

Twitter Sentiment Analysis with Natural Language Processing

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Why do we need to evaluate the sentiment of tweets?

- Twitter is the public opinion marketplace
 - 3 in 4 look to Twitter users for advice
 - 9 in 10 changed opinion because of Twitter advice
- Easier and less expensive than conducting a survey
- No in person events due to COVID-19 which means no in person feedback

Companies Affected by Public Opinion

Microsoft

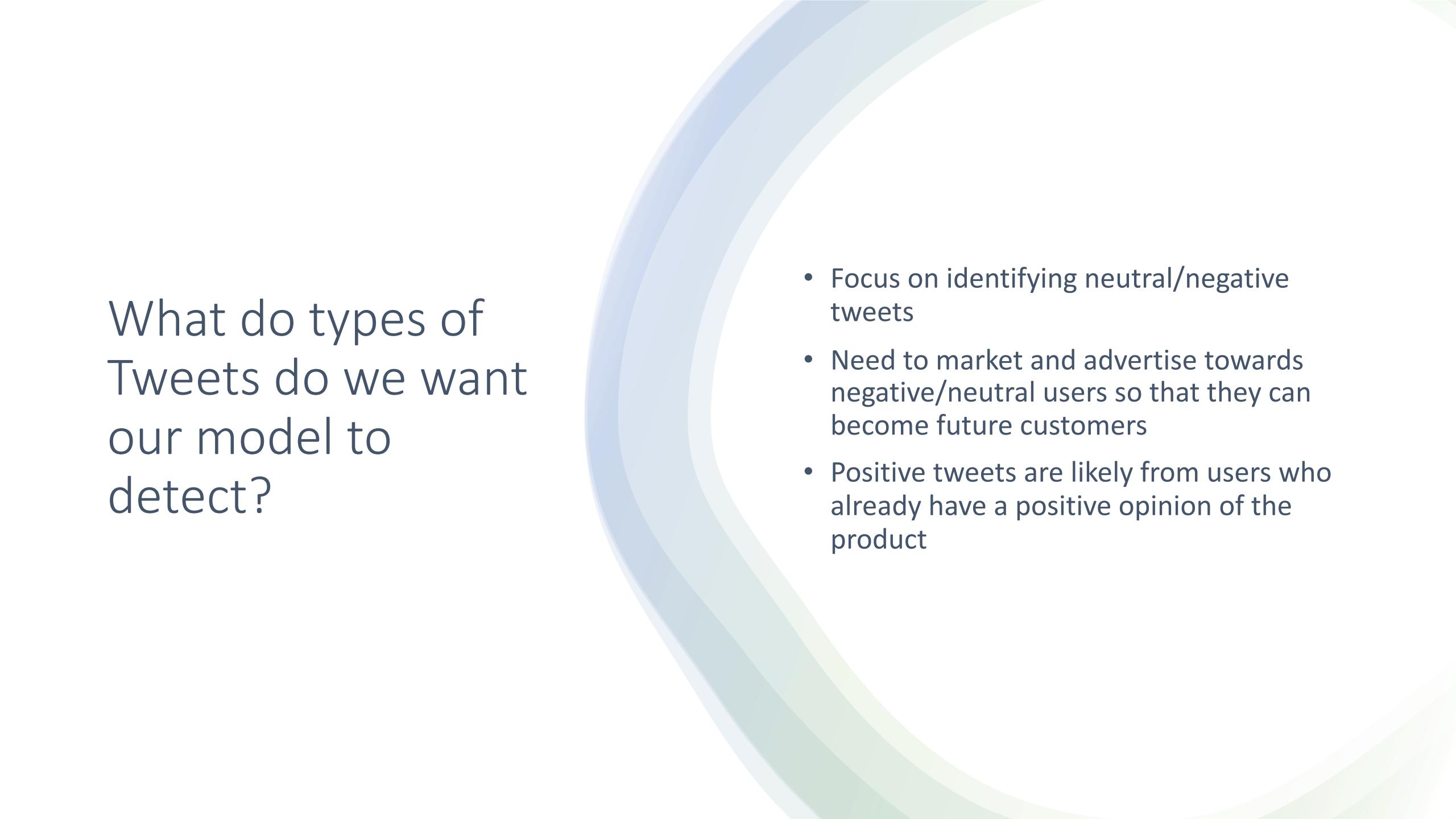
- Company Action: Doubled price of subscription to Xbox Live Gold (\$60 -> \$120)
- Public Reaction: Swift backlash via Twitter and mainstream gaming media outlets
- Result: Microsoft reversed their position on pricing



