COVID19 Vaccine Information Tool

Authors:
Alex Jackson | alexjackson@cmu.edu
Himanshu Arora | harora2@andrew.cmu.edu
Shubham Jain | shubhamj@andrew.cmu.edu
William Jacobs | wbj@andrew.cmu.edu

An aggregator for COVID19 vaccine information.
We report by state the vaccine attitudes, for flu and CODID9 vaccines, for different demographics; Age, Education level, Income level, Sex, and Race. We combine this information with data on COVID19 death rates by county. This provides our target audience of community based organizers and state health officials with information on what states have been most impacted by the pandemic, and are likely to have a slow vaccine response when the vaccine becomes more readily available.

*The census and many other groups count “hispanic” as an ethnicity separate from race, but for the purposes of our analysis we have counted it as a “race” category for all analysis.
*We have used the terms “gender” and “sex” to mean the same thing, binary male or female, none of our data included information on other genders.

TO RUN:
Needed libraries imported at the beginning of the program, depending on your system, this can be done with:

```
pip install
apt-get install
```

Libraries:
pandas , numpy , os , matplotlib , matplotlib.pyplot as plt , bs4 , urllib.request , tabulate

Run:
To run our product, simply unzip the file, and within the folder than is created, execute

```
python3 Group3_COVID.py
```

To quick the program any time after launching input:

```
6
```

OPTIONS:

Our project is menu drive. To select one of the information outputs, choose from the menu.

1. U.S. Wide % 'Yes' to Taking A Vaccine Over Time by Demographics
    a. Produced a table output of overall U.S. respondents who indicated “Yes” to be vaccinated by different demographic groups.
    b. Works by: Scrapping Galopp Poll data on COVID19 attitudes. This web scrape info is parsed as a .txt file. The data retrieved is formatted for a clean table output.
2. Visualize: U.S. Wide Vaccine Attitude Data Over Time by Demographics
    a. Produces a series of charts from the web scraped data in pt 1, showing overall U.S. attitudes over time.
    b. Works by: The .txt from pt 1 is further sorted by category (sex, age, etc.) and displayed my matplotlib.
3. Visualize: State Vaccine Attitudes by Demographics
    a. State by state information on what concerns make different groups hesitant to take a COVID vaccine, broken down by demographics. A series of charts is produced to show the percentage of respondents who have a negative sentiment for each of the top 5 reasons for vaccine hesitation. The top 5 reasons are taken from the U.S. as a whole.
    b. Works by: parses an excel file from survey results. For each demographic group of interest, the percentage of that group who shares one of the top 5 reasons for vaccine reluctance is displayed for comparison.
4. Visualize: State Flu-Vaccine Attitudes (Enter complete State Name)
    a. State by state flu-vaccine attitudes displayed together as one sheet for different demographic groups. This is the percentage of people who responded “yes/no” to being willing to get a flu vaccine. Detailed reasons are not provided, we can safely assume from our other data source that these reasons would not carry over to the COVID19 specific situation we are in regardless. The value of knowing flu-vaccine attitudes comes from having more extensive knowledge (these surveys have been conducted for years with known methodologies, refined questionnaires etc.) of which parts of the U.S. are predisposed to being unwilling or unable to get flu vaccines.
    b. Works by: Reads a csv files and parses through to grab information sorted by states. Plots this information in several graphs on one page per State.
5. Table: Analyze Death Statistics by Demographics
    a. The data is to analyze total deaths and deaths caused by COVID 19.One can compare deaths in a particular county in each state and observe the reasons behind such deaths. The data has been further segregated for deeper analysis by race like hispanic, non-hispanic for each county. Moreover, there is one option of analyzing deaths by sex and that data is provided state wise.

b. Works by: reads in a csv, sorts by numbers of deaths and their causes by county.
    i. For the first submenu we get a display of the deaths caused by COVID19 vs other causes by county for a given state
    ii. Analyze Total Deaths by Race
        1. Multiple sub-options for how you would like to display racial death data by county. (morbid!)
    iii. Analyze Deaths by Sex distribution
        1. For a given state, provides information on sex and deaths from COVID19 and other reasons