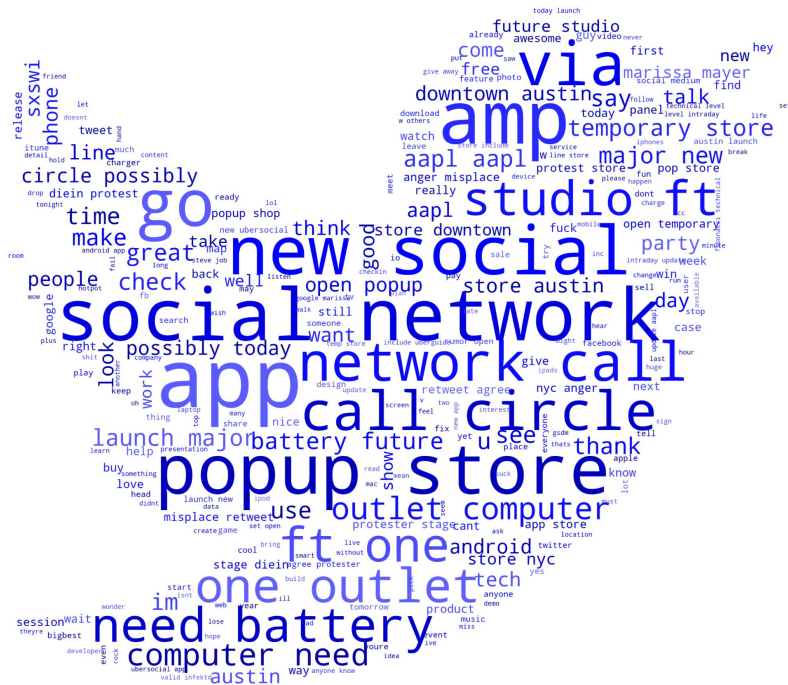# Preventing "Panic Selling"

Natural Language Processing Model for Twitter Reviews

By Andrew Levinton

Business Problem

- Analyze tweets from twitter to gain insight of sentiment.
- Determine which features of tweets best show to predict if tweets are positive, negative, or neutral.
- Optimize tracking positive and negative sentiment for companies.
- Minimize negative sentiment for companies to prevent decline in stock market value.

The Data

Two datasets from the website data.world's crowdflower:

- Brands and Product Emotions Judge Emotion About Brands and Products
- Apple Twitter Sentiment
- 12,896 tweets

	tweet	product	sentiment
0	.@wesley83 I have a 3G iPhone. After 3 hrs tweeting at #RISE_Austin, it was dead! I need to upgrade. Plugin stations at #SXSW.	Apple	negative
1	@jessedee Know about @fludapp ? Awesome iPad/iPhone app that you'll likely appreciate for its design. Also, they're giving free Ts at #SXSW	Apple	positive
2	@swonderlin Can not wait for #iPad 2 also. They should sale them down at #SXSW.	Apple	positive
3	@sxsw I hope this year's festival isn't as crashy as this year's iPhone app. #sxsw	Apple	negative
4	@sxtxstate great stuff on Fri #SXSW: Marissa Mayer (Google), Tim O'Reilly (tech books/conferences) & Matt Mullenweg (Wordpress)	Google	positive

