Filtered using specific hashtags and keywords

The dataset has 3 columns:

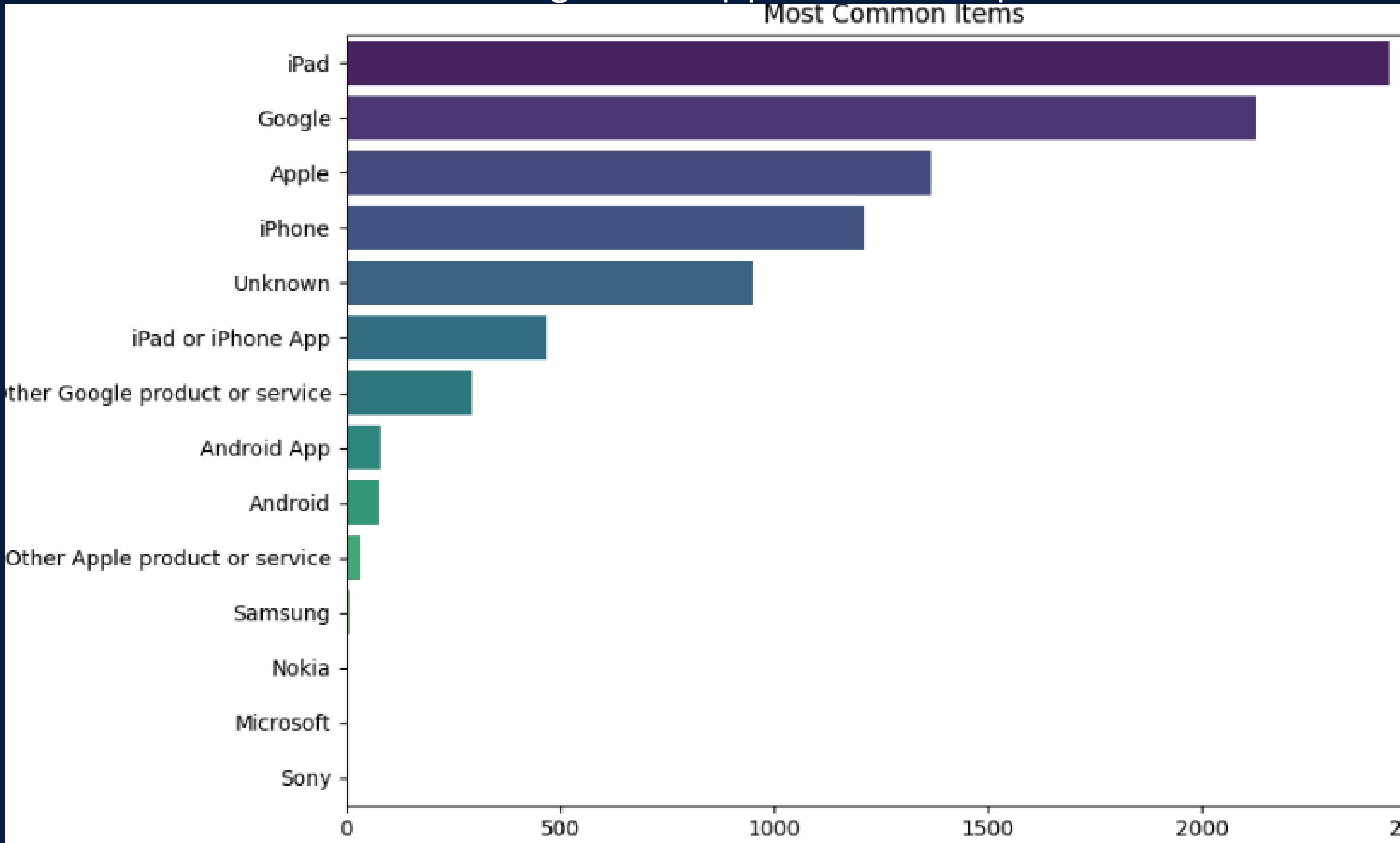
1. tweet_text: The actual text of the tweet, which provides insights into what users are saying about Apple and Google products.
2. emotion_in_tweet_is_directed_at: The specific product or brand mentioned in the tweet (e.g., iPhone, iPad, Google).
3. is_there_an_emotion_directed_at_a_brand_or_product:
Indicates whether the tweet expresses: No emotion toward brand or product, Positive emotion, Negative emotion, I can't tell.



