Sentiment Analysis of Customer Tweets: Gaining Competitive Insights for Google and Apple Products

NLP

BUSINESS UNDERSTANDING

Uncover the emotions behind Google and Apple products by analyzing tweets. Discover how people feel about these brands and their products to help stakeholders understand areas of improvement to enhance customer satisfaction and Loyalty!

OBJECTIVES

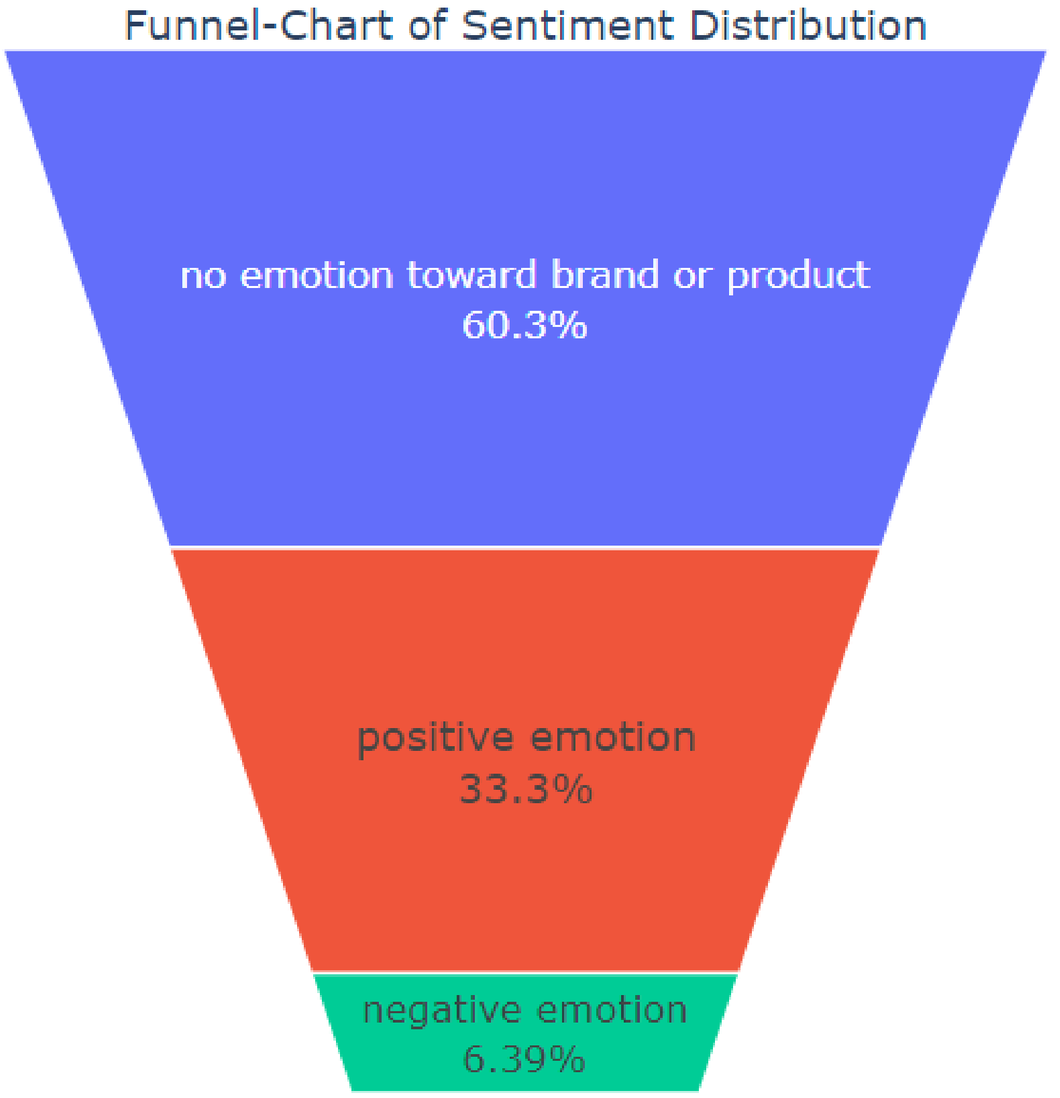
- To build a specialized sentiment analysis model that can analyze twitter sentiments of google and apple products
- To establish if there is any differences in twitter sentiments between apple and google product
- To find out the inclusive sentiment view towards apple an google products from twitter
- To investigate the recurring topics of interest associated with negative or positive sentiments as seen by google and apple brands

