Sentiment Model Testing for Automated Social Platform

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Agenda

- Introduction
- Data
- Modeling
- Next Steps

Introduction

- Social presence is only becoming more important in the marketing space

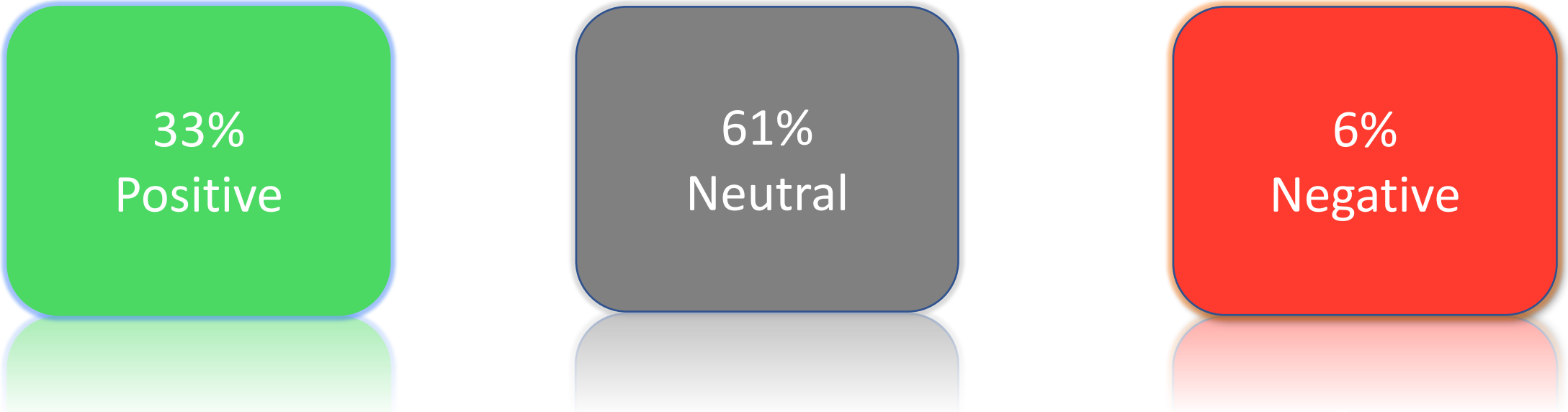
- Long-term vision to build an automated social platform to help clients with social media presence and positive PR for brand

Built a base model to predict whether a tweet has a positive sentiment. The output from this model should trigger automations of how we want to utilize the tweet (retweet from social accounts, respond to users, etc)

