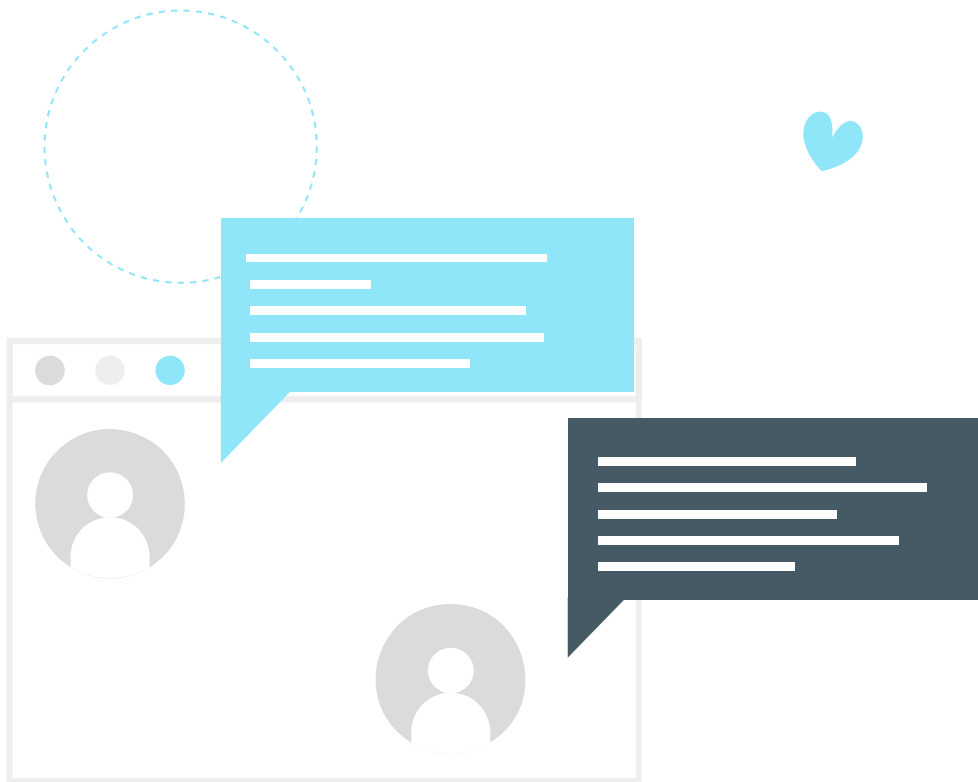


# Twitter Sentiment Analysis

Sean Hart September 15, 2022



**01**



# **The Dataset**



# Initial Dataset

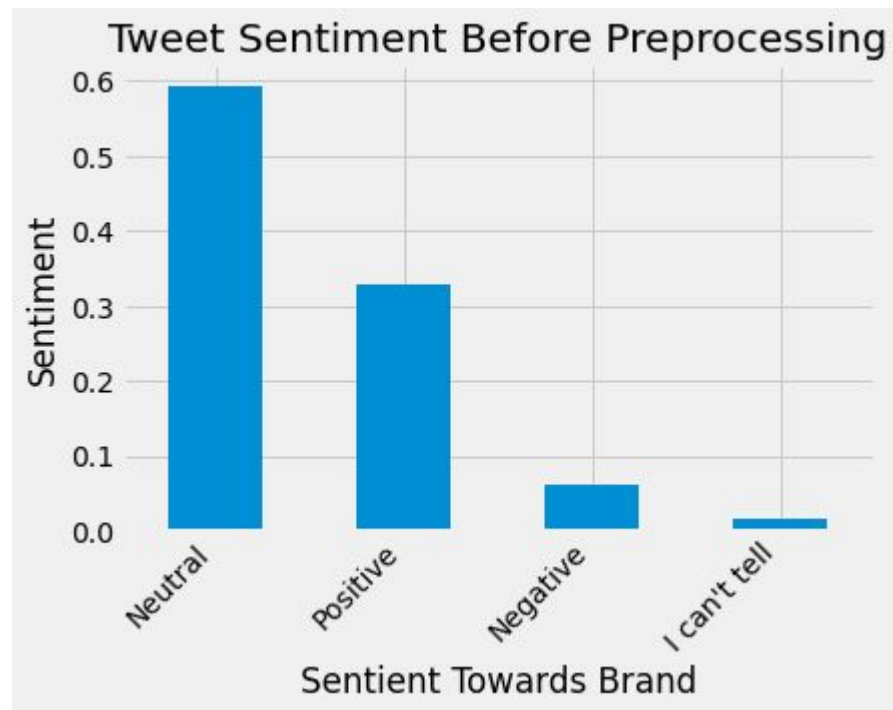
