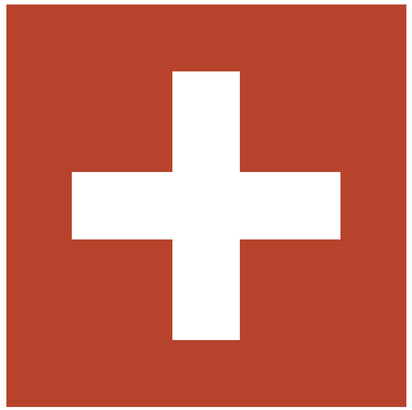
American Health

An interactive information visualization

Document on Process/Stages and Learnings

Parag Gupta | September 2013

Theme & Data



healthcare

costs / tax

demographics

Data Sources

IRS

US Census

World Data Bank

Centers for Medicare and Medicaid Services

Technology

Front End

Graphic Elements

Data Format

Data Description

The data which was obtained was data from various sources merged together.

All in all, I had data about

Number of cases of diseases registered (by category) in every hostpital in the United State of America.

Tax Data for each state. Insurance Coverage Data for treatment of the each of the disease category.

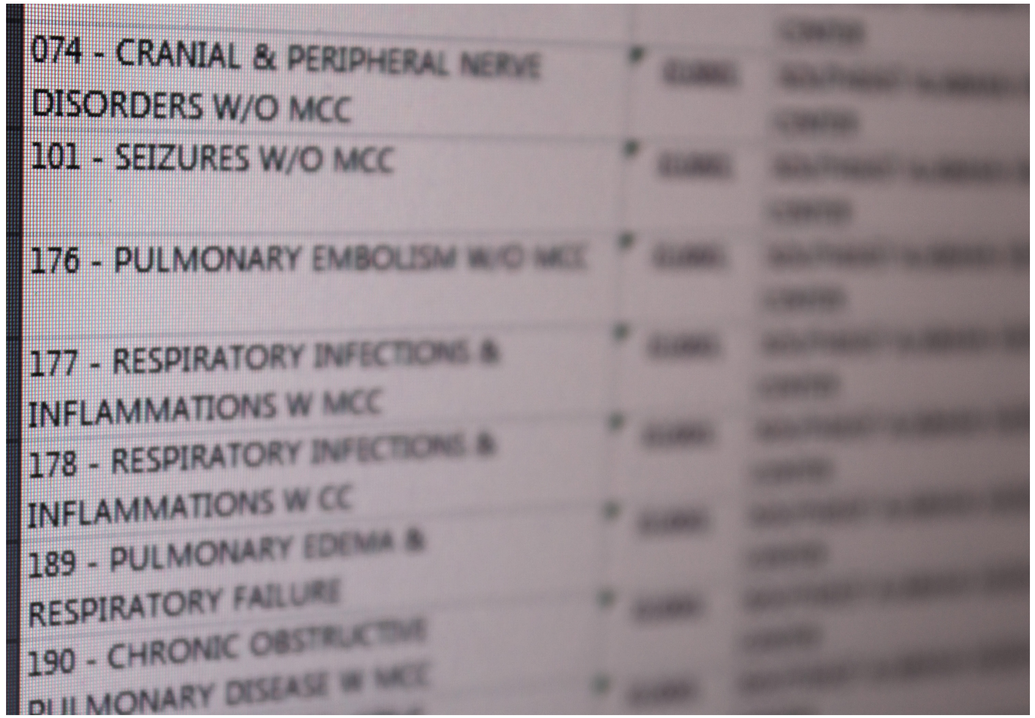
Population Data for each state.

All the data was about 2011.

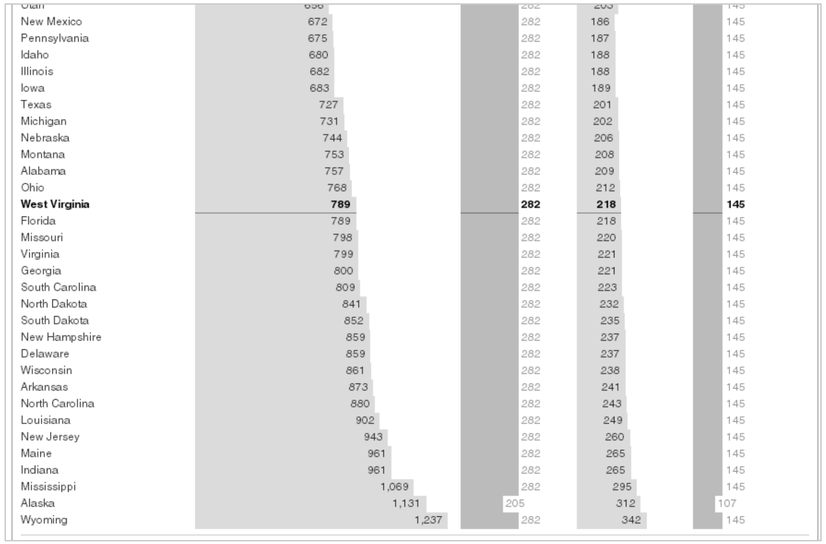
Based on this data, after sanitation, certain parameters were evaluation

1. Disease Prevelance Index
2. Insurance/Tax Index (Indicative of how well the state insurance covers costs based on taxes)
3. Hospital Coverage

All these parameters were made per-capita as per the Census Data for 2011.