Class Imbalance

Neutral - 7706

Positive - 3401

Negative - 1789

Sentiment Distribution
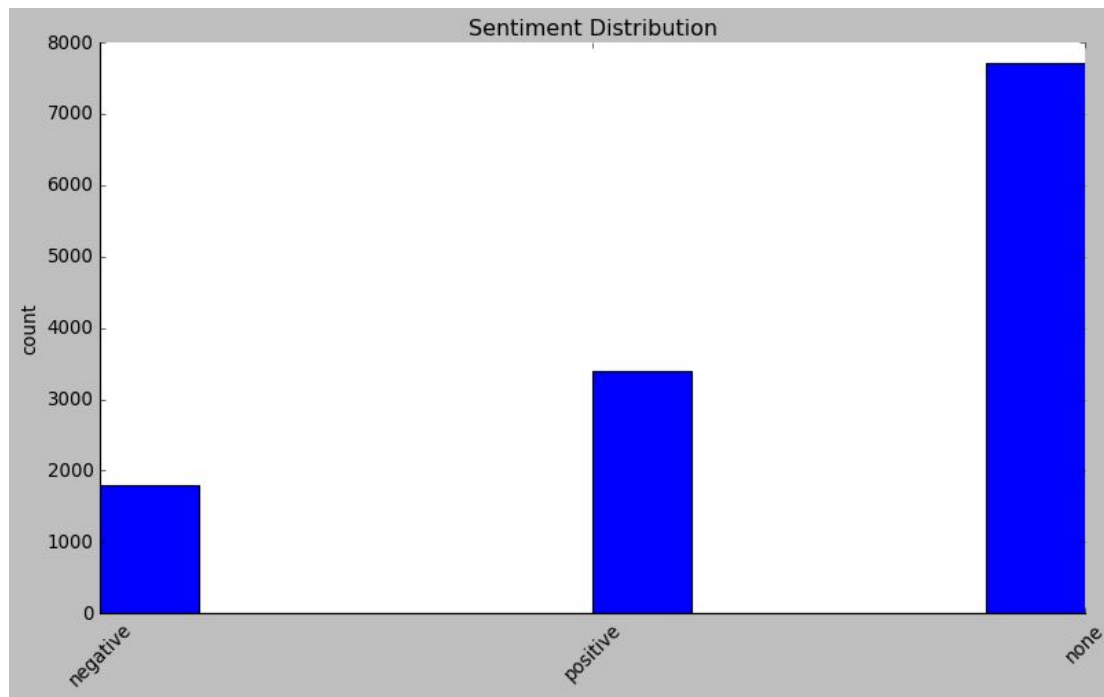
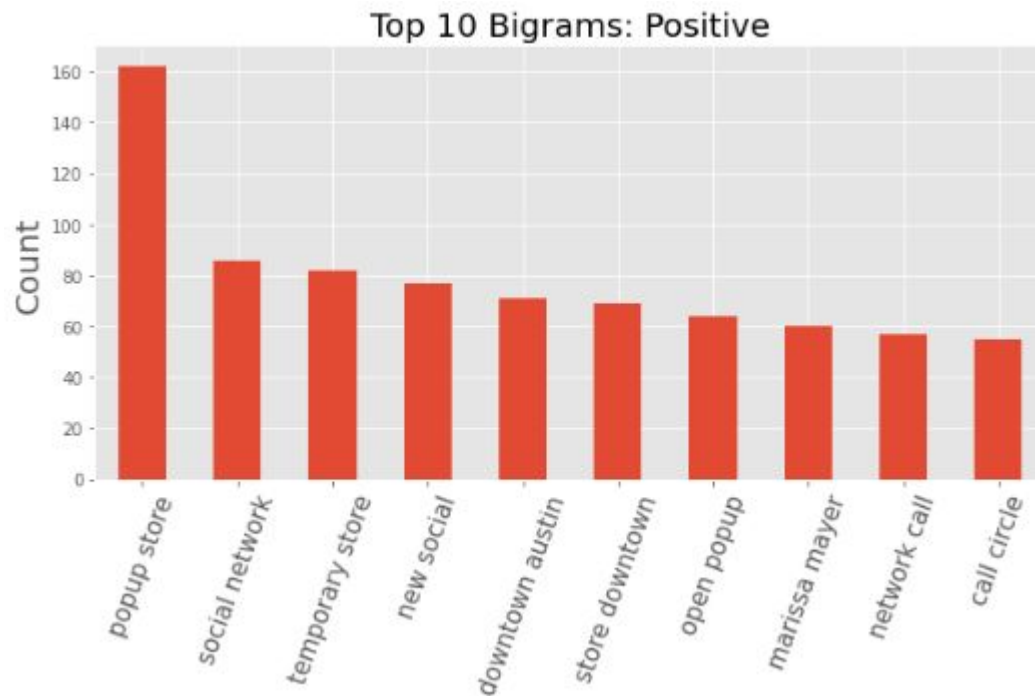# Data Preprocessing

Text Before Cleaning:

