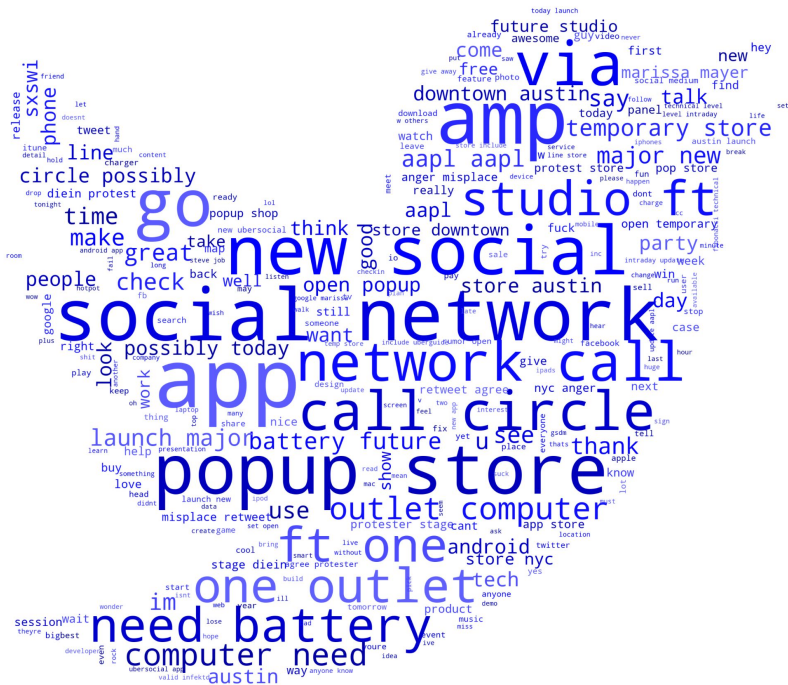


Preventing “Panic Selling”

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 crowdfunder:

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

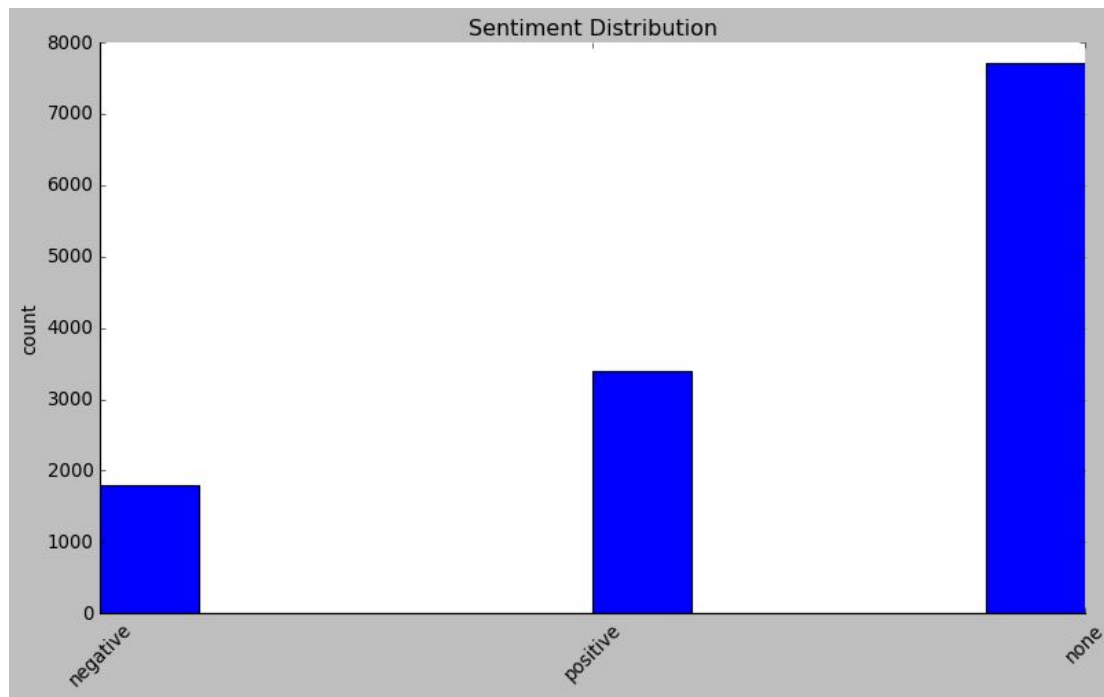
	tweet	product	sentiment
0	.@wesley83 I have a 3G iPhone. After 3 hrs tweeting at #RISE_Austin, it was dead! I need to upgrade. Plugin stations at #SXSW.	Apple	negative
1	@jessedee Know about @fludapp ? Awesome iPad/iPhone app that you'll likely appreciate for its design. Also, they're giving free Ts 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