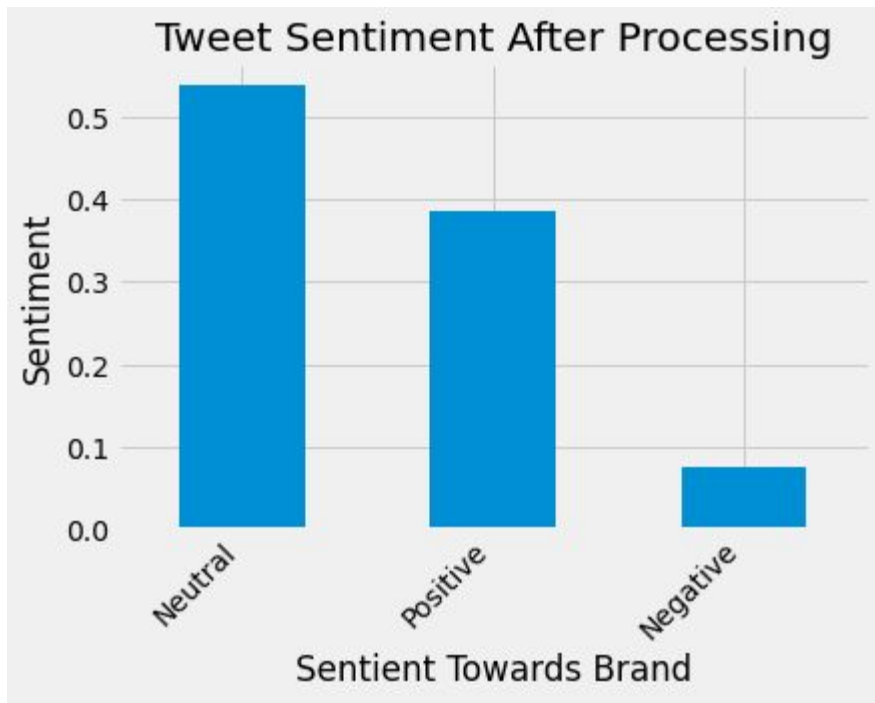


- 9902 Tweets from 2011 South by Southwest Conference
- Dataset included Tweet, Sentiment, and Object of Sentiment
- The dataset was highly imbalanced – very few negative sentiment examples.





