

**Tell me how you  
really feel?**

**Tweet Customer Sentiment Algorithm: Mod 4 Project  
Alaska Lam**

# Problem Statement:

We are aiming to better understand what determines what emotional sentiments that a given tweet contains.

We are specifically interested in consumer tweets that are discussing tech products made by businesses.



# Business Value:

Effectively use PR resources

Capitalize on marketing demographics

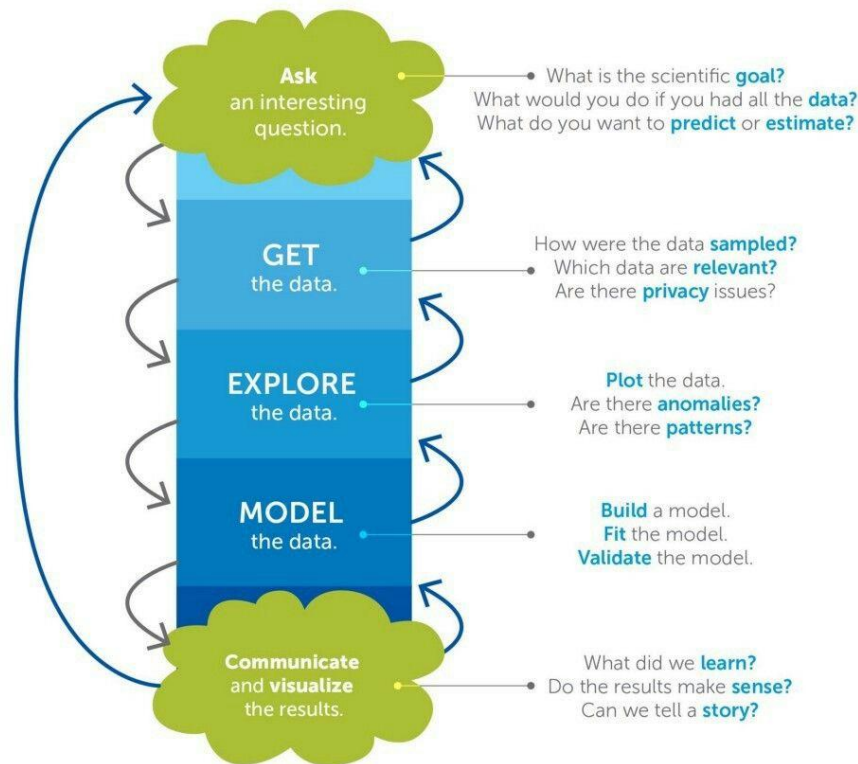


# Methodology:

Analyze past customer-sentiment tweet data aimed towards Apple and Google products

+ make recommendations for your new tech company, on how to most efficiently retain customers and market to new ones

## The Data Science Process



Derived from the work of Joe Blitzstein and Hanspeter Pfister, originally created for the Harvard data science course <http://cs109.org/>.

# Model Results V1 - Focus on Recall: Positive vs Negative Sentiment

Multinomial Naive Bayes  
Training Accuracy: 0.9584                      Testing Accuracy: 0.8185

[[830 158]  
[ 54 126]]  
0.8184931506849316  
830 158 54 126

Classification Matrix:

	precision	recall	f1-score	support
0	0.94	0.84	0.89	988
1	0.44	0.70	0.54	180
accuracy			0.82	1168
macro avg	0.69	0.77	0.71	1168
weighted avg	0.86	0.82	0.83	1168

Recall = Reduce  
False Negatives aka:  
  
We believe the  
tweet is  
positive-sentiment,  
but it actually is not

# Model Results V2 - Focus on Recall: Positive, Neutral or Negative Sentiment

Recall = Reduce

False Negatives aka:

We believe the

tweet is

positive-sentiment,

but it actually is not

Multinomial Naive Bayes

Training Accuracy: 0.8656

Testing Accuracy: 0.5967

[[489 76 170]

[ 33 81 24]

[446 150 760]]

