

PHASE 4: NLP

A MORINGA SCHOOL
PROJECT

SENTIMENT INSIGHTS

ANALYZING TWITTER CONVERSTATIONS ABOUT APPLE
AND GOOGLE PRODUCTS



VS.



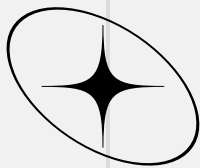
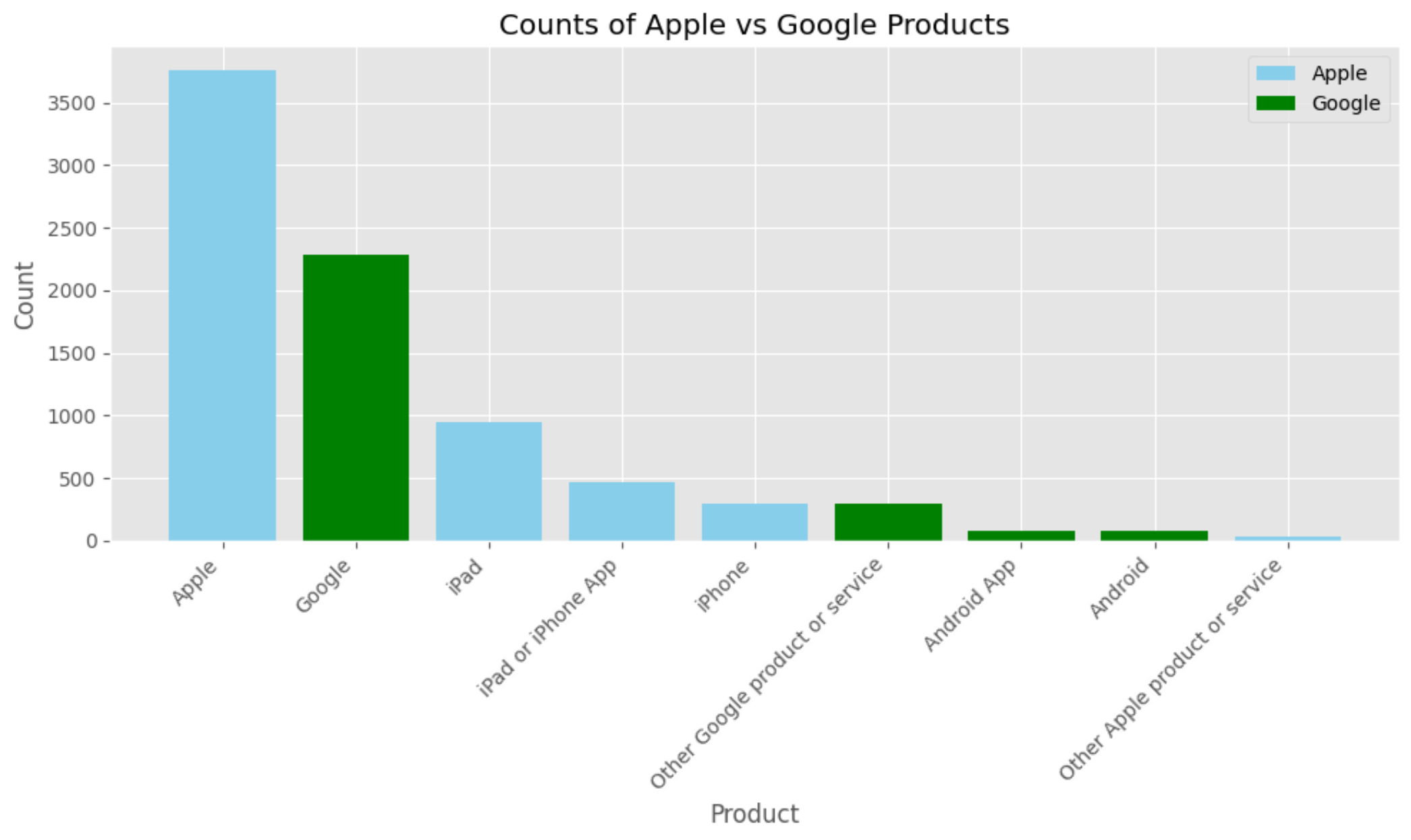


