SENTIMENT ANALYSIS ON BRAND AND PRODUCT EMOTION

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INTRODUCTION

Company Goku is going to launch a new mobile phone soon. They are worried about how people will react to it, and they want to keep an eye on its popularity.

BUSINESS UNDERSTANDING

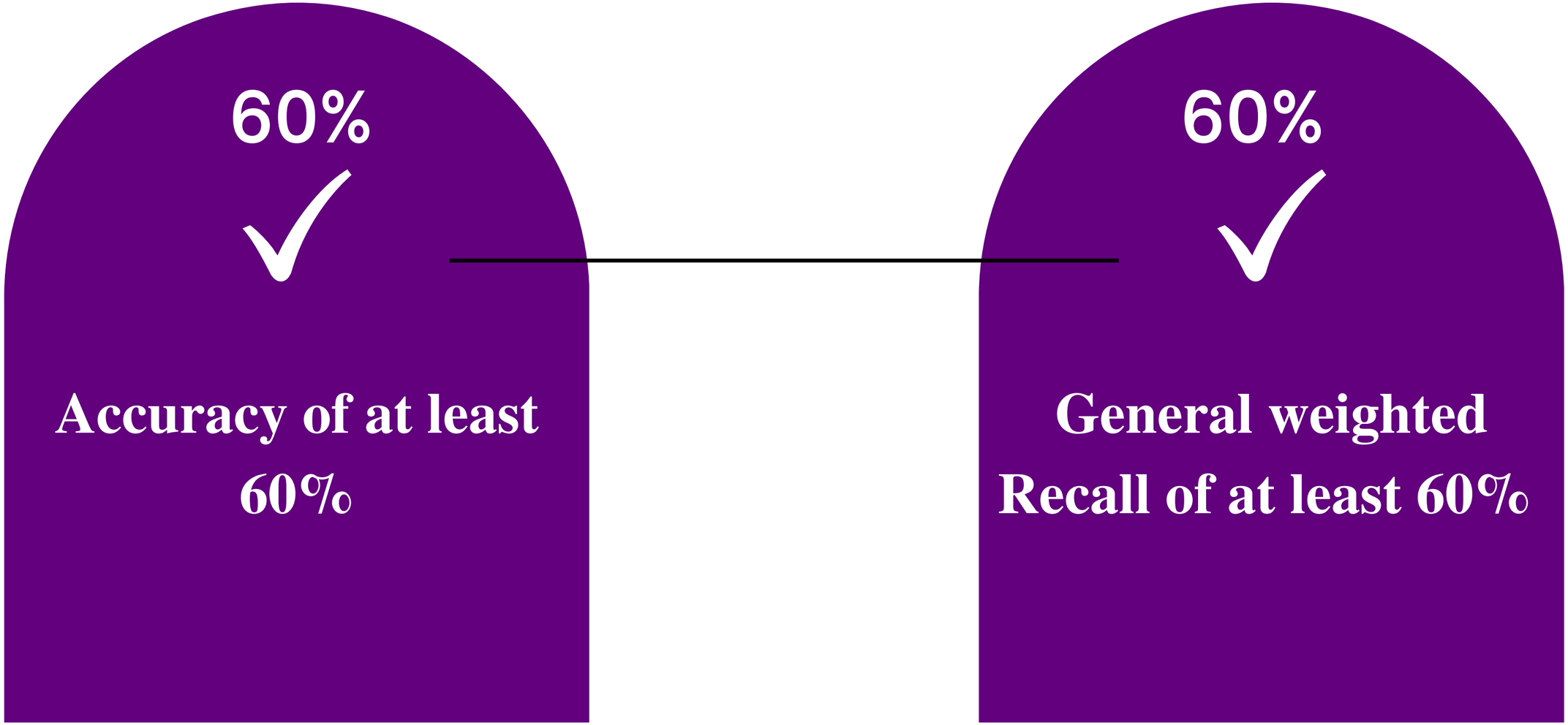
This project involves building an NLP model to analyze Twitter sentiment towards Apple and Google products using a dataset of over 9,000 Tweets. The goal is to help tech companies gain valuable insights from customer feedback and improve customer satisfaction to stay ahead of the competition in the highly competitive tech industry.

