PHASE FOUR GROUP 11

TWITTER SENTIMENT ANALYSIS

QuestionPro

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Overview

- Let’s understand a Sentiment Analysis problem from a business standpoint.
- The good news is: with the power of the internet, businesses today get a huge number of customer feedback through their business website, social media page, business listings, etc.
- However, the bad news is: a majority of businesses do not even know how to use this information to improve themselves.

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Business Problem

- The Stakeholders are: A marketing team at a technology company.
- The marketing team wants to understand consumer sentiment towards Apple and Google products.
- They wish to explore emotions, and sentiments expressed by users of Apple and Google products.
- They need insights that can inform marketing strategies, brand perception, and customer satisfaction initiatives for their target audience.

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Objectives

- The business objective is to build a model for classifying future tweets, saving time and money. Specific objectives include assessing overall sentiment towards Apple and Google, identifying themes associated with sentiments, and comparing sentiments between the two brands.
- Automating sentiment analysis provides real-time insights on biweekly basis, aiding in reinforcing positive attributes through testimonials and addressing product improvements based on negative sentiment tweets, reducing churn.

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Data Understanding

- We work with the Twitter sentiment dataset that involves customers' emotions and tweets towards different brands and products.
- The dataset contains 9000 rows and 3 columns.
- The three columns are {tweets}, {brands/products}, {emotions} which are 'positive, negative, neutral, I can't tell'.

