


Detecting Twitter Bots

Wendy Wang
10/10/2021

A dark blue diagonal gradient bar that starts from the bottom left and extends towards the top right, covering the lower half of the slide.

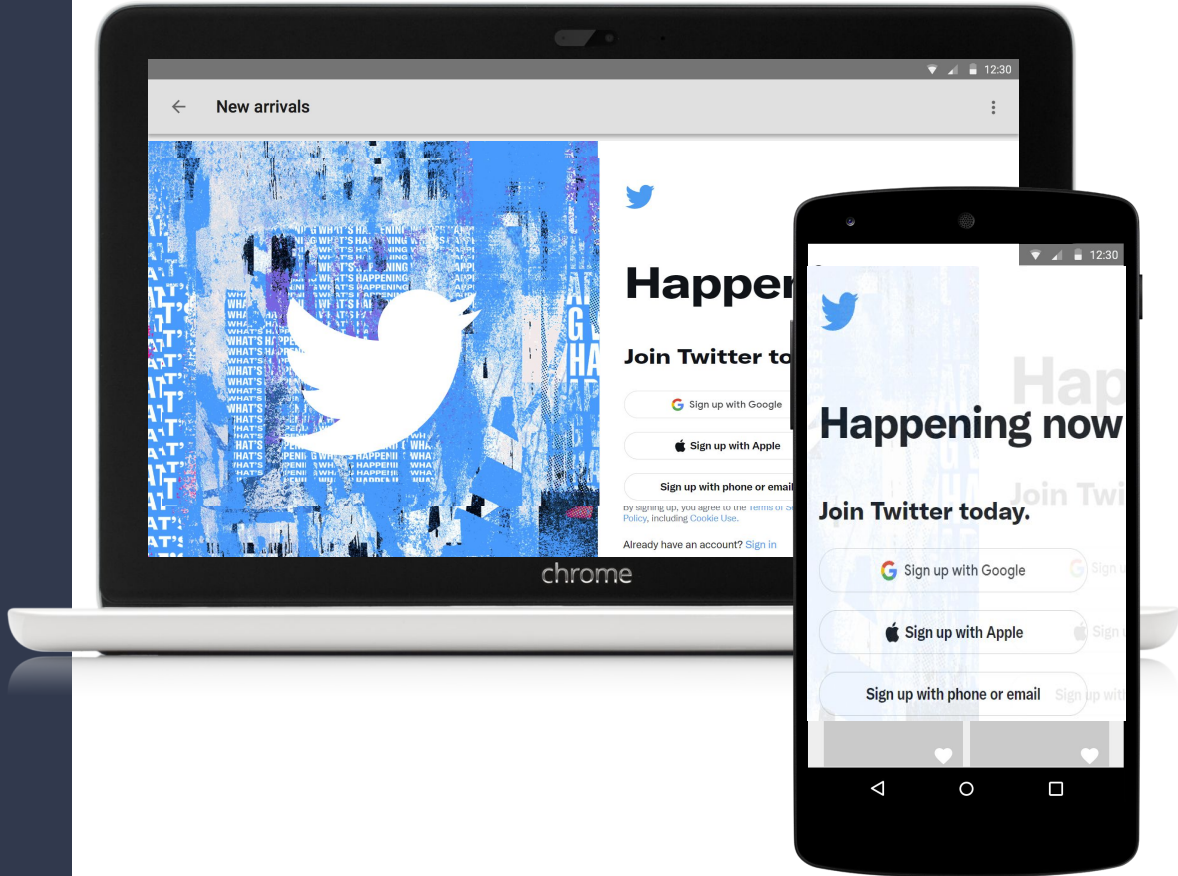
Problem

The Queen of Stonks: How Nancy Pelosi became the biggest meme in investing

Opportunity

Problem: According to a CMU research, nearly half of the twitter accounts may be bots.

Impact Hyp: By identifying the influential bot accounts, regulators can monitor and investigate fishy actions in the financial market.



Method

```
graph LR; A((Data: Twitter +Stock)) --- B((Classification: Bot vs No Bot)); B --- C((Sentiment Analysis)); C --- D((Build Model))
```