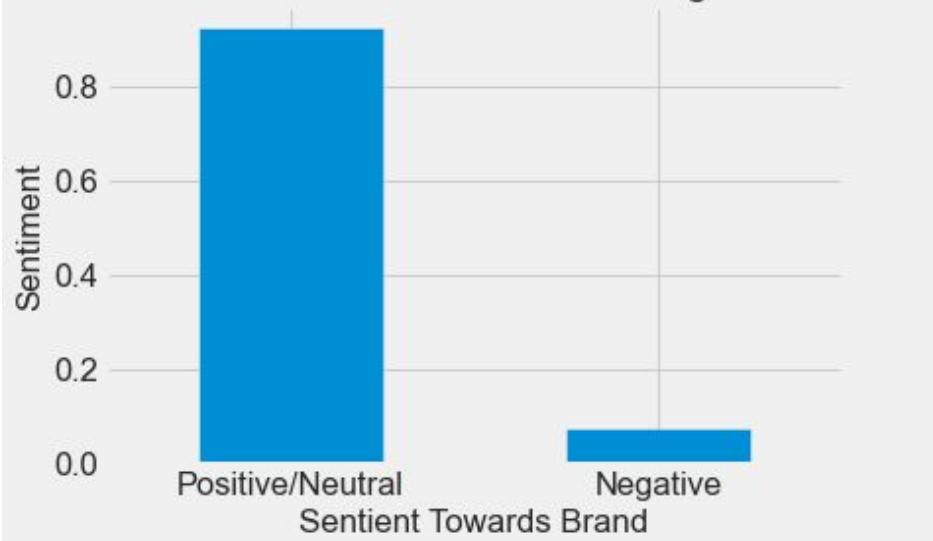
# Sentiment Breakdown



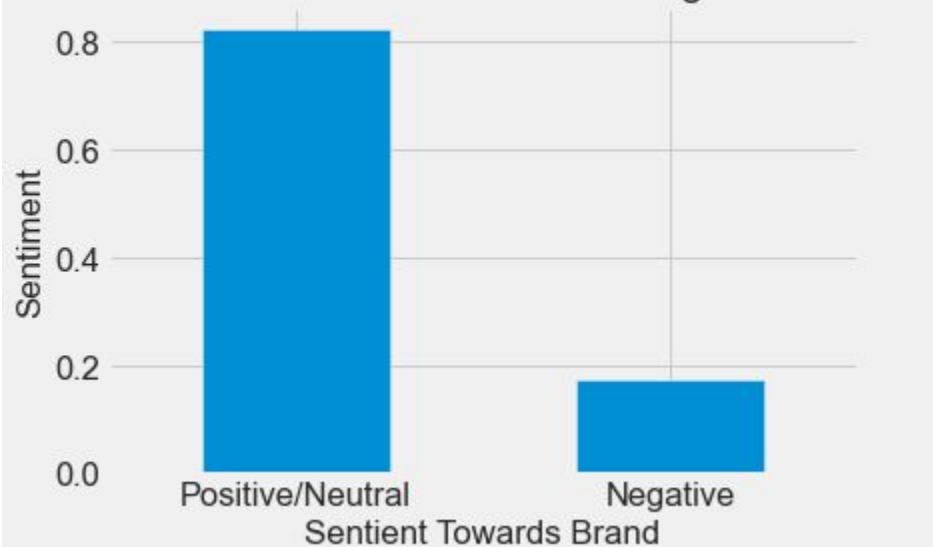