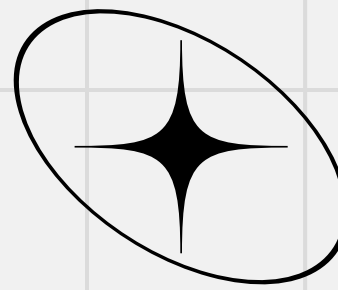
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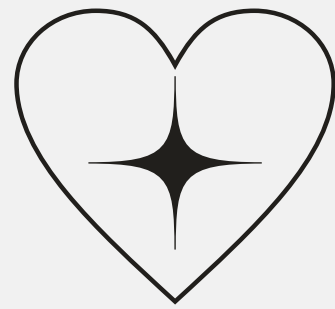
PROJECT OVERVIEW

- Understanding Twitter audience sentiment toward Google and Apple products from Twitter
- Build an NLP model to classify Tweets into positive or negative sentiments automatically based on Tweet content.
- User-generated content from Twitter provides:
 - customer insights,
 - offers brand reputation monitoring,
 - aids in market research and crisis management



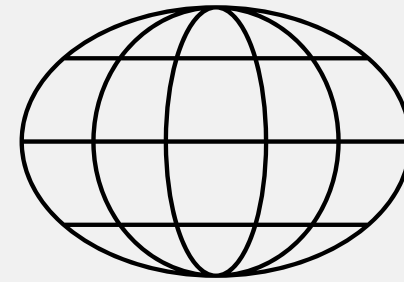
BUSINESS UNDERSTANDING

, IMPORTANCE TO STAKEHOLDERS



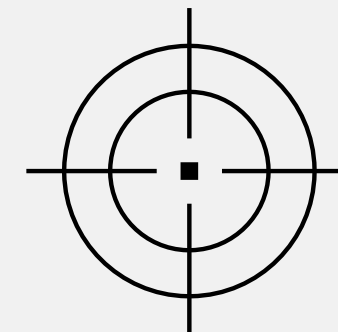
CUSTOMER SERVICE

- Insights are useful in addressing arising situations promptly



USER EXPERIENCE TEAM

- Aims to enhance product usability based on user feedback.

