



Public Perception Assessment

Applying Natural Language Processing to SXSW 2011
tweets to assess Google's popularity

Summary

- Google
 - Seeks to understand its public perception.
- FurPig Industries
 - Data Science firm of Greg Osborne, hired by Google.
- Business Problem
 - People like Apple more than Google.
- To Improve Google's Popularity
 - Utilize provided model & word association tool
 - Create quality Google Brand Products
 - Monetize Google Maps
 - Try Social Media (Again)
 - Build on Google's Strengths
 - Bring Apps to Android Faster
- More recommendations are possible.
- Thank you



Outline

- Overview
- Business Problem
- Natural Language Processing
- Classification Predictions
- Model Results
- Recommendations
- Next Steps
- Thank you



Overview

- Google wants a better public perception than Apple
- They need a tool to track progress
- FurPig Industries, Data Science Consulting
- Provide a model to track public perception
- Provide tool to make word associations
- Provide Recommendations for future direction

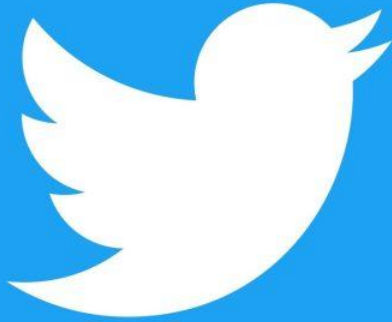


Business Problem

- Some people like Apple more than Google
- Google wants to improve their public perception
- Google needs a tool to track changes
- Google needs to learn what the public associates with their brand
- Google needs evidence based recommendations



Where do we find public perception?



- Millions of customers talk about Google and Apple.
- So let's read them!

Natural Language Processing



- Natural Language Processing (NLP) can read for us.
- We can give an NLP model thousands of tweets to read.
- The algorithm can identify the company, product and emotion of the tweets.
- The algorithm can show what words customers associate with Google.

Twelve Categories

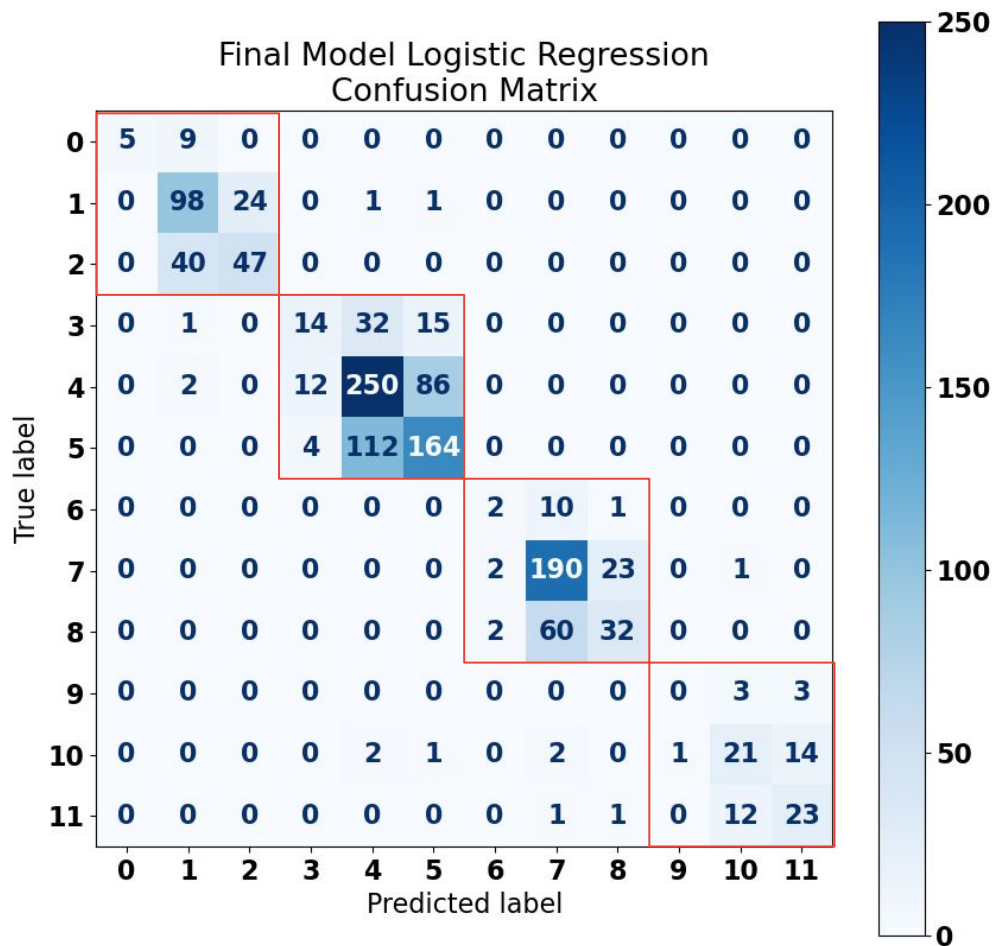
3	x	2	x	2	= 12
Emotion	Company	Brand/Products			
Negative	Apple	Brand			
Neutral	Google	Products			
Positive					