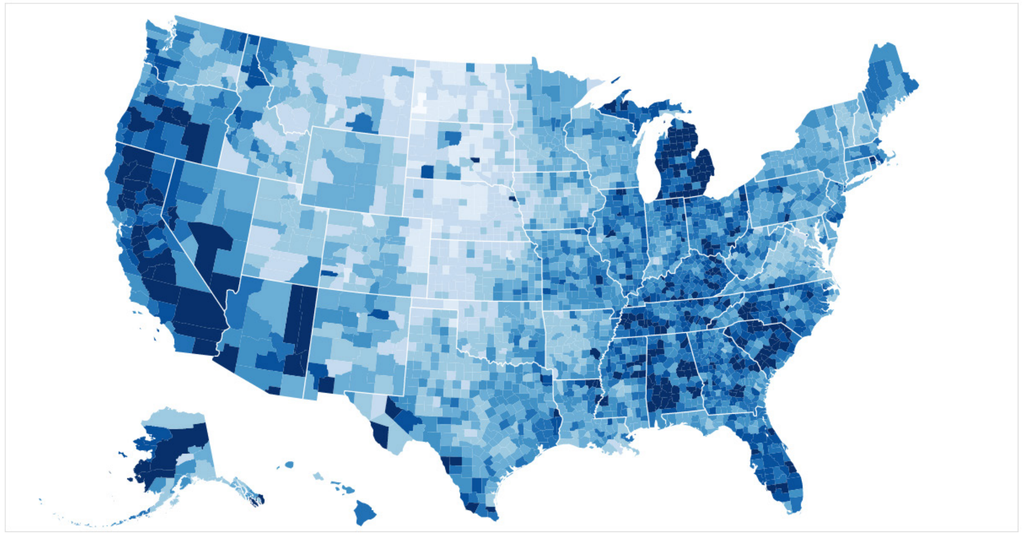


Initial Ideas



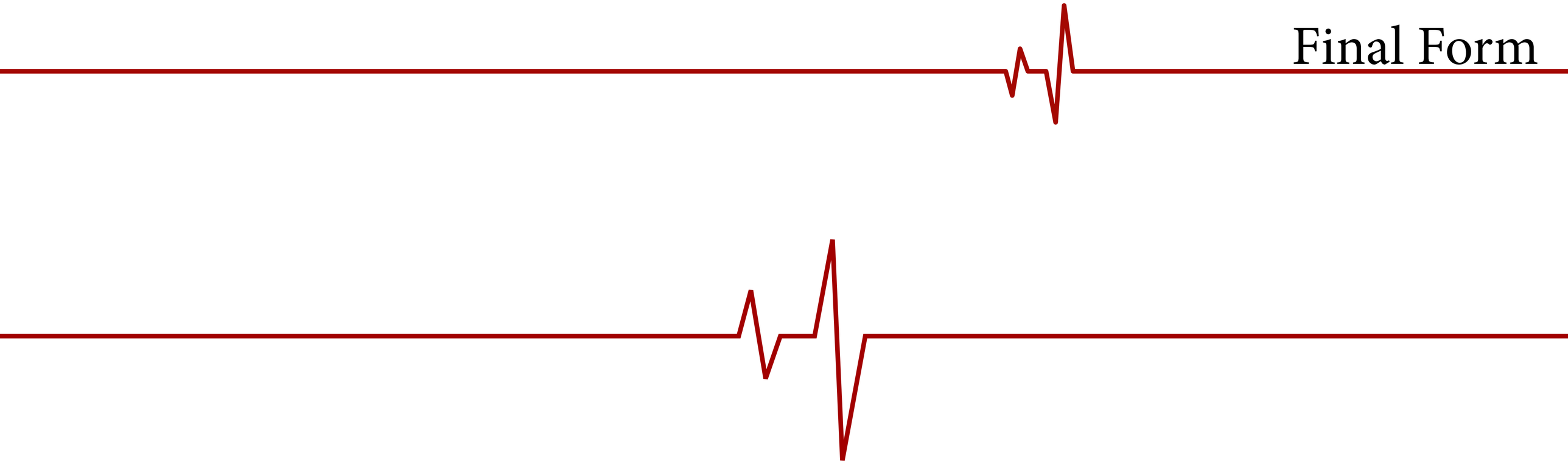
New Mexico	672	282	186	145
Pennsylvania	675	282	187	145
Idaho	680	282	188	145
Illinois	682	282	188	145
Iowa	683	282	189	145
Texas	727	282	201	145
Michigan	731	282	202	145
Nebraska	744	282	206	145
Montana	753	282	208	145
Alabama	757	282	209	145
Ohio	768	282	212	145
West Virginia	**789**	**282**	**218**	**145**
Florida	789	282	218	145
Missouri	798	282	220	145
Virginia	799	282	221	145
Georgia	800	282	221	145
South Carolina	809	282	223	145
North Dakota	841	282	232	145
South Dakota	852	282	235	145
New Hampshire	859	282	237	145
Delaware	859	282	237	145
Wisconsin	861	282	238	145
Arkansas	873	282	241	145
North Carolina	880	282	243	145
Louisiana	902	282	249	145
New Jersey	943	282	260	145
Maine	961	282	265	145
Indiana	961	282	265	145
Mississippi	1,069	282	295	145
Alaska	1,131	205	312	107
Wyoming	1,237	282	342	145

Simple Graphs



Chloropleths

Final Form

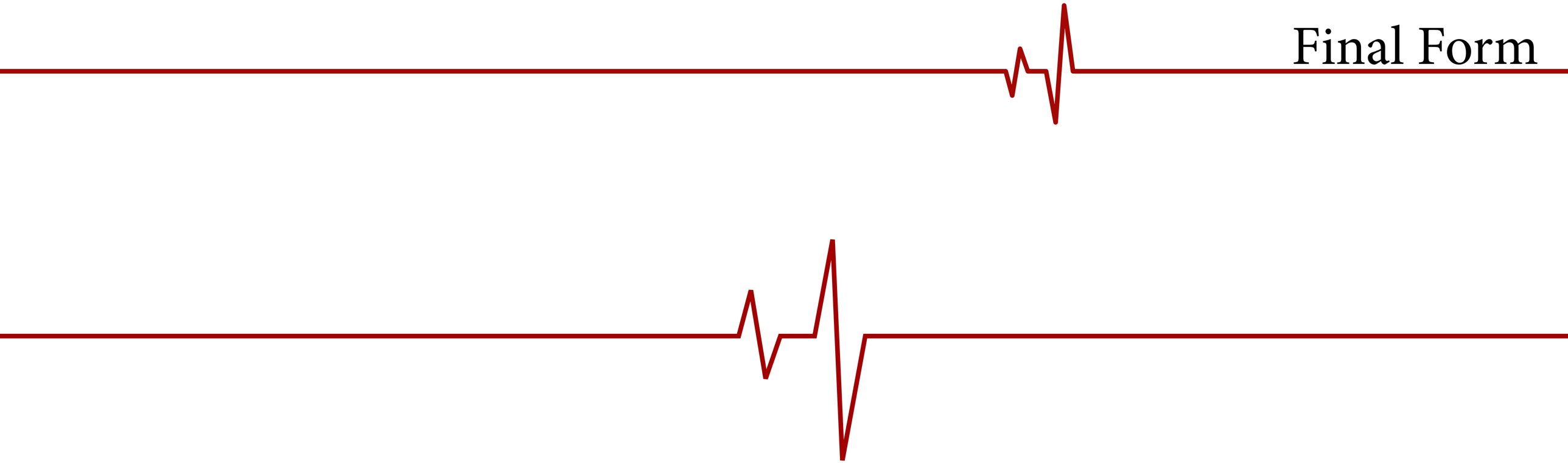


Using a heartbeat for a graph coupled with a chloropleth chart.