BUSINESS UNDERSTANDING.CONT

MAIN OBJECTIVE

Create a Sentiment Analysis model that can accurately predict whether tweets about the phone are positive, negative, or neutral.

METRIC FOR SUCCESS



EXPLORATORY DATA ANALYSIS

- WHAT DOES THE DATA TELL US UPFRONT?
- ARE THERE ANY PATTERNS THAT WE CAN SEE IN THE DATA?
- WHAT DO THE OBSERVED PATTERNS TELL US?

POSITIVE

The most popular words associated with the positive comments include:good, cool, love, awesome, great, google, iPhone, fun

NEUTRAL EMOTION

The most popular words associated with the neutral comments include: Circles possibly, google, Iphone, Social, Apple.

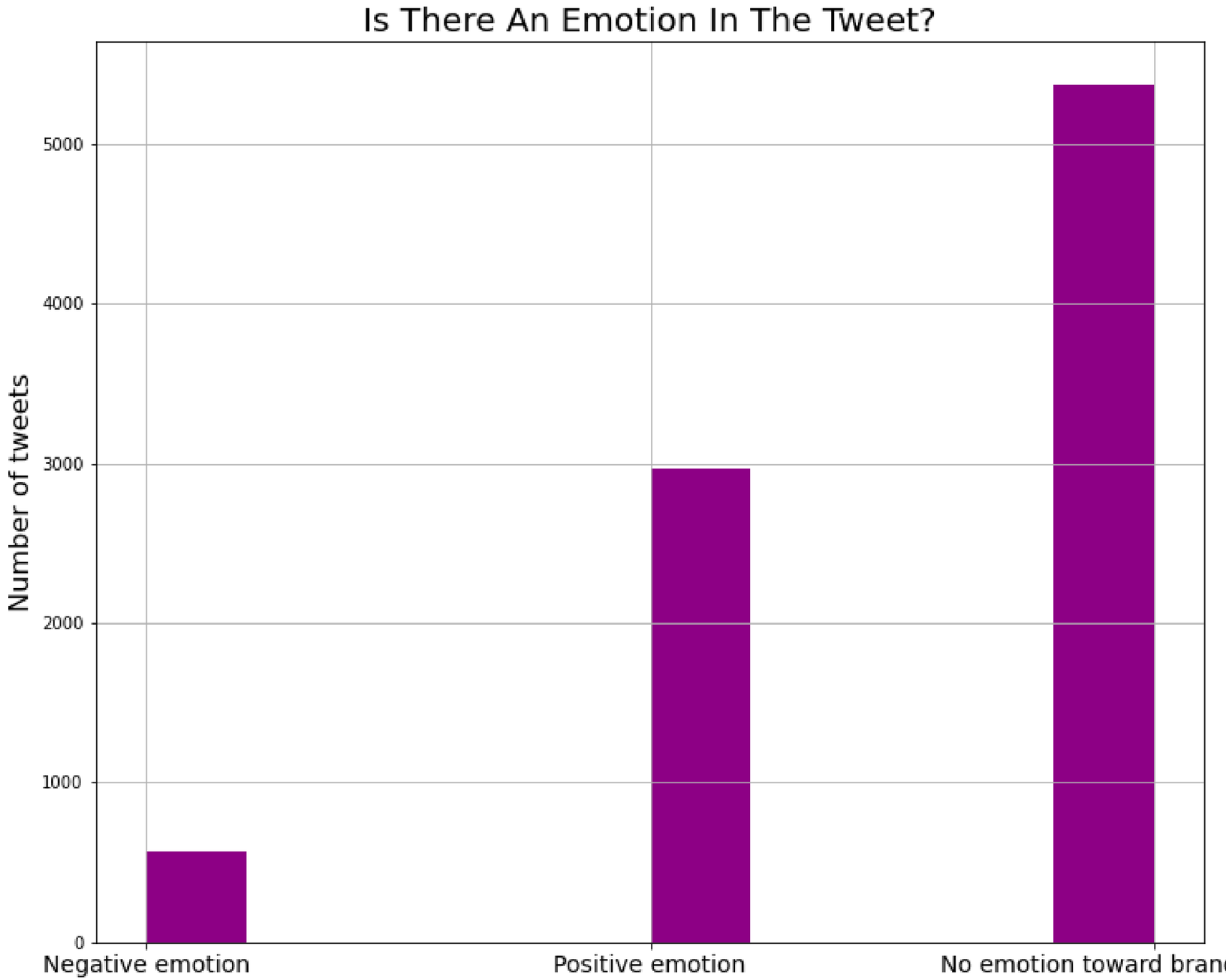
NEGATIVE EMOTION

The most popular words associated with the negative comments include;

