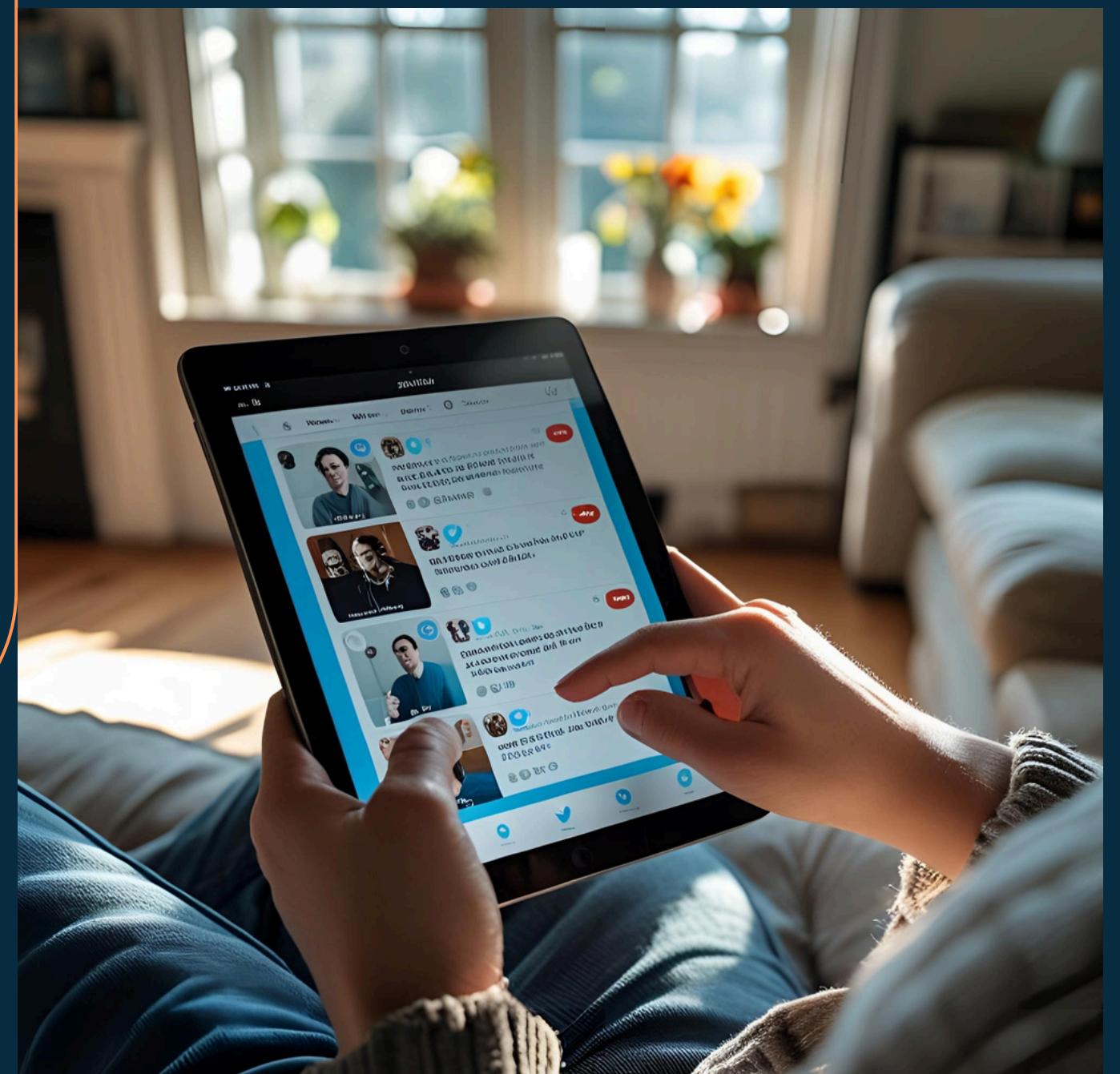


Title: Understanding Public Sentiment
through Twitter Data.

Subtitle: Sentiment Analysis on Tweets
about Apple & Google.

Presented by Group 1.



INTRODUCTION



TITLE: UNDERSTANDING HOW PEOPLE FEEL ABOUT
APPLE & GOOGLE ON TWITTER

In today's digital world, public perception moves fast, especially on platforms like Twitter. In this project we use Natural Language Processing (NLP) to understand customer emotions in tweets about Apple and Google.

Goal: to turn unstructured tweets into clear business insights

OVERVIEW

One thing we know is that Apple and Google rely on constant user feedback to shape decisions. But with thousands of tweets daily, it's impossible to manually go through all of them.

We applied machine learning techniques to analyze sentiment detection, helping brands understand what people really think in real time.