- The model divides the tweets into one of twelve categories.
- The category count of the tweets analyzed is listed in this chart.

#	Target Text	Count
0	Negative - Apple Brand	60
1	Neutral - Apple Brand	548
2	Positive - Apple Brand	361
3	Negative - Apple Products	292
4	Neutral - Apple Products	1733
5	Positive - Apple Products	1400
6	Negative - Google Brand	98
7	Neutral - Google Brand	1207
8	Positive - Google Brand	457
9	Negative - Google Products	24
10	Neutral - Google Products	235
11	Positive - Google Products	205

Model Results

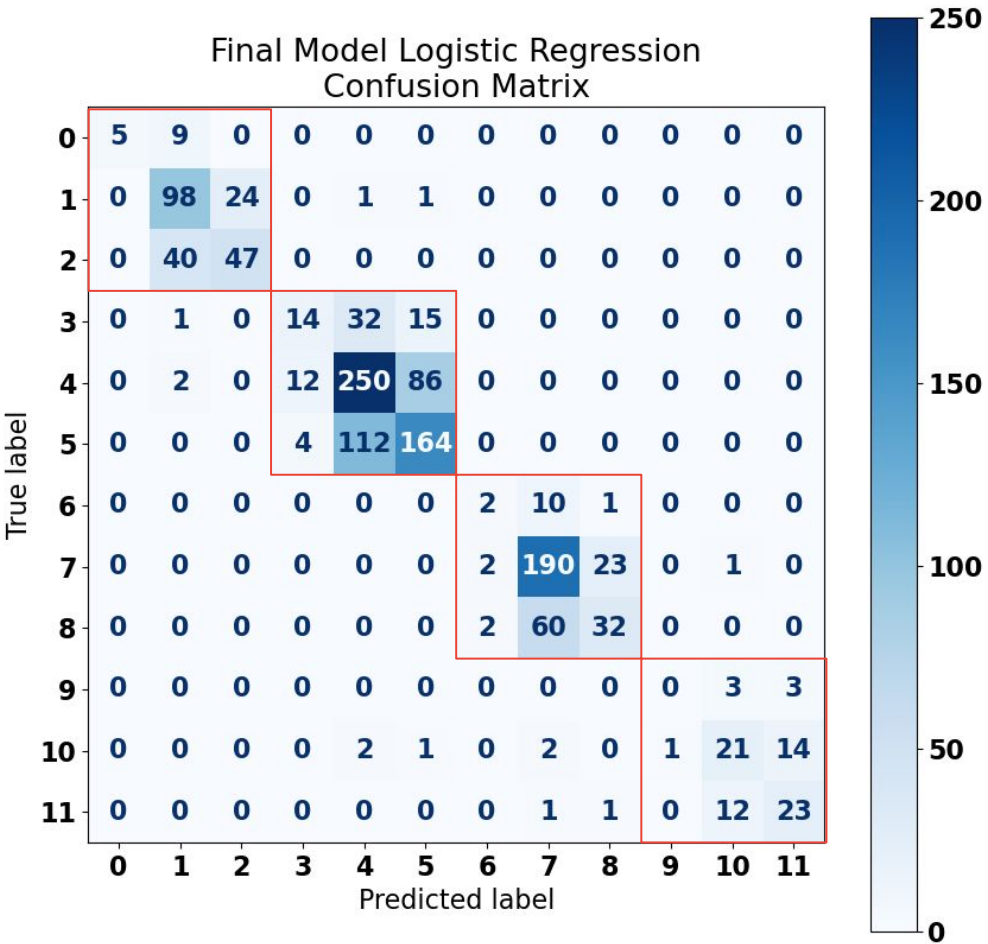
- Created sixteen models
- Prioritized Correctly Identifying True Positives
- Achieved over 64% Accuracy
- Boxed values represent same company and brand / product