The heartbeat peaks were to be used for various parameters. It was also realized that if it can be converted into audio, we can get the state of a system much faster. Not just health, but if we can parameterize health, it can be viewed over this heartbeat.

Say health of a country, condition or roads, state of machines, failures in a system, etc.

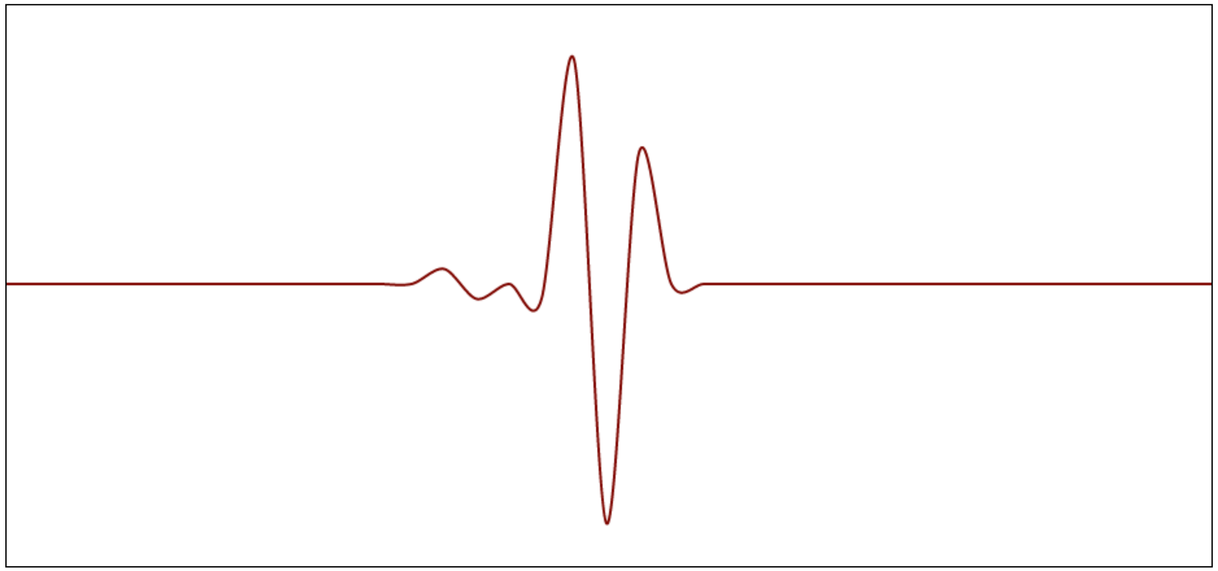
Final Form



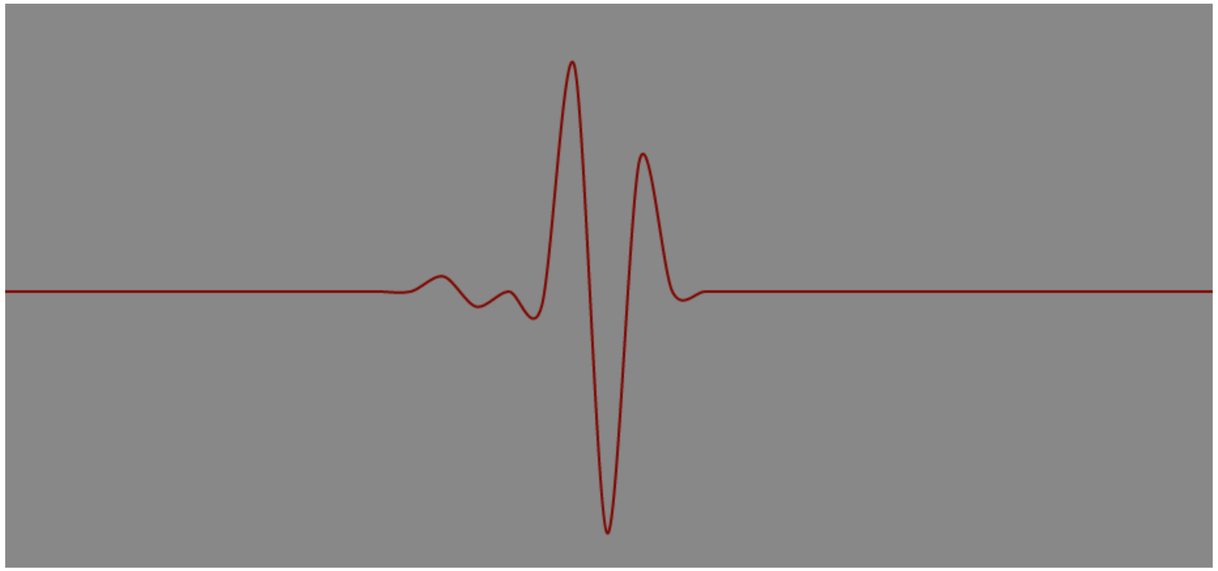
First Glance: It gives an idea of how sich a system it, when compared against a normal
Second Glance: Tells us that the problems are with certain peaks, and some parts might be fine
Third Glance: When studied further, tells us what exactly is wrong.

This was a very experimental approach in order to visualize the concept of Health.