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DATA ANALYSIS

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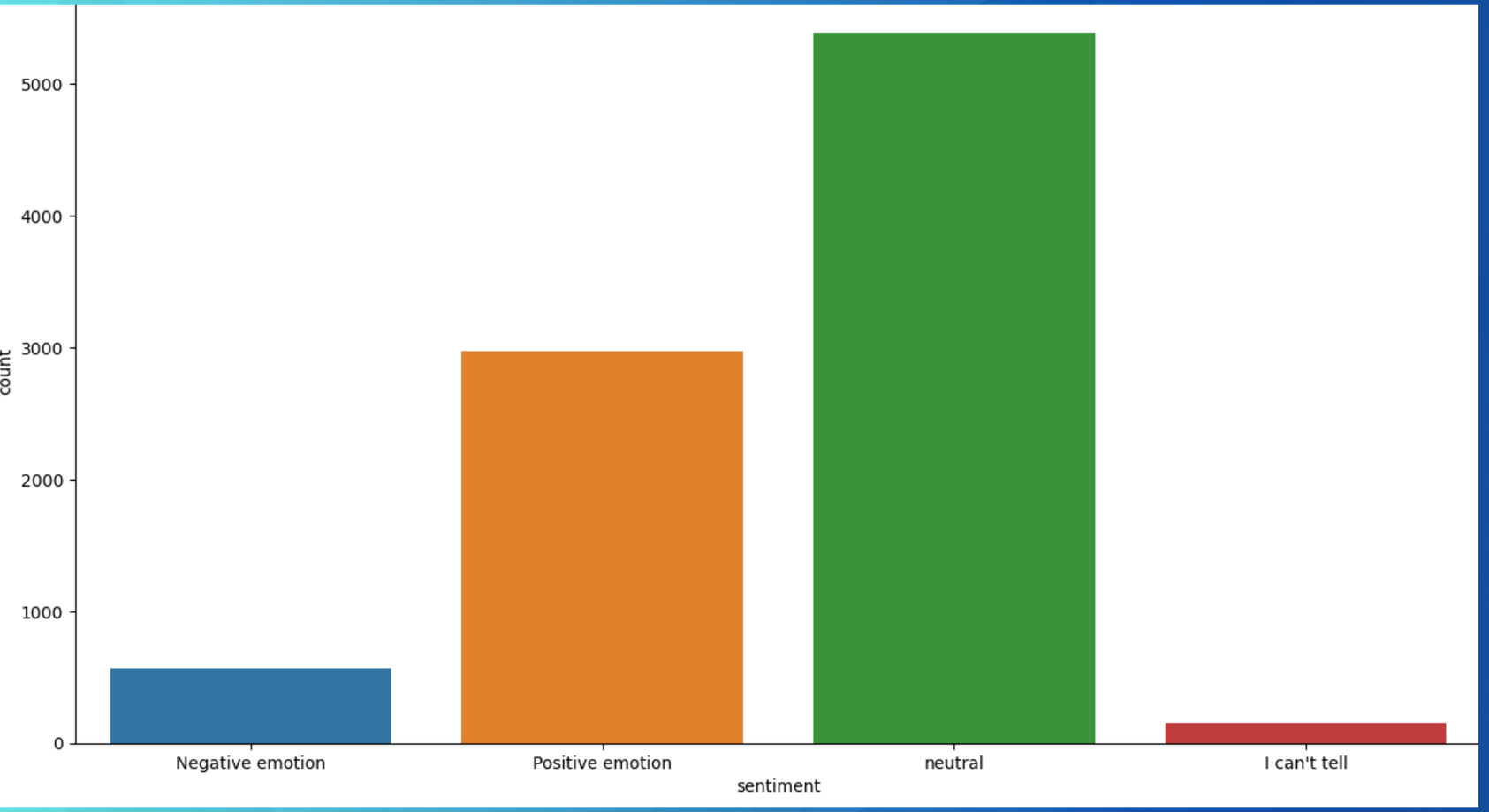
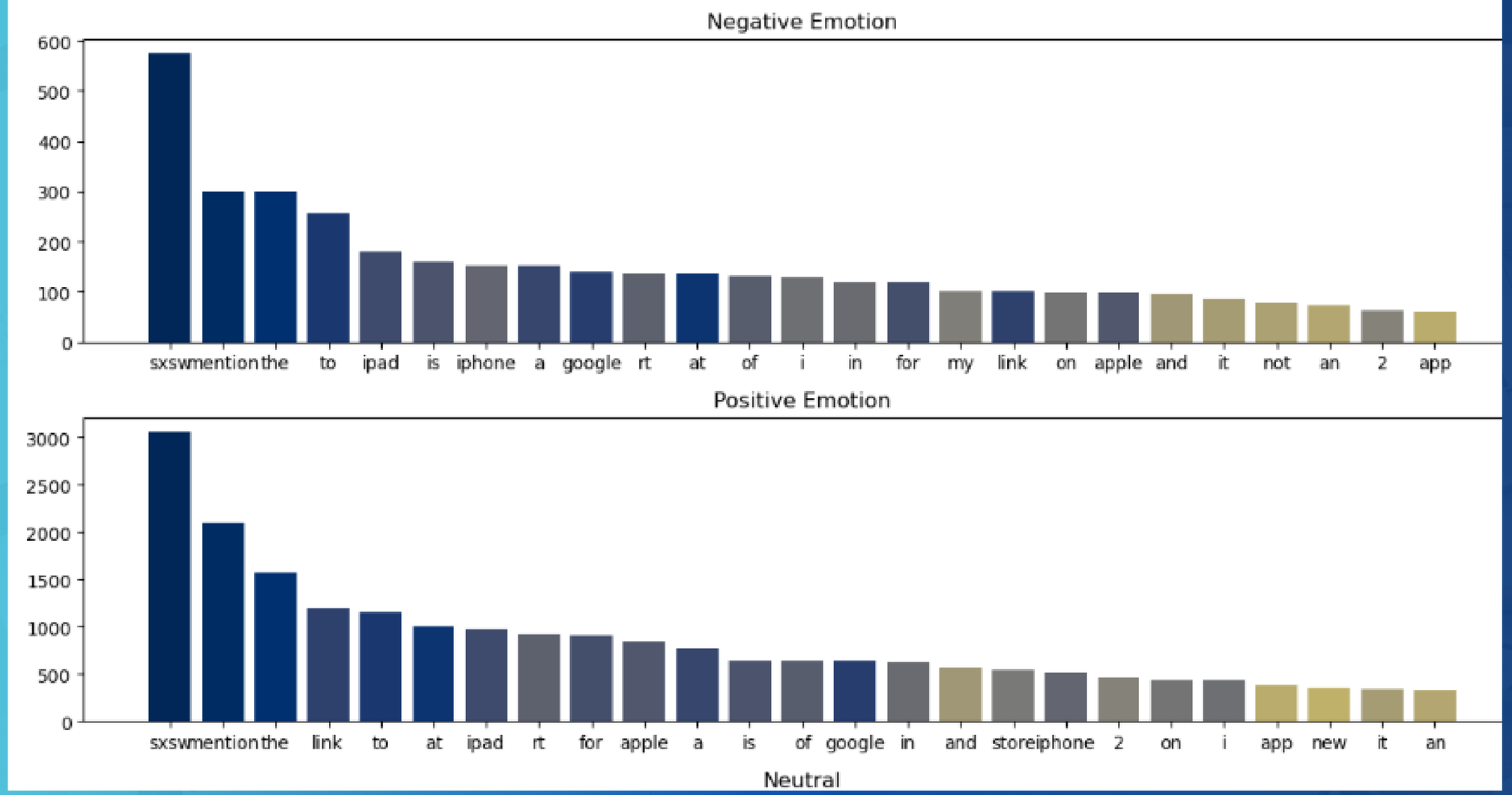
Data Analysis



- The neautral emotion appears to have a higher count as compared to the other three emotions.
- It is followed by the positive emotion which has a relatively high count.



