

Coronavirus

Sentiment Analysis of COVID-19 Social Media Posts

in the U.S.



Derek McAdam

Bibor Szabo

Ederlyn Tanangco

Problem Statement

- Do stay-at-home policies (Executive Orders) prevent increases in positive cases?
- In comparing regional responses to COVID-19, what is the general public sentiment in response to state policies?

Executive Orders

- Federal State of Emergency declared on March 13
- Every state declared a “stay-at-home” order, prior to the Federal State of Emergency
 - Albeit in different severities
- Many state ordered sanctions were similar
- As of Friday, May 15th over 14 states will have lifted their “stay-at-home” order
 - Re-opening phases will resume

COVID Data

Our Data

Totals for the U.S.

Data API

We update all the data each day between 4pm and 5pm EDT. You can also get the dataset [as a spreadsheet](#) or via [API \(JSON and CSV\)](#).

Our most up-to-date data and annotations



Last updated from our data:

10:13 pm EDT

Tests			Outcomes		Total Test Results
Positive	Negative	Pending	Recovered	Deaths	Positive + Negative
1,407,507	8,934,268	2,673	246,414	80,084	10,341,775

- Live COVID data pulled daily from: <https://covidtracking.com/data>

Twitter Sentiment Keywords

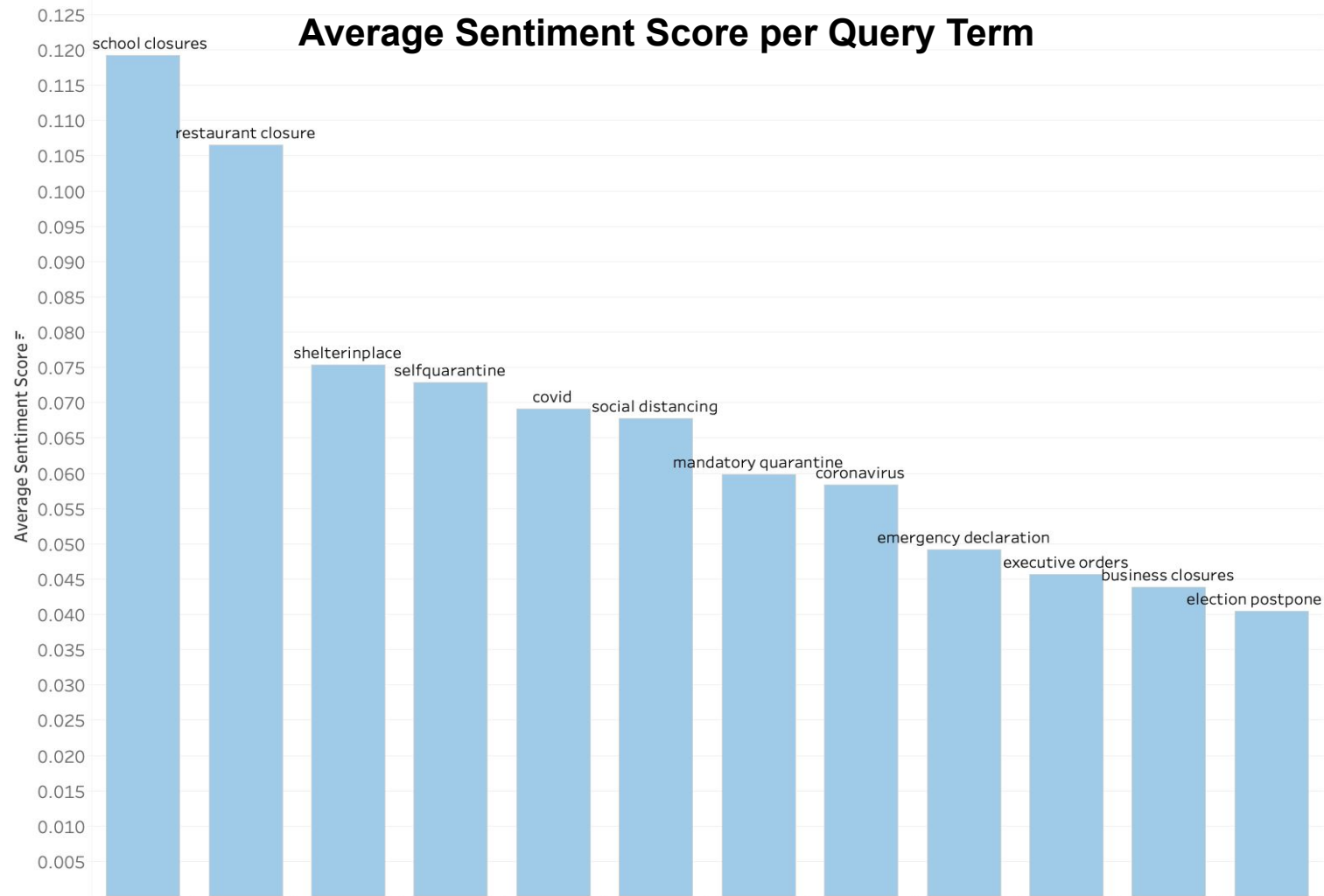
Business Closures	Coronavirus
COVID	Election Postponed
Emergency Declaration	Executive Orders
Mandatory Quarantine	Restaurant Closures
School Closures	Shelter-in-Place
Self-Quarantine	State Mandates
Governor	