Implementation

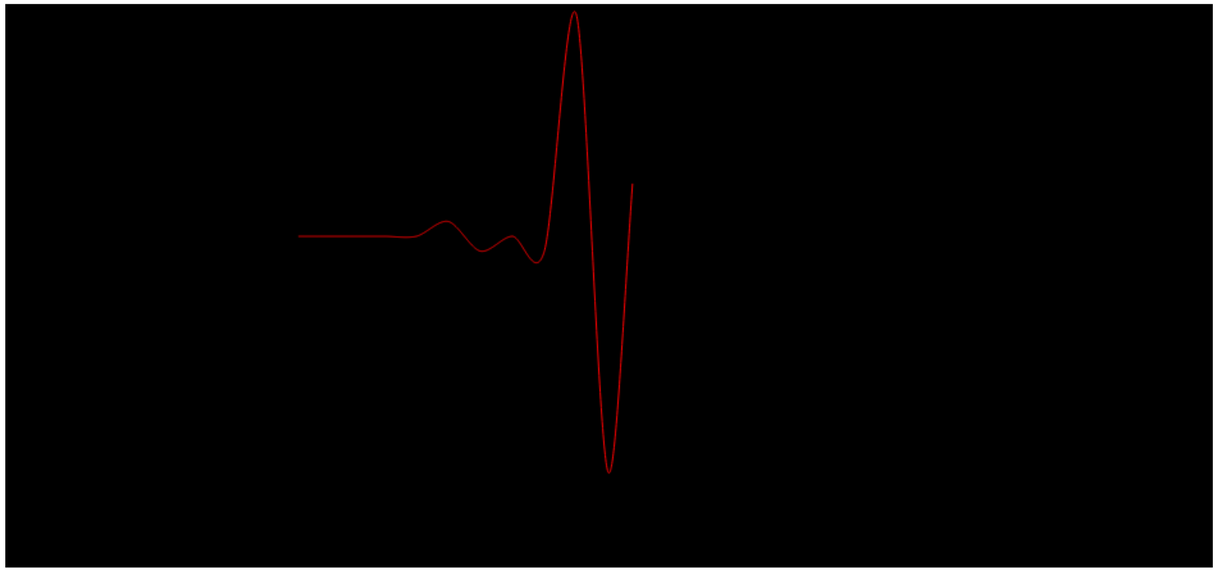


Tried Red on White. It worked with the heartbeat, but didn’t work properly for the map. So tried darker shades.



Various Greys were tried, but nothing could get the right contrast.

Implementation



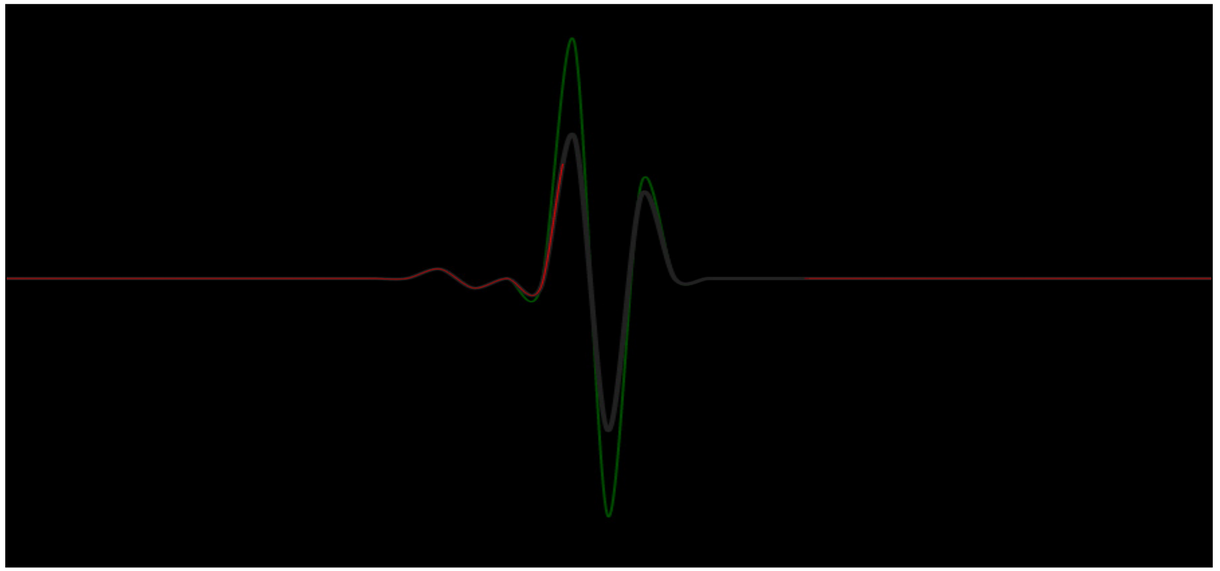
Tried animating the heartbeat to match it to how we see heartbeats on the electro cardiogram.

The problem was, that when it moved ahead, you have to wait for the cycle to see the values.

So a grey trail was added to show the values

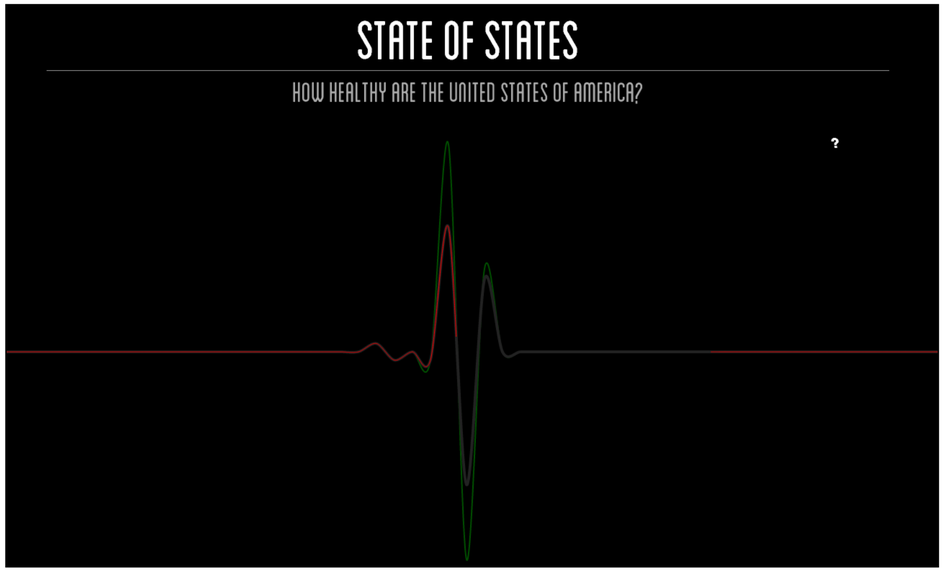
Also, the grey trail was made thicker compared to the moving beat, to make it look like it’s blood-in-a-vessel