DATA UNDERSTANDING

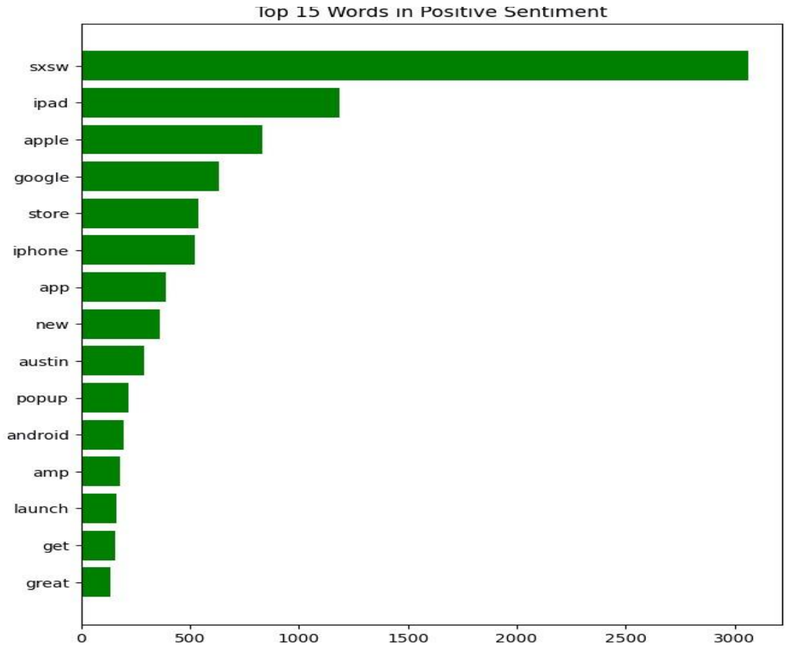
The dataset used in this project, sourced from https://data.world/crowdflower/brands-and-product-emotions, consists of 3 columns and 9093 rows. The columns include;

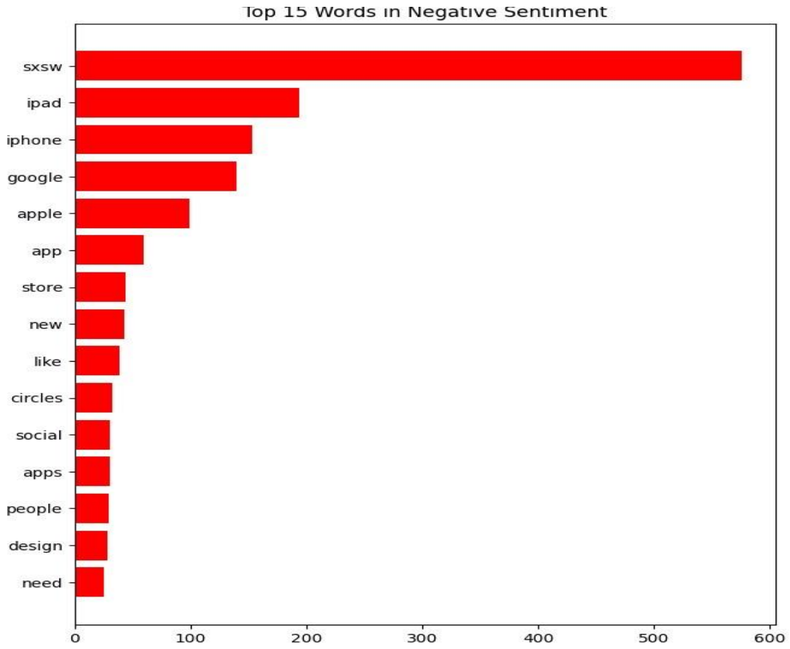
- tweet_text : contains the text of tweets.
- emotion_in_tweet_is_directed_at : column provides insights into the emotions expressed.
- is_there_an_emotion_directed_at_a_brand_or_product : indicates the brand/product the emotion is directed at.