PROBLEM STATEMENT



Apple and Google are mentioned constantly on Twitter – but with thousands of tweets daily, it's impossible to read them all manually.

These tweets contain valuable feedback, but:

- They're messy and hard to interpret
- Important issues can be missed
- Neutral users may be ignored

We needed a smart, scalable way to understand how people feel – without reading every tweet by hand

OBJECTIVES

This project aimed to:

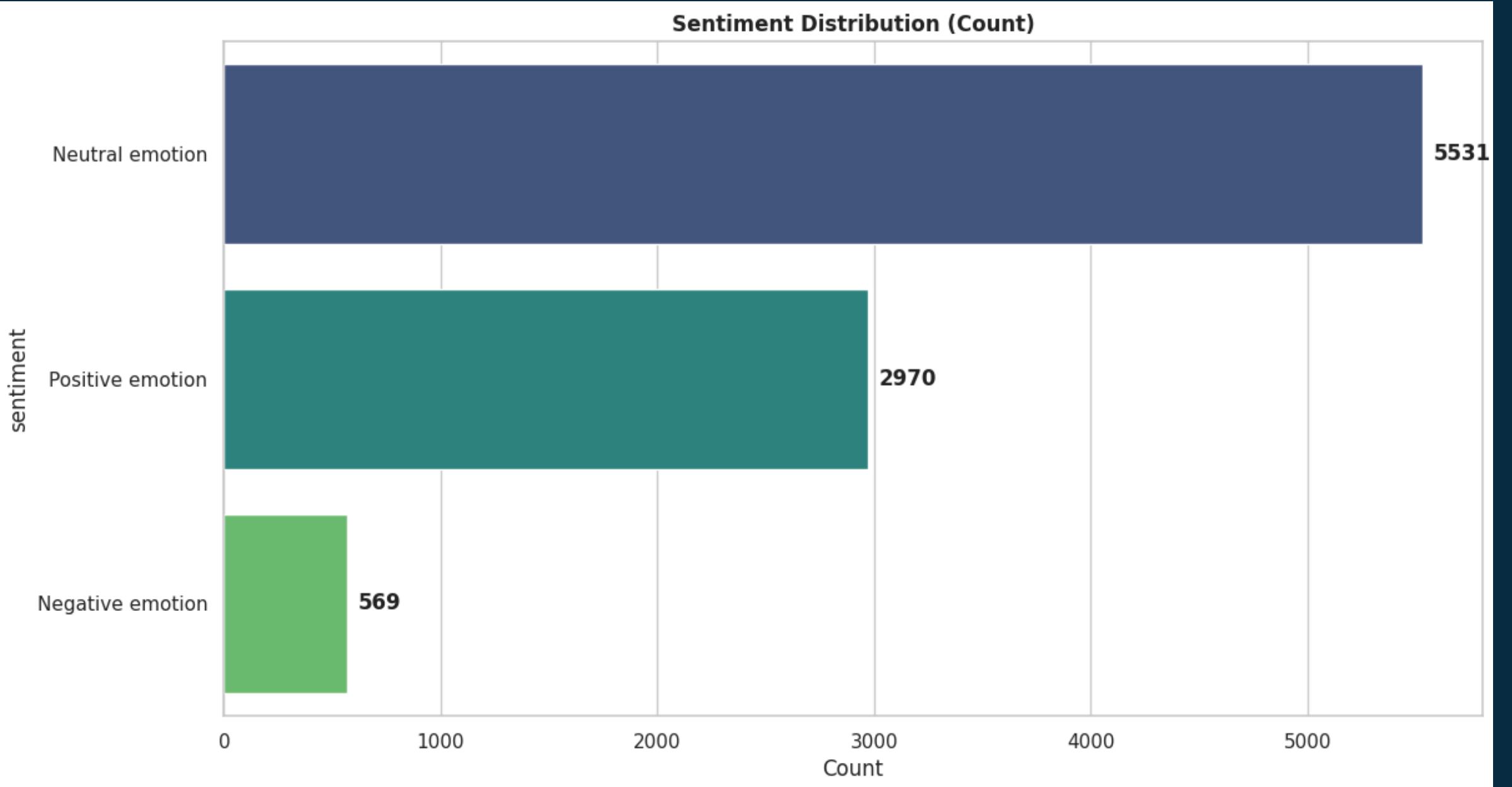
- Clean and prepare Twitter data
- Build a model to detect positive vs negative sentiment
- Extend to multiclass (positive, negative, neutral)
- Evaluate performance using F1, precision, and recall
- Provide brand-level recommendations



ANALYSIS

After cleaning the data, we explored the different distributions in the tweets:

- Most tweets were neutral, but negative ones were more detailed
- Google had slightly more tweets overall
- Tweets expressing strong emotion (good or bad) often mentioned features like battery, updates, or support



HOW THE MODEL WORKS

We trained a model to recognize patterns in the words people use.

