

Twitter Sentiment Analysis of Apple and Google Products

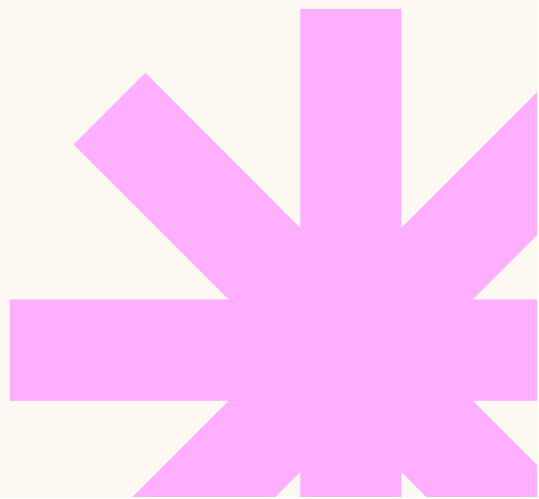
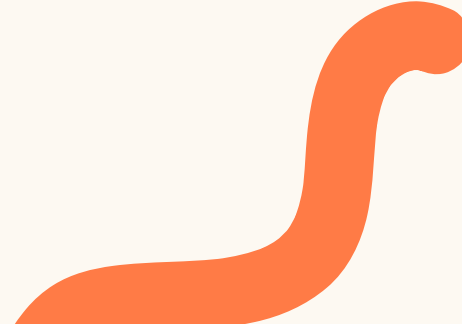
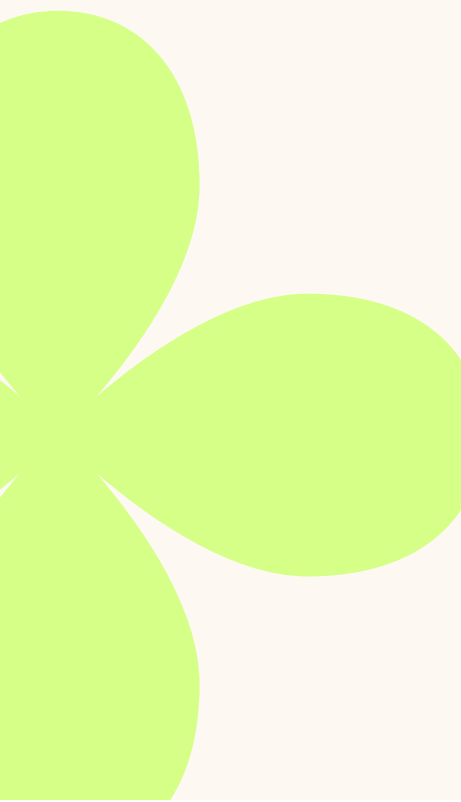
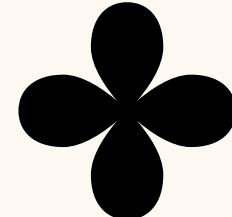


Table of Contents

- Business Understanding
- Data Understanding
- Data Preprocessing
- Exploratory Data Analysis
- Modeling
- Evaluation
- Recommendation



Business Understanding

Objective: Accurately predict the sentiments based on a tweet.

- To build a Natural Language Process model that rates the sentiment of a Tweet as positive, negative, or neutral, based on its content.
- Analyze key factors influencing the sentiments.
- Implement strategies to reduce the negative and neutral sentiments on products.