Implementation

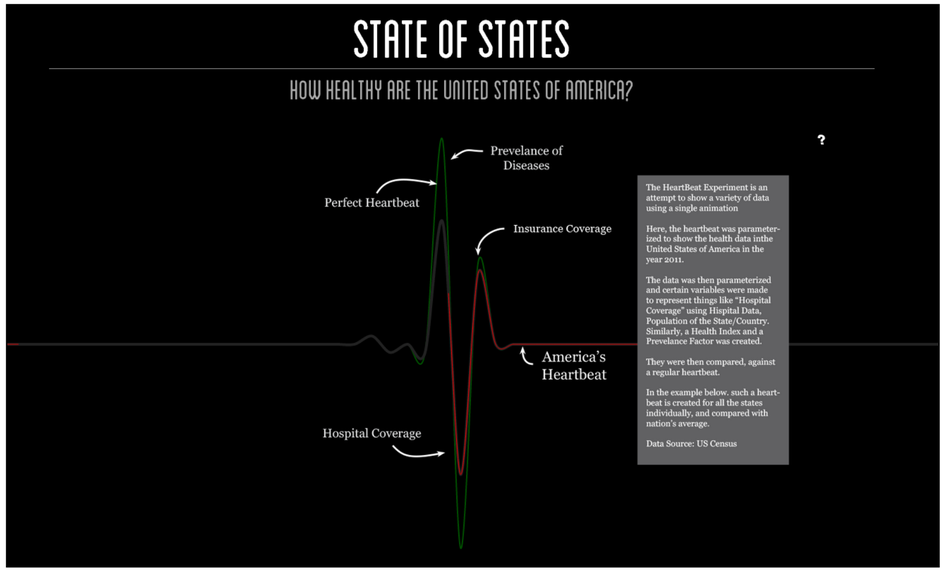


Green Shadow Heartbeat was provided to show a reference line. It helped quickly understand how bad the heartbeat is.

Implementation

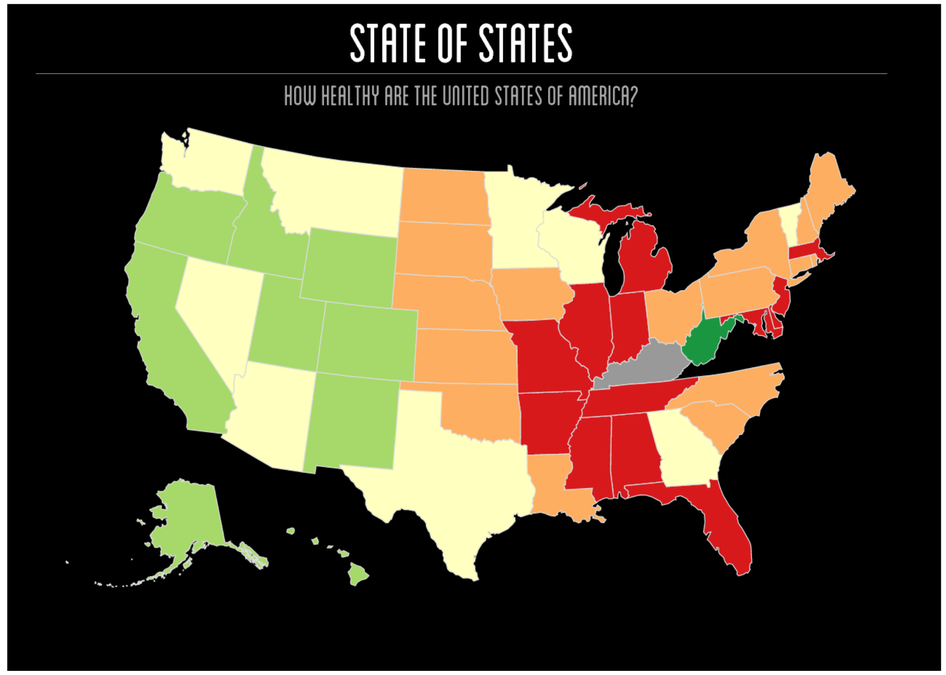


Added a Help Tip in order to make it simpler to understand



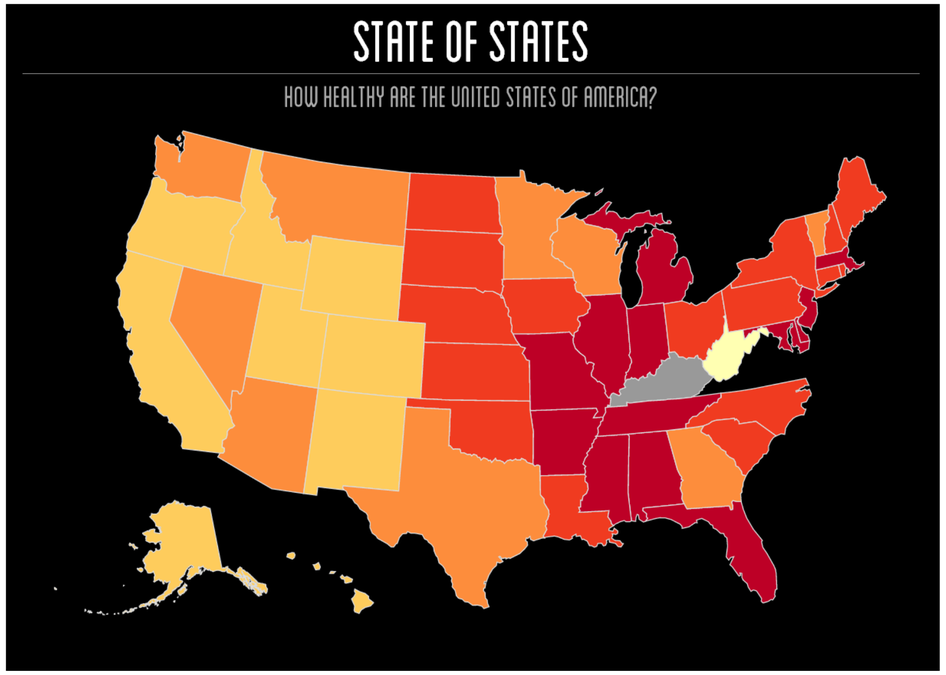
The text gives out details to how to read the heartbeat in case more information is required.