Collected 59,000+ tweets posted since february from all states, nationwide

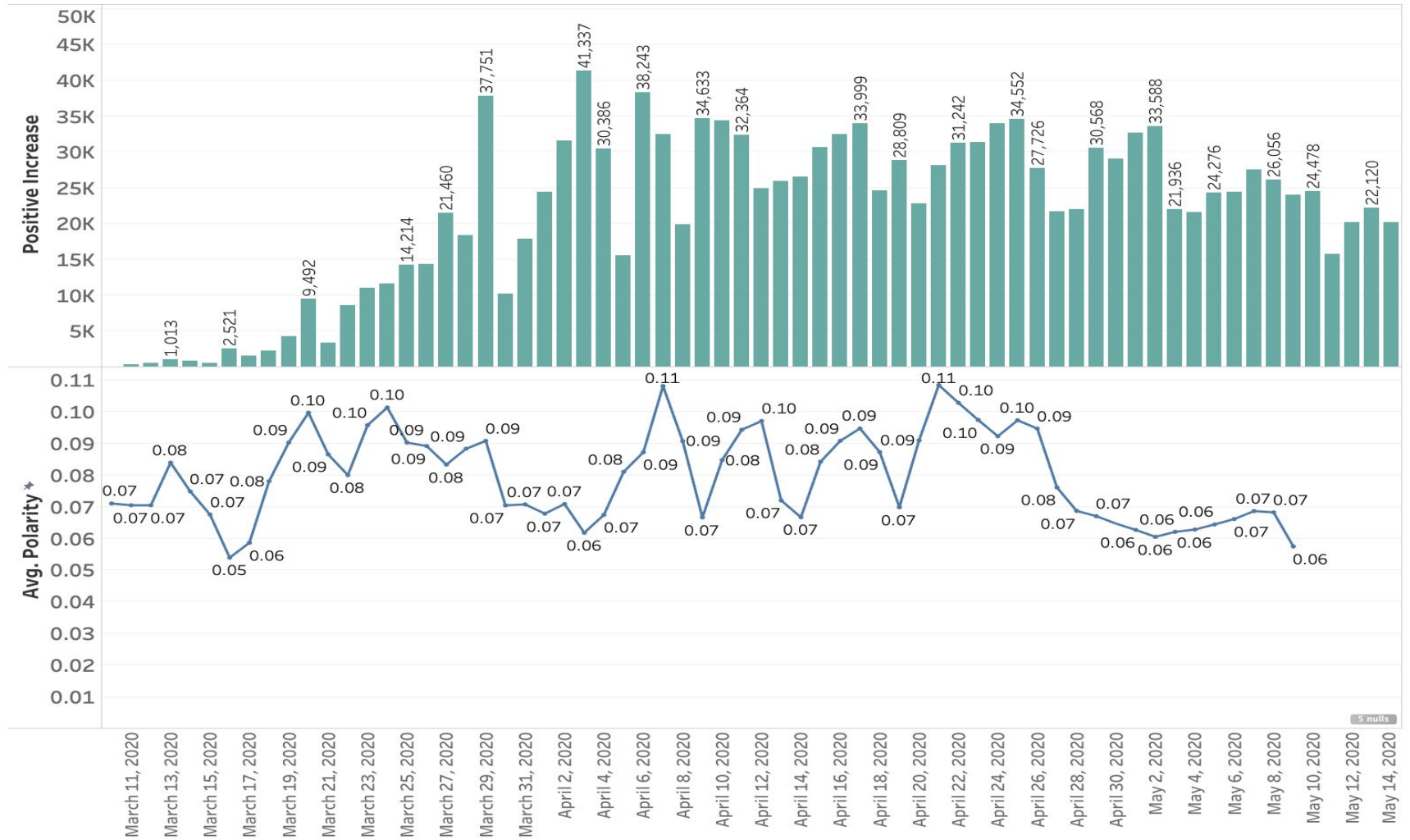
Negative Sentiment vs. Positive Sentiment Or Neutral?



