

Marshmallow Flush: Elizabeth Doss, Amanda Chen,  
Lauren Pehlivanian, Kiran Vuksanaj

SoftDev Pd 1/9

P04 -- Let the Data Speak

2020-04-28

## **VIROGRAPHS DESIGN DOC**

### Description

Users will be able to compare trends of Coronavirus statistics between different countries and different US states. Users will also be able to see the effects of social distancing and quarantine on the spread of the virus.

### Task Breakdown

Elizabeth: Project Manager

- Oversees project development
- Help with frontend/backend development
- Updates devlog, design doc, and READ\_ME.md

Amanda:

- Create animated graphs using D3 and gathered data
- Javascript

Kiran:

- Create interactive COVID-19 simulation using svg/canvas
- Javascript

Lauren:

- Work on front-end CSS/Bootstrap to make website visually appealing
- Processes CSV and JSON files into usable format
- Python/Flask

Goal: To model infection rates of COVID-19 using D3 visualization and svg/canvas tools including:

- Line Graph
  - <https://observablehq.com/@d3/line-chart>
  - Shows the change in coronavirus cases over time
  - User can choose between total deaths/total cases/total recovered
  - User can choose which country/state they want to see
- Bubble Map
  - <https://observablehq.com/@d3/bubble-map>
  - Map of US states with bubbles showing new coronavirus cases
  - User can choose between new deaths/new cases/new recovered
  - User can click on states to see a summary of the stats
- World Map/Heat Map
  - <https://observablehq.com/@d3/world-choropleth>
  - Map of the world color-coded showing new coronavirus cases
  - User can choose between new deaths/new cases/new recovered
  - User can click on countries to see a summary of the stats
- Coronavirus Simulation Spread
  - Svg/canvas with turtles in a coronavirus simulator
  - Users can choose the initial number of cases, infection rate, social distancing factor, population obeying social distancing, delay of symptom display, quarantining of known cases, available hospital beds, among others.

#### Datasets/APIs

1. Global Confirmed/Deaths/Recoveries - JSON (Updates 3x/day) - <https://pomber.github.io/covid19/timeseries.json>
2. United States Cases/Deaths - CSV (Updates 1x/day) - <https://github.com/nytimes/covid-19-data>
3. Coronavirus COVID19 [API](#) (Updates 1x/day) - <https://api.covid19api.com/>
  - Shows today's cases by country/global count - <https://api.covid19api.com/summary>

## Site Components

Frontend	Backend
Global Case Counter	API (#3)
Line Graph	JSON File (#1)
US Map	CSV File (#2)
World Map	JSON File (#1)
Simulation	<i>(remains client-side)</i>

### Home Page

- **Global Cases Counter:** Each time the user loads our page, we will pull from the Coronavirus COVID19 API and update the counter at the top of the page. Depending on how slow it makes our website, we could also have the counter update live and pull continuously from the API while the user is still on the page.
- **Line Graph:** The line graph will initially display a simple curve of active daily cases using data from the JSON file. The user will be able to choose if they want curves on the same graph representing daily closed/recovered cases and total infected. There will also be choices if they want to compare different countries.

