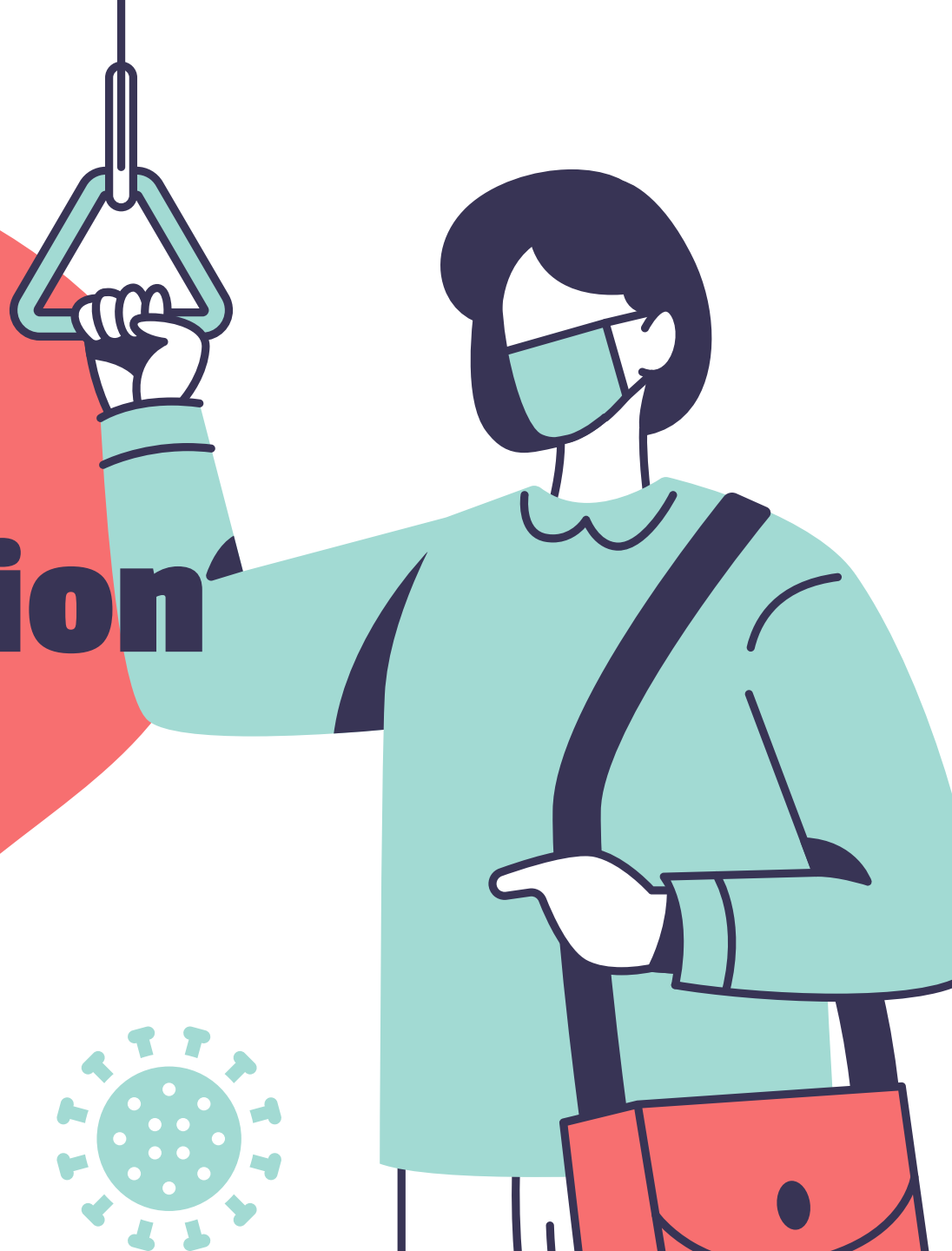
COVID-19 and 2020 Election



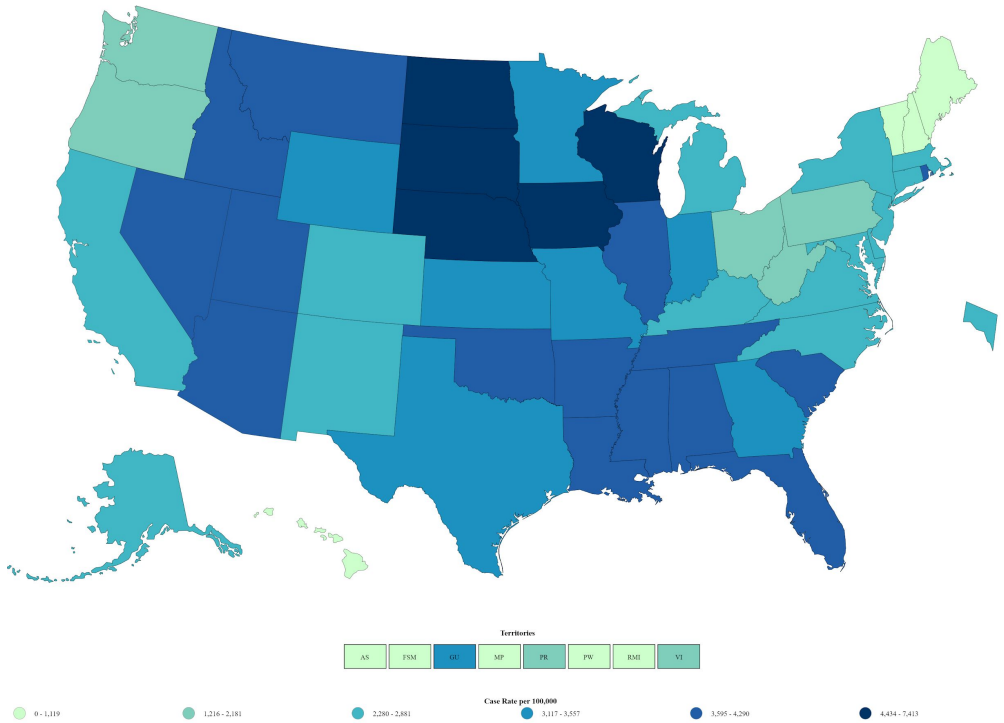
42 Elephants Ate Pie
Lindsey Ulmer
Chiaoya Chang
Yanyan Guan

