

# Twitter Sentiment Analysis



Natural Language Processing




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## Problem Statement

Find a method to assess consumer sentiment toward product or brand using public tweets and language contained within tweets without individually assessment






## Business Value

By providing sentiment analysis information obtained through tweets, informed decisions can be made implementing policy to continue positive sentiment or execution of corrective action in the case of negative sentiment.

Dataset specific to apple & android products, so brand names removed from tweets to remove bias toward product sentiment using only the language toward brand and product to analyze sentiment so useful for any brand.



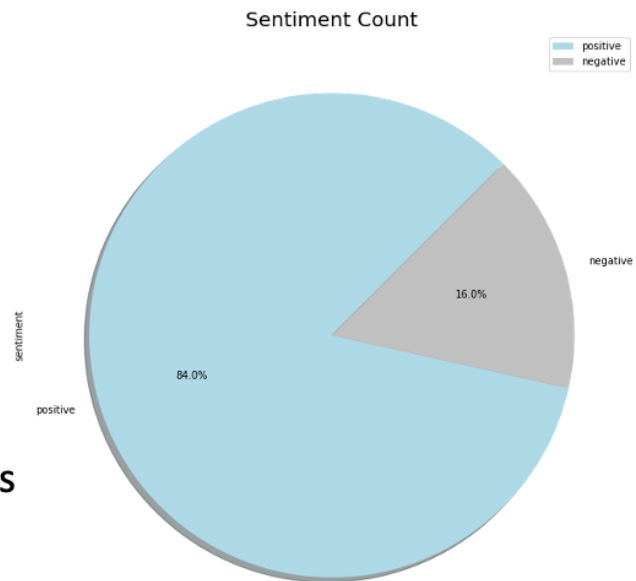
## Factors Assessed

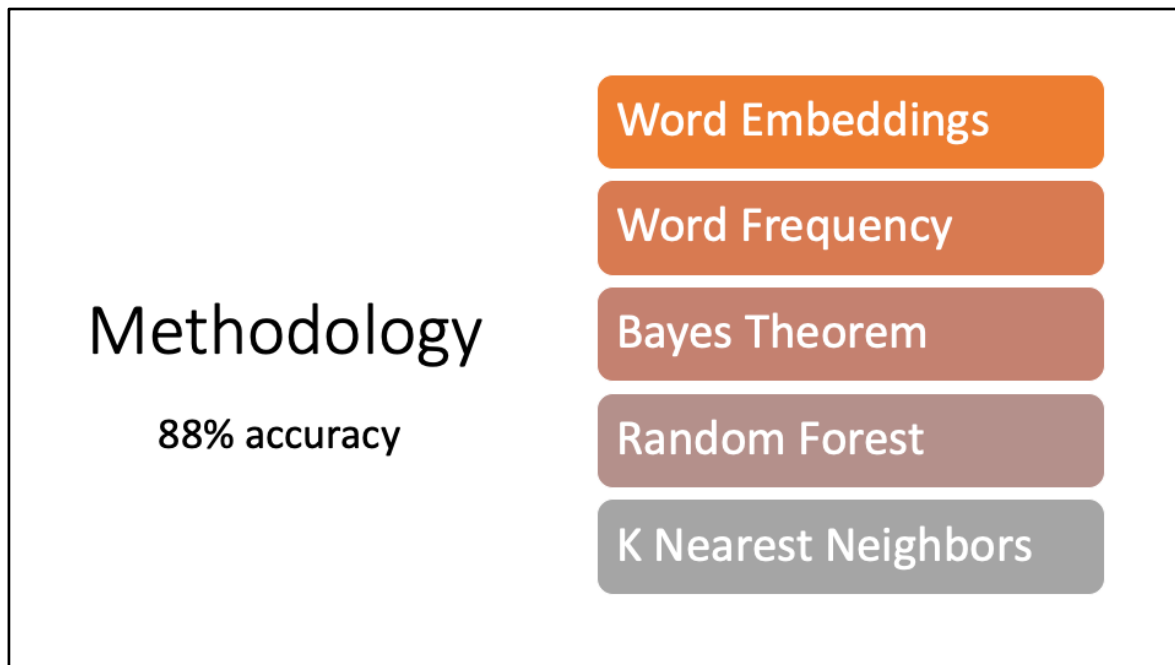
- Tweets regarding specific technology based companies and their products(Apple & Android/Google)
  - Term frequency and relativity
  - Combinations of words(n-grams)
- 

## Dataset Info

3392 tweets

5059 unique words/tokens





Word embeddings neural network-

Word frequency neural networks:

Unaltered data using class weights-

Accuracy: 0.883652

Precision: 0.891547

Recall: 0.980702

F1 score: 0.934002

ROC AUC: 0.830839

[[ 41 68]

[ 11 559]]