Robinhood

- Company Action: Halted trading of Gamestop and AMC Theater stock after stock price shot up exponentially
- Public Reaction: Calls for unfair business practices on Twitter
- Result: Surge in negative app reviews on Google Play resulting in a 1 star rating

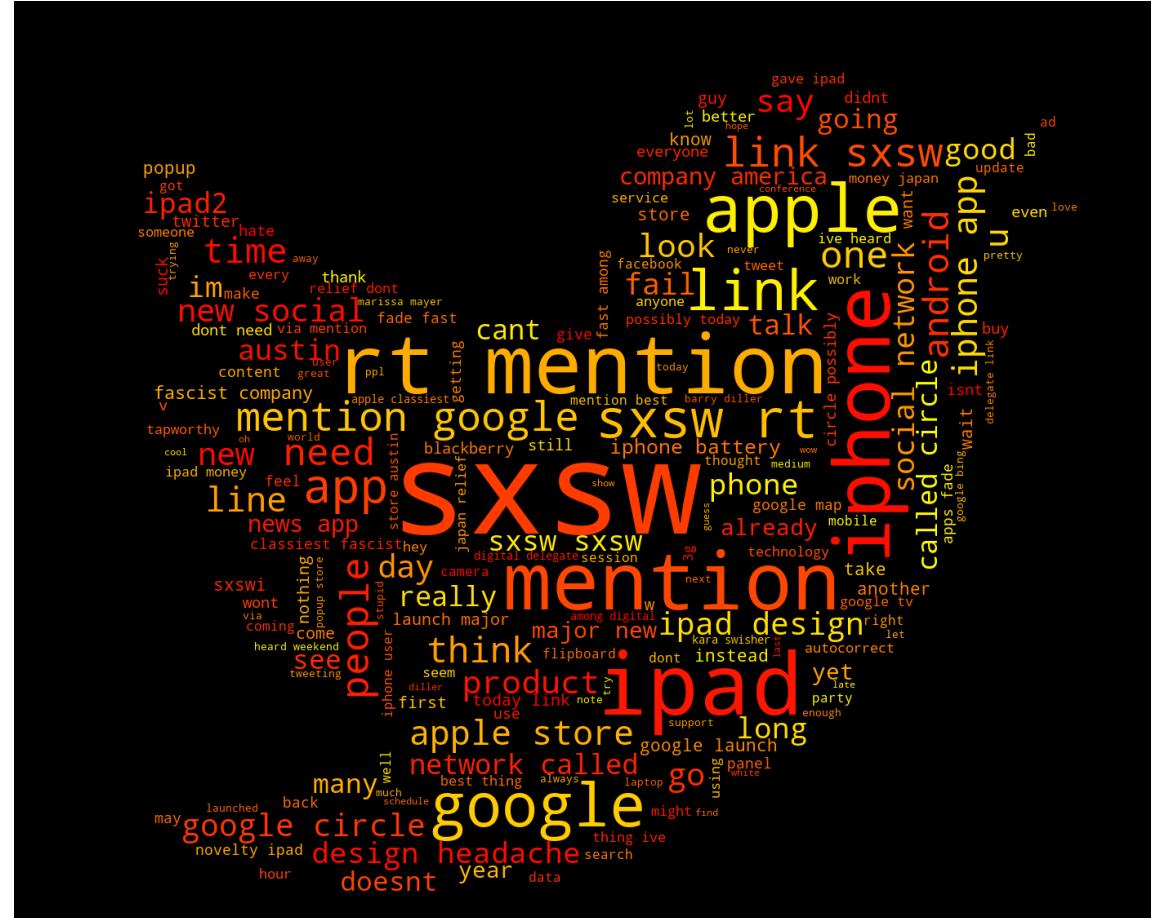




What do types of Tweets do we want our model to detect?

- Focus on identifying neutral/negative tweets
- Need to market and advertise towards negative/neutral users so that they can become future customers
- Positive tweets are likely from users who already have a positive opinion of the product

What do positive and negative tweets look like?