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"

Model Performance

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:

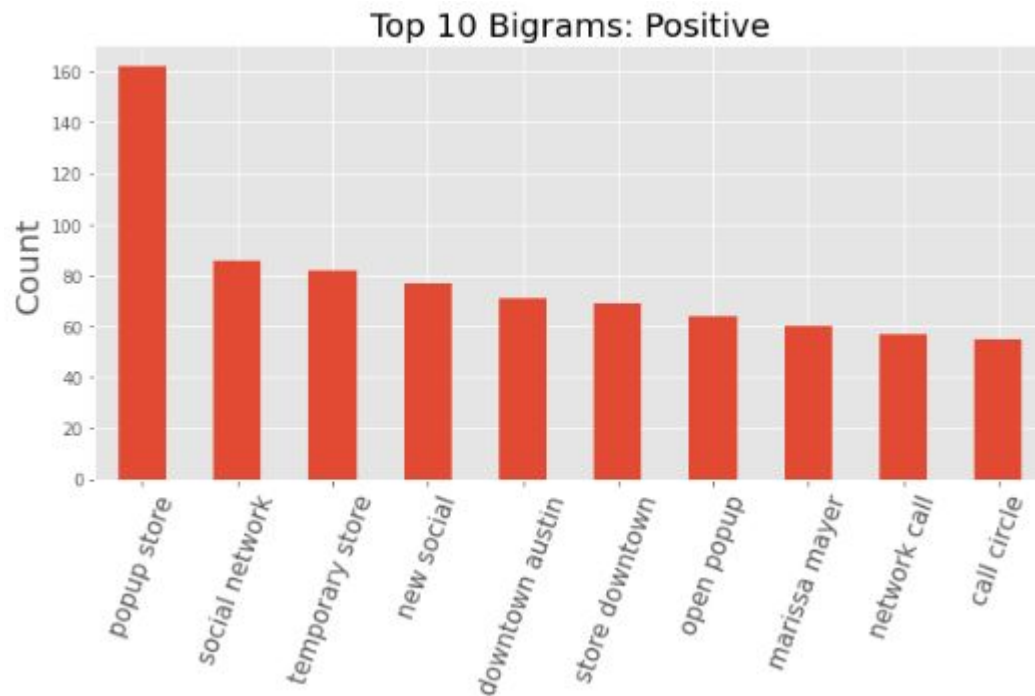
"im look forward smcdallas pre party wed hop ill win result shameless promotion chevysmc"

[illegible]

