



# Public Perception Assessment

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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.
- Natural Language Processing
  - Categorization.
- Classification Model
  - True Vs. Predicted.
- Word Associations
  - One word for each Company/Brand or Product Combination.
- More recommendations are possible.
- Thank you



# 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



# Natural Language Processing



- Natural Language Processing (NLP) can read for us.
- An NLP model can read thousands of tweets to measure public perception.
- 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					

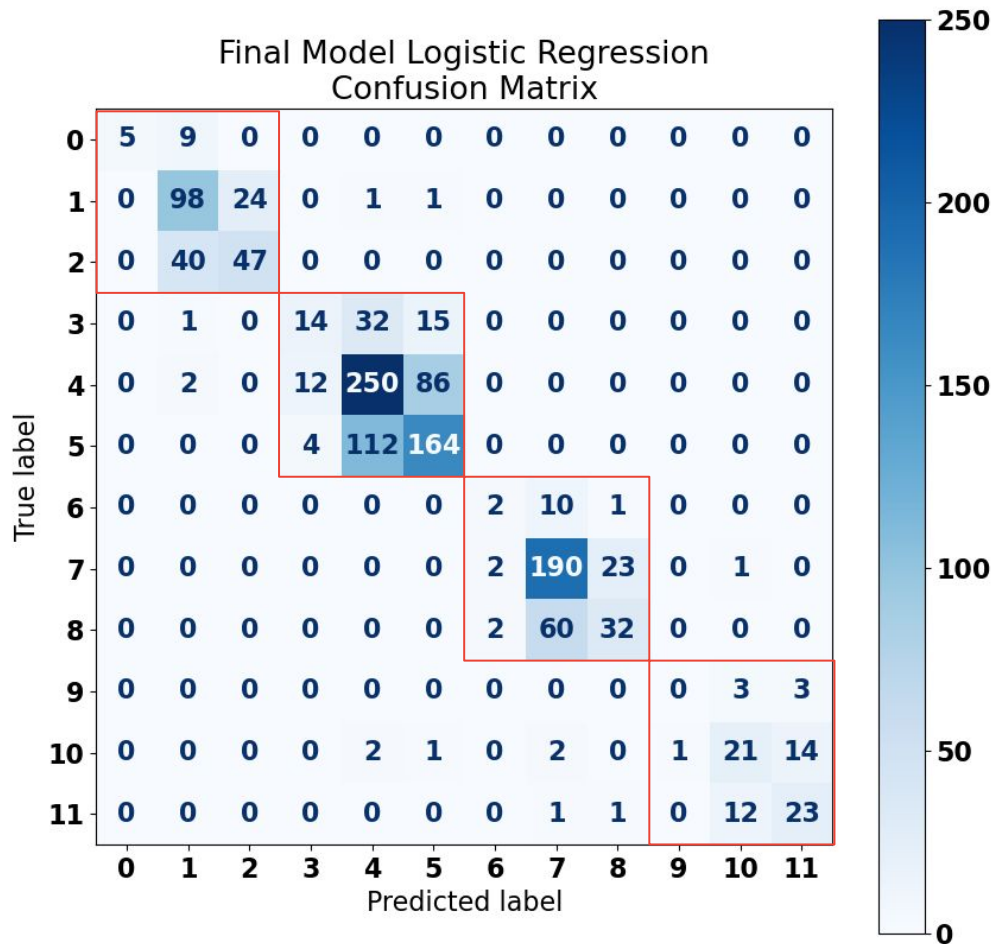
- The model divides the tweets into one of twelve categories.
- The category count of the tweets analyzed is listed in this chart.

#	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

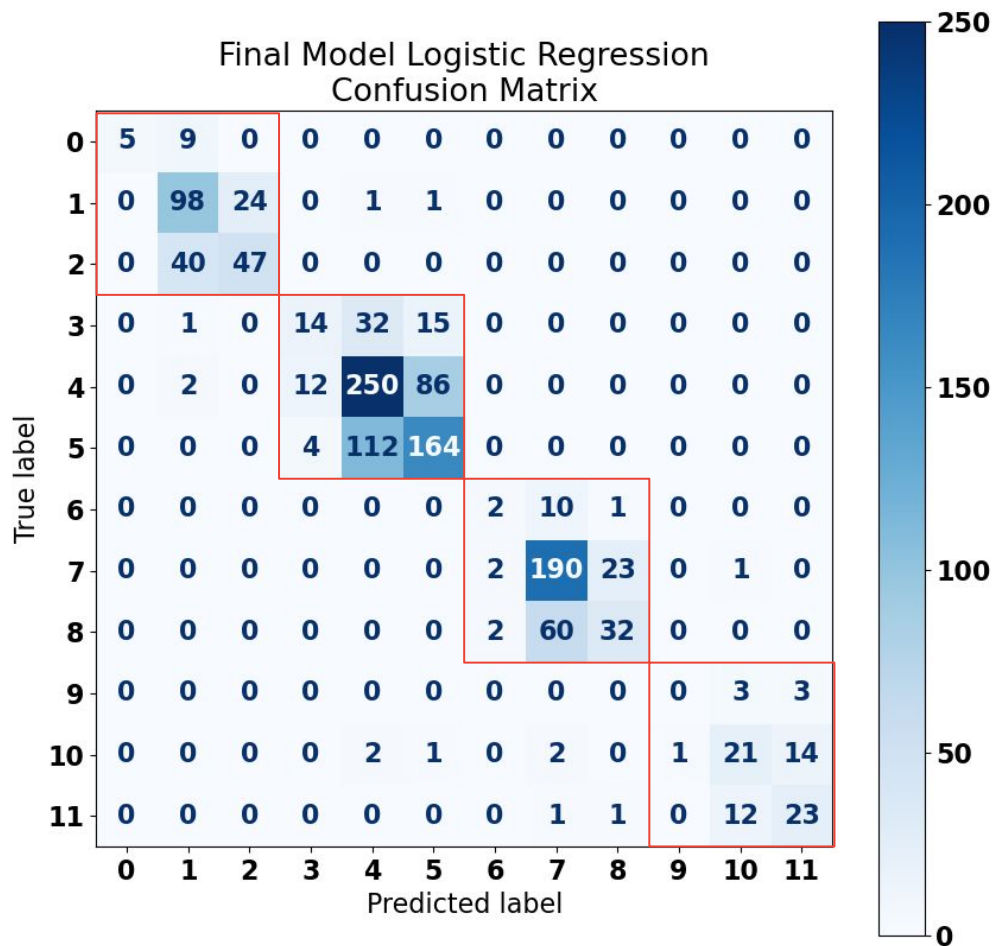
- Created sixteen models
- Prioritized Correctly  
Identifying True Positives
- Achieved over 64%  
Accuracy
- Boxed values represent  
same company and brand /  
product
- **Recommendation 1:**  
Use this model annually to  
analyze SXSW tweets.