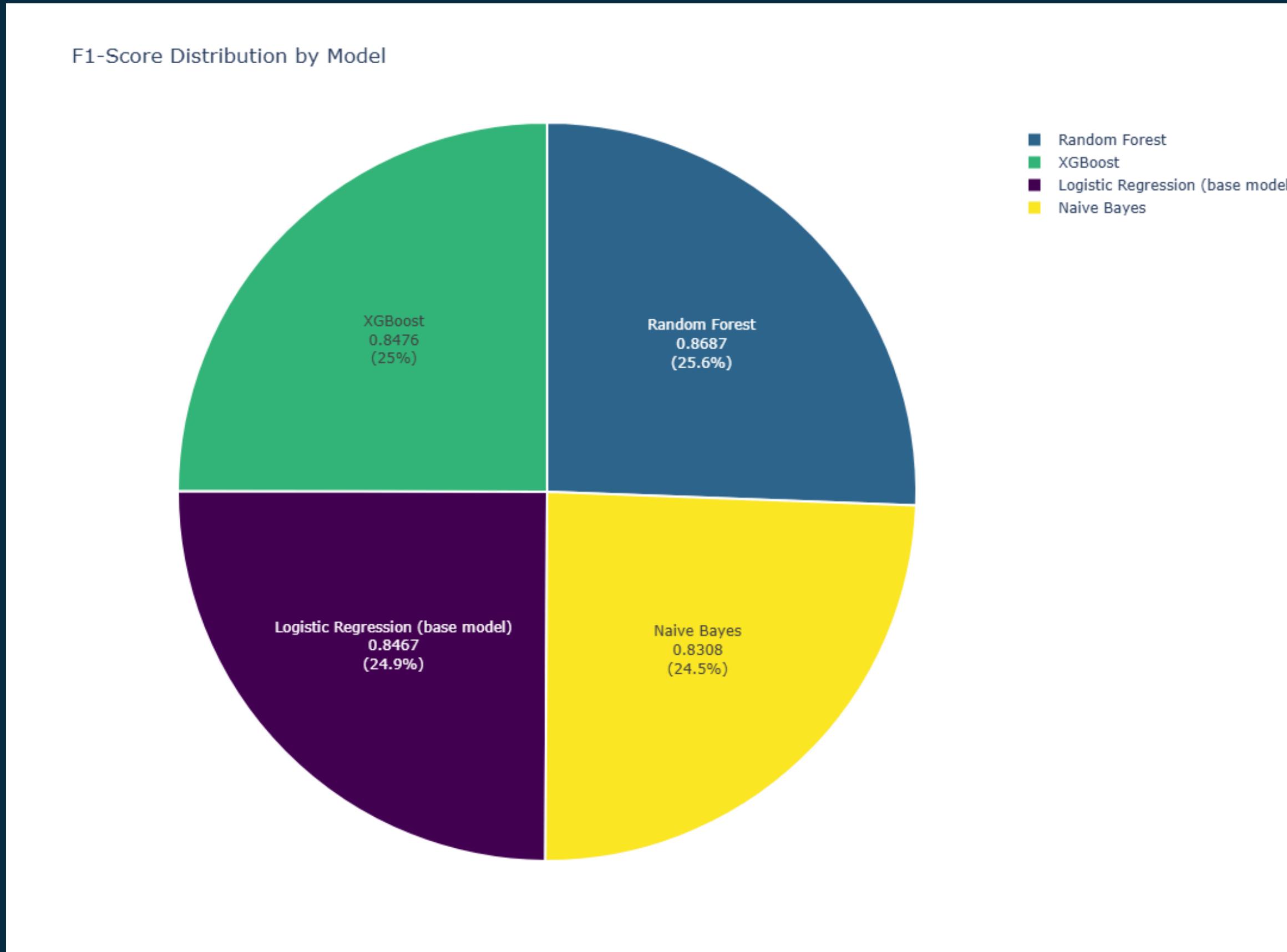
For example:

- A tweet saying “This update is trash” gets flagged as negative
- One saying “Loving the new camera!” gets flagged as positive

We tested several models and found that a Random Forest worked best for Binary classification, while SVM worked best for multi-class classification.