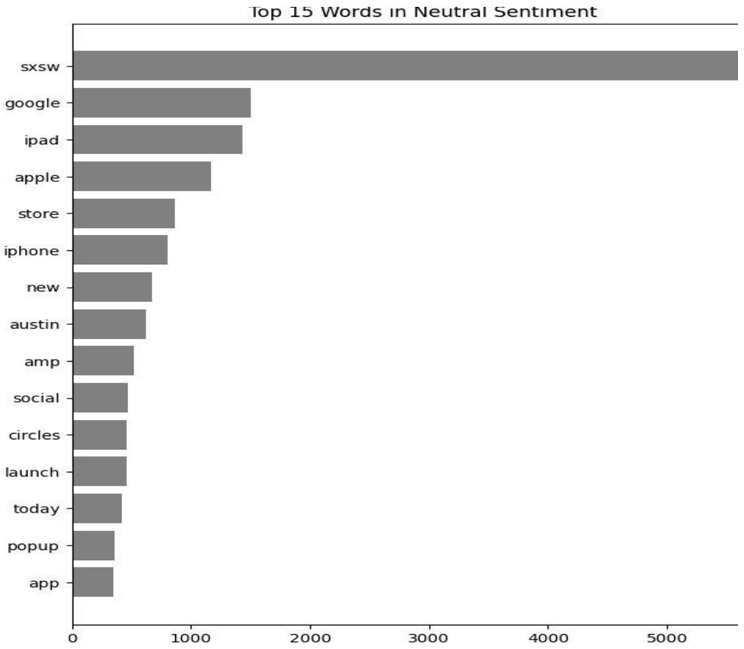
EXPLARATORY DATA ANALYSIS

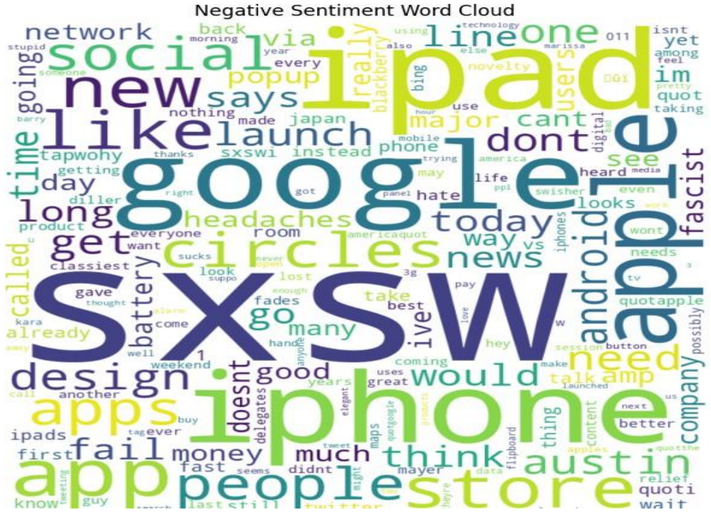

Funnel-Chart of Sentiment Distribution
no emotion toward brand or product
60.3%
positive emotion
33.3%
negative emotion
6.39%