# Sentiment - Binary Modeling

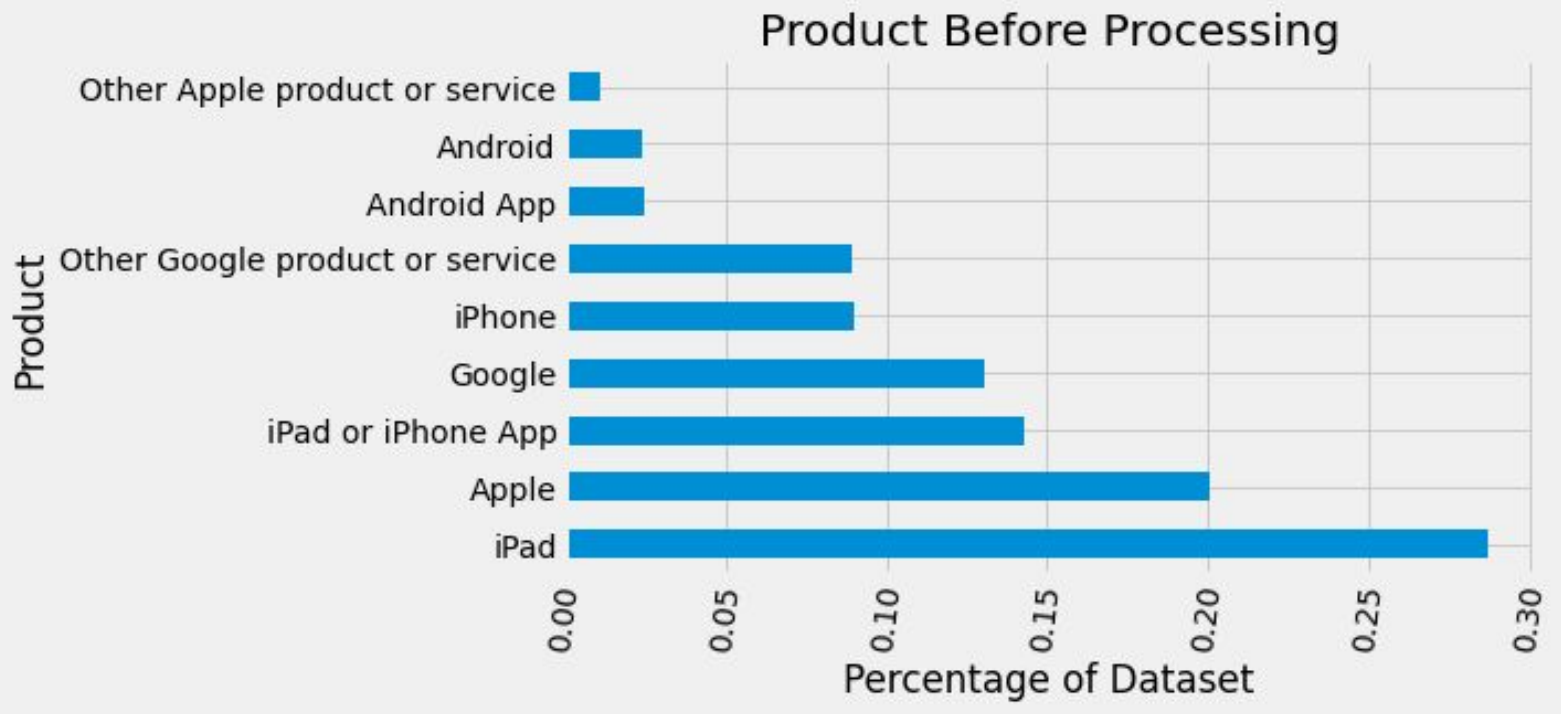
Tweet Sentiment Before Additional Negative Tweets