- The identified stopwords to add to the default NLTK stopwords list are "SXSW," "mention," "rt," and "link." The default stopwords like "the," "to," "at," "a," "in," "of," and "is" will be removed.

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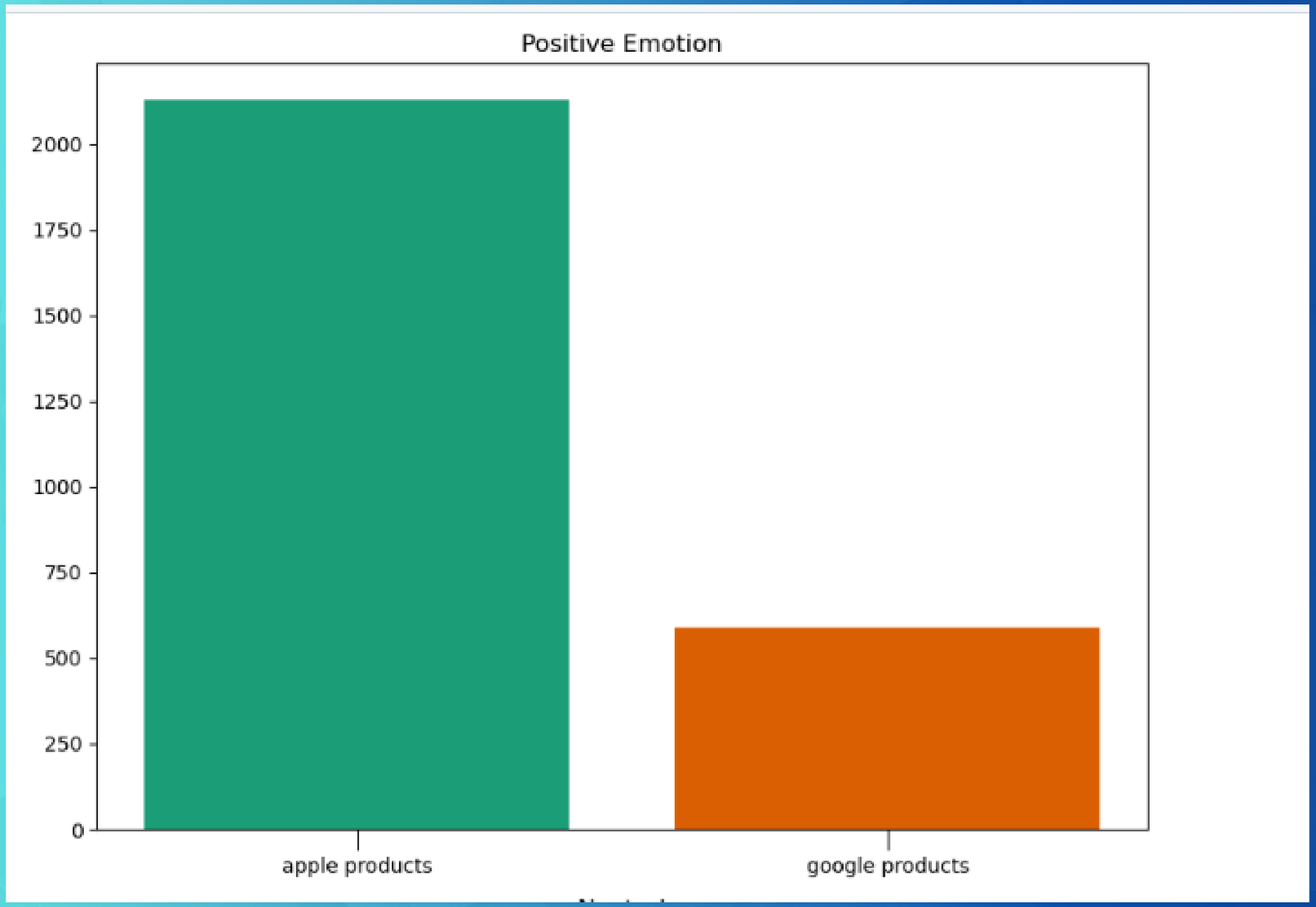
Data Analysis



- The apple products are seen to have traction of more tweets of positive emotions as compared to google products.

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Data Analysis

- The most commonly used words in tweets that have positive emotions are {iphone}, {ipad} and {google}.