Implementation



A chloropleth map was created to show the state in every state.

The color was coded based on a health-index created for all the data.

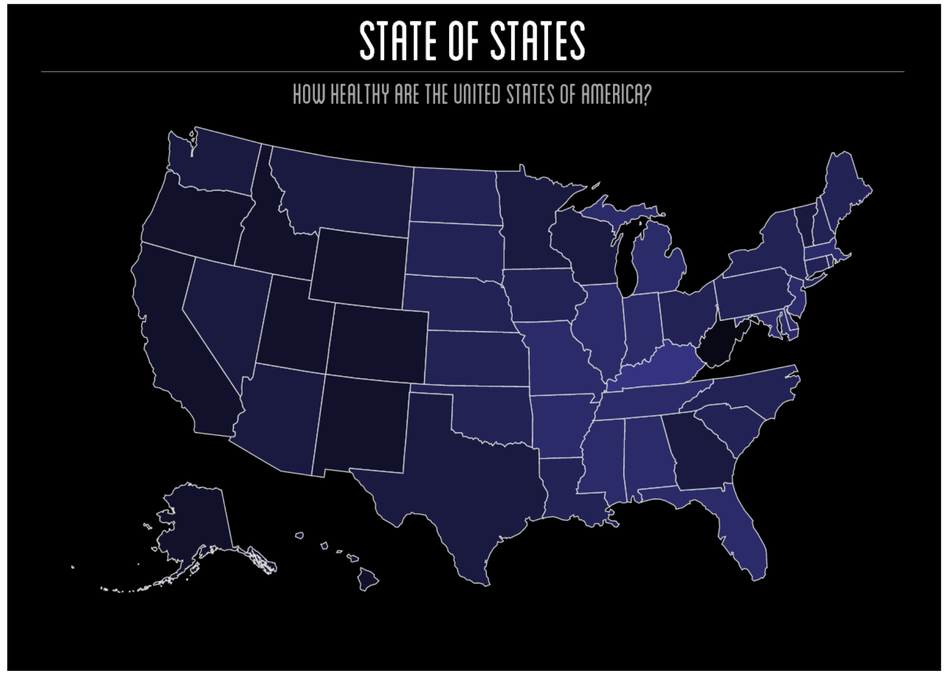


Various Color Schemes were used.

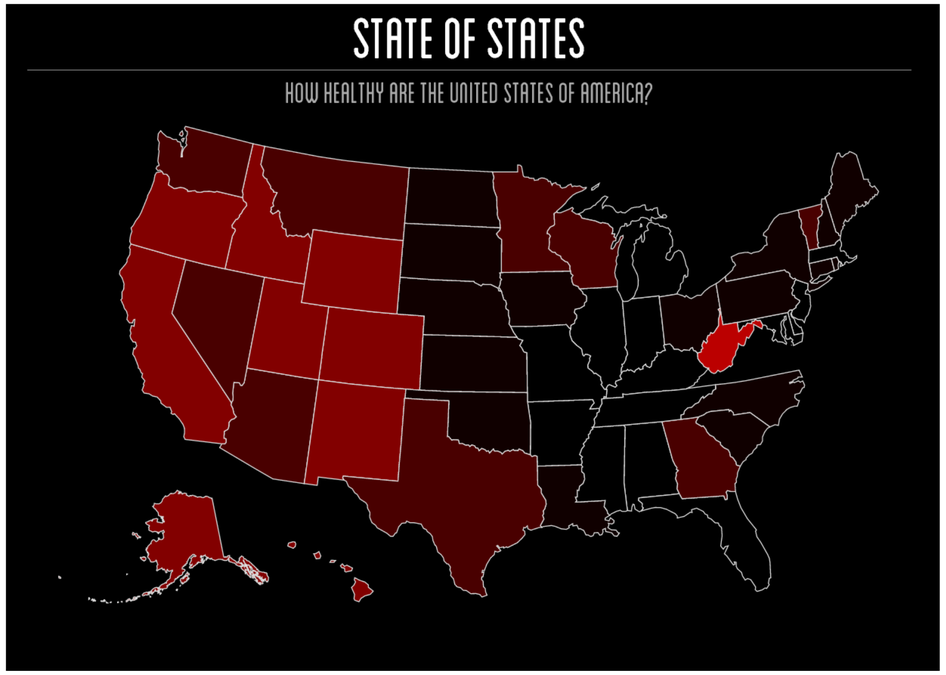
First, healthier once were shown in Green, and Sick ones in Red but that implied that the green ones are healthy, though the intent was to show that it's less diseased.

Then this color scheme was used where a range of red was used.

Implementation



The red tones didn't work properly, so shades of blue were used. Blue suggested disease. But this didn't work as well. So, finalized on a red palette.