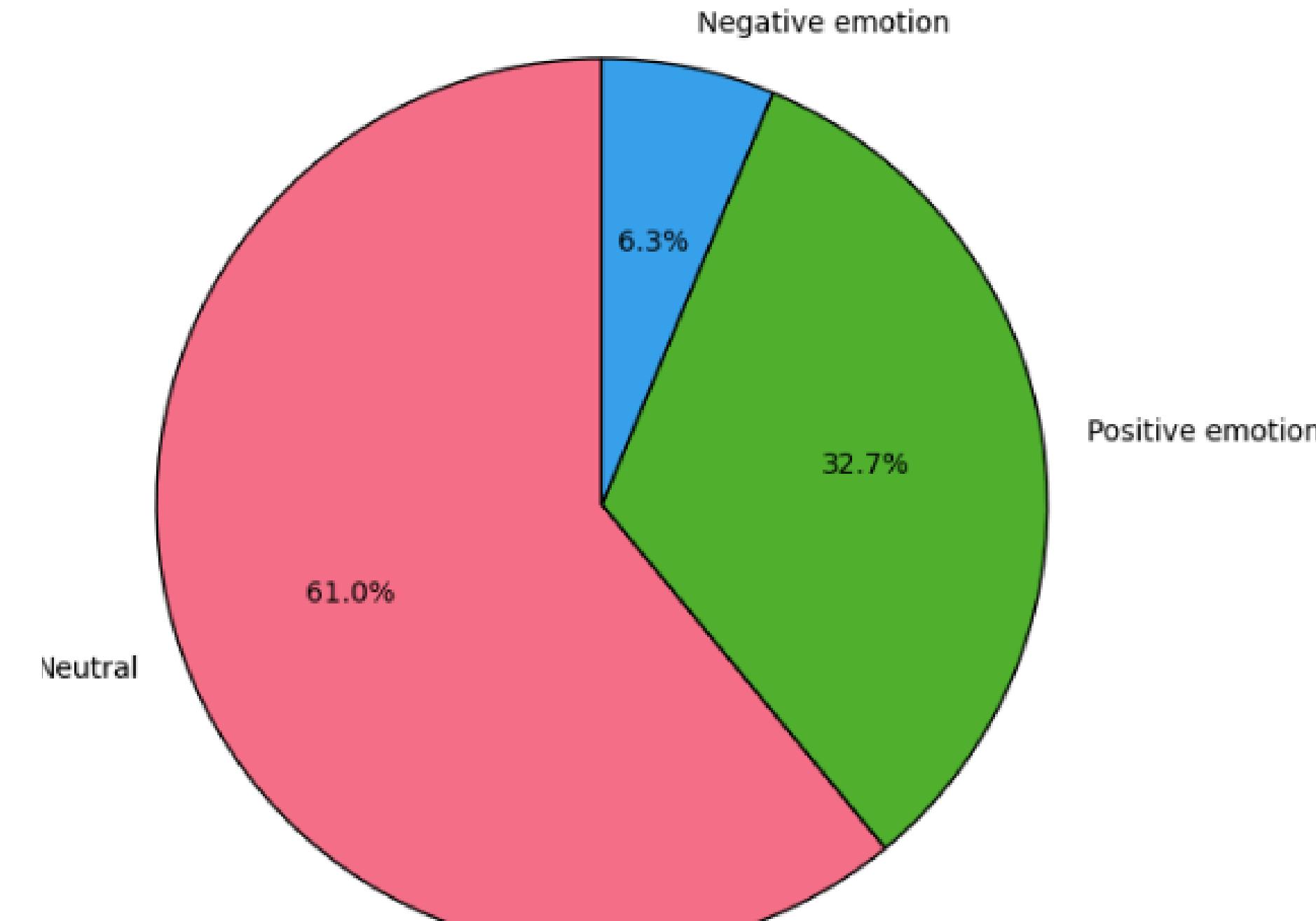
DATA ANALYSIS: MOST OCCURRING ITEMS

1. Which is the most common product?:?

iPad, Google and Apple are the top most items



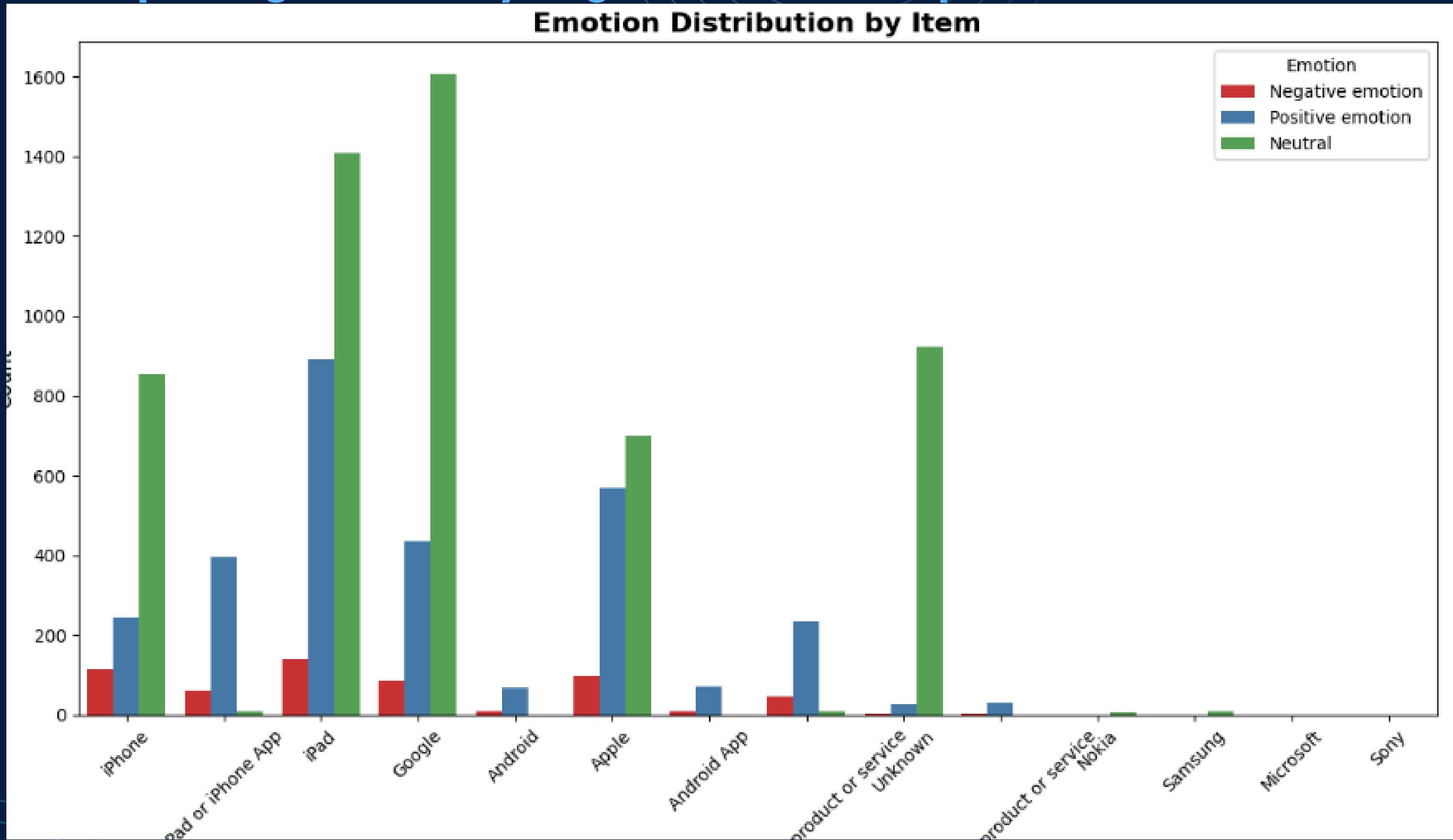
Distribution of Sentiments in Tweets



The visualization reveals that the majority of responses exhibit no emotion toward the brand or product(Neutral) followed by a significant proportion of positive reviews, with negative reviews being the least frequent. This suggests overall neutrality with a leaning toward positivity in customer sentiment.