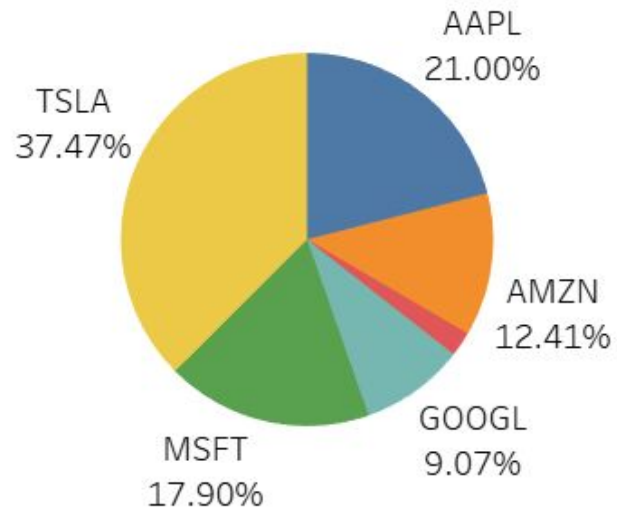
Data:
Twitter
+Stock

Classification:
Bot vs No Bot

Sentiment
Analysis

Build
Model

Top Bot Tweeted Stocks

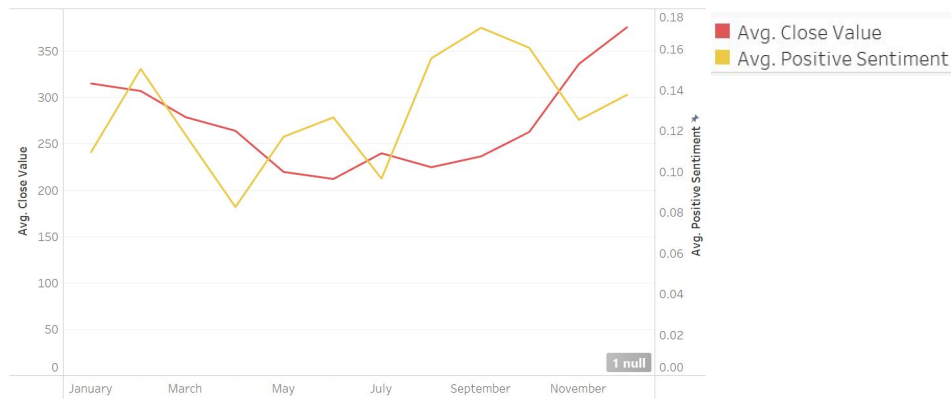


Insight – Tesla

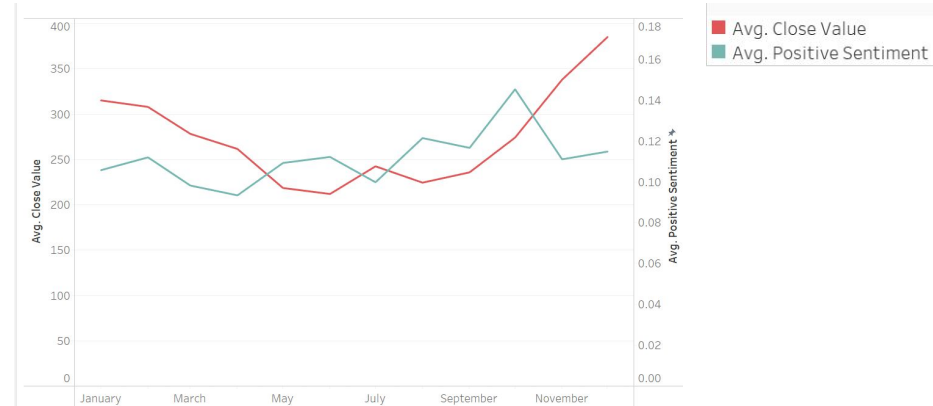
Use case: Tesla Stock Price & Positive sentiment

Bot tweets show significant more positive sentiment when stock price raises.

Bot

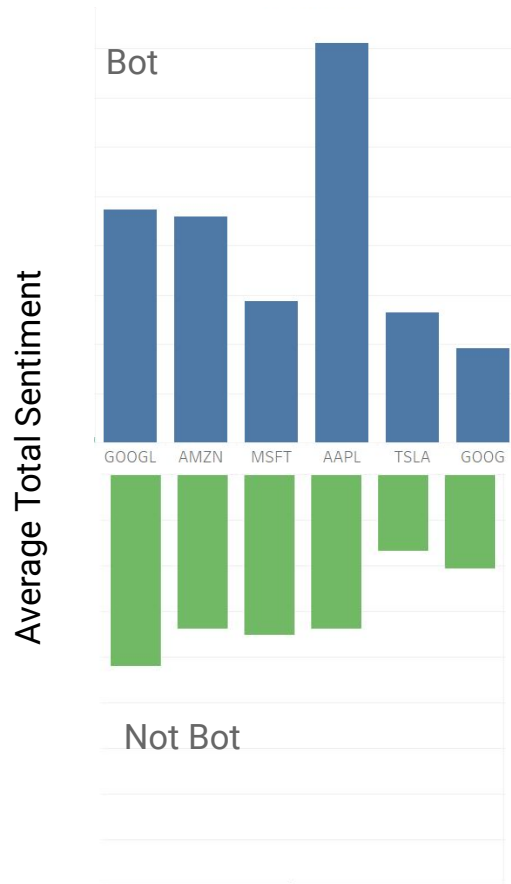


Not Bot



Insight - Total Sentiment

Total sentiment scores varies by stocks, overall normal tweet is calmer than bot tweet.