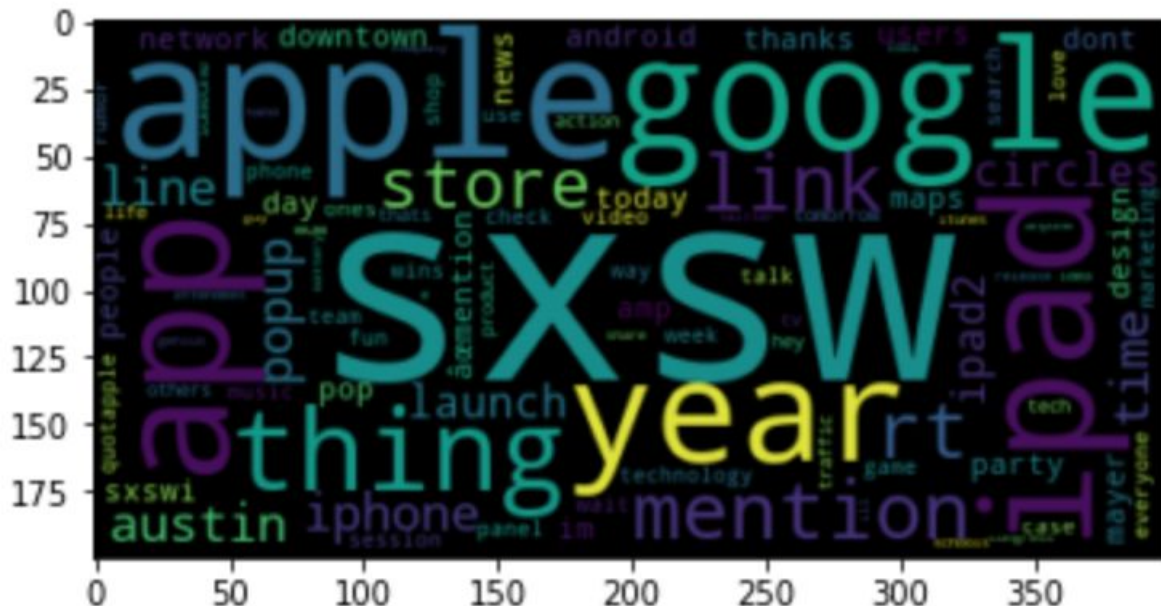
0.5966801256168686

Classification Matrix:

	precision	recall	f1-score	support
0	0.51	0.67	0.57	735
1	0.26	0.59	0.36	138
2	0.80	0.56	0.66	1356
accuracy			0.60	2229
macro avg	0.52	0.60	0.53	2229
weighted avg	0.67	0.60	0.61	2229

# Recommendation 1:

Promoting launch events seems to drive a significant proportion of product-related tweets