Fascist company, design headache, fail, novelty, Ipad, Iphone, suck

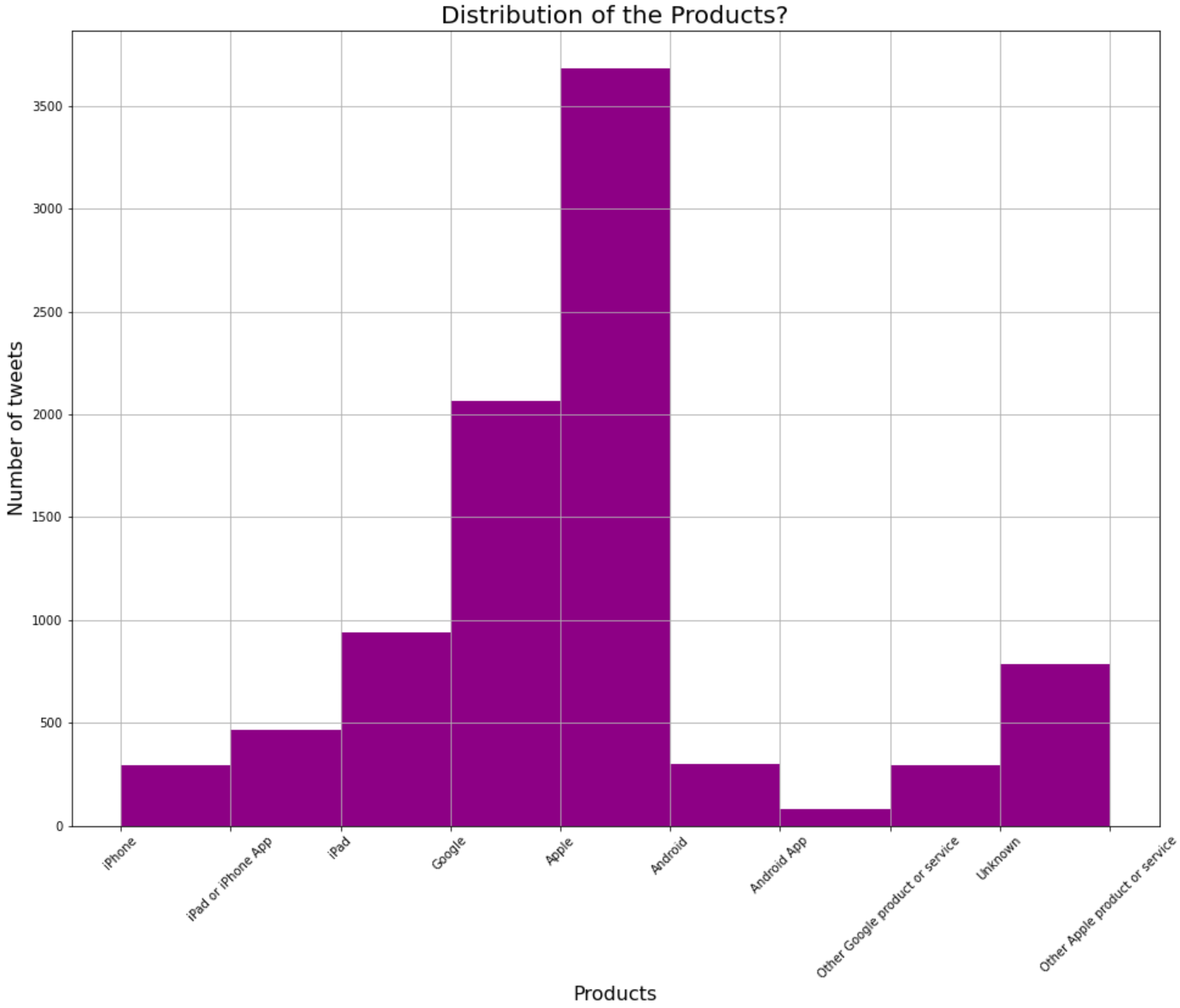
OVERALL

The most popular words associated with the overall comments include; downtown Austin, open, link, major,launch , Ipad, Iphone,