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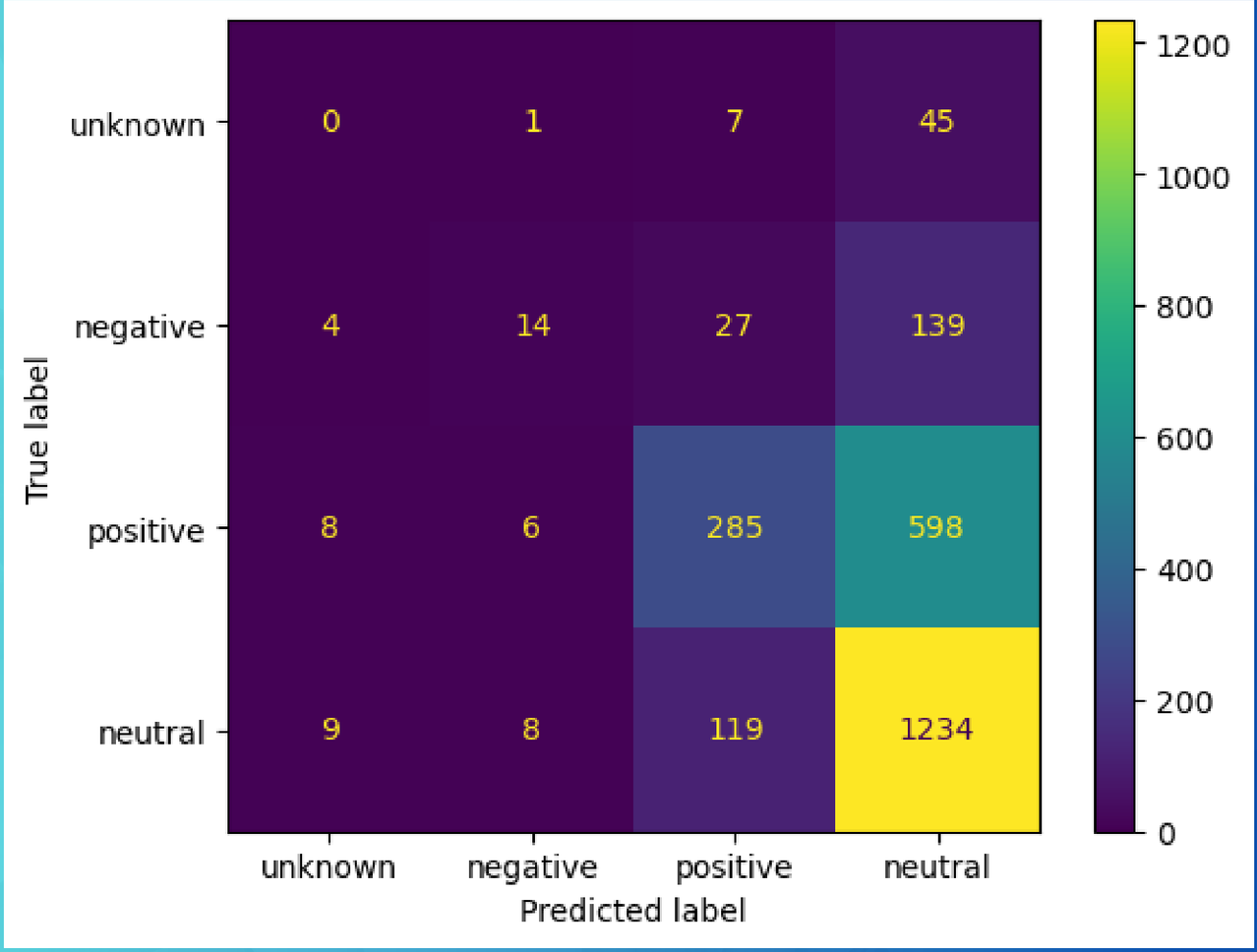
Modelling



- Training Model Accuracy: 72%
- The Accuracy Score: 61%
- The performance of this model is fairly good, since overfitting of the test data is minimal
- This is generally a good model, and with proper tuning will be used as a final model

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Conclusion

- Most of the customers have neutral emotion towards the products, followed by those with positive emotion. There are customers with negative emotions as well.
- The most reviewed/tweeted about products are Apple followed by Google products which is expected in the US market demographic.
- The accuracy of predicting the product user sentiment is at around 61%, following the best modelling outcome, after optimizing through tuning. This meets our success metric of 60% accuracy.

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Recommendations

- The stakeholders should focus on users with negative sentiments to retain and expand the customer base.
- Our model provides fast, real-time insights on product reviews, improving efficiency.
- Identifying positive sentiment tweets allows reinforcing these attributes in advertising for brand credibility and increased sales.
- Identifying negative sentiment tweets helps address product issues, reducing customer churn.
- Better customer engagement is expected as strategies are based on customer feedback, enhancing loyalty and brand engagement.

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Future Work

- Try to use neural networks and transfer learning to improve accuracy of the model.
- Deploy the model to enable the marketing team to have an interface to work with.
- Develop dashboards to enable real time display of insights gleaned from customer`s product reviews/tweets.

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THANK YOU