INFO4602/5602 Project Proposal
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Objectives & Motivating

In the beginning state of the COVID19 epidemic, due to the lack of timely control and the high flow of people, a blowout outbreak began globally. It has had a serious and universal impact on the mental health of people around the world, with increased anxiety, anger, fear, depression and other stress reactions. The rise of infected persons and shortage of masks in the news has even increased people's fear. For the second half of 2020, people begin to pay more attention to personal hygiene, wearing masks and anti-virus tissues when going out, and washing hands frequently at home, reducing the spread of the virus. At present, the vaccines are being distributed and vaccines are divided into inactivated vaccines, nucleic acid vaccines, recombinant protein vaccines and etc. In this project, we want to analyze 2020 election results, infection/confirmed cases results, and vaccination rates in all states. We want to compare the above 3 analysis and see how election results relate to the infection rate and vaccination rate. On top of that we would like to analyze the emotion of people worldwide, the difference between vaccines and their symptoms, impact of policies with a timeline with positive/death/vaccination rate.

Milestones

I.   Election

For the first part of the project, we want to show the election result in a heatmap. Using the election heatmap as a background knowledge, we want to use if there are any relations between the election result (state-wise) and confirmed cases population ratio and vaccination rate .

II.   Infection

In this feature, we will explore the infection rate and confirmed cases ratio on covid-19, by adding the state's population manually, analyze the trend by month from the geo heatmap. We also will make the timeline to observe how the ratio changes overall and in each state, during the election period and vaccine period, try to tell what event might significantly increase the confirmed cases.

III.   Vaccination

We want to look at vaccinations in the US but also worldwide. We are going to generate heat maps for death/positive/vaccine, vaccination rate in US/worldwide, building visualizations for possible symptoms of various types of covid vaccines including Pfizer, Moderna, Johnson & Johnson. Visualization for sentiment analysis using tweets that have the covid 19 hashtag, including positive/negative, and emotions in tweets.

As people get vaccinated, they can still get infected with the disease with some chance with mild syndrome. Thus it is helpful if we can as well compare the vaccination with the hospitalization rate. By doing so we can further confirm whether people in the US are getting better.

IV.   Comparison

After getting all the heatmaps, a series of comparisons will be conducted. We want to see if there are any correlations between election results and infection rate; between election results and vaccination rate. Scatter plot with color, size will be used here on top of the side-by-side heatmap comparisons.

Besides comparison within the United States, we would like to compare the relation between hospitalization and vaccination across the world. As countries like Israel had already reached over 60% vaccination, it is nice to see whether the trend is consistent.

Deliverables

I. US heat maps colored by counties and states
II. Line chart for confirmed cases trend, US heat maps colored by states
III. Bar charts for tweet analysis, heat maps
IV. Compare heat maps above, scatter plot(s)

Datasets

- Vaccine: https://data.world/associatedpress/cdc-covid-19-vaccine-tracker

- Election: https://www.kaggle.com/unanimad/us-election-2020?select=president_county_candidate.csv
        https://www.kaggle.com/paultimothymooney/2020-usa-election-vote-percentages-by-state

- Hospitalization: https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalization-network

- COVID Cases in US: https://covid.cdc.gov/covid-data-tracker/#trends_dailytrendscases

- Vaccine (Worldwide): https://ourworldindata.org/covid-vaccinations

- COVID-19 data in US and worldwide: https://github.com/CSSEGISandData/COVID-19

- COVID tweets sentiment analysis: https://www.kaggle.com/gpreda/covid19-tweets

- Infection:
https://raw.githubusercontent.com/CSSEGISandData/COVID-19/master/csse_covid_19_data/csse_covid_19_time_series/time_series_covid19_deaths_US.csv