Tweet category rank

1. No emotion
2. Positive emotion
3. Negative emotion

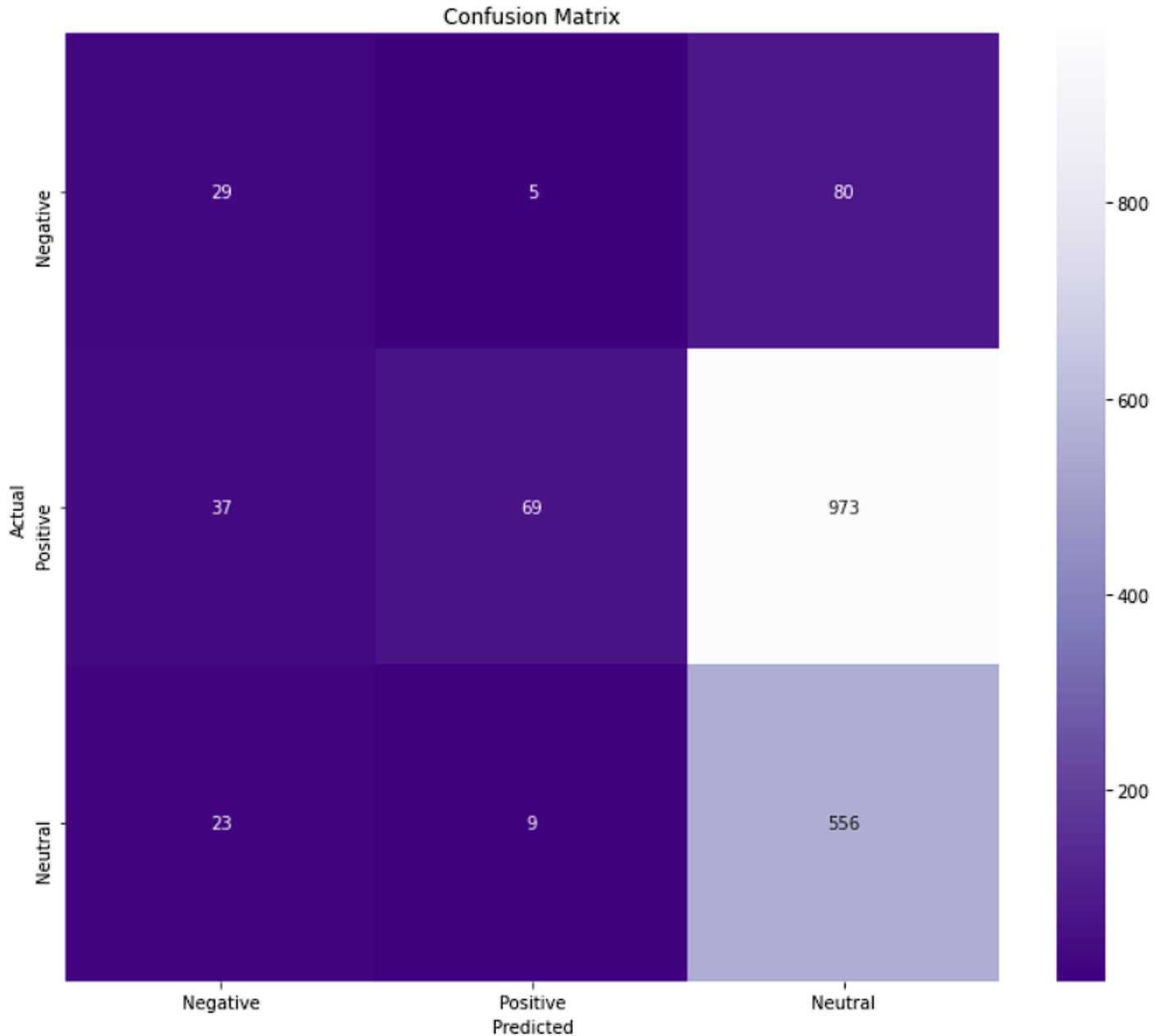