Model Results

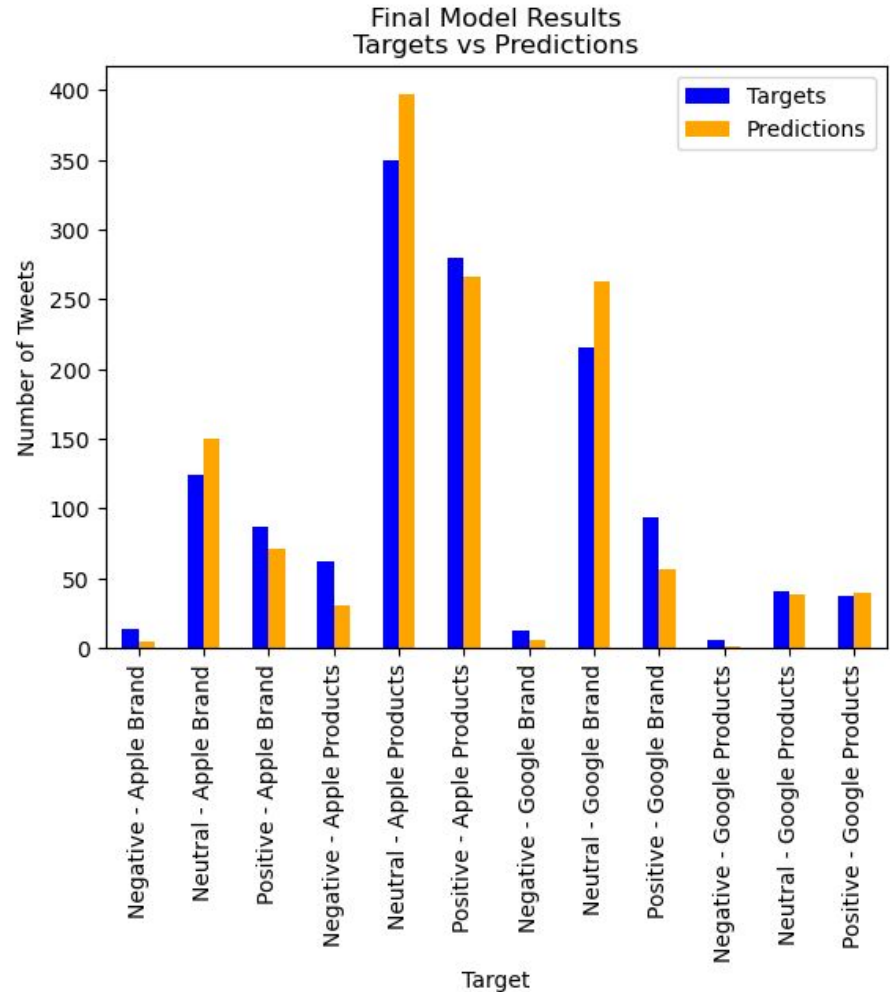
- Cre
- Pric
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- Acc
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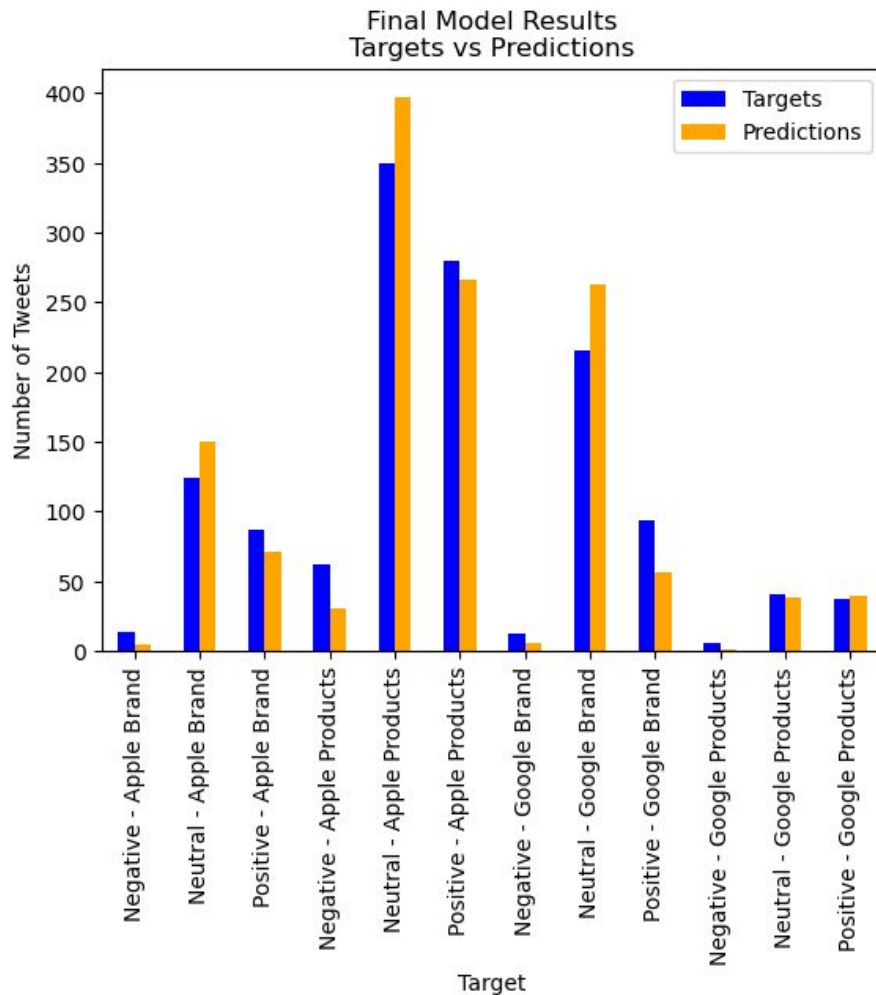
True Vs. Predicted