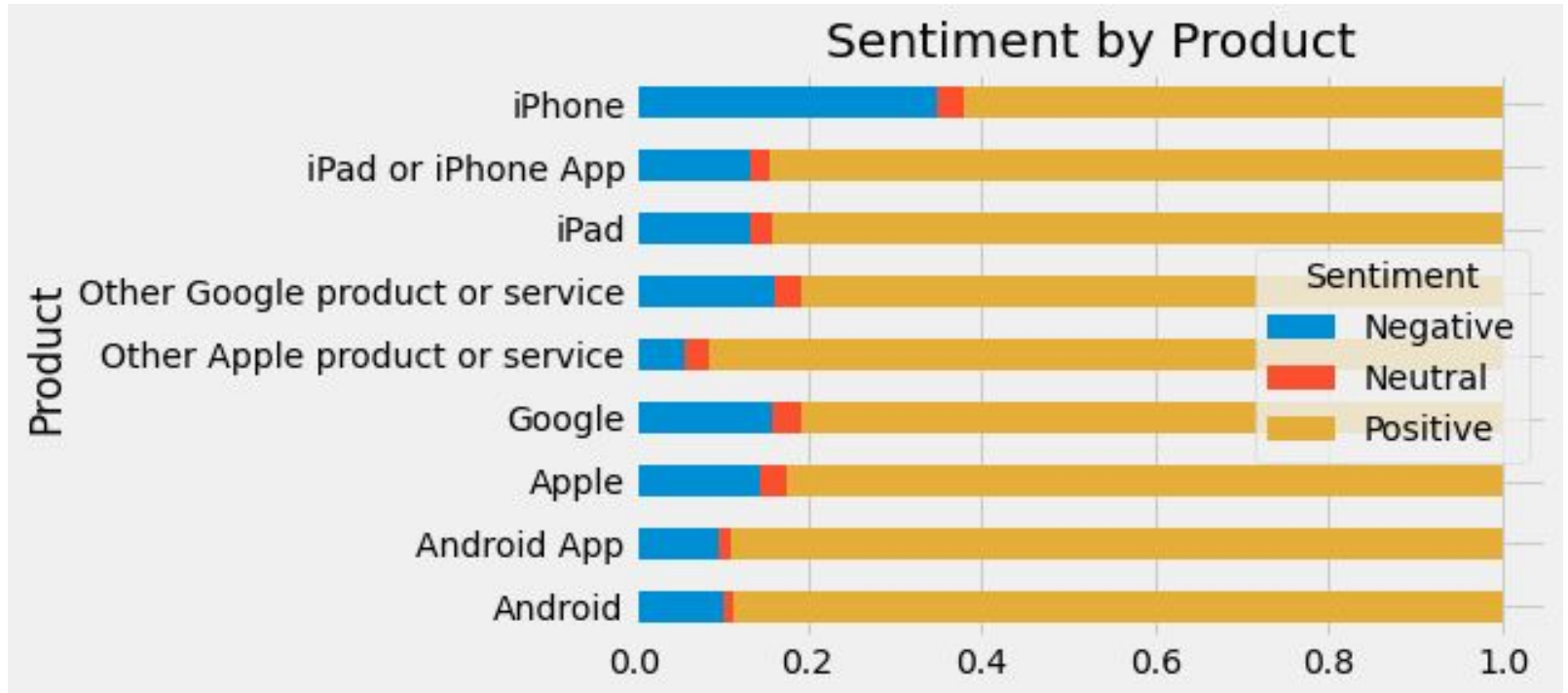
Tweet Sentiment After Additional Negative Tweets