Tweet category rank

1. Apple
2. Google
3. iPad

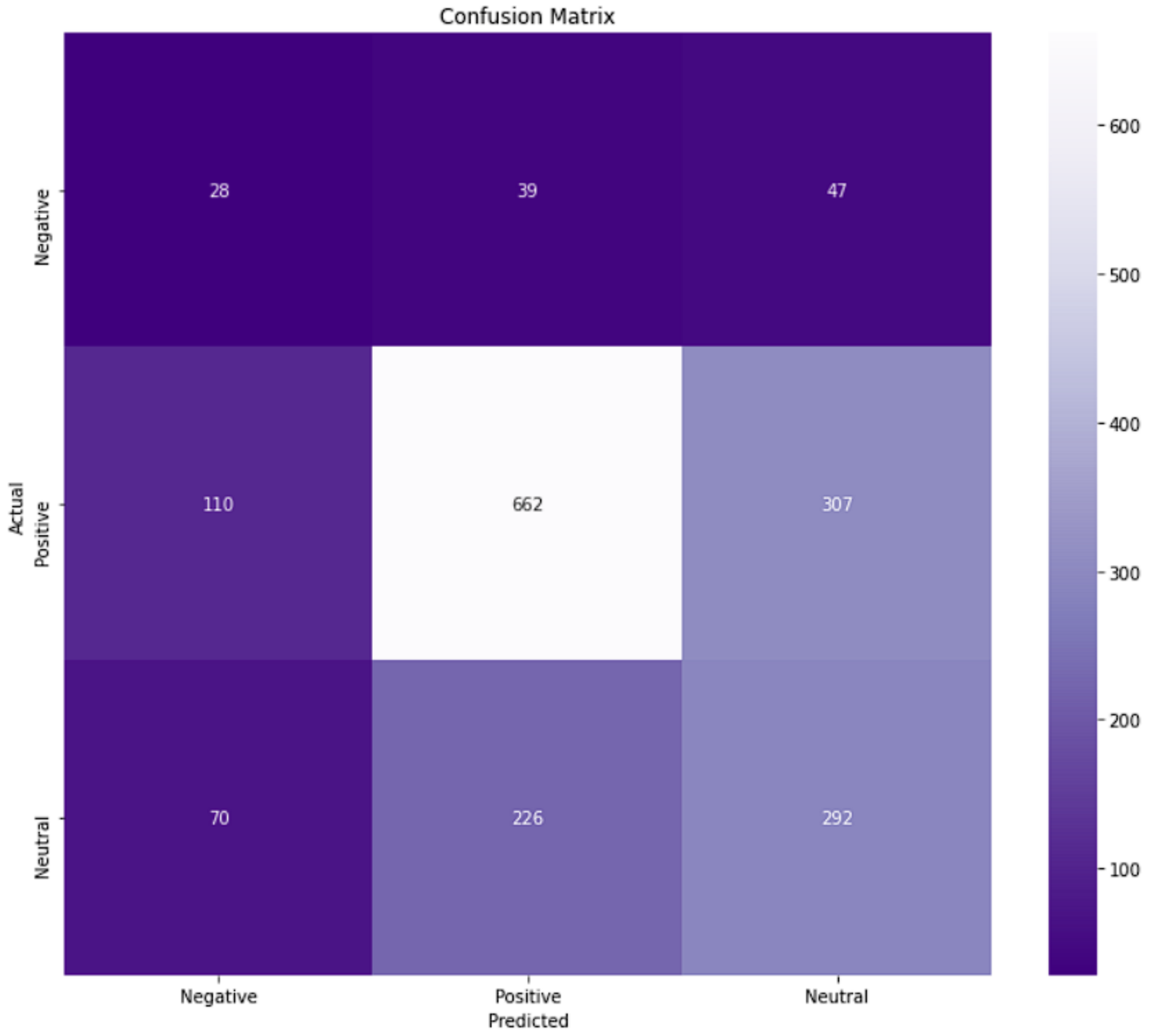
MODELLING