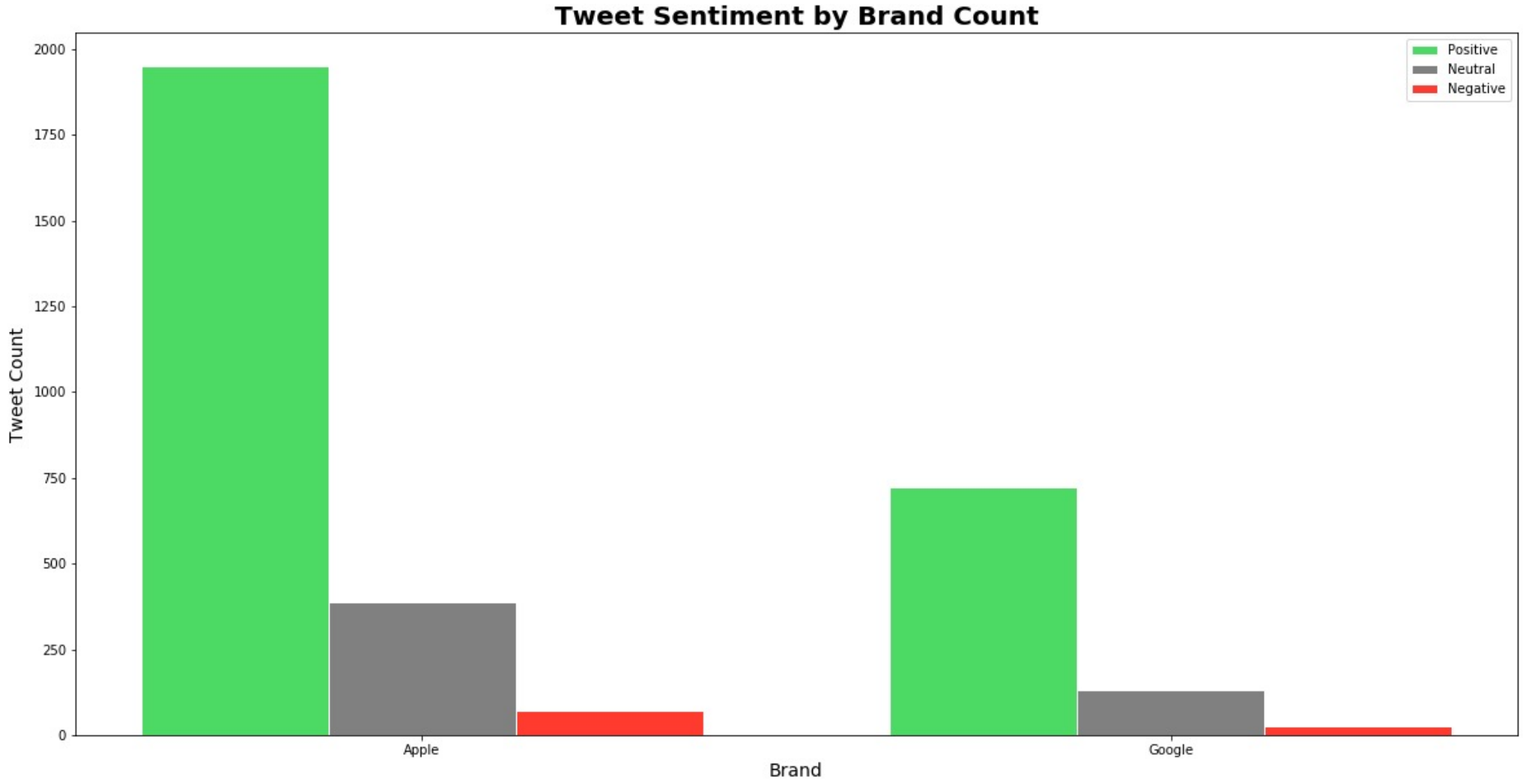
* Source

The Data

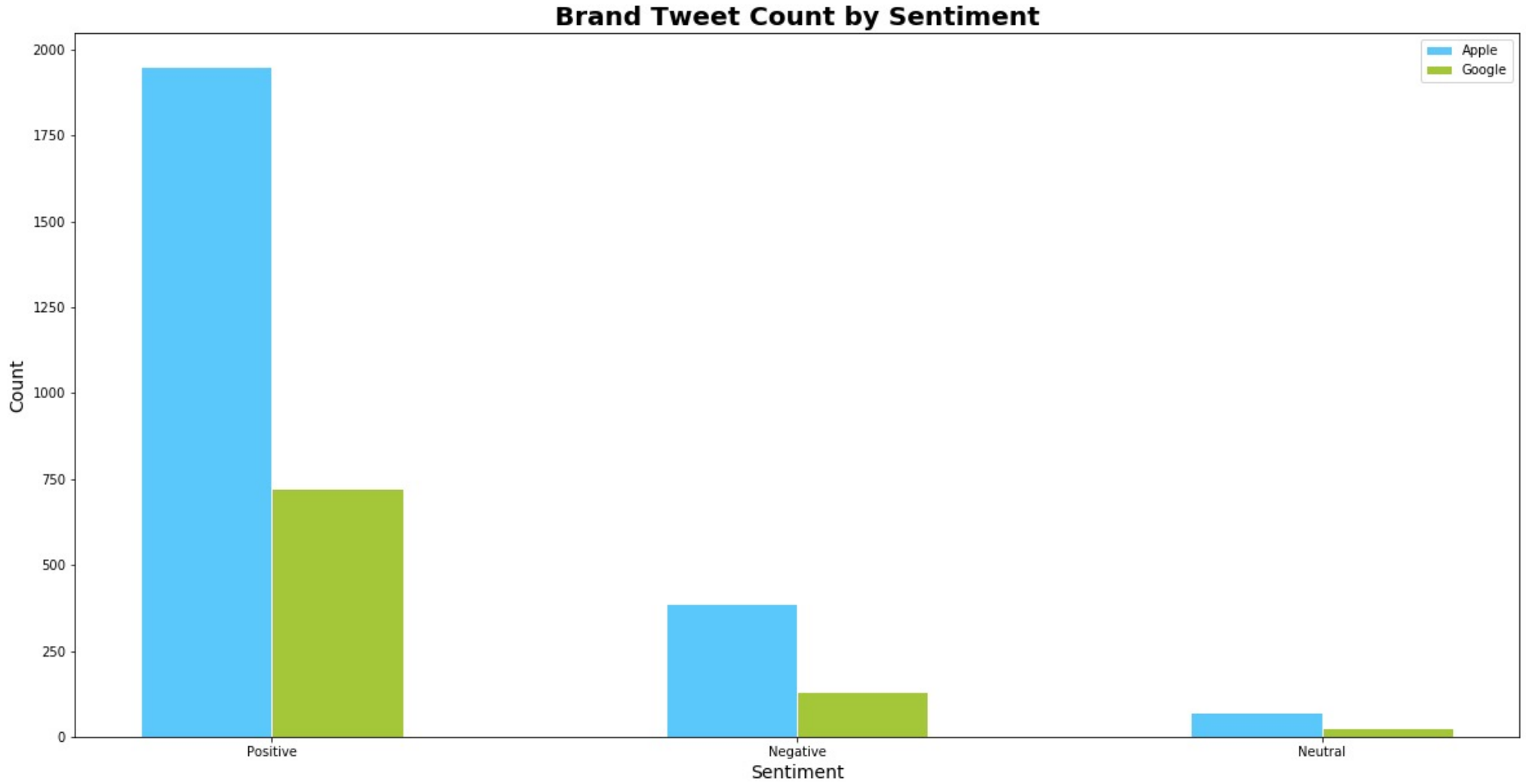
- ~ 9,100 tweets from this year's SXSW including tweet text and the brand and/or product the tweet sentiment is directed at
- Contract workers labelled each tweet with sentiment



Both brands have more positive tweets than neutral or negative tweets