# Product Breakdown



# Product Breakdown





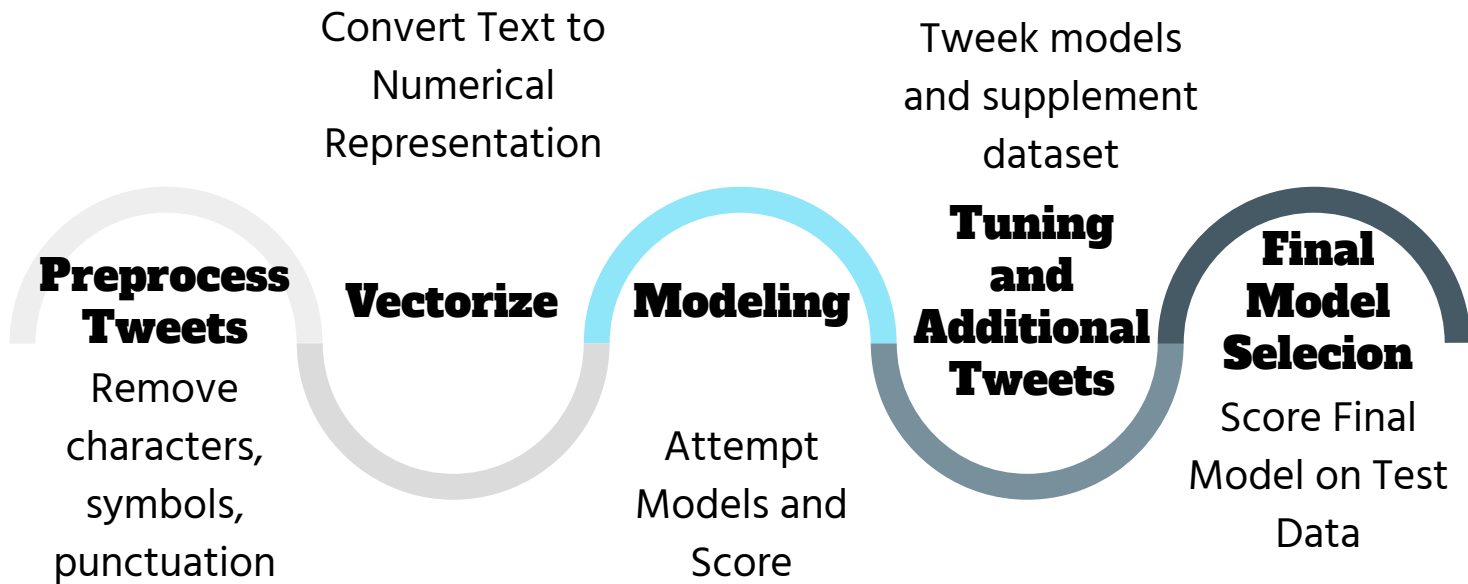
# **02**

## **Project Metrics & Methods**





# Project Steps



# Project Metrics

## Recall - Casting the Net

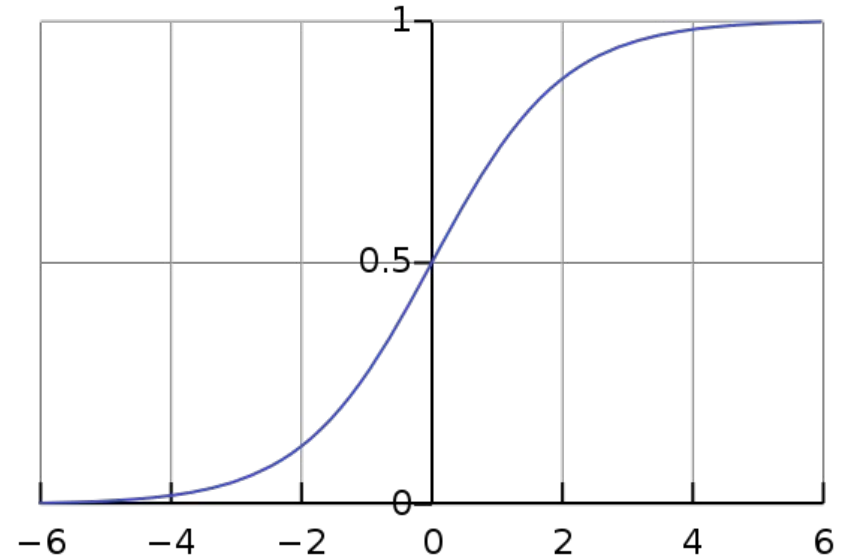
- Recall – What percentage of Negative Tweets Were Captured
- Precision – What percentage of the time were the predicted actually Negative.
- Optimized with F-Beta 2 Scorer. Sought a Balance Between Recall and Precision.



# Final Model Selection

## Tuned Logistic Regression Model

- Simple Model Nimble Model Using Bag-of-Words Vectors.
- Selected Models Using Cross-Fold-Validation and Grid Search
- Augmented the Training Data with an Additional 1219 Negative Tweets