Gaussian Naive Bayes



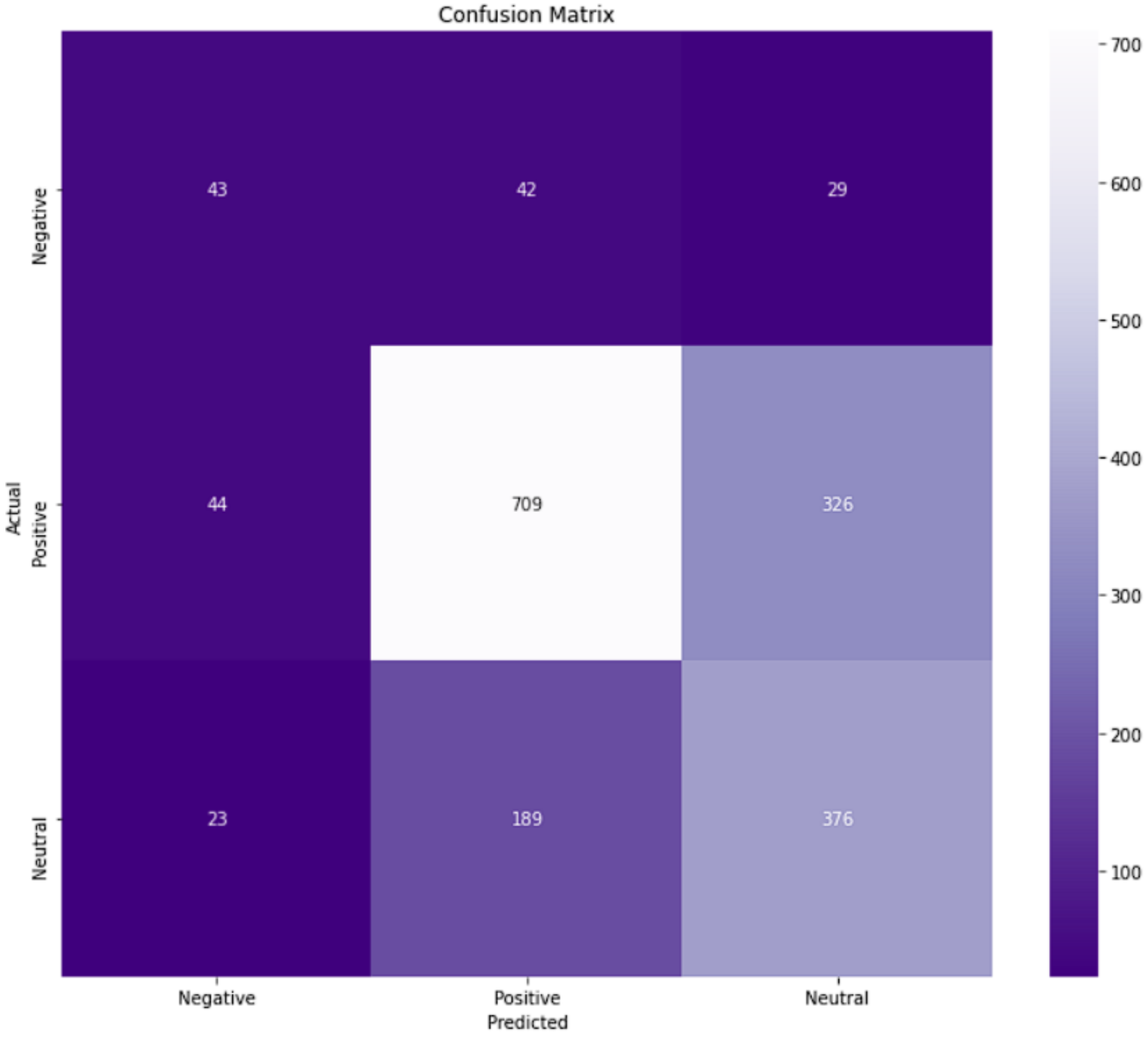
- Accuracy of 37%
- General weighted Recall 37%