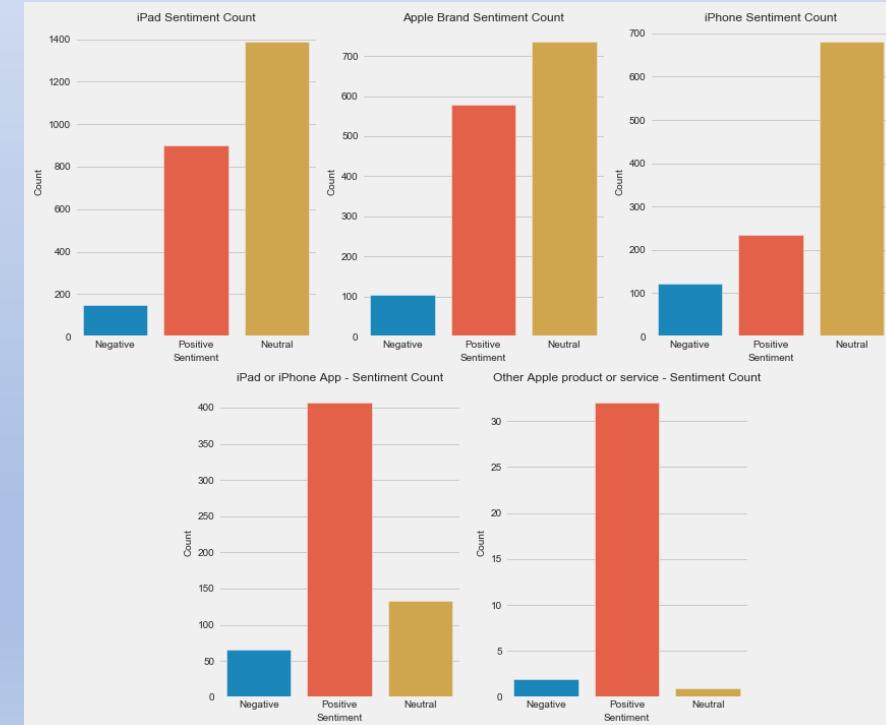
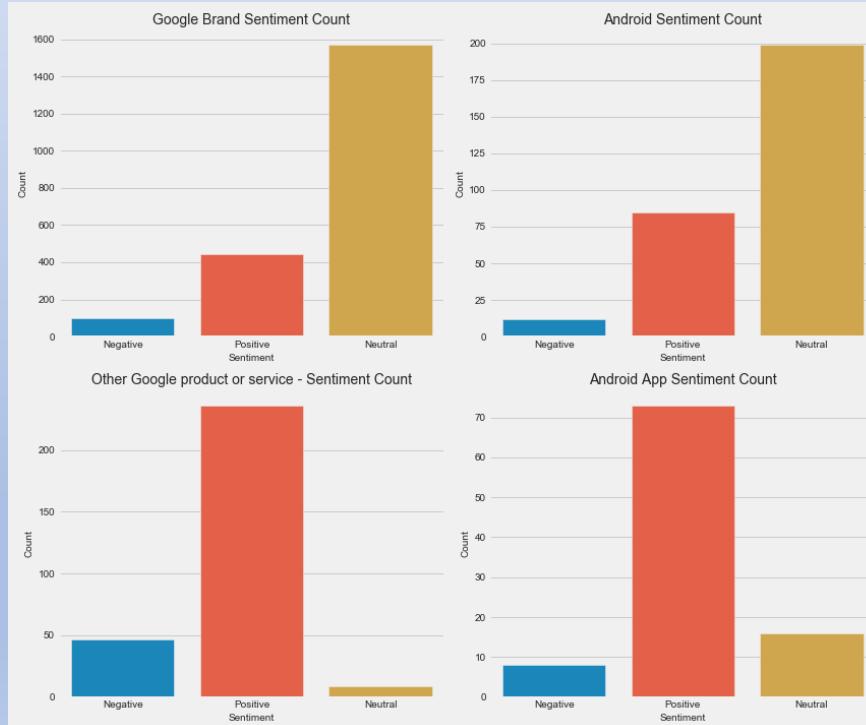
Neutral Tweets

Model Performance

- Overall 72% accurate in classifying sentiment
- Out of all negative/neutral tweets, we classified 90% of them correctly
- Of all tweets classified as positive, 70% were actually positive
- Better at classifying negative tweets than positive tweets
- Notable positive words: Cool, smart great, awesome, nice
- Notable negative words: headache, spending, enough, challenge, battery

Recommendations

- Release good usable software – apps make great hardware!
- Curate discussions on social media – create hashtags for users with positive words
- Make sure new products are a step forward
- Avoid development of new forms of social media



Future Work

01

Develop a program
that can automatically
grab tweets for
analysis

- Looking

02

Build a model to
evaluate
posts/comments on
other forms of social
media (i.e. YouTube
comments)

03

Incorporate trending
data to see how
opinions/brands of
products change over
time

04

Train and test models
that incorporate
engagement on social
media

- Replies, retweets, and likes
for Twitter

Thank You!