**03**

# **Results & Interpretation**

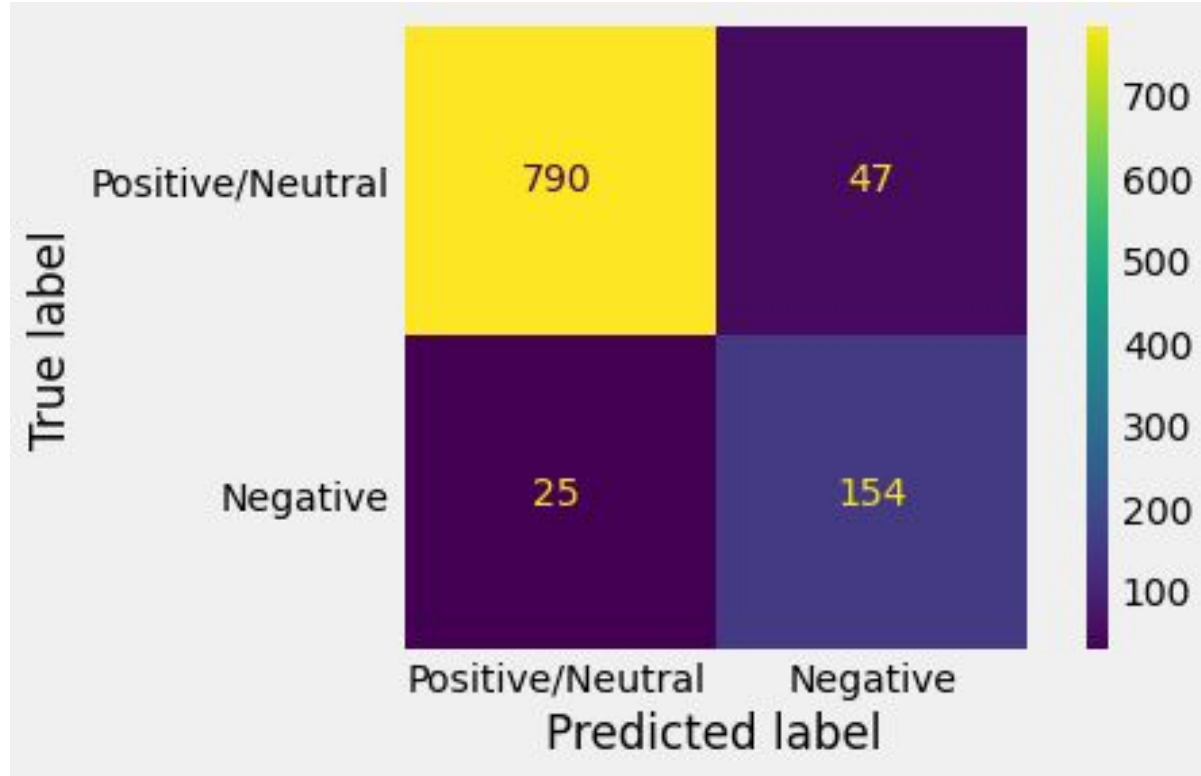
# Final Model Results

**Recall Score - 86%**

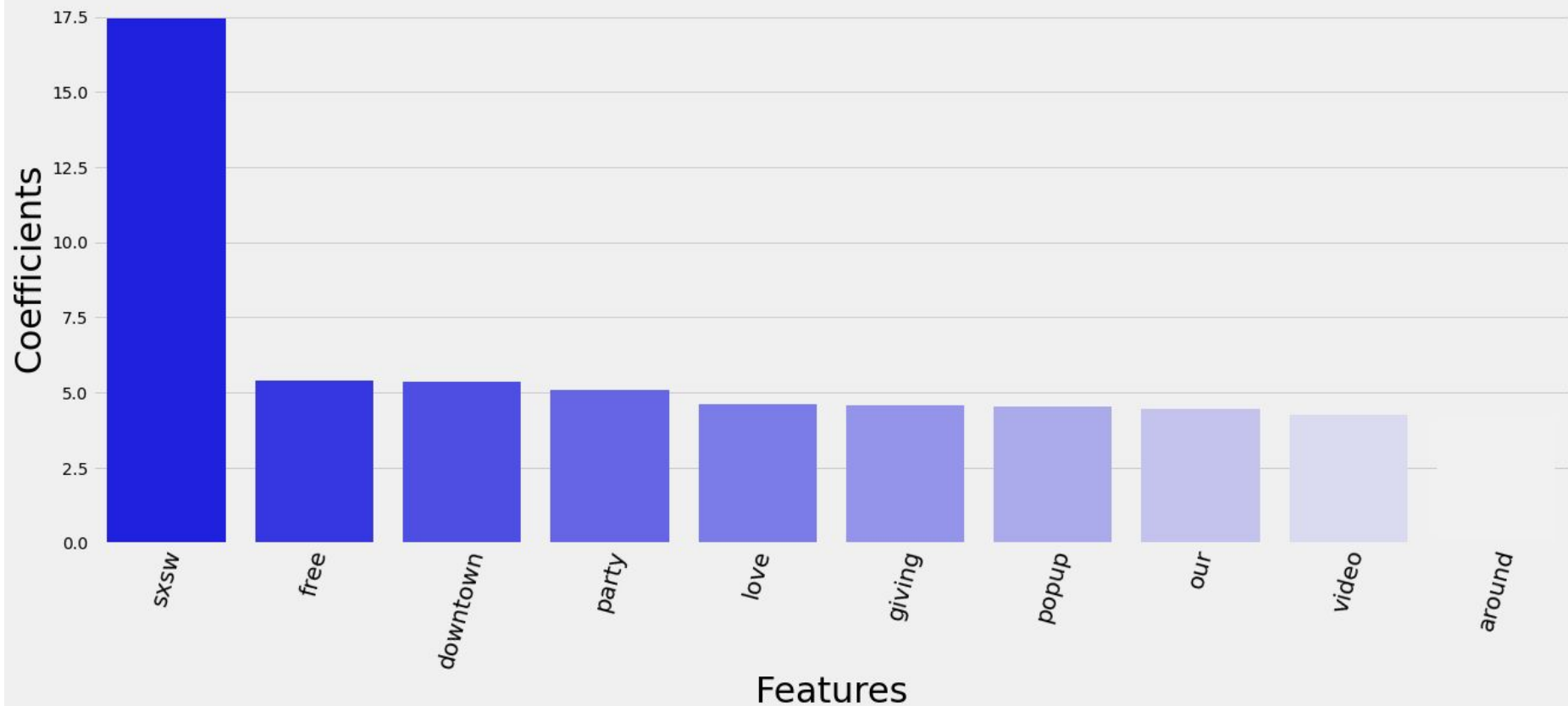
**Precision - 77%**

**F1 Score - 81%**

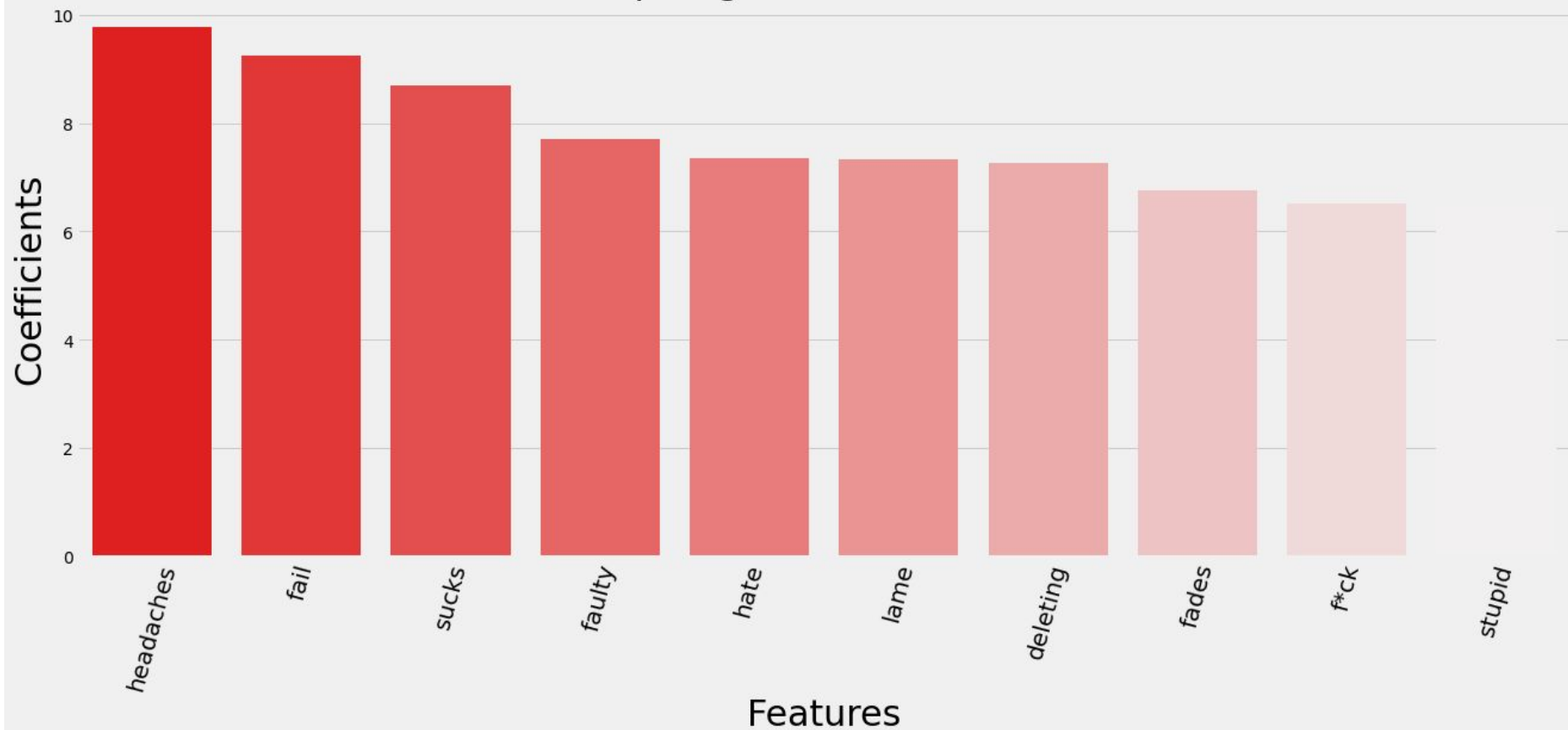
**Accuracy - 93%**



## Top Positive Coefficients



## Top Negative Coefficients







[illegible]



04

# Conclusion & Future Work



# Conclusions



- Attack the battery issue – major source of complaints.
- Throw some parties – people like free stuff, it can turn the tide of sentiment.
- People want to like brands at SXSW – it's a succes!





# Future Work



- Analyze the use of emojis and GIFS in tweets.
- Gather location-based data in real-time to respond to negative and positive feedback on-site.
- Experiment with Sentiment forecasting – could any of these reactions be predicted by Twitter chatter in advance of the event?