Decision Trees



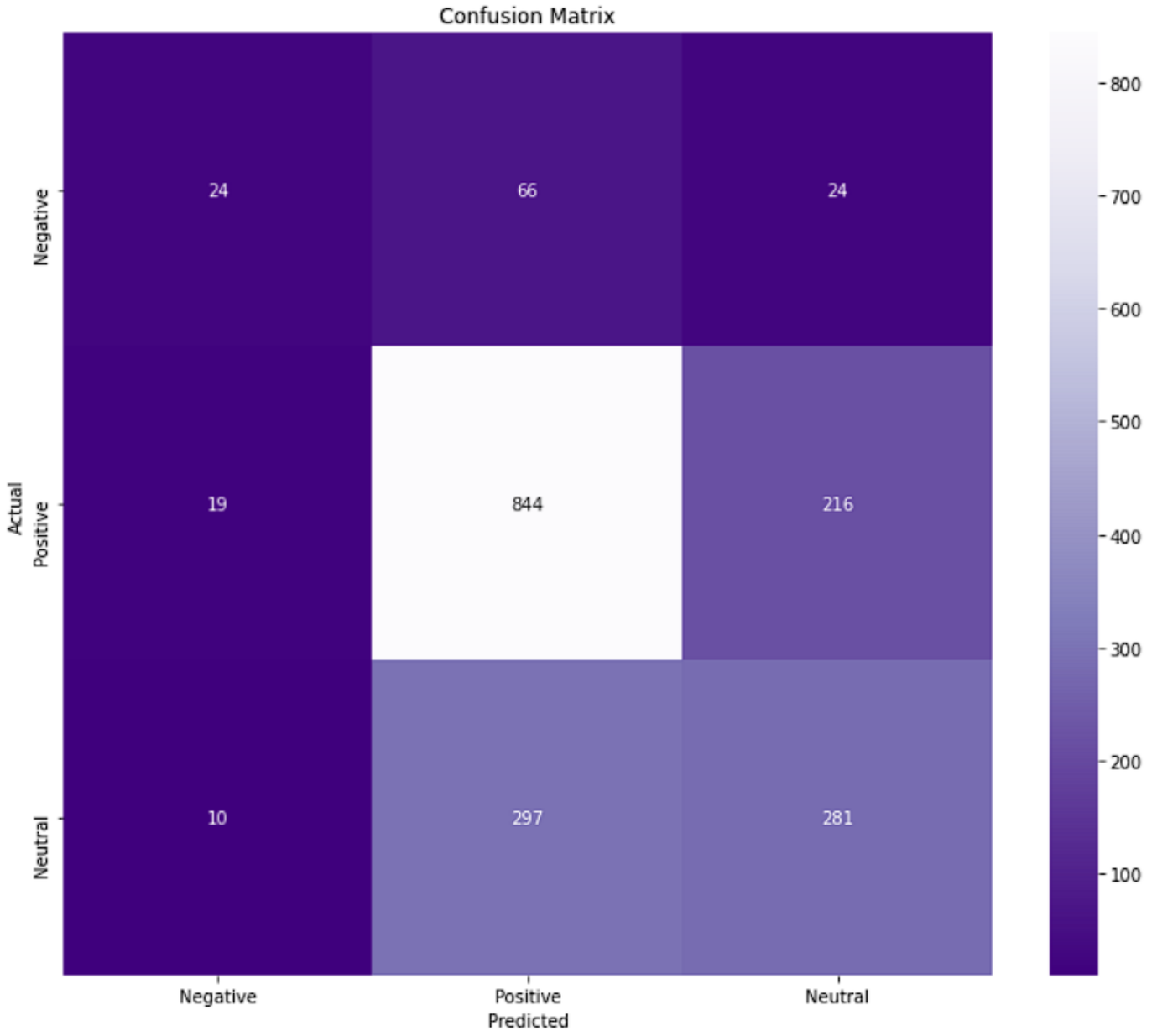
- Accuracy of 55%
- General weighted Recall 55%