Average Sentiment Score per Query Term



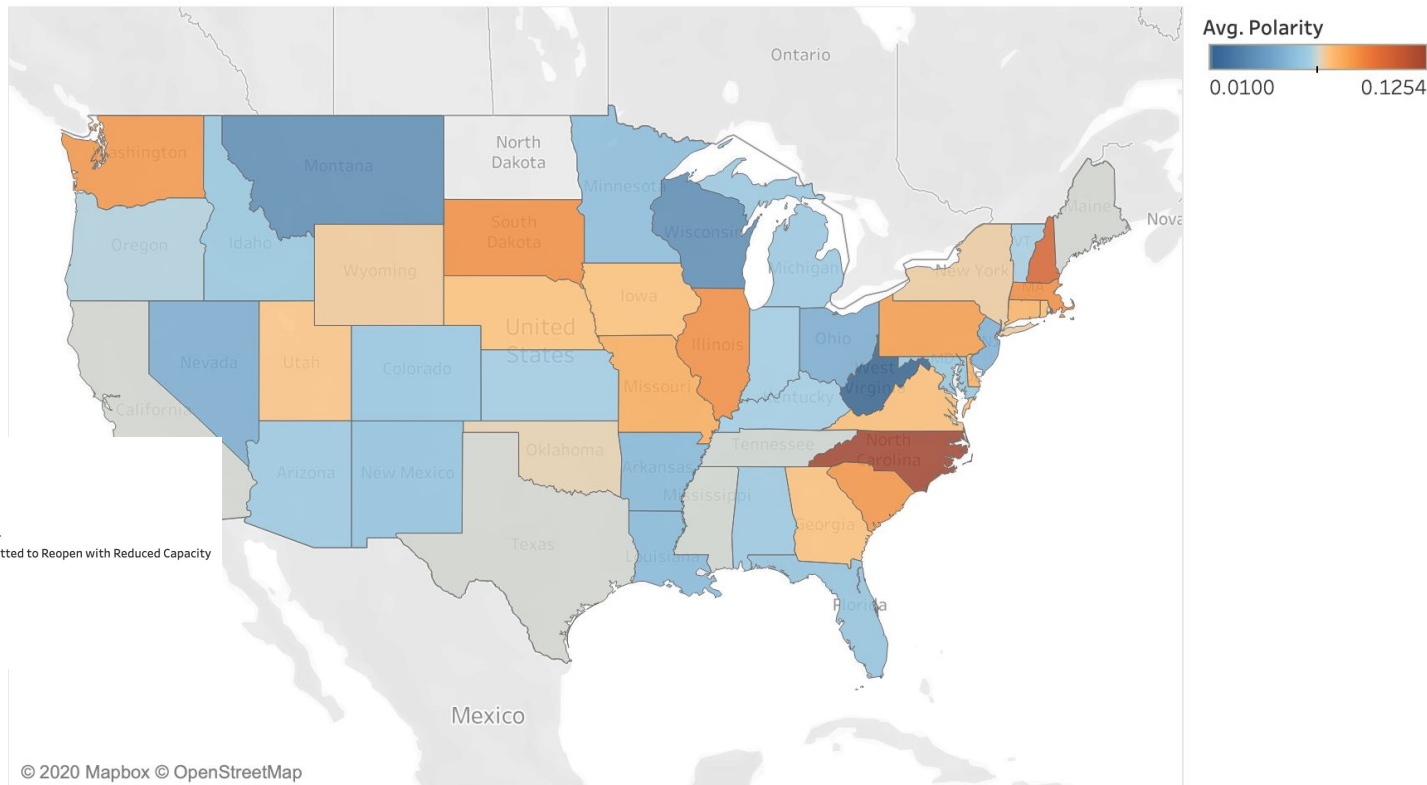
Covid-19 Cases & Sentiment Nationwide



Social Distancing Measures

Continental United States

Sentiments by State



State: California
Emergency Declared: March 4, 2020

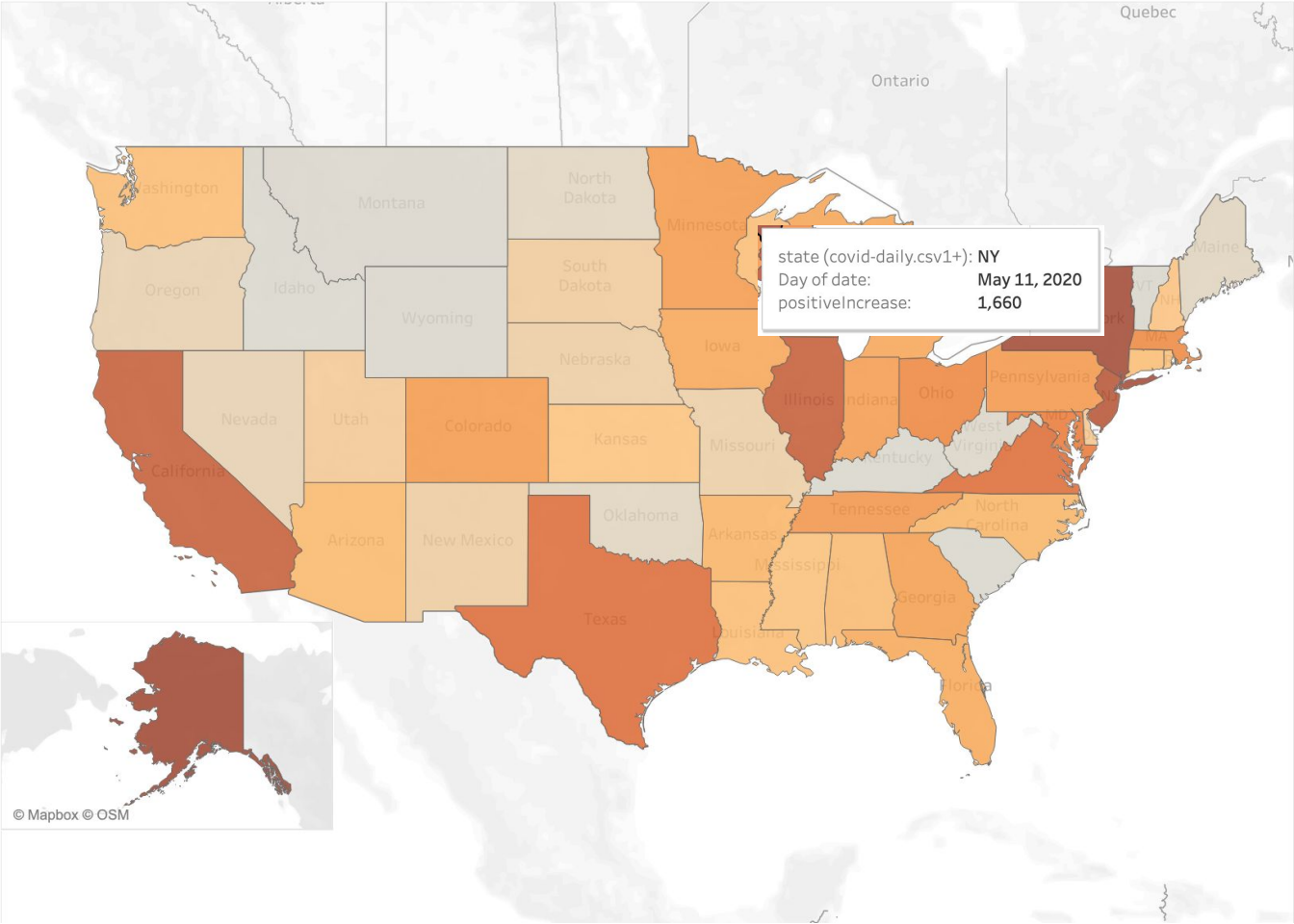
Stay Home Order:	Statewide
Gathering Ban:	All Gatherings Prohibited
School Closure:	Recommended Closure for School Year
Non-Essential Business Closure:	Some Non-Essential Businesses Permitted to Reopen with Reduced Capacity
Restaurant Closure:	Closed Except for Takeout/Delivery
Primaries:	Unchanged