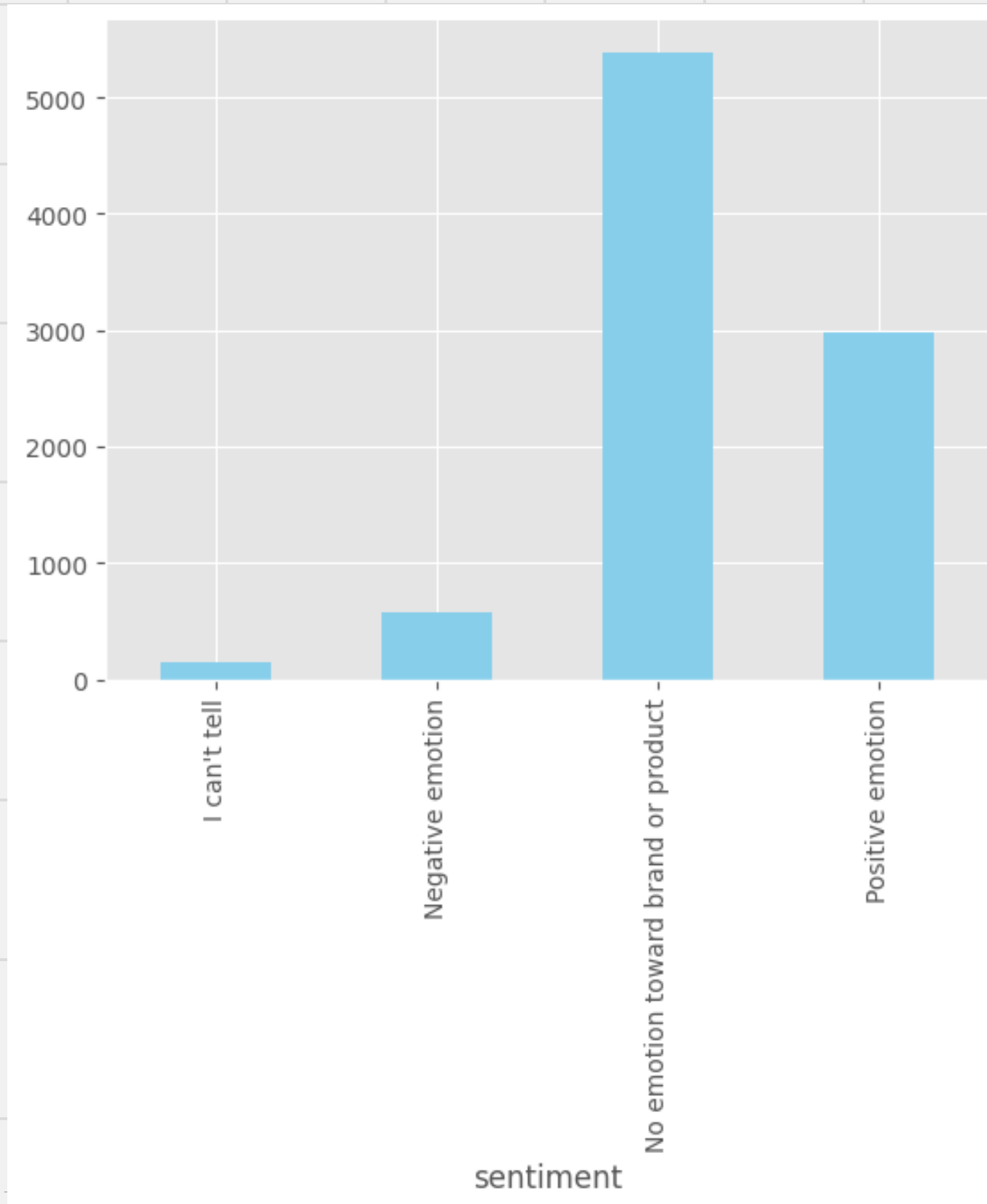


MARKETING TEAMS

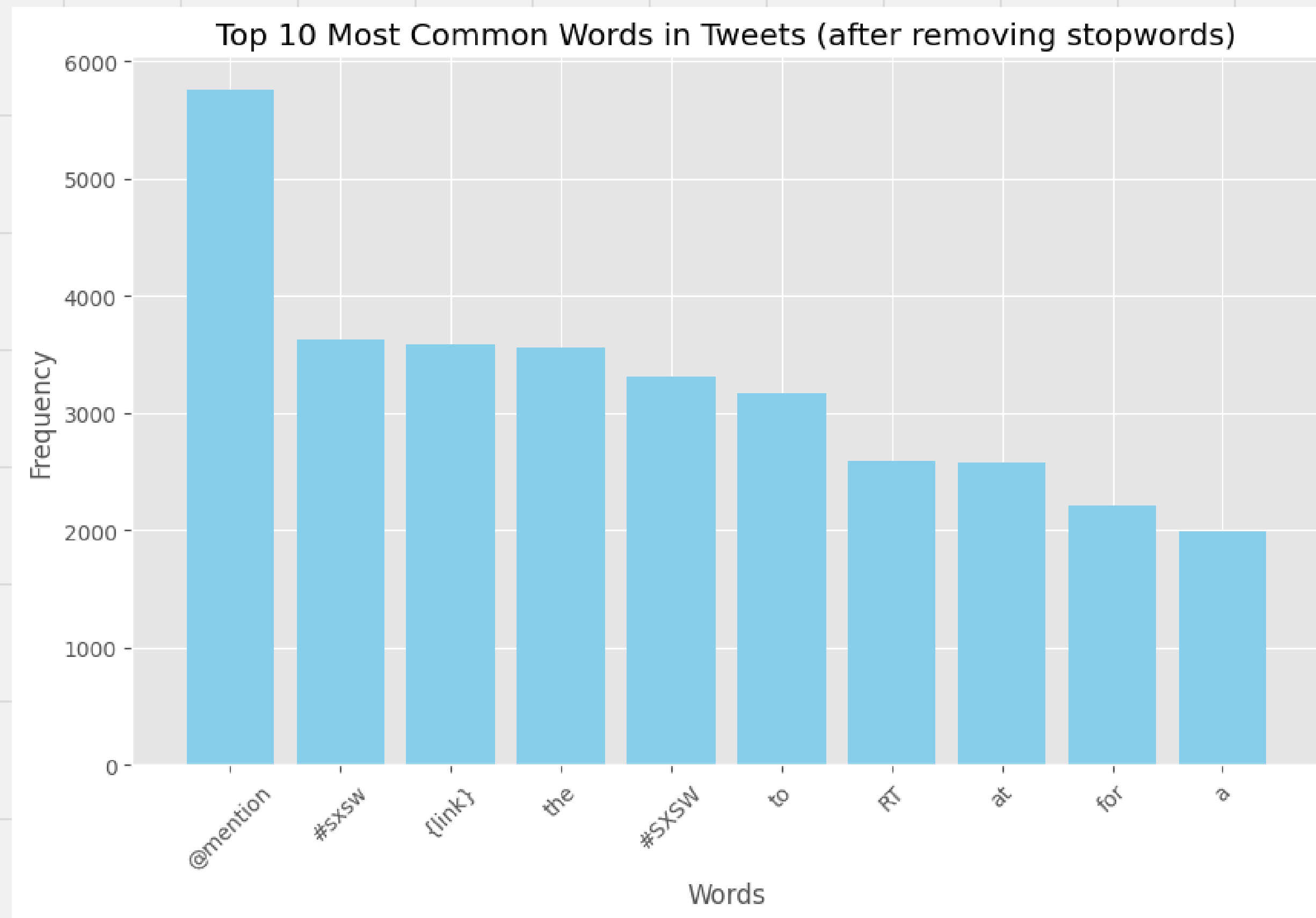
Insights provide for tailoring effective marketing strategies and targeted campaigns