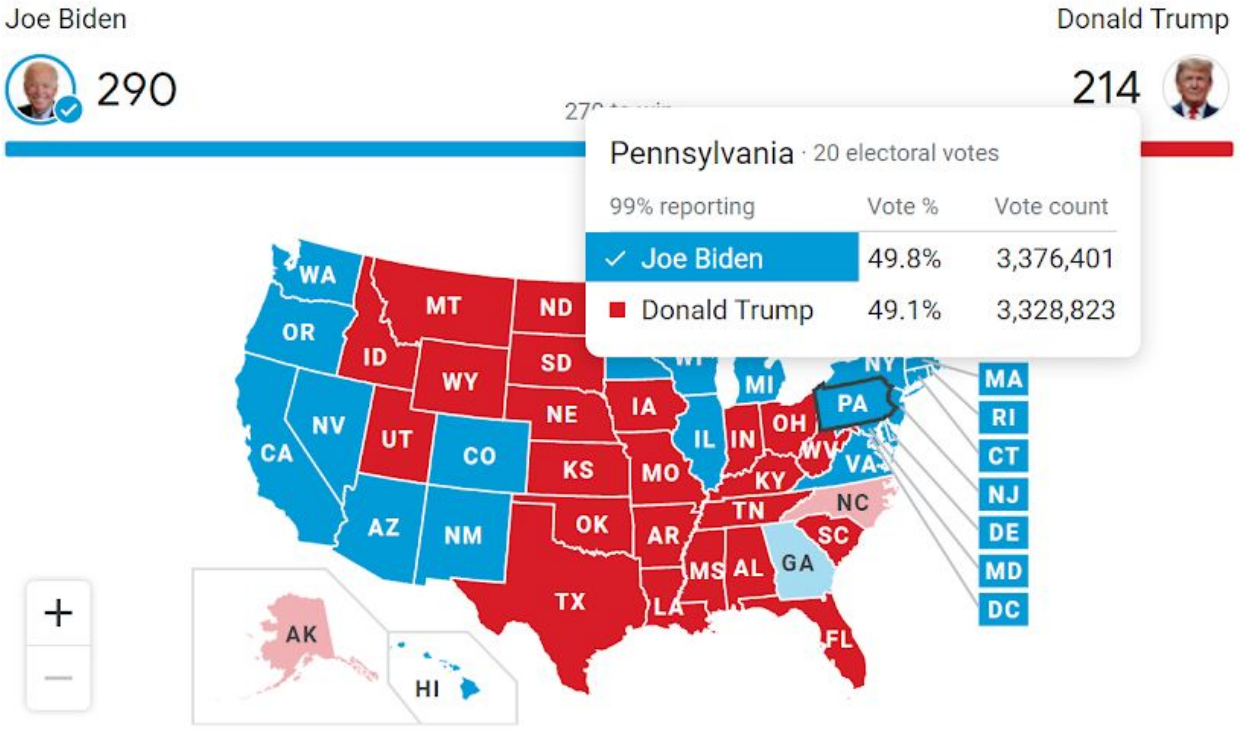
01

Background

Goal

Visualize COVID and Voting Data in one plot to help the public compare





Changed since Last Presentation

1

Added additional test to check accuracy of dataframes

Read as csvs and check that columns are the same

2

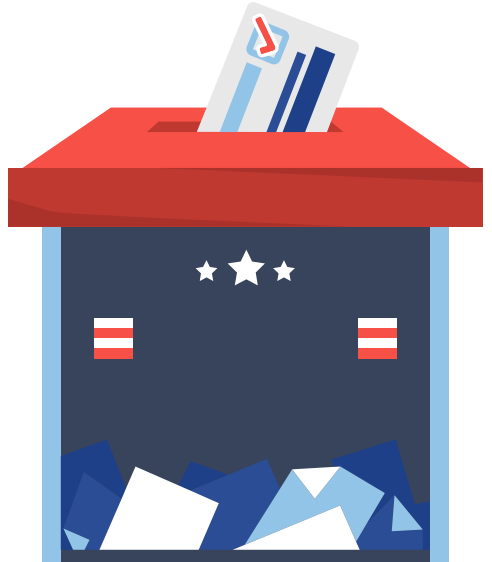
Changed file paths to match Travis CI

Correspond with running test from main directory

3

Edits to the READ me

Expanded Intro, moved directory structure to the end, added coveralls badge, added summary of functions



Changed since Last Presentation

4

Added flake8 to Travis CI

And made corresponding PEP8 edits

5

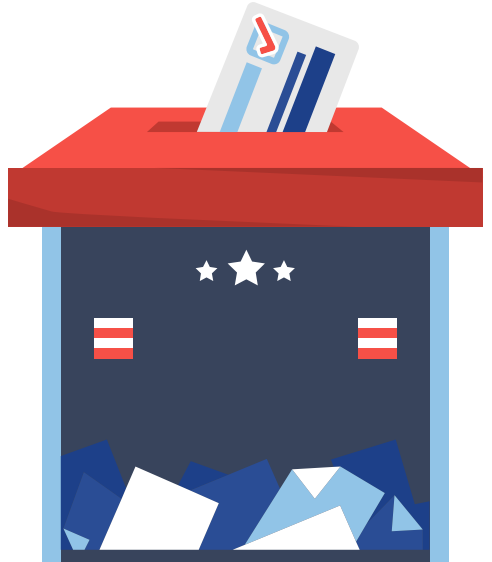
Broke add_data function up

Into add_data_csv and add_data_shapefile

6

Reduce number of inputs for make plot functions