- Even with 64% Accuracy, the counts of each category are close.
- Negative tweets had the widest margin of error.



Does the Public Prefer Apple?

- Yes, at SXSW 2011 Apple has a more positive perception than Google.
- The public loves Apple tech products. The iPad 2 just launched that month.
- The public loves the SXSW “Pop-Up” store.



Word Associations

- Here are the words associated with the word **“Google”** and the number of tweets they appear in with the word.

Word		Positive Tweets that include "Google"
0	maps	93
1	cool	26
2	fast	11
3	navi	7
4	video	5
5	evolv	4
6	expect	4

Word Associations

- Here are the words associated with the word **“Android”** and the number of tweets they appear in with the word.

Word		Positive Tweets that include "Android"
0	thank	12
1	choic	11
2	android_app	10
3	congrat	5
4	awesom	3
5	job	3
6	huzzah	1

Word Associations

- Here are the words associated with the word **“Apple”** and the number of tweets they appear in with the word.

	Word	Positive Tweets that include "Apple"
0	sxsw	600
1	genius	16
2	brilliant	14
3	retail	11
4	demand	3
5	model	3
6	scene	2
7	debut	1
8	excus	1

Word Associations

- Here are the words associated with the word **“iPad”** and the number of tweets they appear in with the word.

Word		Positive Tweets that include "Ipad"
0	envi	11
1	mom	7
2	futur	6
3	media	3

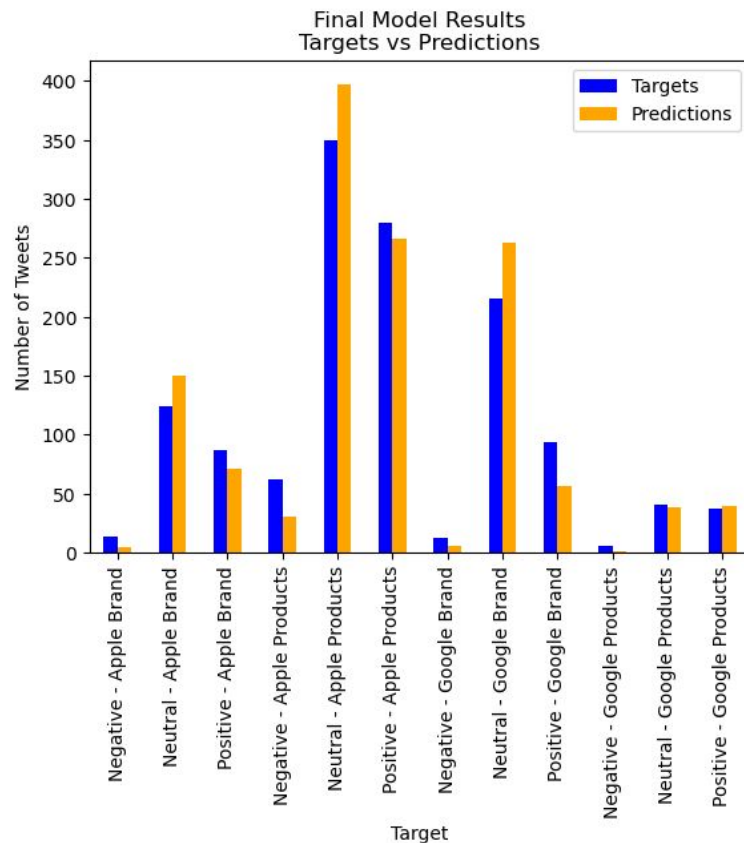
Recommendation 1: Use the Tools Of this Project