Data Understanding

Dataset, sourced from `CrowdFlower` via [data.world])


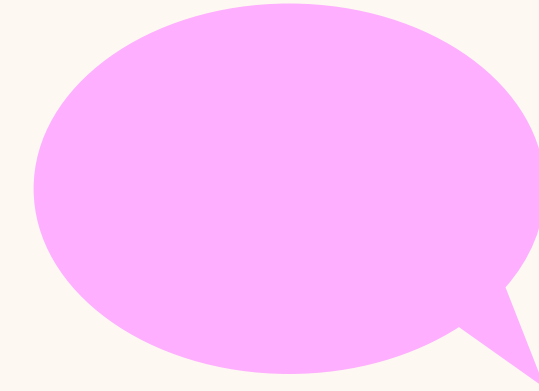
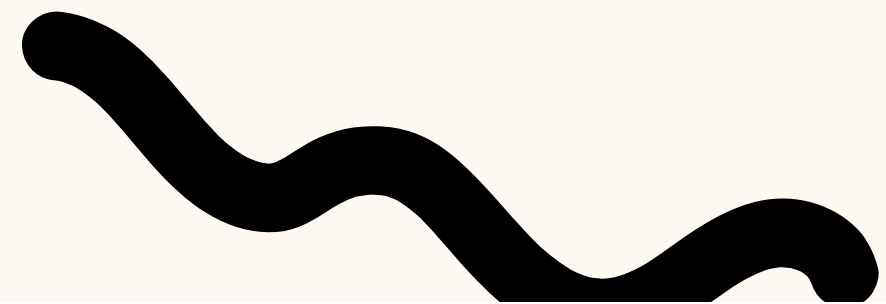
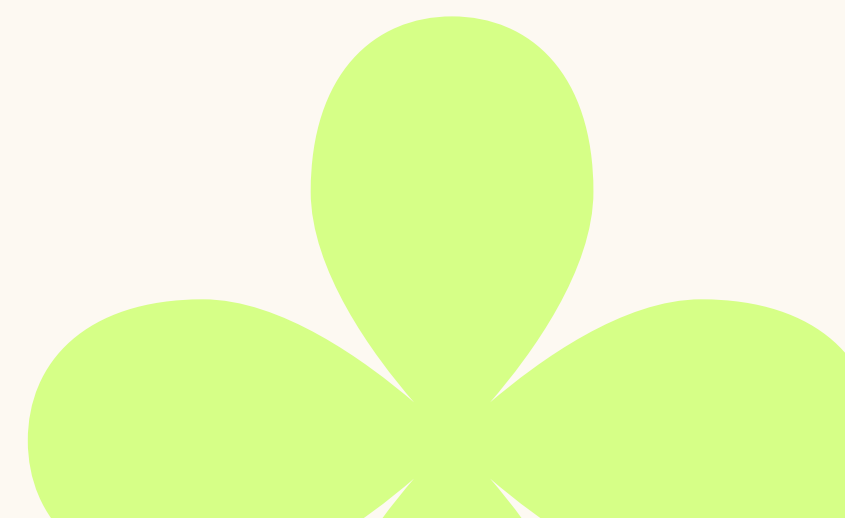
- 9,000 tweets rated by human annotators as positive, negative, or neutral.
- Dataset contains three attributes (tweet text, specific product the sentiment is directed to and type of sentiment)
- Type of sentiment is the target column.



