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Final Documentation

Files

1. **final.py** → final.py is a python file that contains our final code. The purpose of this file is to display the code that outputs vaccine eligibility statuses of people in the "fariba.txt" file, a graph that highlights the willingness of these people to take the vaccine, and the nearest location to get the vaccine if the person desires it.
2. **fariba.txt** → fariba.txt is a text file that contains an individual's name and some information about them. This information includes an individual's name, age, whether they are immunocompromised, their occupation, their opinion on taking the vaccine (yes or no), and their zip code (within the range of our zipcodes.txt file). These pieces of information are separated by a space. This text file is important because it is used to output eligibility through their age, occupation, and immunocompromised status. In addition, it is used to output our graph through their opinion of getting vaccinated. Their zip code is also used to output the closest vaccine location.
    a. Example: Alex 65 yes teacher no 01229
    b. Example: Aric 25 no professor yes 03462
3. **zipcodes.txt** → Taken from (All US zip codes with their corresponding latitude and longitude coordinates. Comma delimited for your database goodness. Source: http://www.census.gov/geo/maps-data/data/gazetteer.html (github.com)contains the zip codes and lat,lon of all vaccine locations in the U.S.), this text file features a zip code followed by designated latitudes and longitudes, separated by commas. To narrow our zipcodes down, we used the zipcodes of 00601 to 03462.
    a. Example: 02339,42.122956, -70.856310
    b. Example: 00962,18.444614, -66.148839
4. **vaccine_locations.txt** → vaccine_locations.txt is a text file that features information relating to a vaccine location. The file features the name of the location, it's zip code, and its latitude and longitude, all separated and split by commas. The zip code, lat, and lng are taken randomly from the zipcodes.txt file. For example Nathan from the fariba.txt file (Nathan 22 no teacher yes 00971) would output Urgent Care Nashville as his closest vaccine location. Most of these vaccine locations were made up and were in the range specified in the zipcodes.txt explanation.
    a. Example: Urgent Care Nashville, 00957,18.368414, -66.187693
    b. Walgreens, 03462, 42.889241, -72.388978

Instructions to Run Program

To run the program, in the terminal write:

python3 final.py

Instructions on Use of Program (fariba)

Clear instructions on how to use your program
Interpret the output of the program, as applicable

After running the program, there is an output of all the individuals from the file. This output shows you each of the individuals from the dataframe and what phase they are eligible to get vaccinated. The program will also ask you what your name is. After inputting your name, the program takes your zip code and compares it to different vaccine locations and outputs the nearest vaccine location to you.

Contribution to Code

- **Mehar Saini**
  - Eligibility class → def eligible ()
  - Eligibility class → def __repr__()
  - def graphyes ()
- **Fariba Quader**
  - Eligibility class → def __init__
  - def main()
  - def graphno ()
- **Sarah Alameh**
  - Zipcode class → def __init__()
  - Zipcode class → def get_latlng()
  - Zipcode class → def nearest()
  - Zipcode class → def get_dist()
  - def main()

Annotated Bibliography

Data to fish. Data to Fish. (2020, July 4). Retrieved November 16, 2021, from https://datatofish.com/bar-chart-python-matplotlib/.

- This source allowed me to learn more about the Matplotlib module and its different constituents that allowed me to develop the bar graph using the data, as well as edit the bar graph (through titles, x-axis manipulation and more). I used this source because it allowed me to gain more knowledge on this specific part of Python since I did not know how to develop a bar graph in Python.

Hurst, E. (n.d.). *All US zip codes with their corresponding latitude and longitude coordinates. Comma delimited for your database goodness. Source: http://www.census.gov/geo/maps-data/data/gazetteer.html*. GitHub. Retrieved December 15, 2021, from https://gist.github.com/erichurst/7882666

- Through this Github, I was able to retrieve some data for my zipcodes.txt file. While not all of the data was used, it was helpful in comparing zip codes through latitude and longitudes. This file gave me insight on how I wanted to continue with the zipcodes portion of the code.

Pandas.cut¶. pandas.cut - pandas 1.3.5 documentation. (n.d.). Retrieved December 15, 2021, from https://pandas.pydata.org/docs/reference/api/pandas.cut.html

- This source taught me how to utilize the cut method in pandas. The cut method allowed me to sort the data into separate bins on the x-axis. We needed to sort the data by age, and using pd.cut and then with the use of its several parameters, I was able to continue to separate the data into separate bins, which on the graph are seen as, “18-25, 26-30, etc”.

Plotting multiple bar charts using Matplotlib in python. GeeksforGeeks. (2021, February 25). Retrieved November 16, 2021, from https://www.geeksforgeeks.org/plotting-multiple-bar-charts-using-matplotlib-in-python/.

- This source allowed me to learn more about how to develop a double bar graph with two different subjects (individuals who said no to the vaccine, and individuals who said yes to the vaccine). I used the code pertaining to separating the bars individually in my program because I did not have any knowledge on how to do it beforehand.

“How to Read One or Multiple Text Files into a DataFrame with Python?” EasyTweaks.com, https://www.easytweaks.com/pandas-read-text-files/.

- This source taught me how to take information from a text file and create a dataframe using that information. With this dataframe we were able to create the graphs.