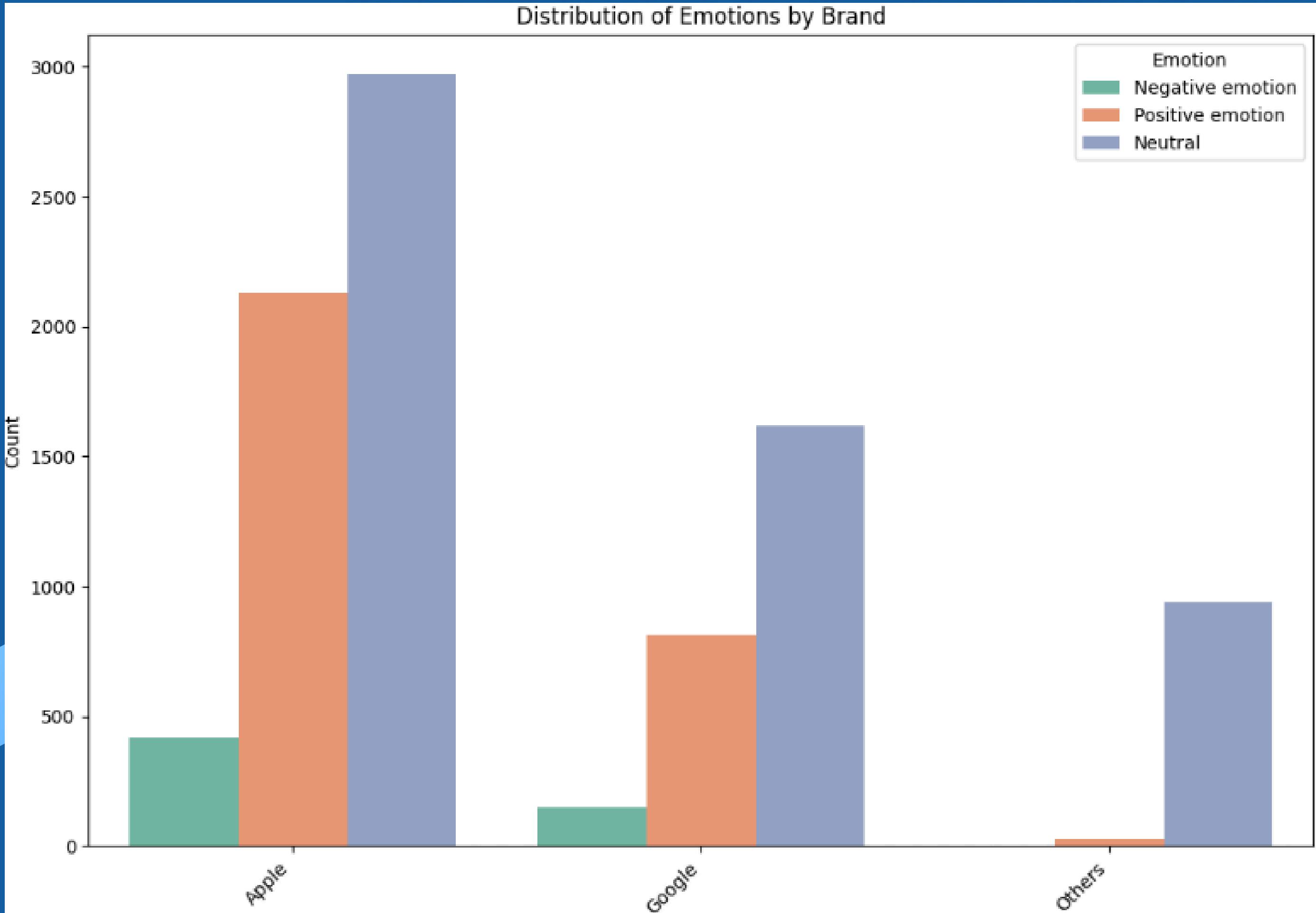
BIVARIATE ANALYSIS

Exploring and analyzing the relationship between two variables.