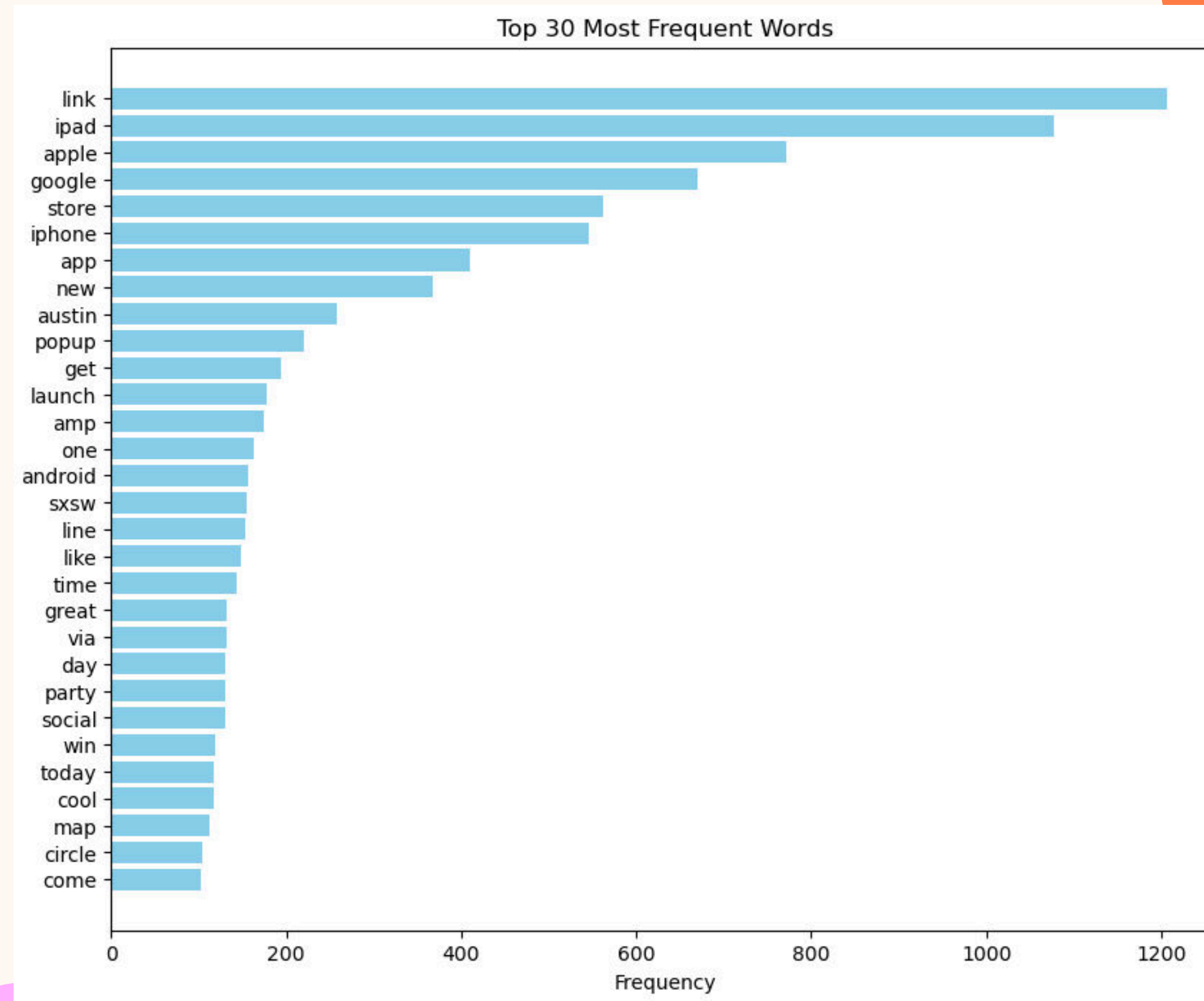


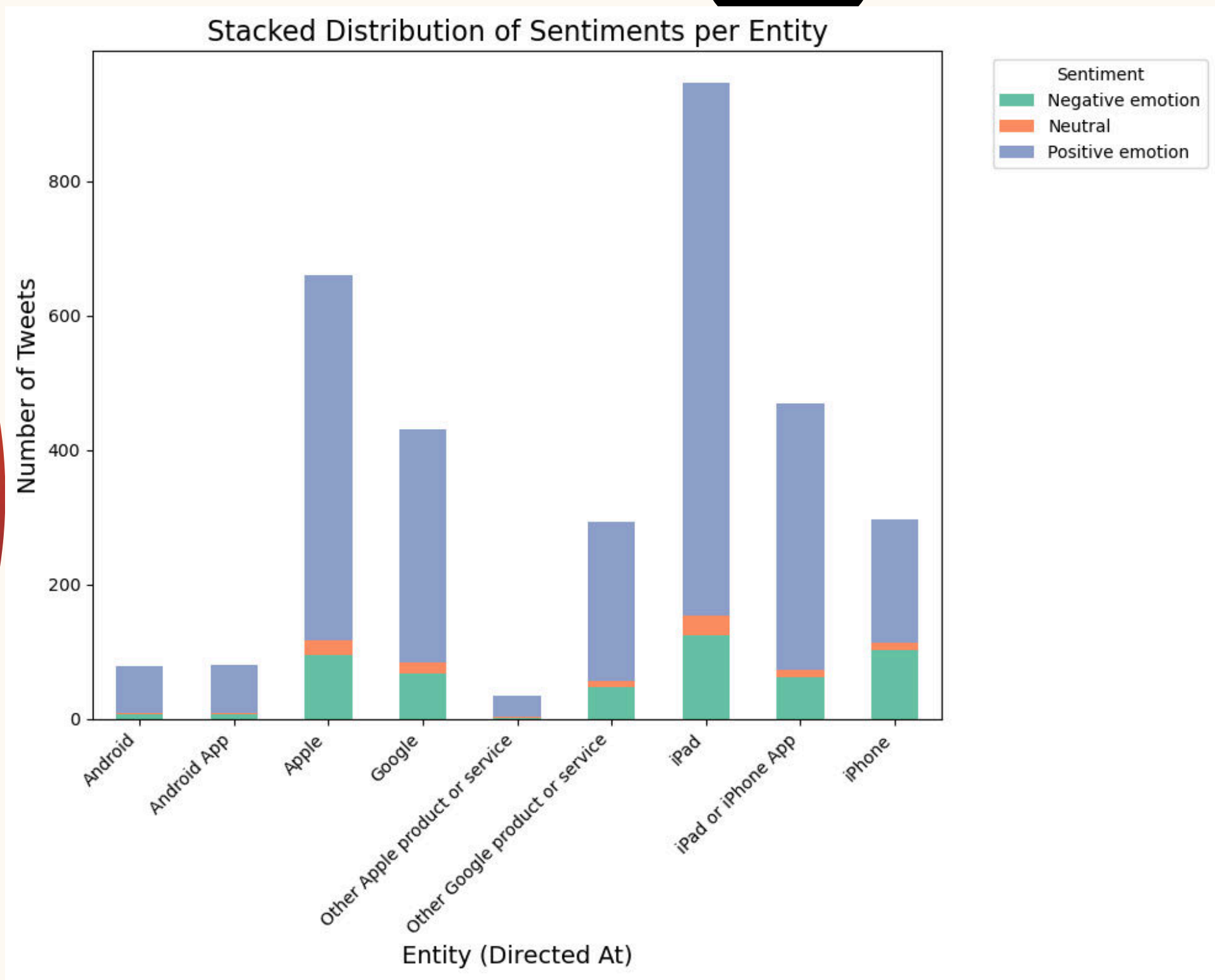
Data Preprocessing



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- Handling missing values.
 - Label encoding for the target feature to numeric form.
 - Text data preprocessing -
Train-Test split - splitting data into training and test set

Exploratory Data Analysis





Modeling

1. **Binary Classification (considering the positive and negative sentiments only)**

Models used;

- **Baseline Model - LogisticRegression**
- **XGBoost Model**
- **Decision Tree Classifier**





2. Multiclass Classification - considering positive,negative and neutral sentiments

Models used;

- Baseline Model - Logistic Regression**
- XGBoost Model**
- Decision Tree Classifier**



Evaluation

Metrics used to evaluate the models;

- Classification report metrics(Precision,Recall,F1 Score)
- Accuracy

1. In binary class,the best model is XGBoost Model with an accuracy of 87.79%.
2. In multi class classification the best model is Decision Tress Classifier with an accuracy of 60.24%.



Recommendation

- Address Negative Sentiment Through Targeted Feedback.
- Encourage Neutral Sentiment Engagement.
- Model Selection: choosing the correct model for various classifications.



Thanks!



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