Modeling

Algorithms

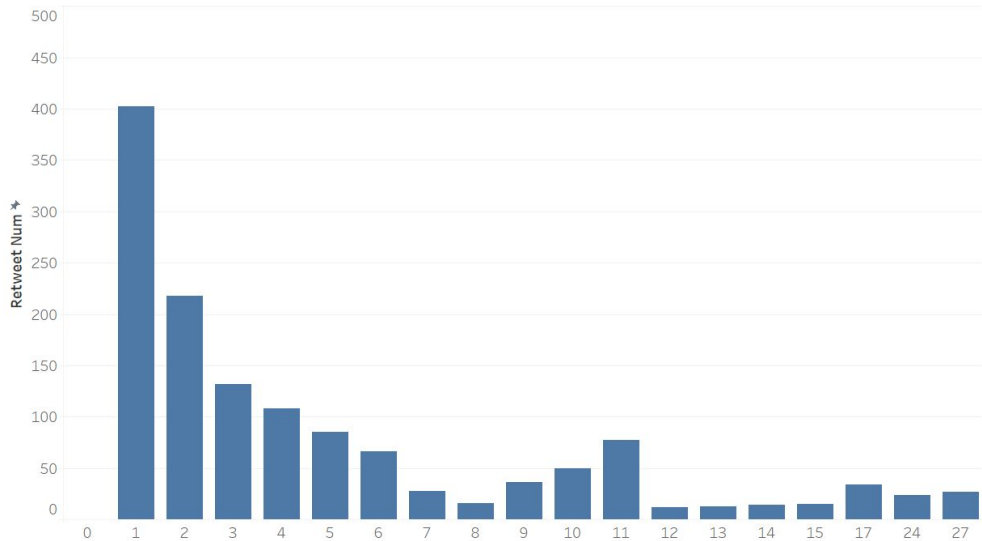
Leverage Natural Language Toolkit (NLTK) that assigns a number to quantify the emotions within the tweet's body.

Classification

Build classification model to better identify bot tweets. Sentiment Analysis can be used as an input to feed into the model.

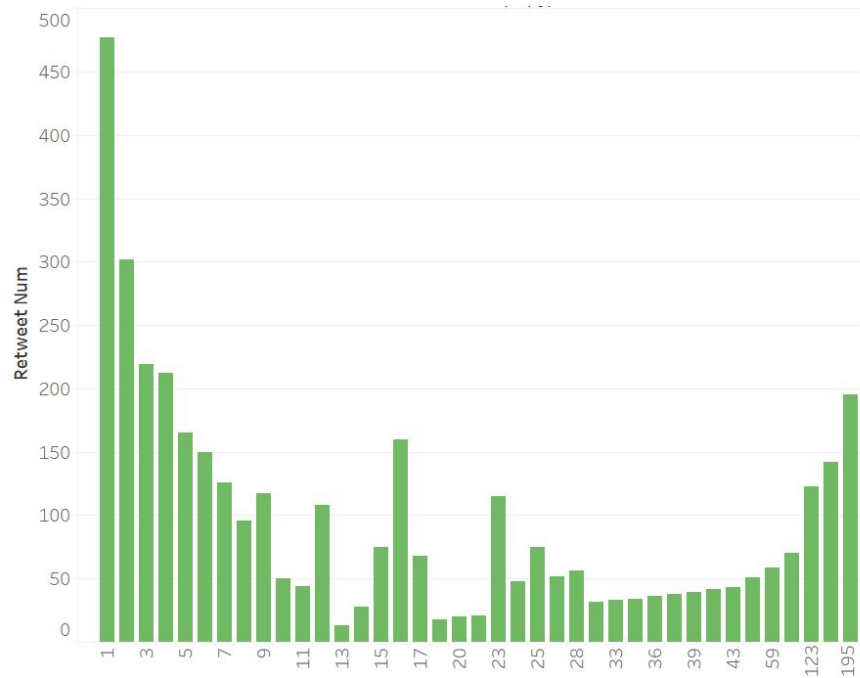
Other Insights

Retweet Distribution



Bot

Bot's retweet number is limited



Not Bot

Retweet distribution is more spread out

Tesla Daily Trade Price and Volume