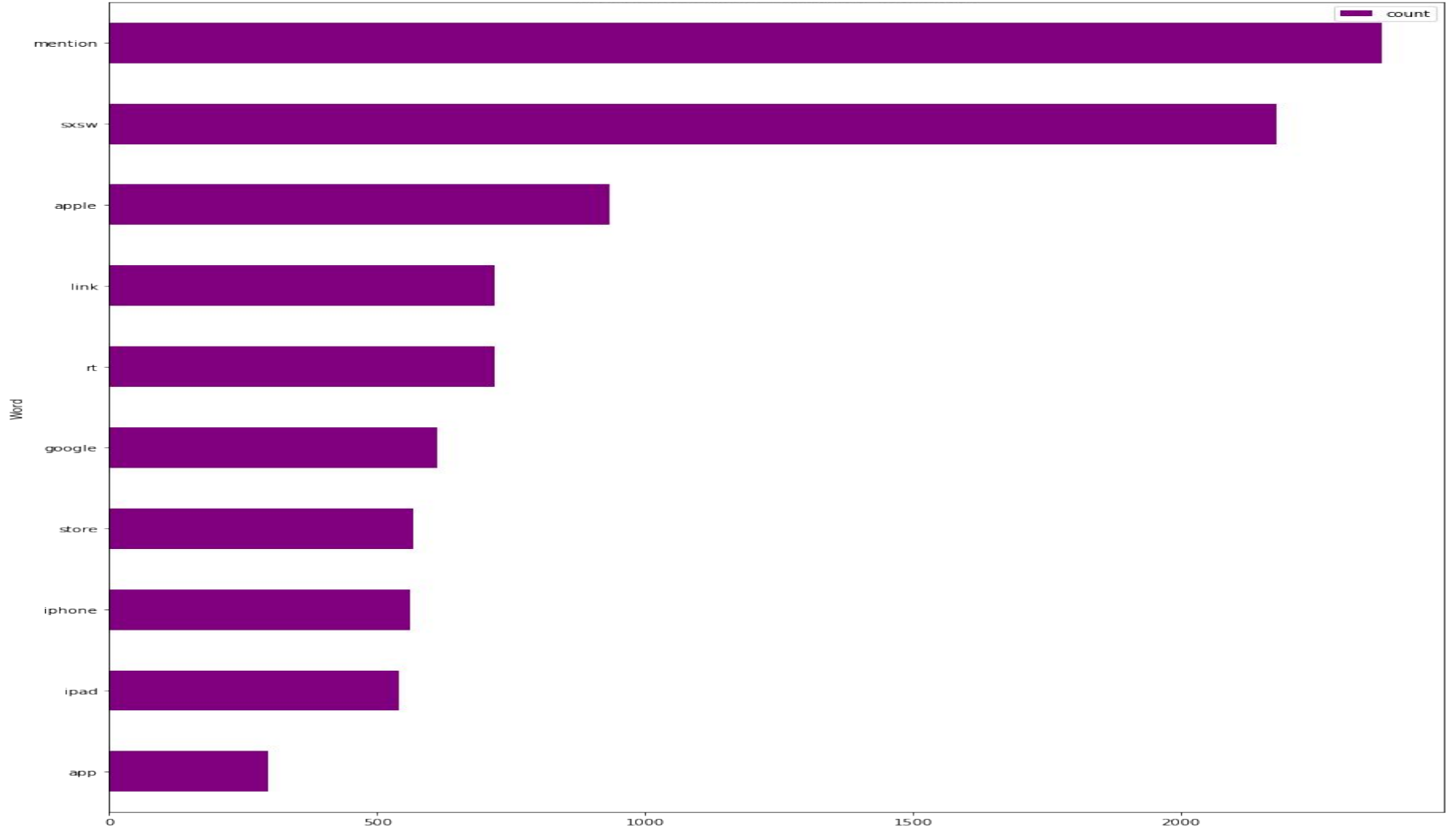


## Recommendation 2:

Using social media giveaways to encourage re-tweets or links to your product, also seems to drive a significant amount of product-related tweets



Common Words found in tweets re brands



## Recommendation 3:

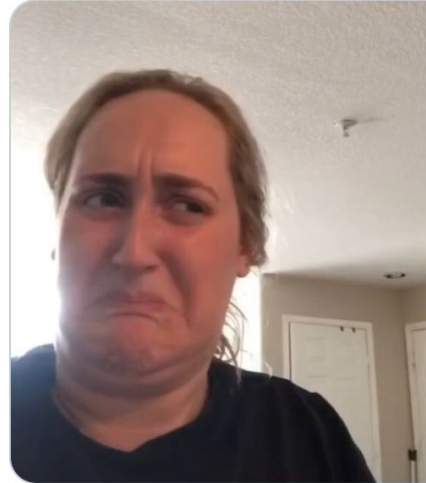
Focus PR resources on analyzing negative-sentiment tweets and deciding which types of negative tweets are worth addressing



@neogalaxite · Sep 10, 2019



seeing that ugly ass camera design but then seeing it in purple and green  
[#iphone11](#)



14

495

2.4K



# Future Considerations

Use additional resources to fine-tune the current models

Calculate a new model based on a list of specific, important words that have strong sentiment one way or another [ie tweets with “great”, “awful”, or “terrible” in them]

Obtain more tweet-data from other tech companies, particularly small startups and PR companies



**Thank You!**