- Grab a set of tweets every year for SXSW and analyze them.
- See how Google improves
- See new word associations



Recommendation 2: Google Branded Tech Products

- People talked about Apple more because they had Apple products to buy
- Make Google Tech Products



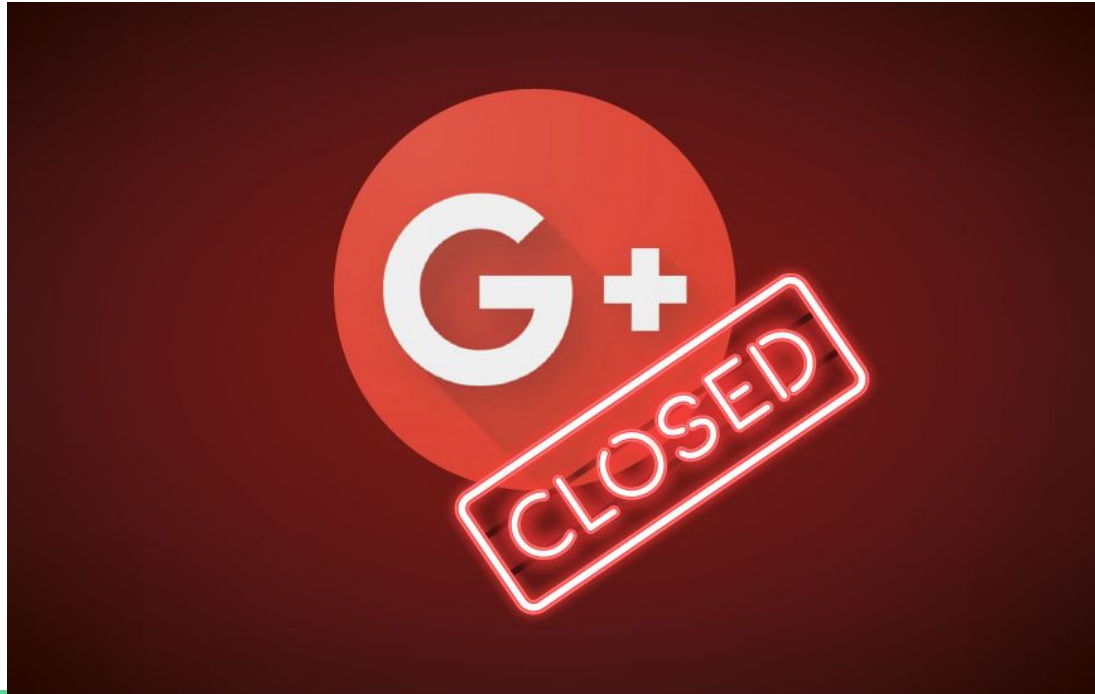
Recommendation 3: Monetize Google Maps

- It was the most popular Google product of SXSW 2011



Recommendation 4: Try Social Media (Again)

- People were very excited for Google Circles in 2011
- The market is ripe for upset



Recommendation 5: Build on Google's Strengths

- People associate Google with “Cool” and “Fast.”

Word Cloud For Included Hashtags In
Positive - Google (Products & Brand) Tweets
That Include The Word "Google"



Recommendation 6: Bring Apps to Android Faster

- People complained that Apps weren't coming to Google Fast Enough.



Next Steps: More Research

- More negative tweets?
- Expand to other tech conferences?
- Accessible Word Association Tool



Thank You!

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