DISTRIBUTION OF SENTIMENTS



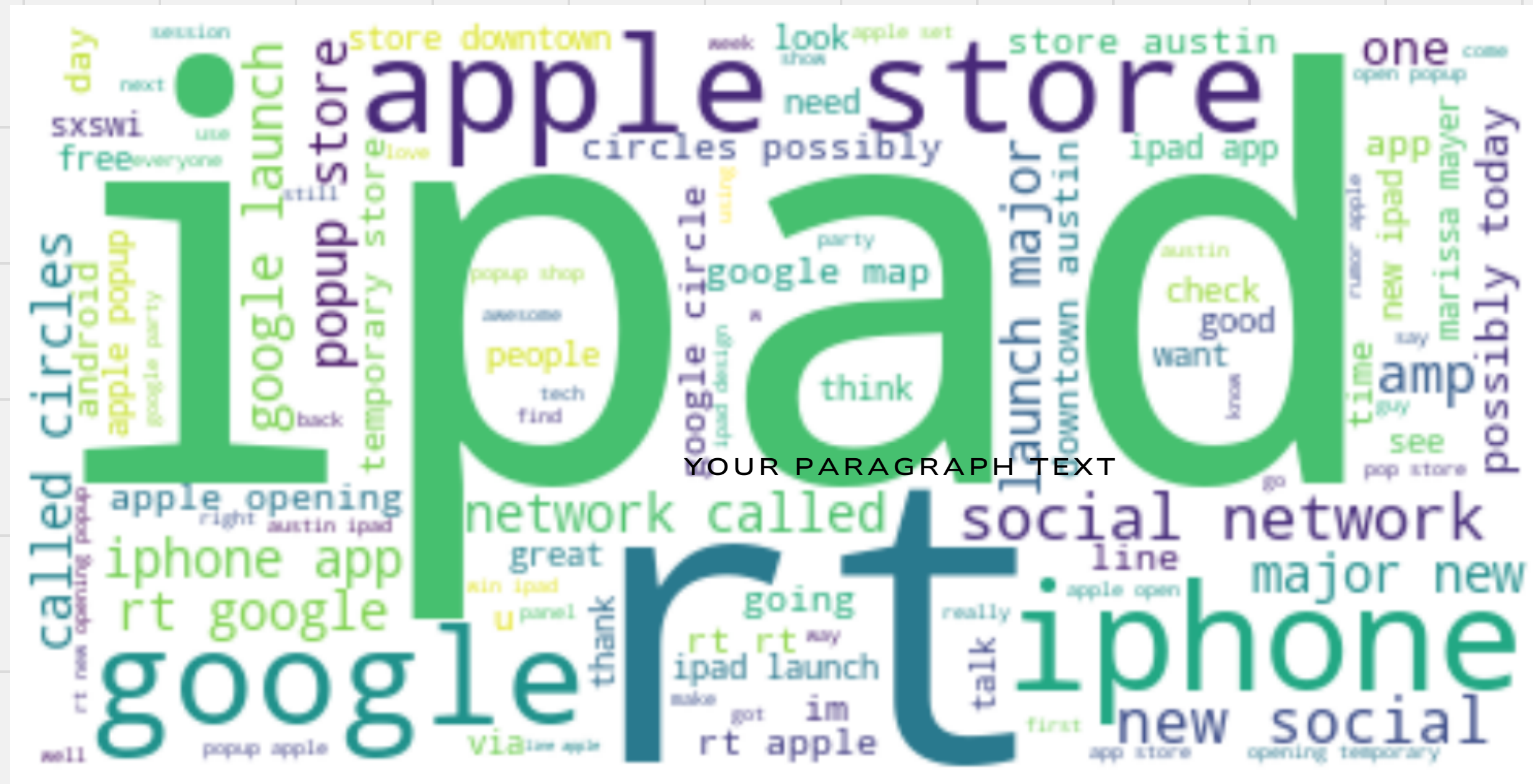
- NO EMOTION AND I CAN'T TELL DROPPED
- RENAMED COLUMNS AND ITERATED THROUGH TO FILTER