# Model Results

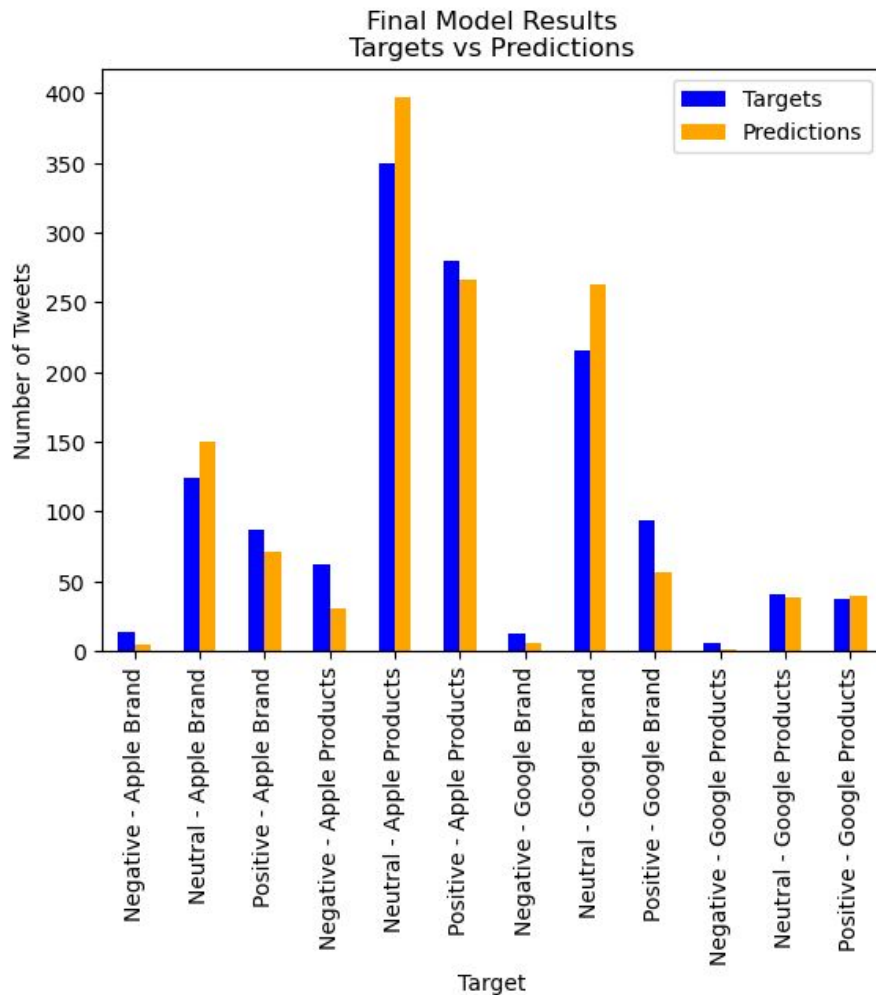
- Create
- Price
- Identifier
- Achievement
- Accuracy
- Box
- Sample
- Pro
- Recommendation
- Use
- Analysis

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# True Vs. Predicted

- Negative tweets had the widest margin of error.
- At SXSW 2011, Apple beat Google in positive perception.
- The public loves Apple tech products, and the Pop-Up Store. iPad 2 launched during SXSW.
- **Recommendation 2:**  
Acquire more Negative Tweet examples to analyze.
- **Recommendation 3:**  
Make Google branded products.





# Word Associations

- Here are the words associated with the word “**Google**” and the number of tweets they appear in with the word.
- Recommendation 4:**  
Try to launch a Social Media platform again.
- Recommendation 5:**  
Monetize Google Maps.
- Recommendation 6:**  
Build on Google’s Strengths.

Word		Positive Tweets that include "Google"
0	circles	96
1	maps	93
2	cool	26
3	fast	11
4	navi	7
5	video	5
6	evolv	4
7	expect	4

# Word Associations

- Here are the words associated with the word **“Android”** and the number of tweets they appear in with the word.
- This includes positive and negative emotion tweets.
- Recommendation 7:** Bring apps to Android faster.

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		Negative Tweets that include "Android"
0	app	5
1	phon	3
2	opt	2

# 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.
- Recommendation 8:**  
Refine this tool to empower Google’s employees to research terms relevant to their departments.

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

# Next Steps: More Research

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



# Thank You!

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