Apple has more overall tweets across sentiments than Google



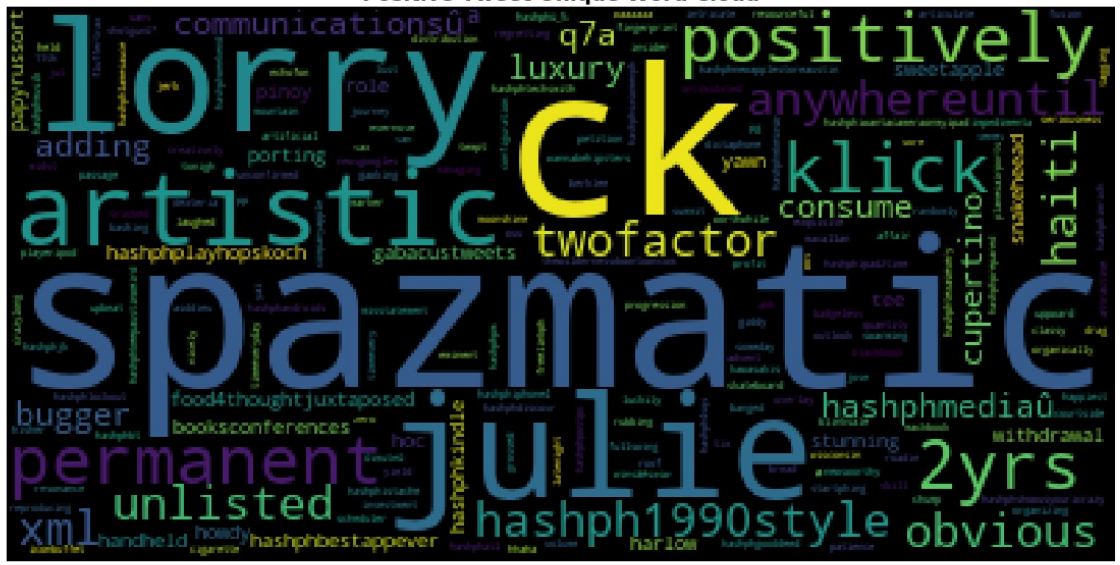
Modeling: Tweet Data Processing

- Parse out words with value from tweet, removing words like articles or twitter operational language (mentions, hashtags, etc)
- Condense word variation where possible (run, runs, running = run)
- Translate those words into numerical values and reformat using word vectorizers