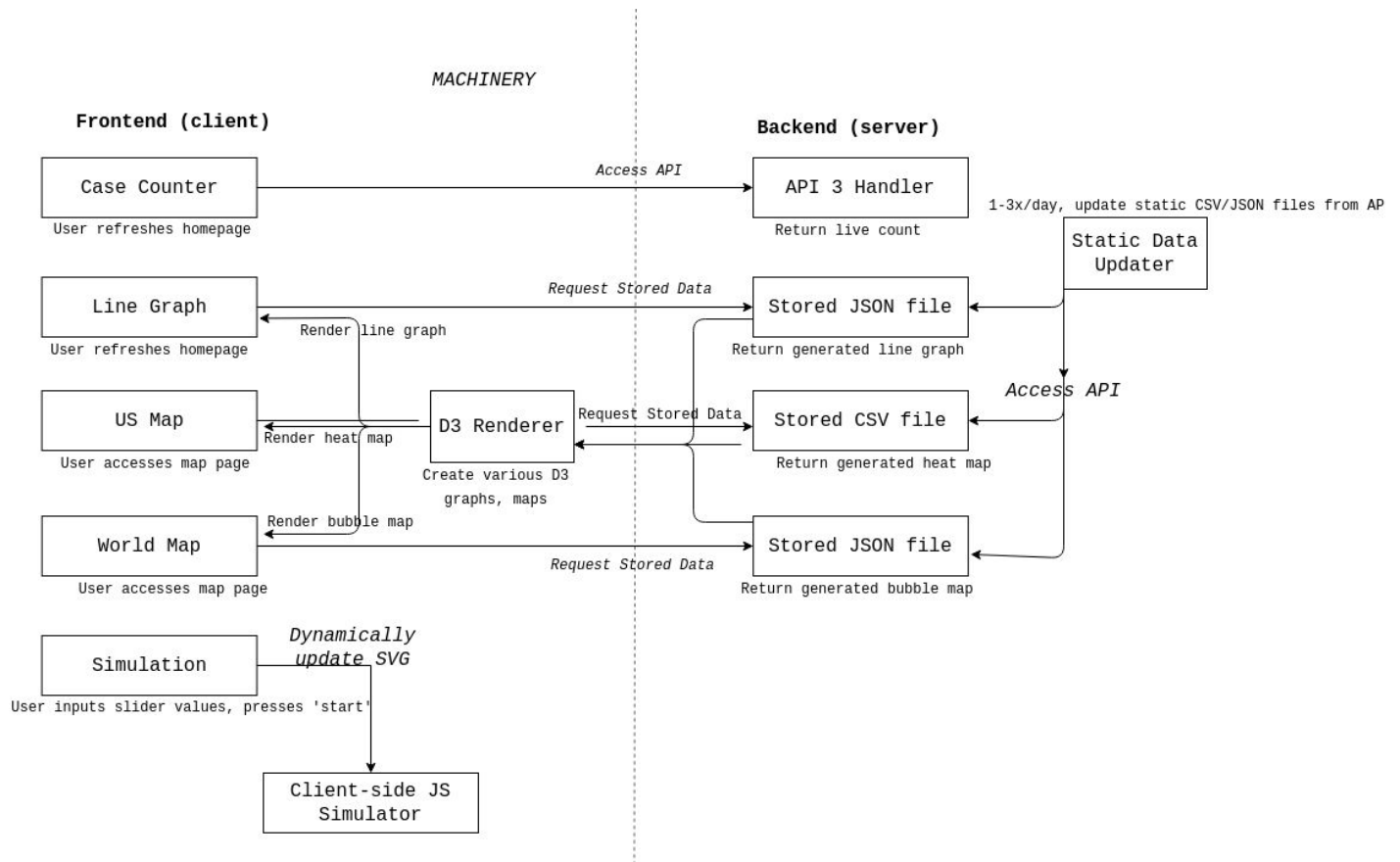
### Maps Page

- **US Map:** The map will initially show a bubble map of the active daily cases using data from the CSV file. The user can choose if they want to see new deaths or newly recovered cases instead. The user will also be able to click on a state and see a summary of information about coronavirus cases in that state.
- **World Map:** The map will initially show a heat map of the active daily cases using data from the JSON file. The user can choose if they want to see new deaths or newly recovered cases instead. The user will also be able to click on a country and see a summary of information about coronavirus cases in that state.