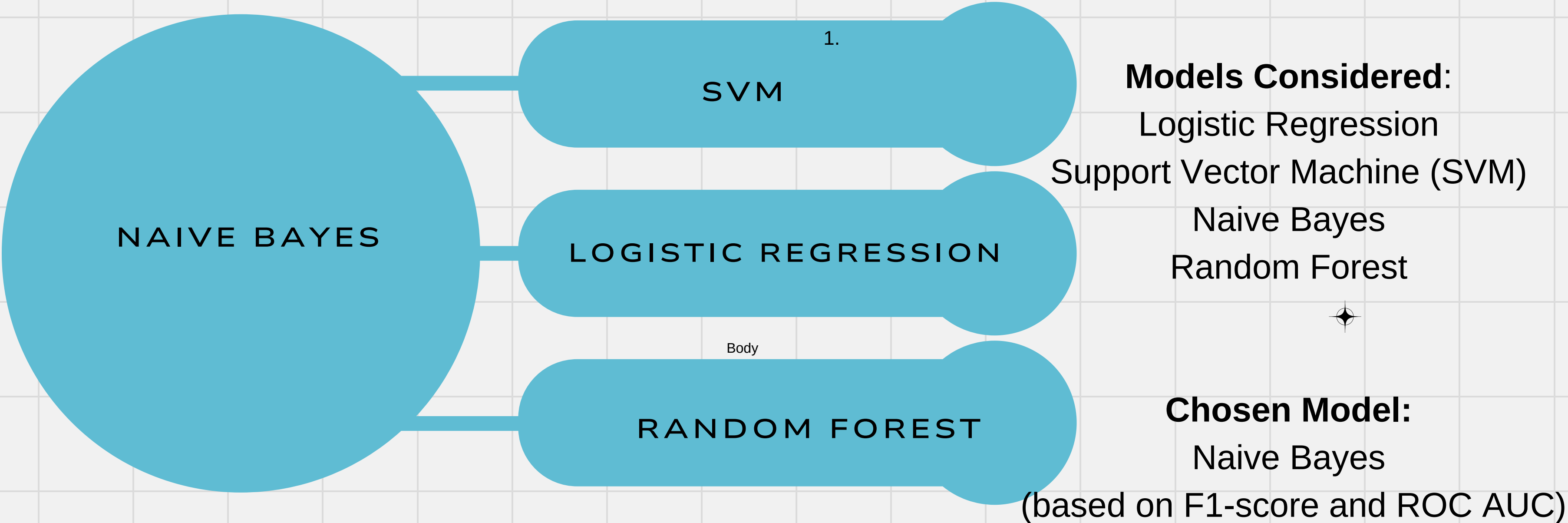
- MENTIONS
- RETWEETS
- HASHTAGS
- URL LINKS

THESE WORDS HAVE NO VALUE TO OUR MODEL SO WE DROP THEM

WORD CLOUD VISUALIZATION OF TOP WORDS



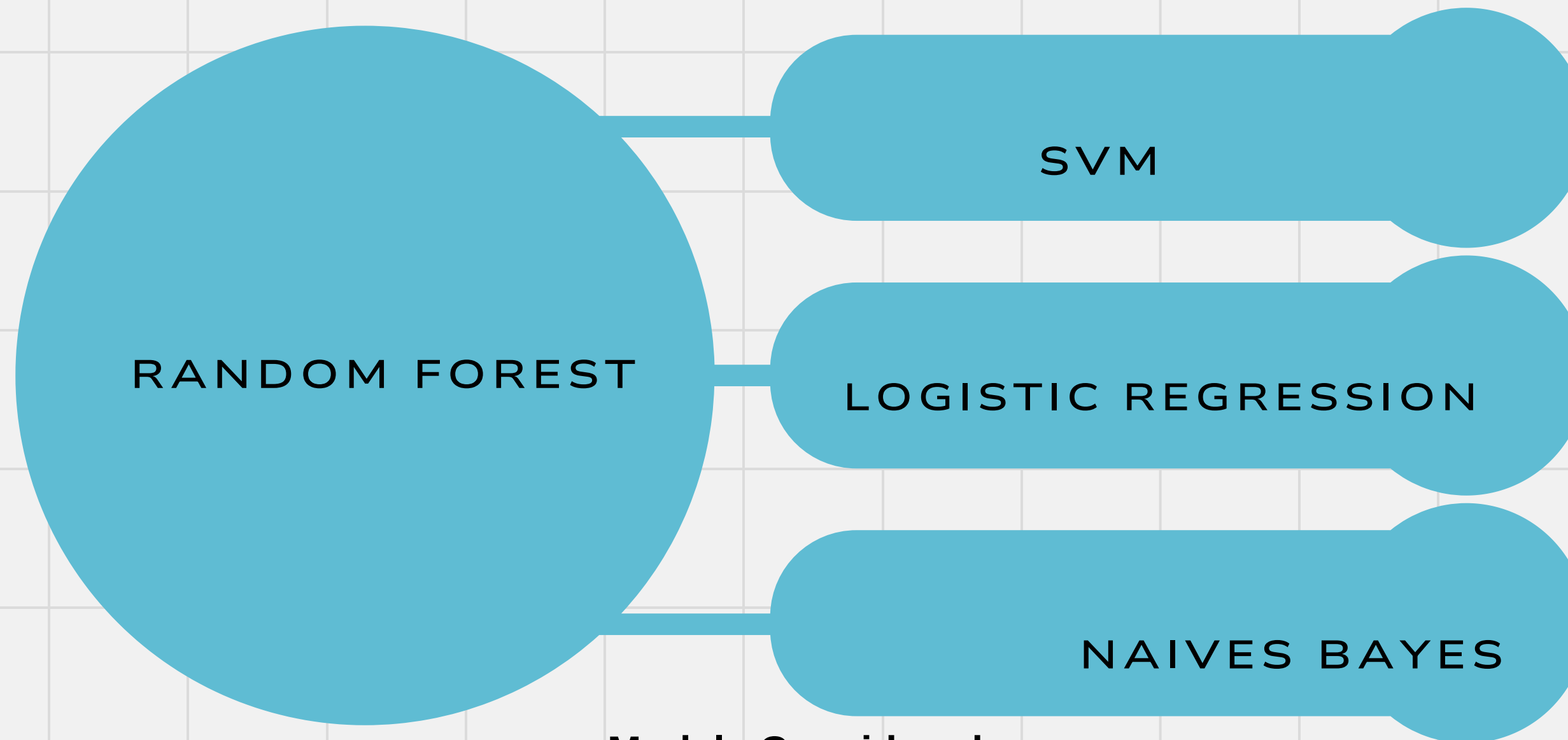
BINARY CLASSIFICATION



Evaluation Metrics:

- F1-score (harmonic mean of precision and recall)
- ROC AUC (Area Under the Receiver Operating Characteristic Curve)

MULTICLASS CLASSIFICATION



Models Considered:

Support Vector Machine (SVM)