Aligns better with add data functions and removes redundancies between the two functions



User Profile

US citizen

- Concerned about the COVID trends and election results
- Familiar with basic Python and Pandas
- Does not have experience to make plots

News Reporter

- Help people get the objective information
- Provide the analysis reports to people
- Have data from previous elections

Anyone

- Interested in the COVID-19 and US voting data
- No experience needed
- Like to view visualized results

Use Case

1

Add data to our base data

Users can provide their own state-level data to join our base data.

2

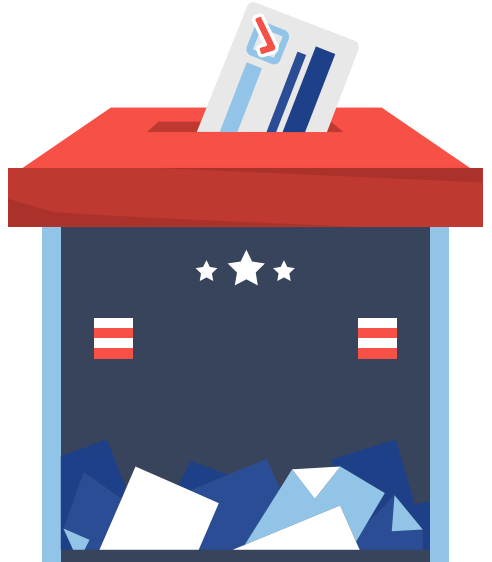
Create interactive figures for all states

The figures would show the information for all states.

3

Create figures for the swing states

The figures would show the information for only swing states.