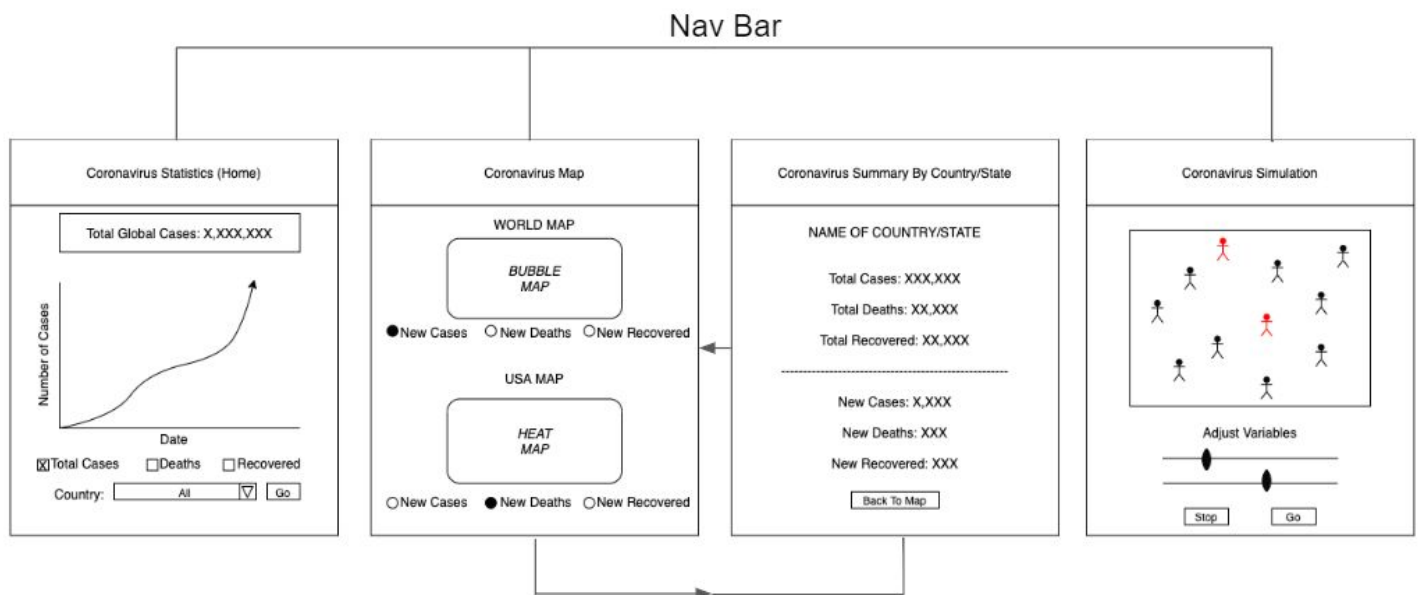
### Simulation Page

- **"Dot People" Simulation:** Dots within a SVG element will move around following instructions, whose behavior can be modified through adjacent sliders controlling factors such as motivation to self-isolate, etc. This simulation will run client-side, allowing a user to generate their own data and more easily visualize the spread of disease. Reminiscent of Netlogo models.

## Components Map



## Site Map



home.html:

- Top of page shows global count, updated using API
- Scroll down to find a line graph

map.html:

- Shows both an interactive world map and a map of the US

coronainfo.html:

- Displays a summary of the statistics in words for a country or a state

simulation.html:

- Contains svg box where simulations run
- Sliders to alter variables:
  - Infection Rate
  - Social Distancing Factor
  - Percent of Pop. Obeying Social Distancing Rules

### Frontend Framework

Bootstrap is easy to use and has features we would like to utilize in order to create a website that is presented cleanly on any size window. Bootstrap also has lots of exciting components to try on our site including jumbotrons and spinners.

### References

Simulating the epidemic - <https://youtu.be/gxAaO2rsdIs>

---

### TwoFortyNine

- Compliments
  - I like the idea of using the word clouds to measure sentiment
  - The organization of the pages of you app seem well thought out
  - Color coding the site map makes it clear and easy to read
  - You guys included a lot of datasets that were off the beaten path
  - Your component map is clear and well-done
- Criticisms
  - It's not clear how you will measure the positivity/negativity of public media sentiment and Trump tweets, since the datasets don't explicitly label articles as either.
  - Medium Income Data: ?
  - You could create a separate section to list all the datasets you will be using instead of spreading them throughout the doc

- Consider using an sqlite database updated whenever new info is present rather than copying large amount of data into a csv and out again
- Transportation Data: it looks like the turnstile data updates weekly; how often will you issue requests/new data, and what system will be in place to do that?
- Elaborate on purpose/function of extra packages

#### Four\_Cs

- Compliments
  - I like that you will be using different types of graphs to show the different parts of the coronavirus statistics
  - Your design doc is concise and the diagrams are easy to understand
  - Minimalism (?)
- Criticisms
  - Make sure roles are on the first page. Also "prolly 2 ppl"
  - Clarify what your sources include and what they will be used for
  - Elaborate on what graphs you will use in the features section-- do you have links/tutorials for the features you want to implement?
  - Be more specific of what functions will be used and what files will be opened in component map
  - Be more specific about what graphs/charts/paths you will include on each page in the site map