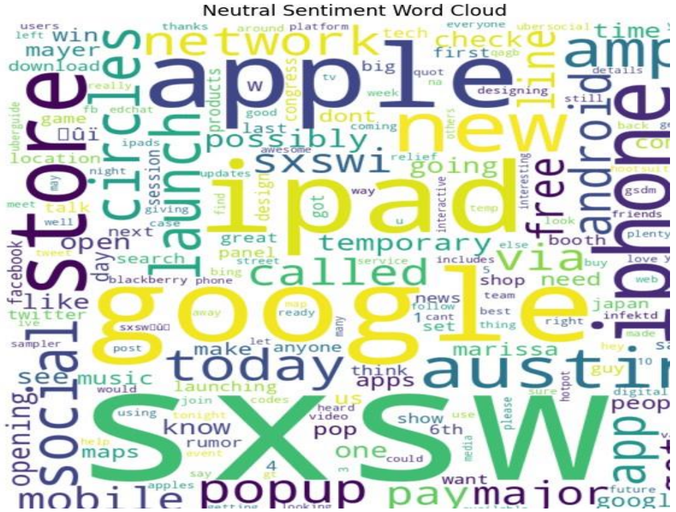
Word Frequency







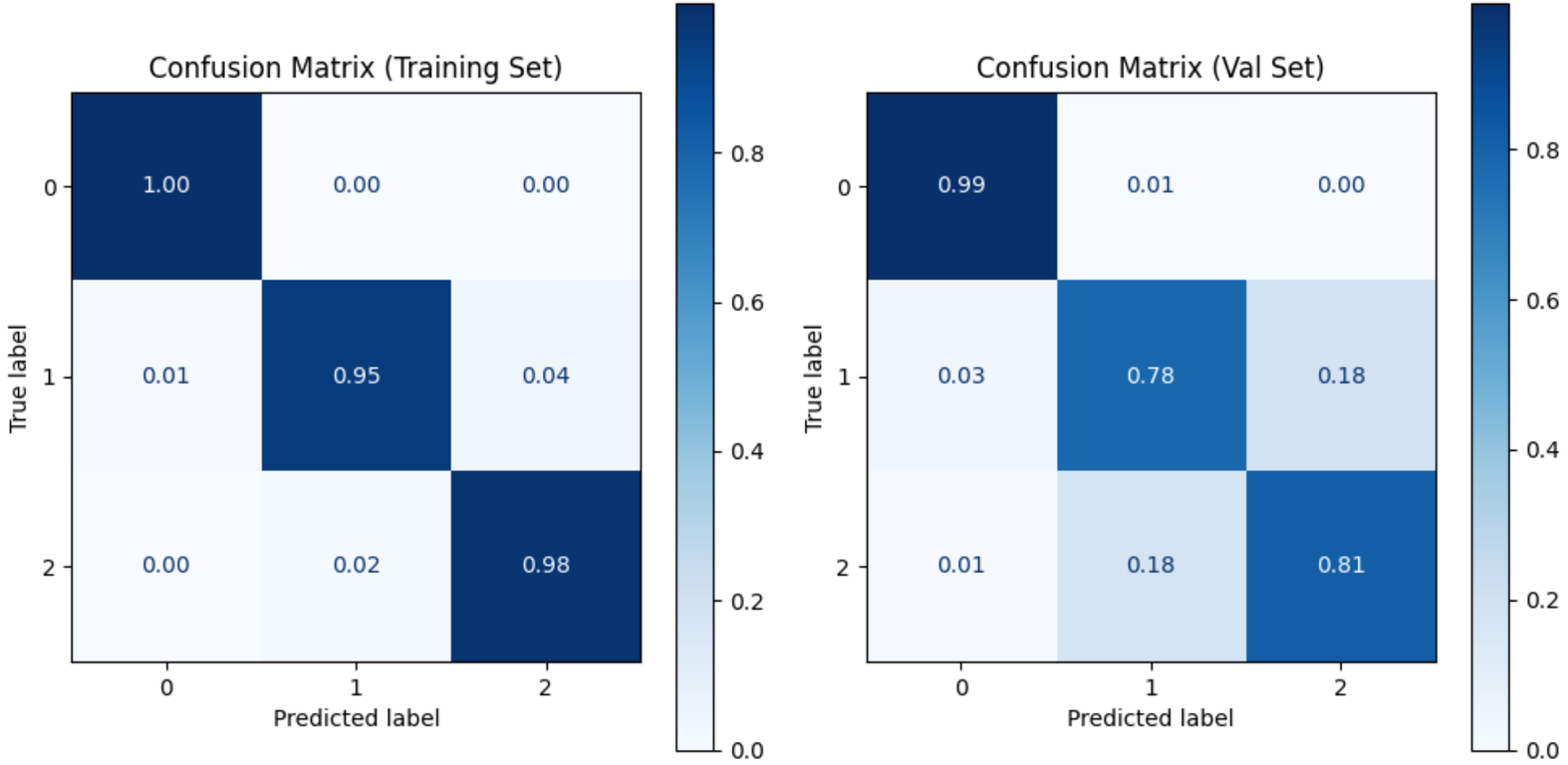




MODELLING

Naive Bayes	• Accuracy of 87% on training set and 77% on the test dataset
Random Forest	• Accuracy score of 98% on training set and 86% on test.
SVM	• Accuracy of 96% on training set and 87% on the test dataset
Neural Network	• Accuracy score of 83% on test set