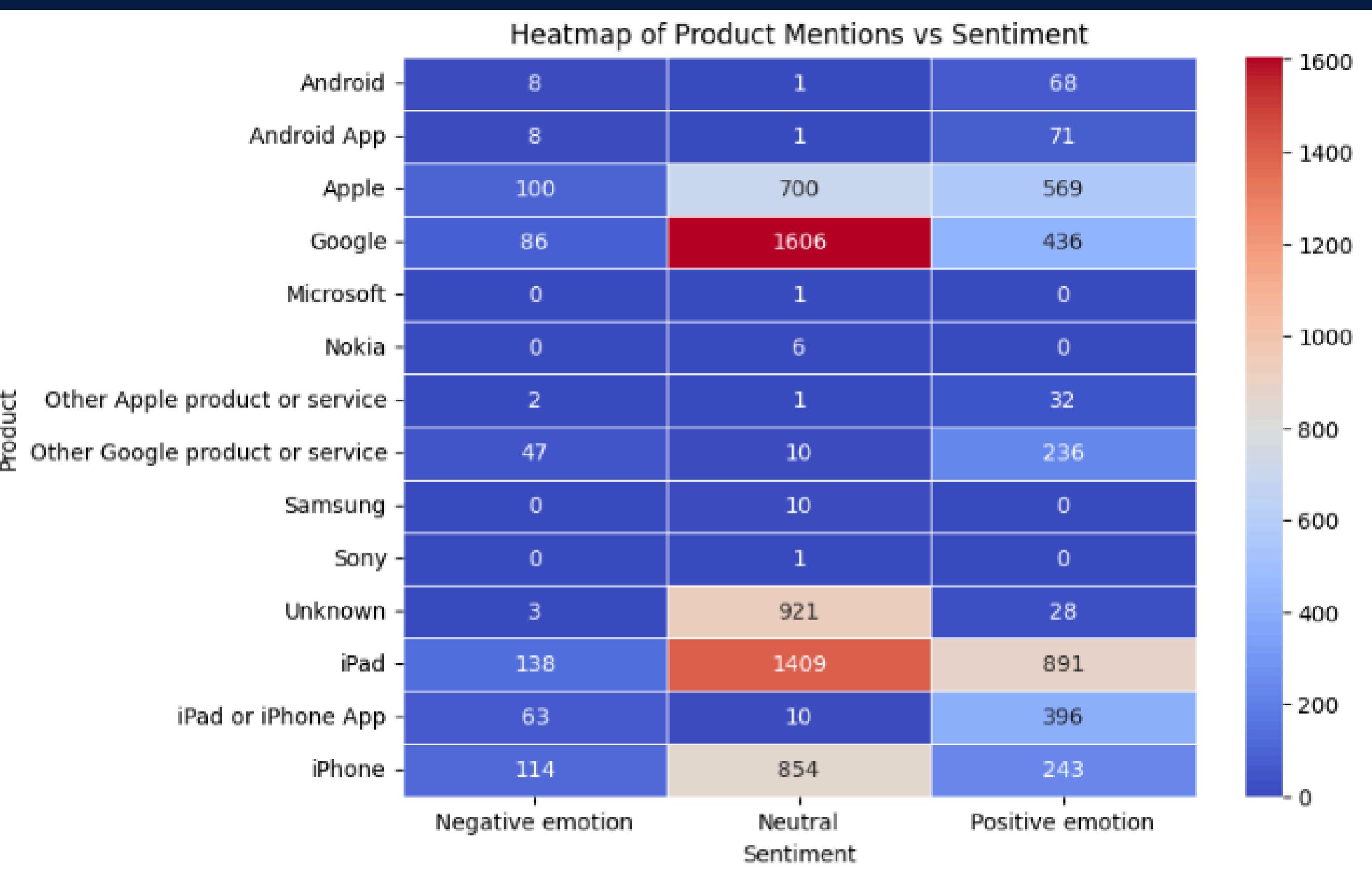
- iPad drives emotional connection; Google excels in reliability but can boost engagement.

