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Softdev pd9
P04 -- Let the Data Speak
2020-05-04

The Happiness Project

Roles:

- Emory Walsh → Project Manager
 - Whatever else is needed
- Benjamin Avrahami → Back End
 - Data from back to front
- Jacob Olin → Front End
 - Map
- Sophie Nichol → Front End and JS
 - Front End

Relevant Links:

<https://www.kaggle.com/unsdsn/world-happiness>

<https://groups.google.com/a/stu.edu/forum/#!topic/softdev19-20/h2ehbICGmL4>

<https://github.com/topojson/us-atlas>

<https://medium.com/@zimrick/how-to-create-pure-react-svg-maps-with-topojson-and-d3-g eo-c4a6b6848a98>

Minimum Viable Project / Project Description:

We are creating a site that will display data from the World Happiness Report, which ranks 155 countries based on their happiness levels. The report determines global happiness by surveying representative samples in each country and asking them to rate their happiness on a scale of one to ten, with one being the worst possible life and ten being the best. The average of these responses is the country's happiness score. These scores have been published by the United Nations every year since 2012 and are used as a metric of well-being and process in countries worldwide.

In order to make the presentation of this data more visual, we will be using information from an atlas data set to create a world map that will display the scores. Countries will be filled in with colors ranging from green to red based on their score on the World Happiness Report. The happiest countries will be colored green, and below them there will be a gradient of greens, yellows, and oranges, with the least happy countries colored bright red. This visualization will display the regional differences in happiness according to the report.

In addition to an overall happiness score, the report also provides an estimate of the extent to which each of six factors contributed to the score: economic production, social support, life expectancy, freedom, absence of corruption, and generosity. We will have a drop-down menu that will allow the user to choose one of these factors and then display a graph that compares the estimates of the importance of each of these factors in different regions. The graph will be a histogram that includes data for ten regions: North America, Western Europe, Australia and New Zealand, Middle East and Northern Africa, Latin America and Caribbean, Southeastern Asia, Central and Eastern Europe, Eastern Asia, Sub-Saharan Africa, and Southern Asia. This graph will compare the extent to which each of these factors contributes to the happiness of people in these regions.

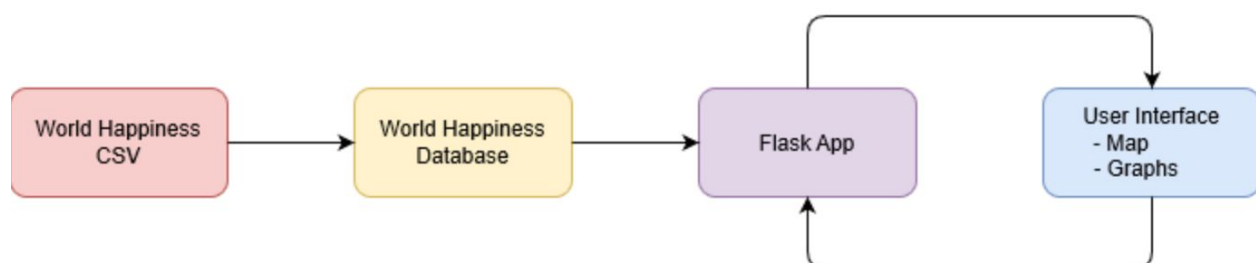
Minimum Viable Product:

- Page that will initially load a map of the world and drop-down menus that will allow the user to select other data that they would like to see
 - Countries on the map will be colored according to their rank on the World Happiness Report
- When the user chooses a contributing factor in the drop-down menu, the page will display a histogram that compares how well different regions perform in that area (how much it contributes to happiness)
- Ability to click on a country and view data about its happiness score

Extra Components:

- A scatter plot of happiness data
- A feature where users can choose two countries and compare their overall scores and how they perform in each of the sub-metrics
- A histogram that compares data from several countries that might be of interest to the user (ex: top ten countries by population or land area, countries on the UN security council, etc)

Component Map:

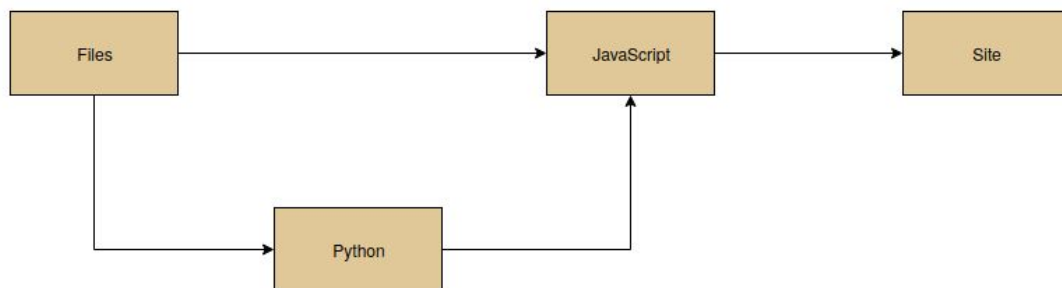


How Data Gets From Back to Front:

There are two different sources of data, so there are two ways in which the data goes from the back to the front.

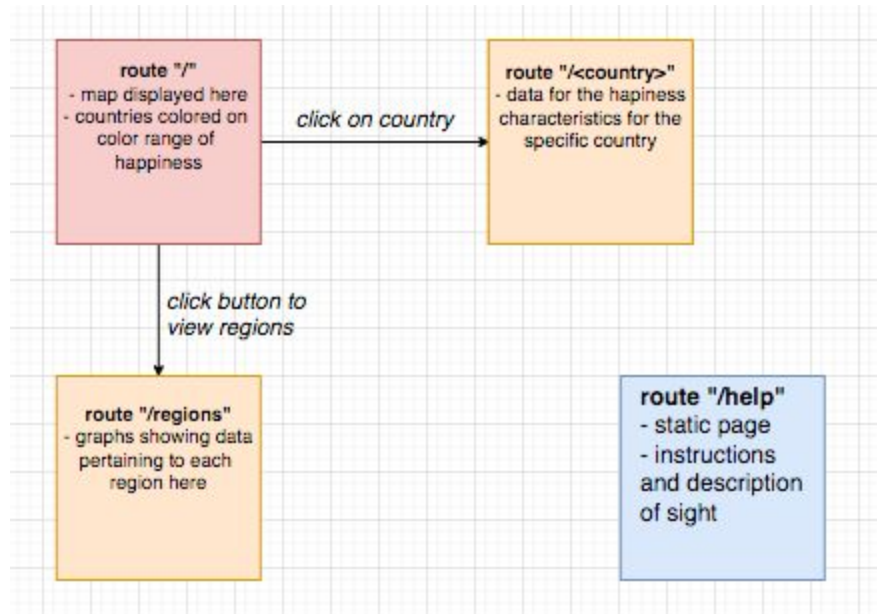
The first set of data is the json of the map and the country borders. This is brought into the back end via `d3.json()`. After that, it is brought to the front end in accordance with <https://groups.google.com/a/stuy.edu/forum/#!topic/softdev19-20/h2ehbICGmL4>. In other words, we join the list of features in the json with the “pathfill” class, and then give it a `d3.geoPath()` feature and projection attribute.

The second set of data is the csv from the World Happiness Report. Since not all the columns will be used, the data will be parsed by Python beforehand to simplify the data, and from there will be passed on to HTML and then Javascript. Once there, it will be used in a few different ways. The simplest will be in the `/<country>` page, where it will simply be listed with each country. This is just a single row of the csv depicted on each page. Next, on the home page, the data will be shown when a country is clicked. This is also showing data from a single row of the csv, but it uses an Alert and requires some collaboration with the map. And finally, in the `/regions` page, the data will be used to show comparative data across regions. This one is the hardest, because it requires some d3, but once the data is sorted by region, it becomes similar to K18.



Site Map:

Version 0



Front End Framework -- Bootstrap (because we have had more experience with it)