Final Model - Random Forest



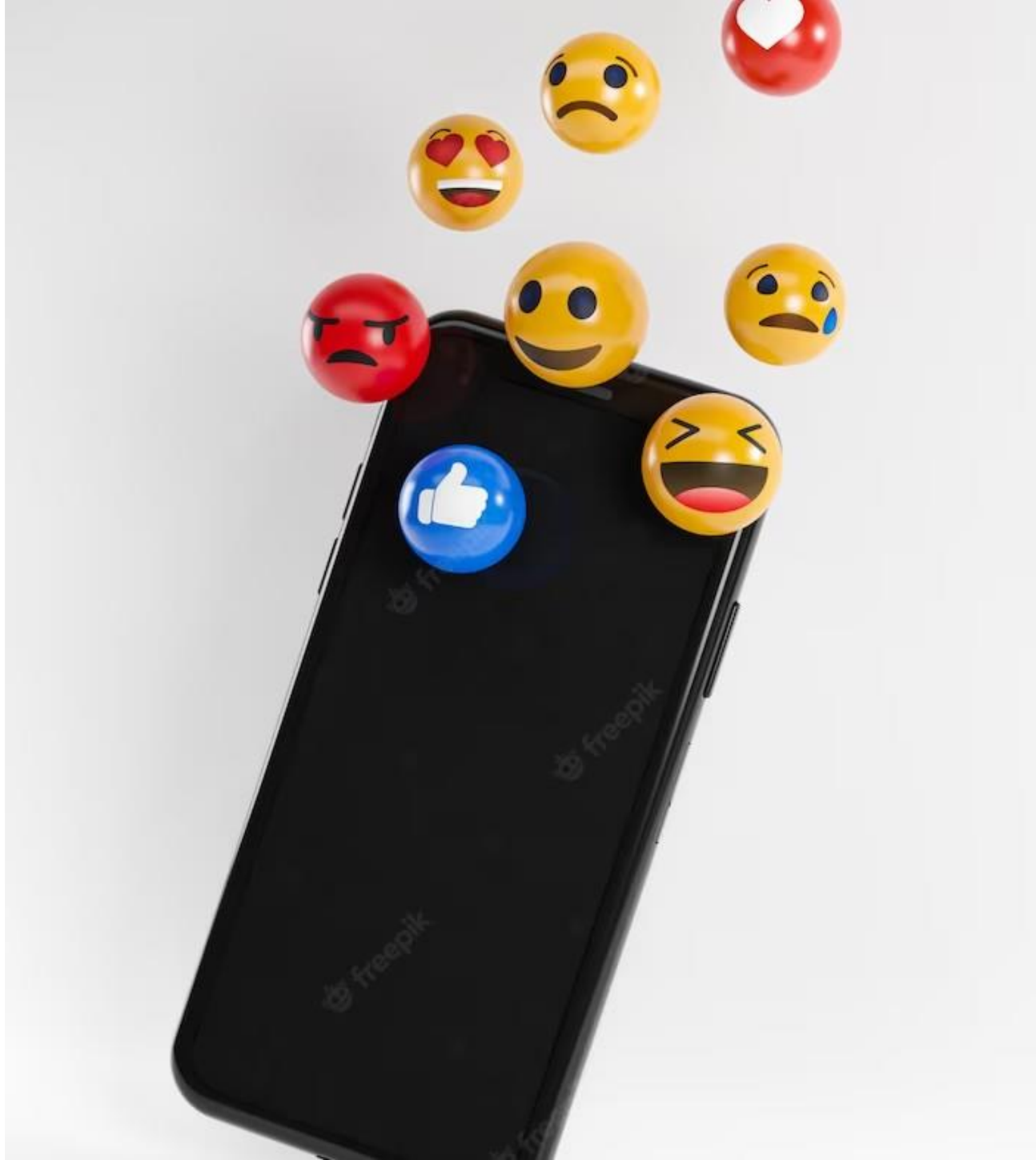
Our tuned Random Forest classifier performed pretty well with an accuracy of 98% on training and 86% on the test set.

CONCLUSION

Our analysis revealed varying degrees of positivity and negativity in the Twitter discussions concerning their products, shedding light on the overall inclusive sentiment view towards both brands. Additionally, by investigating recurring topics associated with positive and negative sentiments using a word cloud for each sentiment, we gained valuable insights into the prevailing themes that influence public perception of Google and Apple. This research contributes to a deeper comprehension of how sentiments and topics converge to shape the online discourse surrounding these companies, offering a valuable resource for both academia and industry..

RECOMMENDATIONS

- Craft marketing messages that align with the predominant sentiments expressed by consumers.
- Collaborate with influencers who align with the positive sentiments around your brand.
- Regularly assess the impact of your marketing strategies on sentiment trends. Track changes in sentiment over time to gauge the effectiveness of your efforts and make data-driven adjustments



NEXT STEPS

- Incorporate more advanced natural language processing techniques and machine learning algorithms to enhance the accuracy of sentiment classification
- Extend the analysis over a longer time period to observe trends and changes in sentiment over time
- Analyse sentiment based on user demographics such as age, gender, and location.
- Develop predictive models to anticipate shifts in sentiment

Thanks!