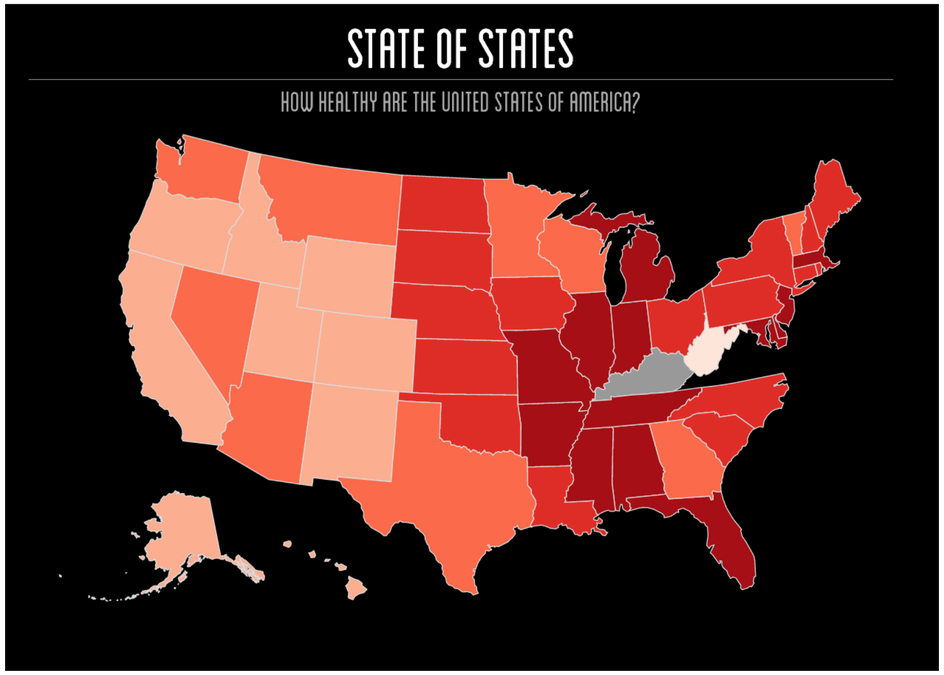


Various Color Schemes were used.

First, healthier once were shown in Green, and Sick ones in Red but that implied that the green ones are healthy, though the intent was to show that it's less diseased.

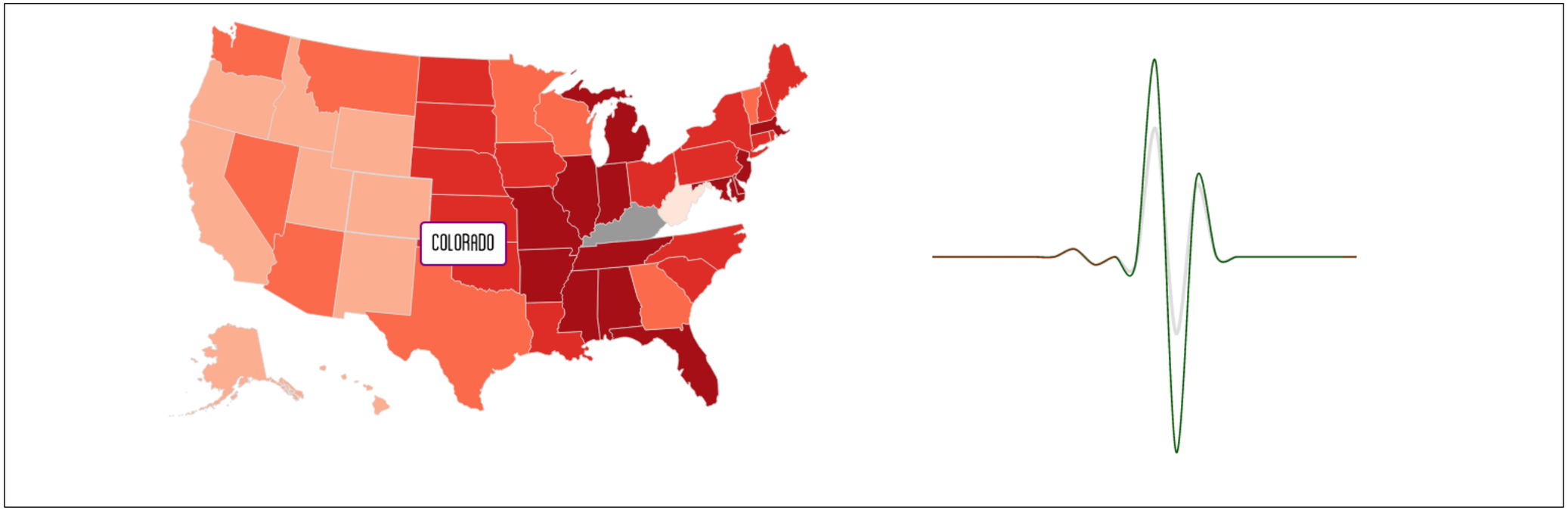
Then this color scheme was used where a range of red was used. This didn't clearly show which was the lower values so it had to be changed.