DISTRIBUTION OF EMOTION BY BRAND



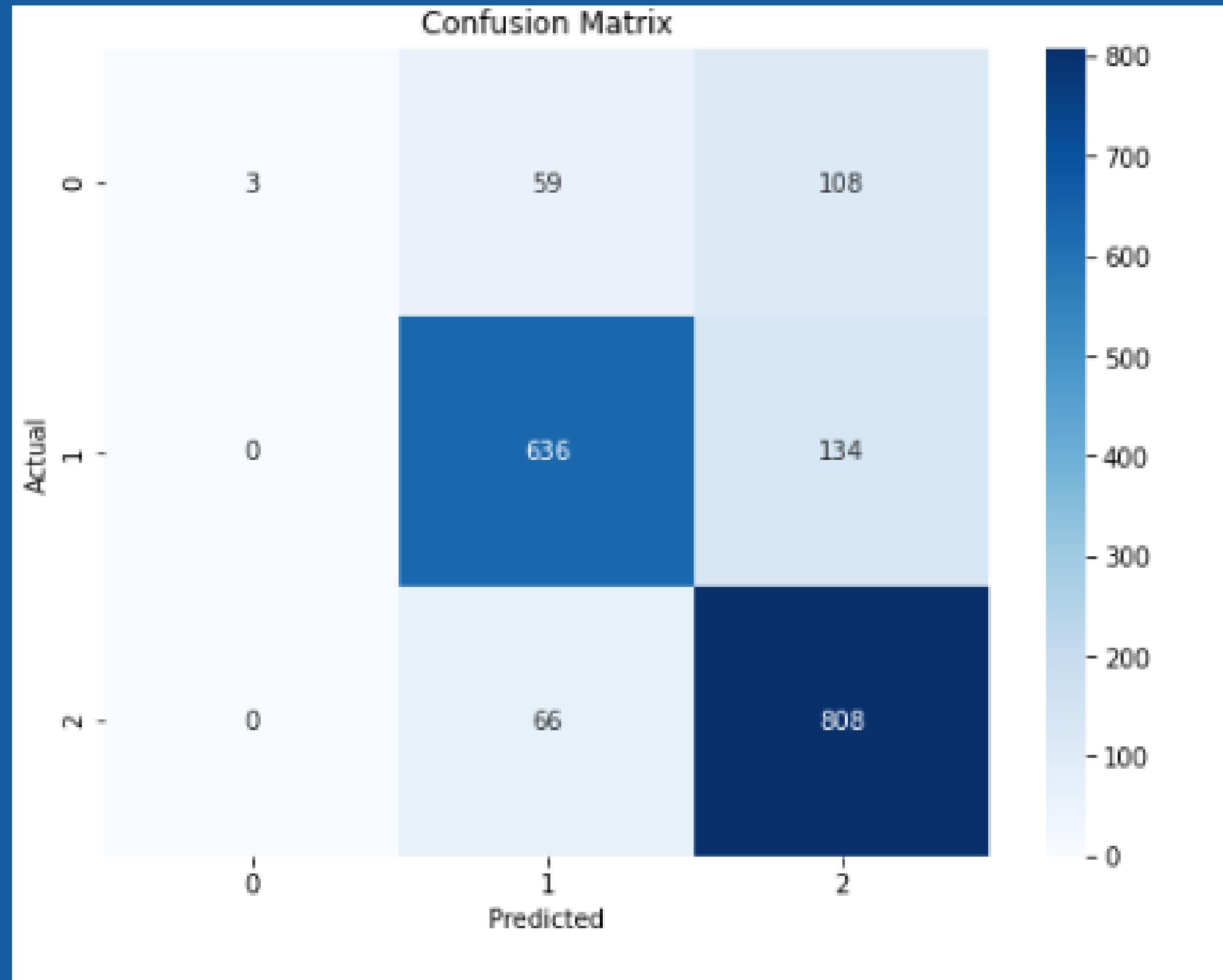
Apple products seem to evoke more neutral or positive feelings, while Google products generate a wider mix of emotions. The rest of the brands, however, don't seem to stir as much emotion overall.

CORRELATION OF PRODUCT MENTIONS AND SENTIMENTS



MODELING

The model correctly classified 636 instances, but 134 instances were misclassified as Class 2. The model also correctly classified 808 instances, with only 66 misclassified as Class 1.



conclusion

- Apple can leverage strong positive sentiment to maintain leadership and address emerging concerns.
- Google can focus on closing sentiment gaps with improved marketing and targeted support.
- The SVM model excels in detecting neutral and positive sentiments, offering reliable insights for improvements.

Recommendations

- Boost excitement for Google with engaging marketing strategies.
- Address Google usability concerns via targeted support initiatives.
- Monitor emerging concerns to sustain Apple's market leadership.

Next Steps

1. Deploy the model with a robust monitoring system to continuously track key metrics
2. Implement alerts to quickly identify and address any significant drifts or anomalies in predictions.

Thank You Note



Data Scientists

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