

Project Description

- Collected tweets over a variety of relevant US political topics using tweepy python library to access Twitter API.
- Analyzed tweets over a variety of topics using VADER sentiment analysis tool and text2emotion libraries in nltk (natural language tool-kit).
- Discussed the correlations between real-life events and public opinion based on those events.

Motivation

- To unearth any significant changes in public opinion in real time in correlation to major US events.
 - Included both planned events such as the US election, and relatively unplanned events such as the 2021 Storming of the US Capitol.

Why Twitter

- Easy to categorize information with the use of search keywords and hashtags.
- Free public access to Twitter API.
- Very large userbase of 340 million users that is very active
 - Over 500 million tweets posted per day.
- Over 71% of users say they use it to get their news.

Analysis

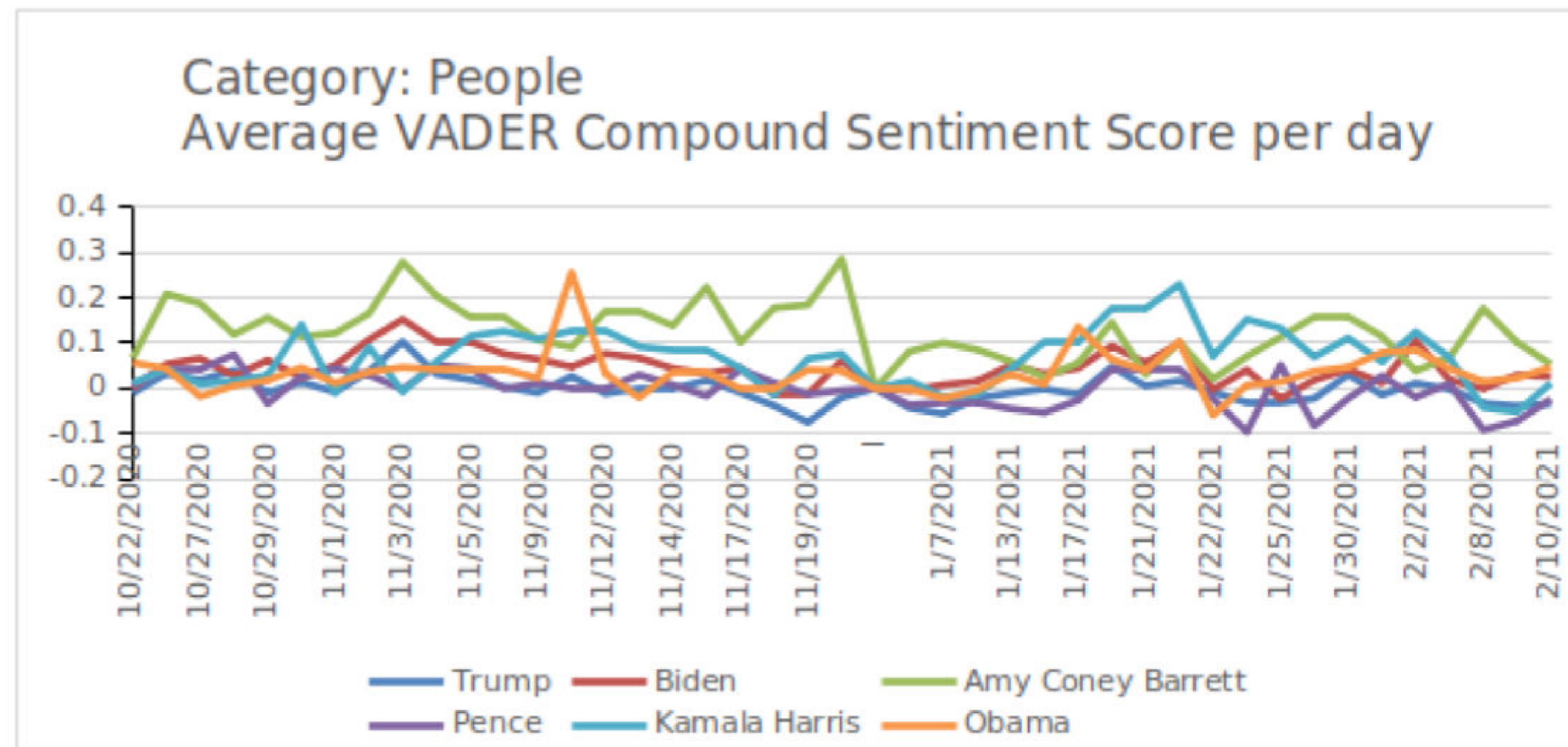


Figure 1: Average VADER Compound Sentiment Score per day for people category

```
Day with angriest sentiment: 2021-01-25 0.13
Day with most fearful sentiment: 2020-11-20 0.37042
Day with happiest sentiment: 2021-01-13 0.132540000000000002
Day with saddest sentiment: 2021-01-30 0.26356000000000001
Day with most surprise sentiment: 2021-02-02 0.3658108108108108
```

Figure 2: Days with the highest text2emotion score for each emotional state

Methods

- The following terms were used as search keywords to collect tweets: Trump, Biden, BLM, Black Lives Matter, Amy Coney Barrett, Socialism, Pence, Kamala Harris, ACAB, climate change, liberal, conservative, mask, COVID, corona, coronavirus, COVID-19, Green New Deal, Mail Voting,
- The Twitter search key-words were categorized into different overarching topics
 - People, policy/policy issues, ideologies, COVID-19, and Black Lives Matter.
- The VADER sentiment analysis library was used for its high accuracy in analyzing sentiment of social media posts.
- The text2emotion library was used to gather a different perspective on the sentiment of the tweets.

Discussion

- Amy Coney Barrett has an overall higher sentiment despite her controversial appointment.
- Kamala Harris Has a rise in her sentiment score around the time of her inauguration as Vice-President.
- Trump and Pence are very slightly below Biden and Harris. Both dipped below a compound score of 0 starting Jan. 6, 2021.
- Trump also suffered a noticeable dip in sentiment score on Nov. 19, 2020 when he first claimed election fraud.
- Obama was fairly consistent with everyone else except Nov. 11, 2020.

Future Works/Conclusion

- Very noticeable impacts on real-life events on public opinion
- Research may have been too broad.
- Gap in data collection.
- Potential future works include prediction of elections or other major events (sporting events) based on public sentiment.

Acknowledgements

The experiment was made possible by Sajal K. Das, CReWMan Lab, NSF for their REU grant, the Dedie Wilson and OURE program, and Bruce McMillin the CS OURE Coordinator.