"RT @LaurieShook: I'm looking forward to the #SMCDallas pre #SXSW party Wed., and hoping I'll win an #iPad resulting from my shameless promotion. #ChevySMC"
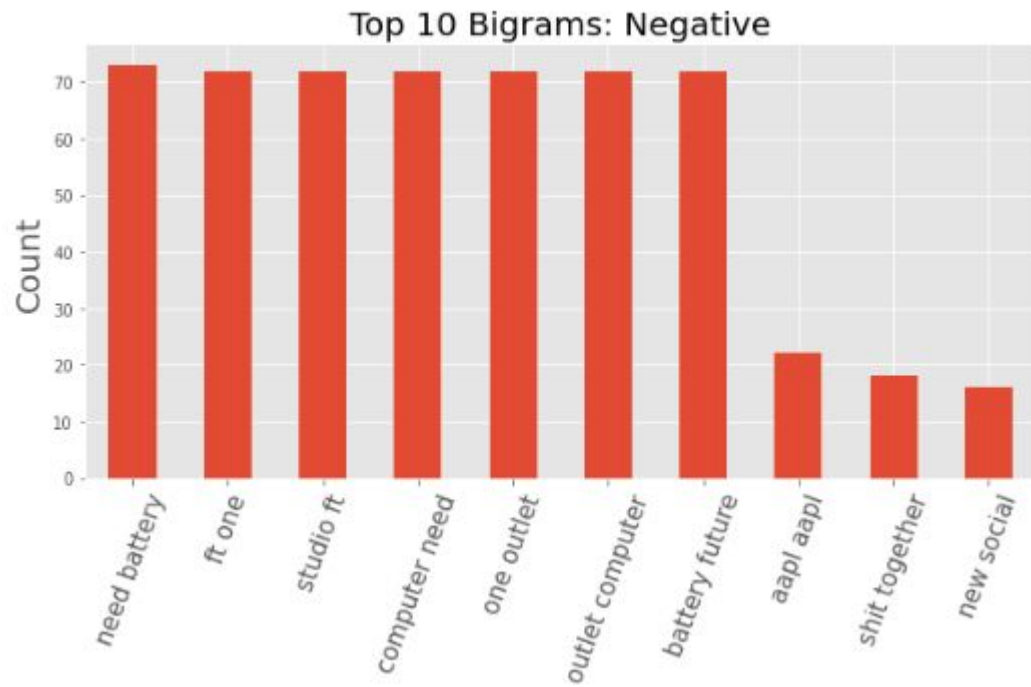
Text After Cleaning:

"im look forward smcdallas pre party wed hop ill win result shameless promotion chevysmc"

Negative　Positive　Neutral

Findings

Top 10 Bigrams: Positive

Findings

Top 10 Bigrams: Negative

Modeling Process

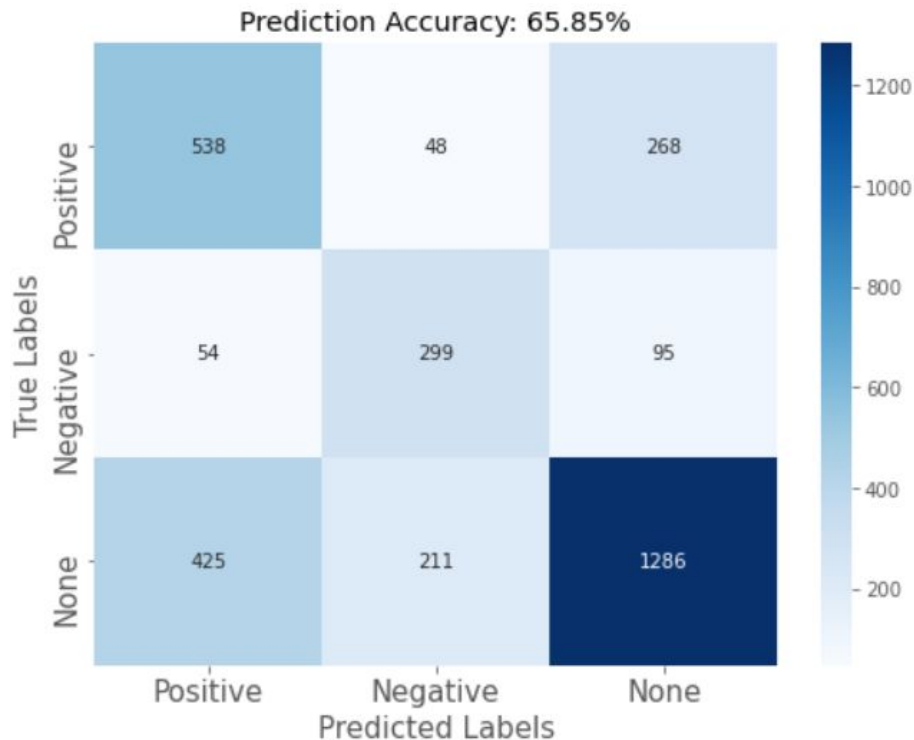EDA   Preprocessing   Modeling   Model Evaluation   Recommendations

Model Performance

The model correctly identified:

- 63% of the actual **positive** instances
- 67% of the actual **negative** instances
- 67% of the actual **neutral** instances

Prediction Accuracy: 65.85%

Recommendations

- Maintain innovation!
- Quickly address potential battery issues
- Manage public relations(store protest/anger)
- Improve customer service

Future Work

- Increase the data sample and find one that is more balanced
- Look at tweets by product

Thank you!

Email: alevinton151@gmail.com

Github: https://github.com/andrewkoji

LinkedIn: https://www.linkedin.com/in/andrew-levinton-23603b22a/