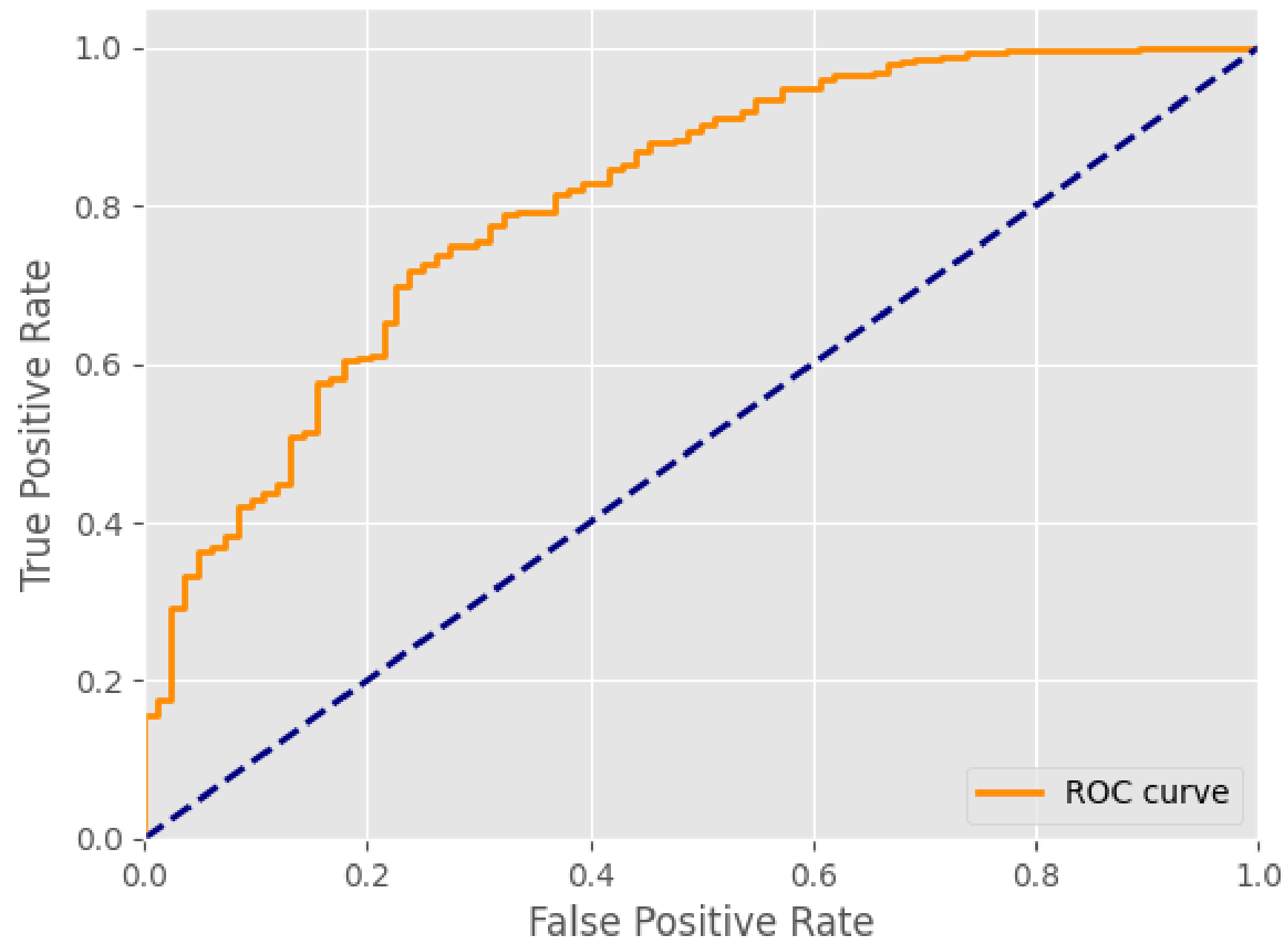
Naive Bayes

Random Forest

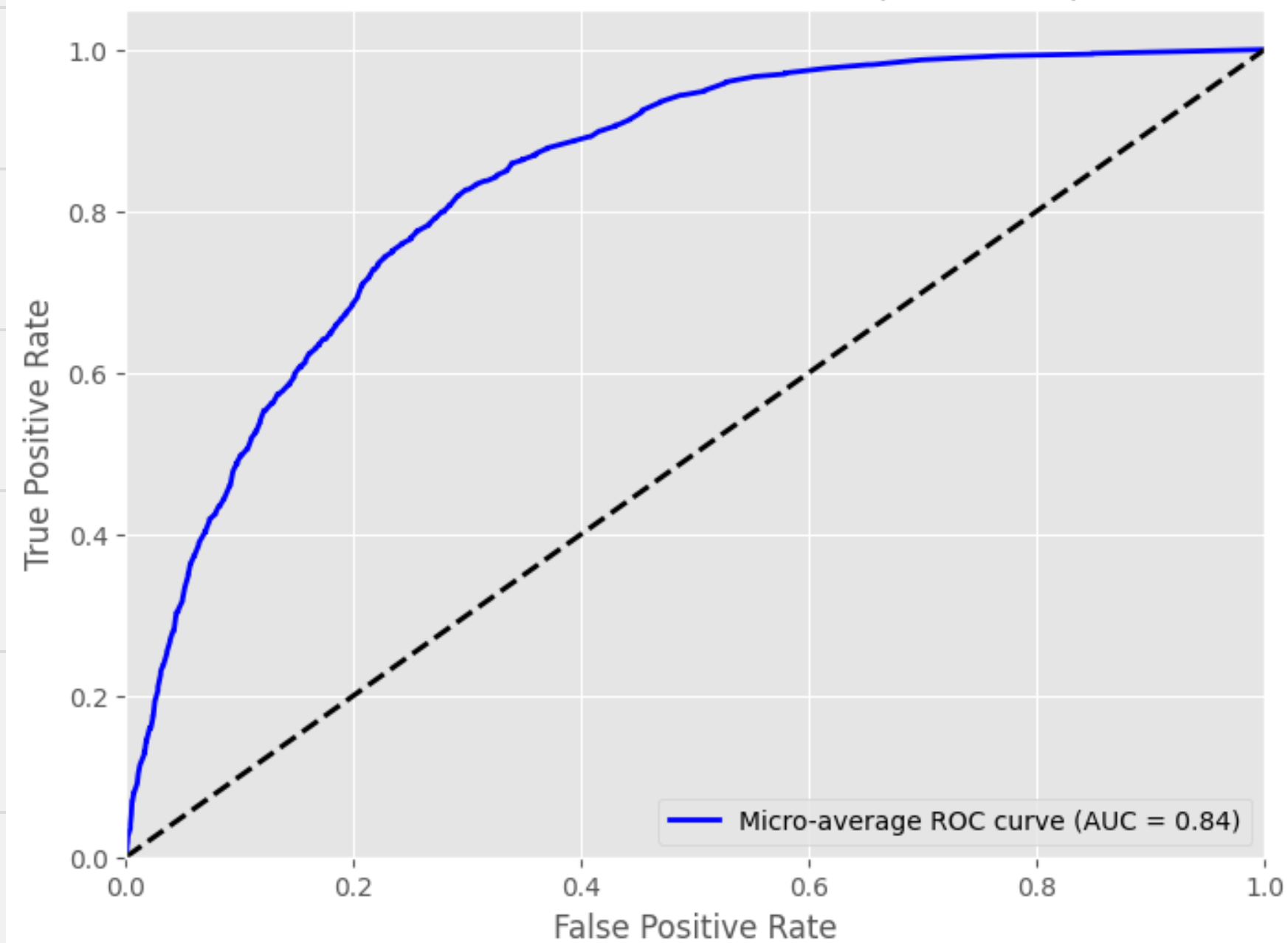
Chosen Model:

Random Forest (based on F1-score and ROC AUC)

Receiver Operating Characteristic (ROC)

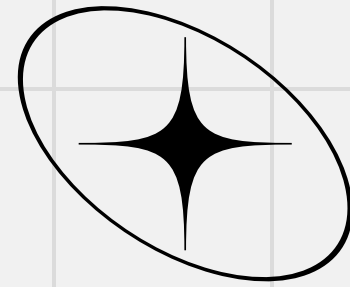


ROC Curve for Random Forest (Multiclass)



BUSINESS IMPACT

- Product Improvements: Insights from sentiment analysis can guide product enhancements. For example, if negative reviews consistently mention battery life, consider improving the battery performance.
- Marketing Strategies: Positive sentiment can be leveraged in marketing campaigns. Highlight features that customers love.
- Customer Support: Address specific pain points mentioned in negative reviews promptly to improve customer satisfaction.



THANK YOU

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