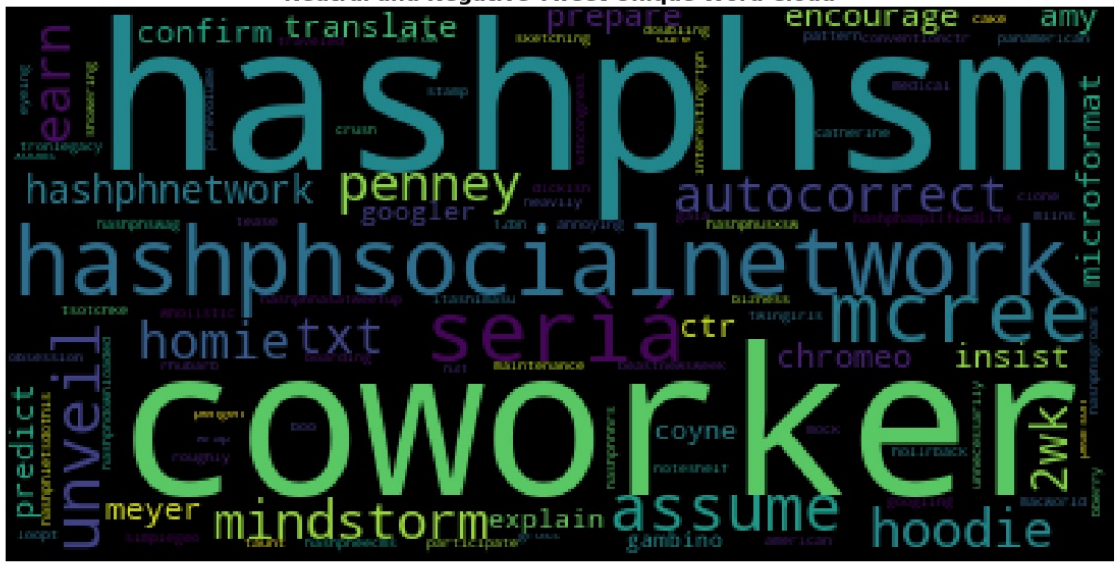
All of the above helps create a vocabulary that the model can “read” and identify patterns in to associate with the sentiment

WordClouds show unique word representation in each sentiment

Positive Tweet Unique Word Cloud



Neutral and Negative Tweet Unique Word Cloud



Modeling: Measuring model success

- Model is built to focus on a metric called **precision** that answers the question:

What proportion of tweets with a positive sentiment did the model classify correctly?

- A precision focus means that the model will **avoid False Positives**.

In context of the platform, this means avoiding amplification of a negative or neutral tweet mistakenly identified as positive.

Modeling: Iterations and results

5 approaches of data processing that impacted model success

4 algorithms tested

20 versions of the algorithms tested

The winning model produced:

91% precision score

Note: goal for precision scores is higher than 50%; the closer to 100%, the better the score

Recommendations

Business

- Define clear vision for internal platform development to guide targeted model development beyond this test run
- Consider investment in R&D around additional uses of data

Data

- Scrape and label more SXSW data to continue model training
- Scale model further for other tentpole events and refine
- Invest in sentiment labelling service for additional data

Next Steps

Business

- Finalize vision and reapproach Data Scientists with goal platform functionality
- Revisit budgeting for R&D

Data

- Utilize Twitter API to scrape additional SXSW tweets and test the current model further
- If additional R&D investment, focus on finding high precision in a more interpretable model type for strategic planning purposes

Thank you!