Support Vector Machine



- Accuracy of 65%
- General weighted Recall 65%

Random Forest Classifier



- Accuracy of 65%
- General weighted Recall 65%

BEST MODEL

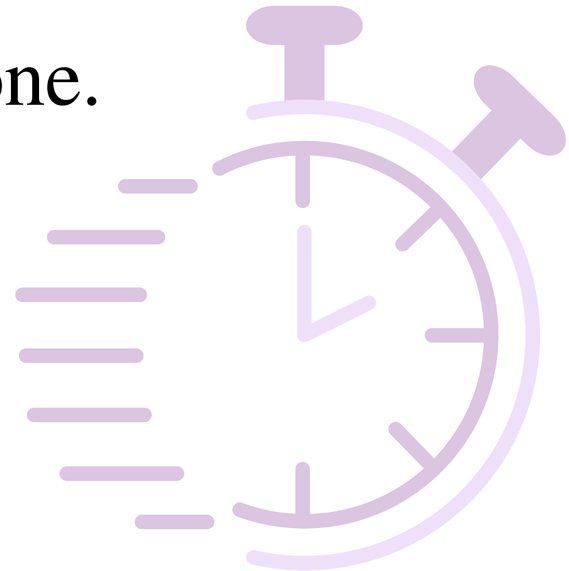
SUPPORT VECTOR MACHINE

- Accuracy of 63%
- General Weighted Recall of 65%

The individual recall scores were well-balanced compared to other models.

LIMITATIONS

Even though it may not have the highest level of accuracy, implementing automated Twitter sentiment analysis would represent a positive move towards effectively keeping track of Twitter users' attitudes towards Company Goku's latest mobile phone.



CONCLUSION

The best performing model in this analysis was the Support Vector Machine and was tuned with C=1000, gamma=0.01 and kernel='rbf'. The SVM model had a recall and an accuracy score of 65% which is a balanced score compared to the other models.

RECOMMENDATIONS

Use the model to track sentiment towards the mobile phone industry and competing products.

Utilize Twitter's API to evaluate sentiment of tweets related to their product and keep up-to-date with attitudes of Twitter users.

Utilize the model to identify user sentiment about their products and use feedback to improve.

RECOMMENDATIONS CONT.

Consider building and incorporating features similar to Apple phones, which have positive sentiments among all brands and products.

Establish a notification system to quickly respond to any changes in sentiment.

Continuously update and improve the model with new data to ensure accurate and effective analysis.

DEPLOYMENT STEPS

1. Set up an ETL pipeline for retrieving data using the Tweepy API and preprocessing it for use by the model.
2. Set up a web application using Flask
3. Create a ML pipeline and integrate it into the Web App.
4. Deploy the Web by hosting on AWS

Any Questions?

Thank you