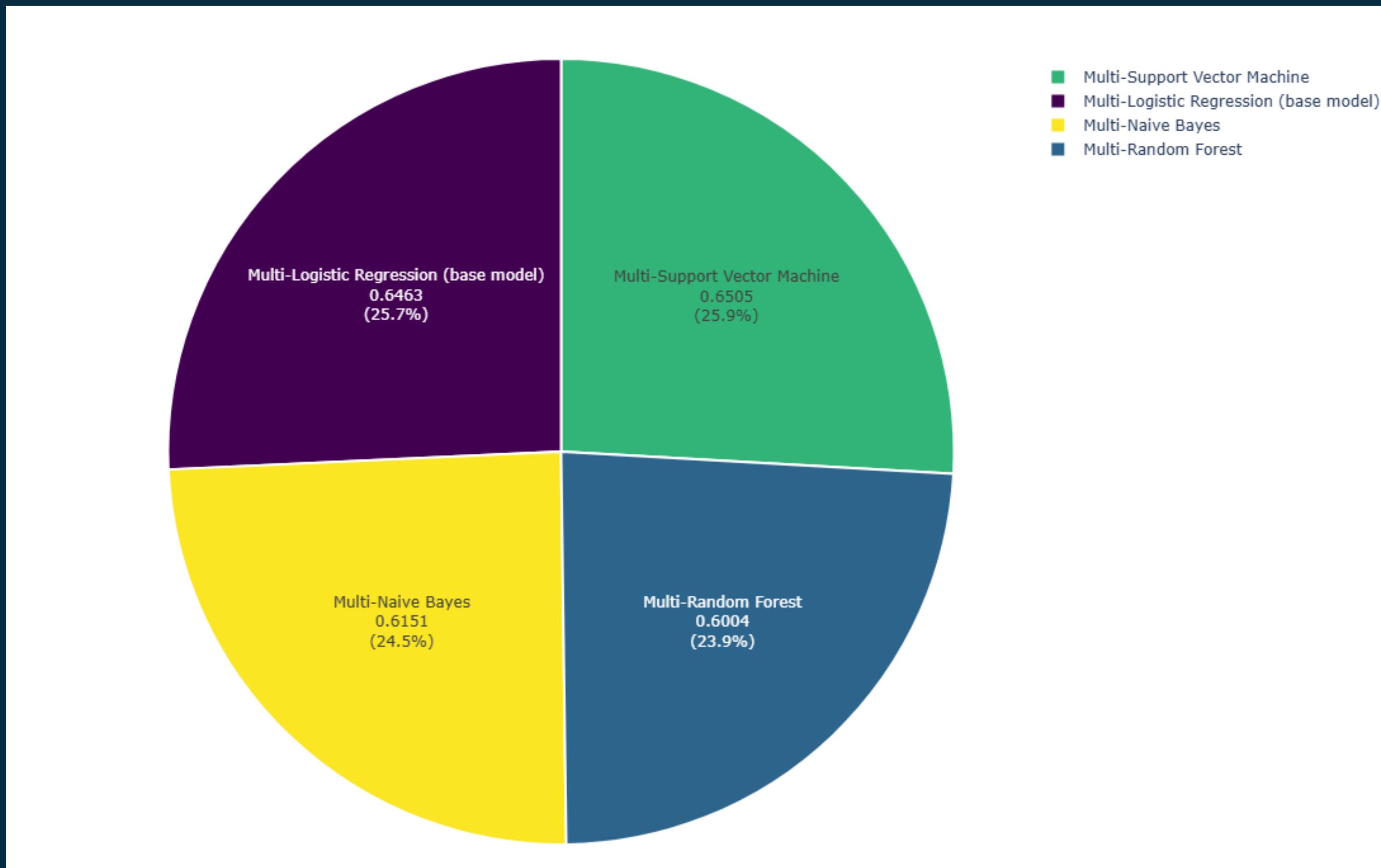
It achieved solid F1-score, and could generalize well to unseen tweets.

MODEL PERFORMANCE ANALYSIS FOR BINARY CLASSIFICATION



In the binary classification task, Random Forest was the best performing model, with an F1 score of 86.87%

MODEL PERFORMANCE ANALYSIS FOR MULTI-CLASS CLASSIFICATION



In the multi-class classification task, Support Vector Machine was the best performing model, with an F1 score of 65.05%.

CONCLUSION

Here's what our final model can do:

IT CAN:

- Accurately detect sentiment in tweets
- Perform well even when tweets are very short or informal
- Identify the key words that drive each sentiment
- Identified key emotional words
- Identify emotional trends by brand

RECOMMENDATIONS

Based on our findings:

- Customer service teams should focus on the top complaint areas flagged in negative tweets
- Marketing teams can reach out to neutral or silent users with promos or surveys
- Product teams can prioritize fixes based on real user frustrations

NEXT STEPS



- Integrate live Twitter stream with model for real-time insights
- Add sarcasm or emoji analysis for richer interpretation
- Deploy dashboard for brand managers to monitor sentiment



GROUP 1 MEMBERS:

1. PATRICK MAINA
2. TERESIA NJOKI
3. CHRISTINE NDUNGU
4. GEORGE NYANDUSI

HYBRID CLASS- PHASE 4 PROJECT

THANK YOU!