SMOTE balanced data-

Accuracy: 0.880707

Precision: 0.896272

Recall: 0.970175

F1 score: 0.931761

ROC AUC: 0.822195

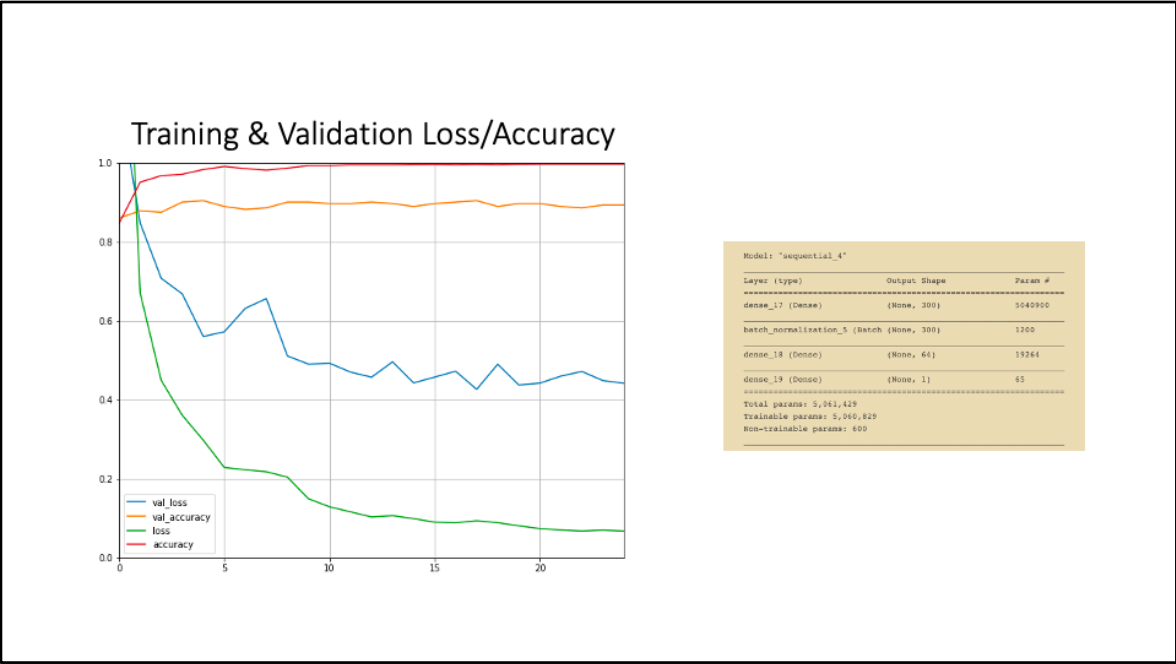
[[ 45 64]

[ 17 553]]

Bayes – Test Accuracy: 0.85 [ 5, 104],

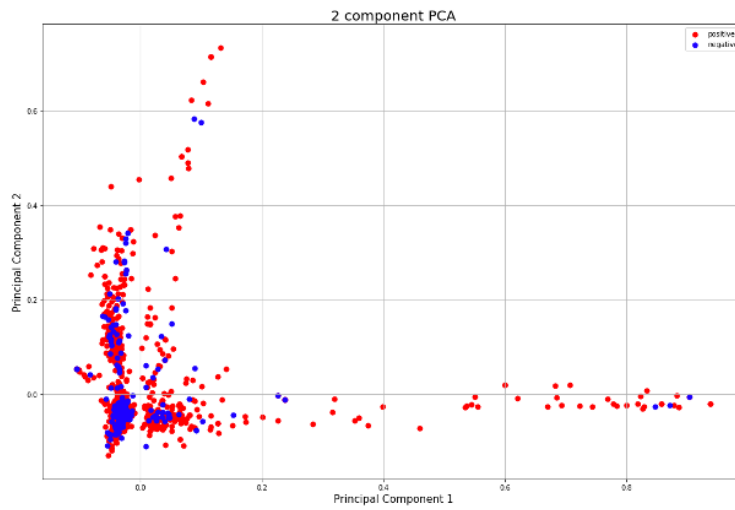
[ 1, 569]  
Random Forest – Test Accuracy: 0.87 [ 25, 84],  
[ 3, 567]

KNN - Test Accuracy: 0.86 [ 32, 77],  
[ 18, 552]]





## PCA on Dataset



[illegible]

Top 50 terms in negative tweets

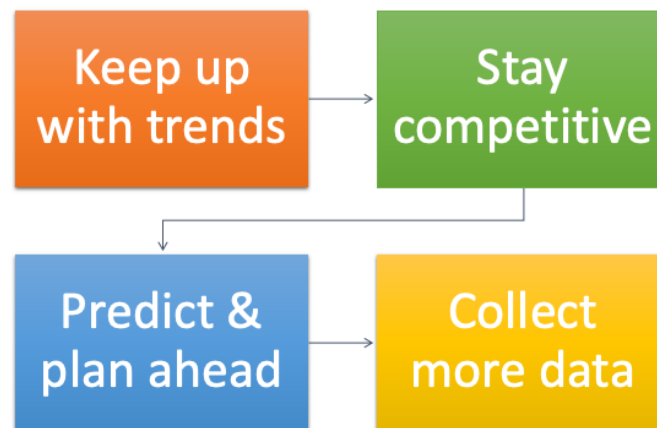
Overlapping data frequently occurring in positive & negative sentiment

[illegible]

## Top 50 terms in positive tweets

Overlapping data frequently occurring in positive & negative sentiment  
Examples include social network, store, rt

## Business Recommendations



Determine product trends and keep up with current needs

Assess competitor's popularity and determine the why and how to stay competitive

Predict and plan according to consumer reactions

Collect variety of tweets for variety of related brands, products, events to produce a more accurate model

Maintain a presence on social media to show consumers that you care and hear them, and address their concerns verbally and through followup action

#Thankyou