Daily Increase of COVID Cases

Day of date
May 11, 2020 to May 11, ..



Day of date
May 11, 2020 to May 11, ..



Conclusion

- Social distancing appears to have an effect on reducing the rapid increasing of new daily cases
 - At the moment we are not able to build a reliable statistical model to reflect trends that we observed
- Current sentiment on Twitter is relatively neutral
 - Times are rapidly changing, therefore sentiment is volatile with uncertainty towards state-mandates

Going Forward

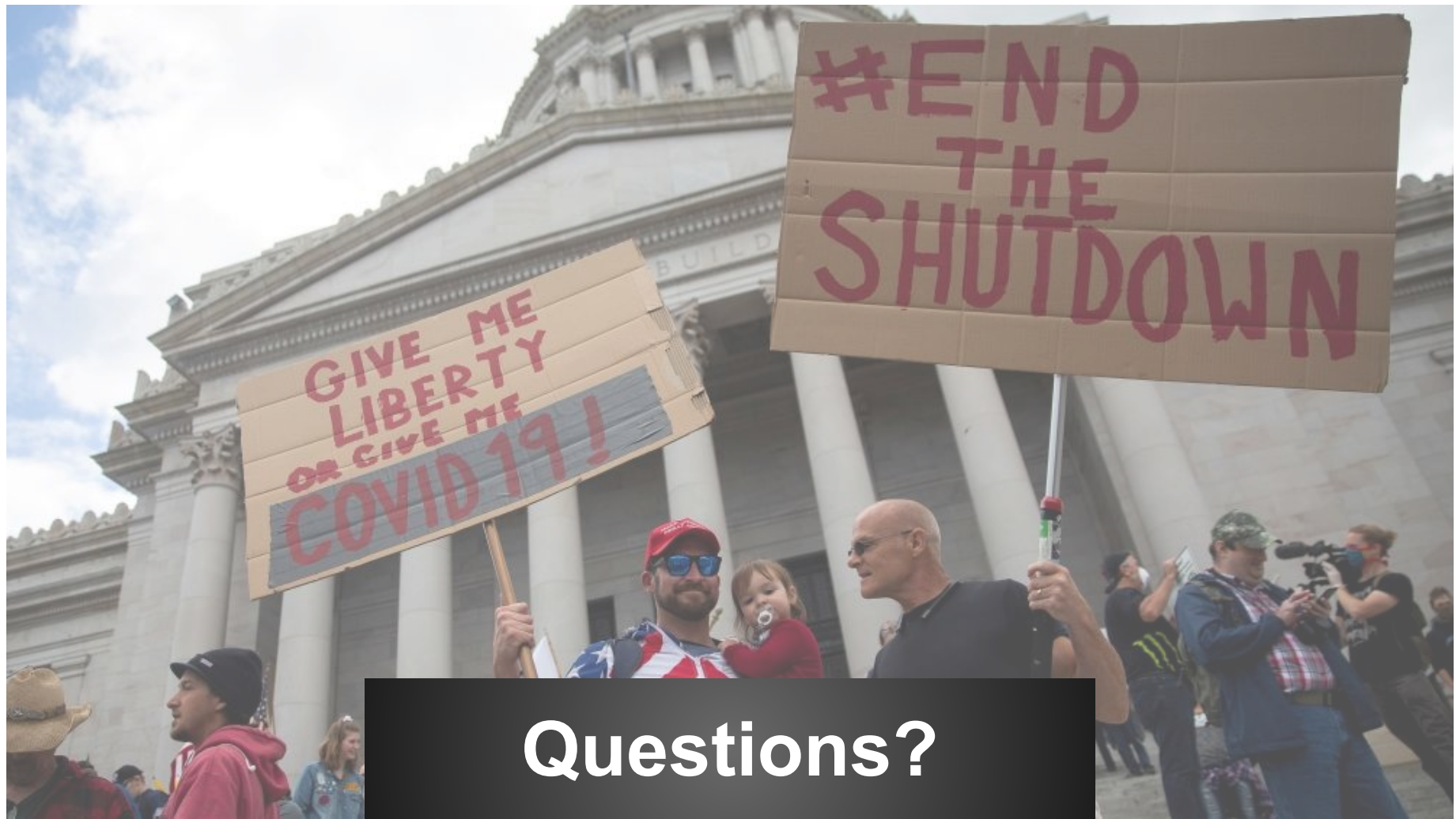
- Embedding an interactive GIS Application into a website
 - Daily updates of covid cases & trends
- Real-time sentiment analysis
 - Generating live sentiment analysis score

Going Forward

- Build an text-recognition system that
 - Automatically downloads executive orders from state government websites
 - Transforms the PDF files into searchable text
 - Updates the information on the maps daily

Resources

- <https://towardsdatascience.com/how-to-scrape-tweets-from-twitter-59287e20f0f1>
- https://github.com/Etanangc8/TwitterBot/blob/master/TwitterScraper/GetOldTweets3_Twitter_Scraper.ipynb
- <https://github.com/Mottl/GetOldTweets3>
- <https://bhaskarvk.github.io/2015/01/how-to-use-twitlers-search-rest-api-most-effectively/>
- <https://www.kff.org/health-costs/issue-brief/state-data-and-policy-actions-to-address-coronavirus>
- <https://www.nytimes.com/article/2020-campaign-primary-calendar-coronavirus.html#link-311a5d28>
- <https://www.cnn.com/interactive/2020/us/states-reopen-coronavirus-trnd/>
- <https://covidtracking.com/>
- <https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html>
- [State Executive Orders – COVID-19 Resources for State Leaders](#)
- Pictures on slide presentation (not including graphs) are from Google



Questions?