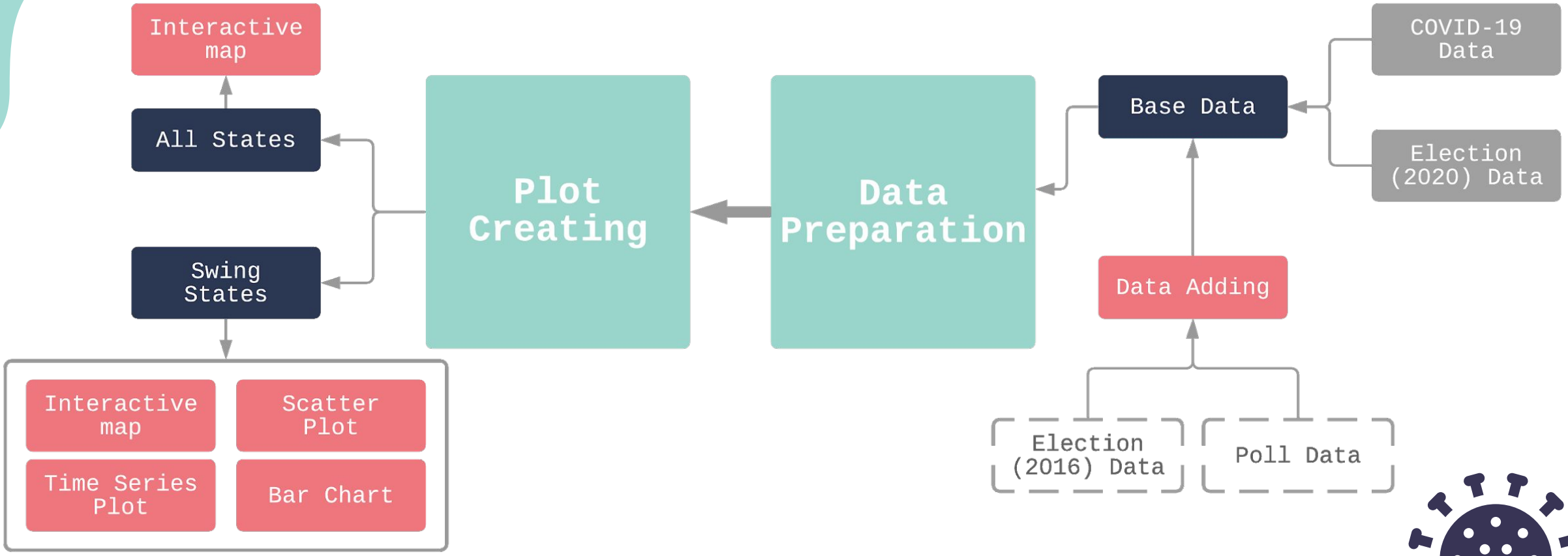
Data Used

Dataset	Source	Format
COVID-19 Cases	CDC	Download as CSV
2020 Election results	nbcnews.com	Copied into a CSV
2020 Mail in voting data	The guardian	Copied into a CSV
Poll data on covid as a voting issue	Commonwealth Fund	Downloaded as CSV
2016 Election results	FEC	Download as CSV
2016 Vote by mail data	Healthy elections.org	Download as excel sheet

02

Software Design

Design Process



Component Specification 1

1

add_data_csv

If users want to visualize additional data in our dashboards, they could merge their data with our provided data. This does not process shapefiles, so someone would use this for state level data.

Input csv

Output dataframe

2

add_data_shapefile

If users want to visualize additional data in our dashboards, they could merge their data with our provided data. This does process shapefiles. Someone would use this to add additional locations.

Input csv

Output csv

3

make_plot_2020_and_2016

Users could follow the instructions to provide the attributes they would like to explore for all states, and then generate the interactive state-level maps.

Input dataframe

Output Plots

Component Specification 2

4

make_plot_map

Users can make a map to show the different years' election results in the swing states.

Input dataframe

Output Plots

5

make_plot_scatter

Users can make a scatter plot to show the relationship among COVID-19 positive cases, deaths and election results in the swing states.

Input dataframe

Output Plots

6

make_plot_bar

Users can make a bar chart to compare the percentage of turnout by mail in 2016 and 2020 election.

Input dataframe

Output Plots

Component Specification 3

7

make_plot_time_series

Users can make a time series chart to show the total cumulative cases for states where each party won in the election.

Input
dataframe

Output
Plots

03

Project Structure

Repository Structure

- **CovidVoting**: This directory holds the code for preparing data for visualization and making interactive plots to show Covid counts and voting results simultaneously. It also contains unit tests to prove the functionalities of each module.

- **data**: This directory contains data downloaded from multiple sources, including election results data from 2016 and 2020, Covid related data, and shapefile data that stores the geometric information of the United States.

- **docs**: This directory contains documentation including the functional specification, the design specification, the component specification and the final project presentation.

- **example**: This directory includes examples and demo of outputs using all the functions in the CovidVoting directory.

04

Take Away & Future Work

Lessons Learned

- Adding doc strings and comments earlier (maybe even before writing code) would have helped group members understand each other's work better
- Setting up Travis CI earlier would have made it more useful
  - Would have forced person writing the code to catch their own errors before passing it on to other people

Future Work

- Incorporate more data like different policies in every state, and compare the results
- Increase map accuracy to show information on county level
- Provide more information on graphs to users

05

Demo

THANKS!

Do you have any questions?