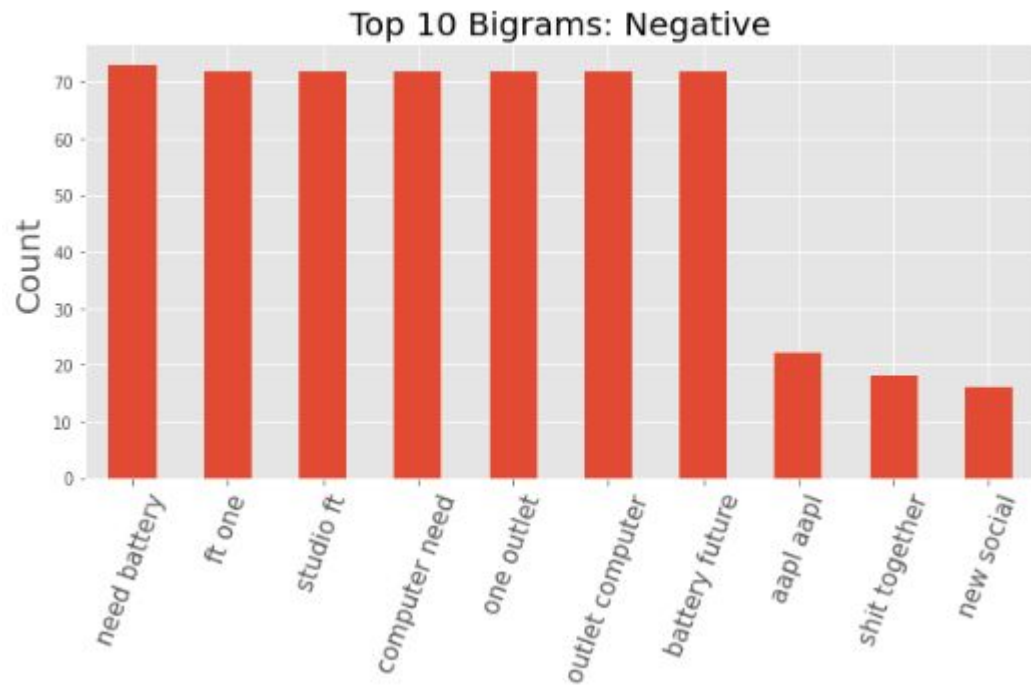
A word cloud visualization of tweets from @Twitter during the #BlackLivesMatter protests. The words are arranged in a circular pattern, with larger words indicating higher frequency. Key terms include:

- Central/Large Words:** social network, studio ft, one outlet, via computer need, network call app talk, pop up store, call circle, new social, circle possibly outlet computer, launch major, major new, store nyc, android, ft one, time.
- Other Visible Words:** misplace, want, today, launch, think, open temporary, retweet agree, check, look, case ready, tehsil2017, sevi, launch rap, time, nyc, major new, social medium, store nyc, android, ft one, time, go, austin, think, open temporary, retweet agree, check, look, case ready, tehsil2017, sevi, launch rap, time.

Findings



Findings



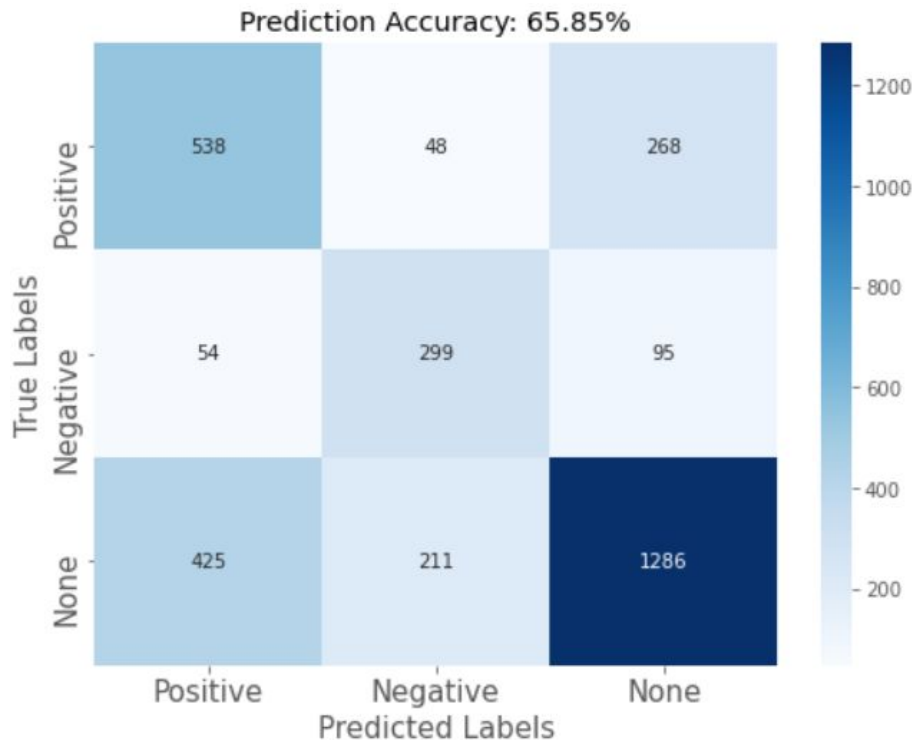
Modeling Process



Model Performance

The model correctly identified:

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



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!

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