Implementation



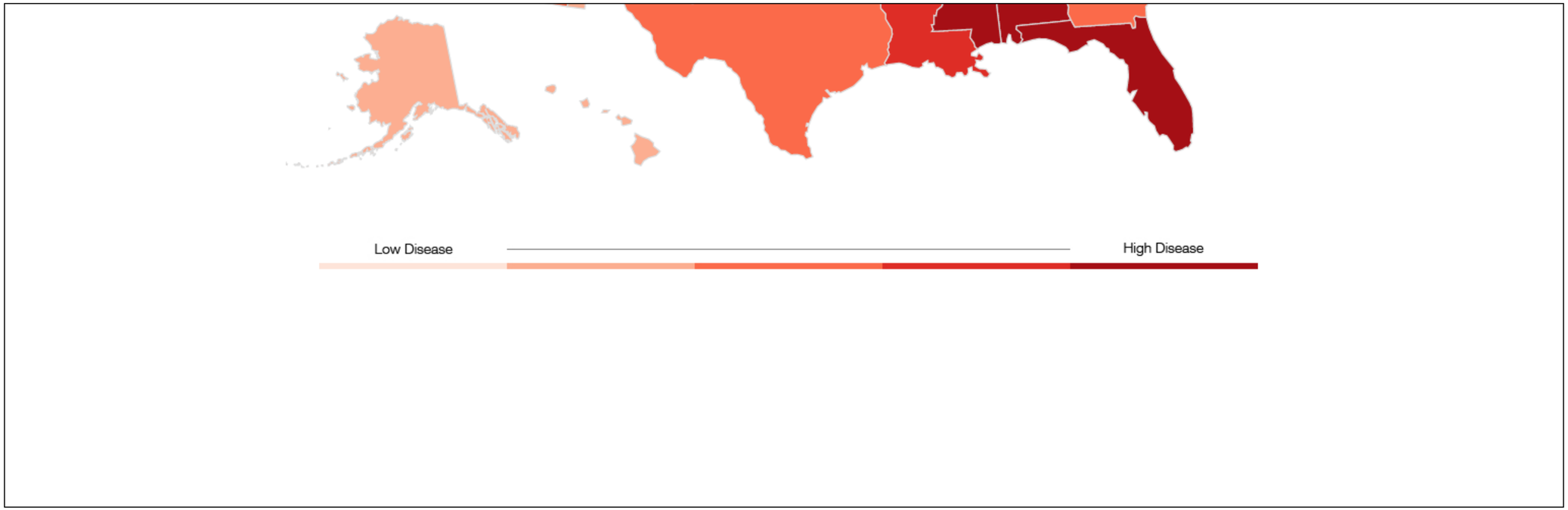
Finally this scheme was finalized

Implementation



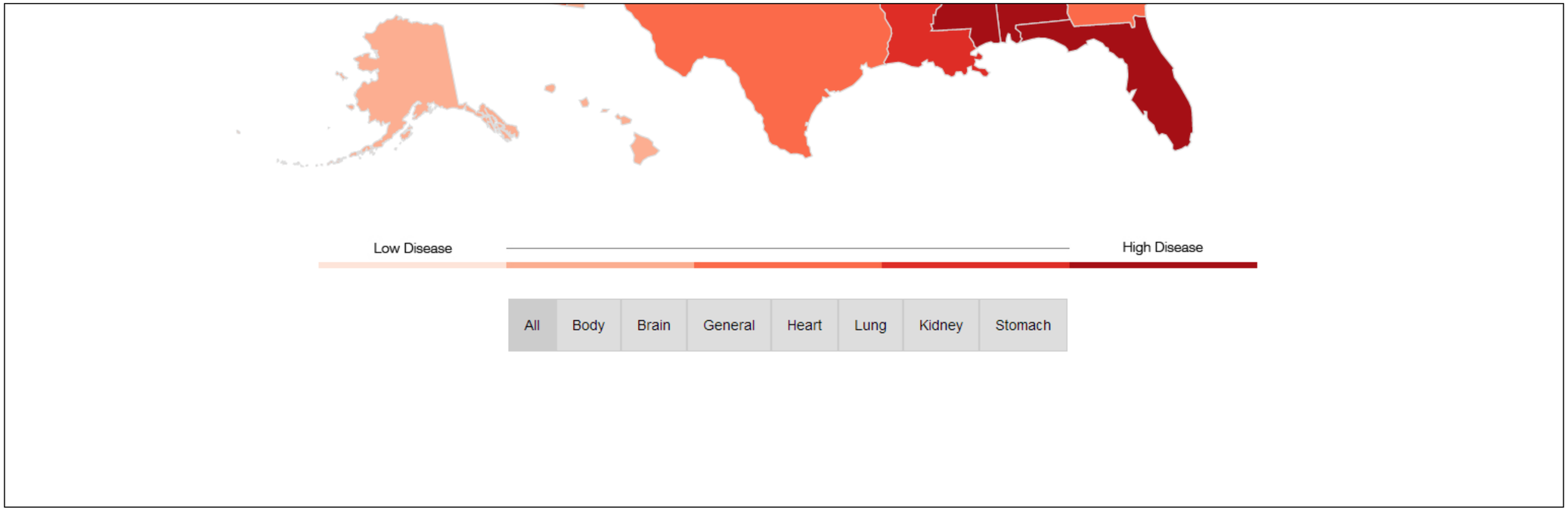
On clicking a state, the heartbeat was shown for that state using the same colors as before.
Clicking on another state updates the heartbeat, and clicking on a state twice zooms back to the map

Implementation



A color scale was added to remove any confusion about color.

Implementation

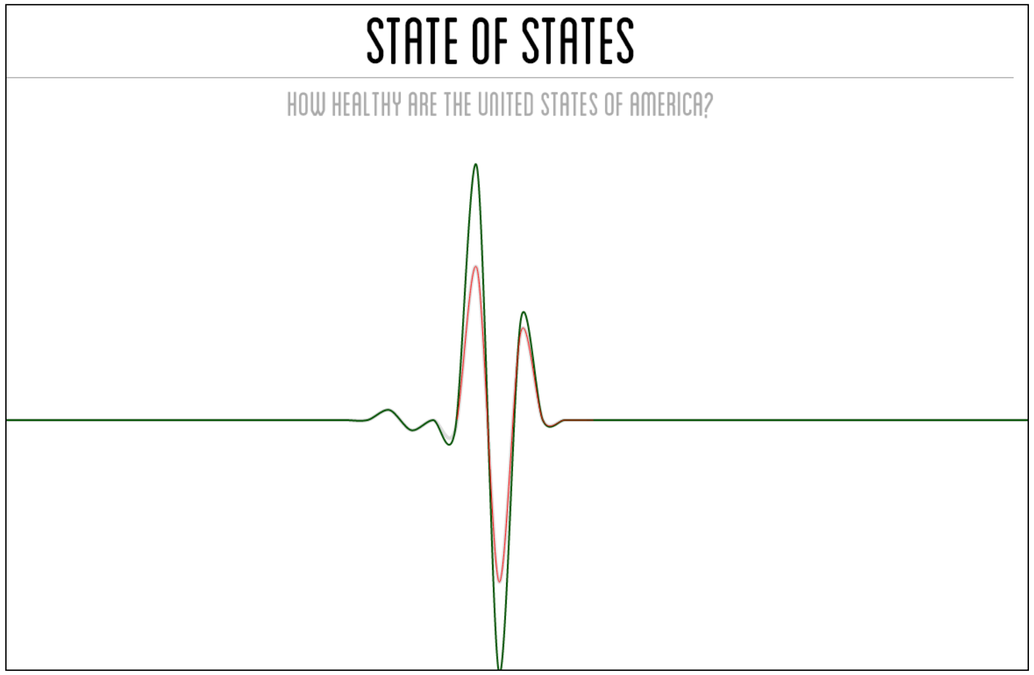


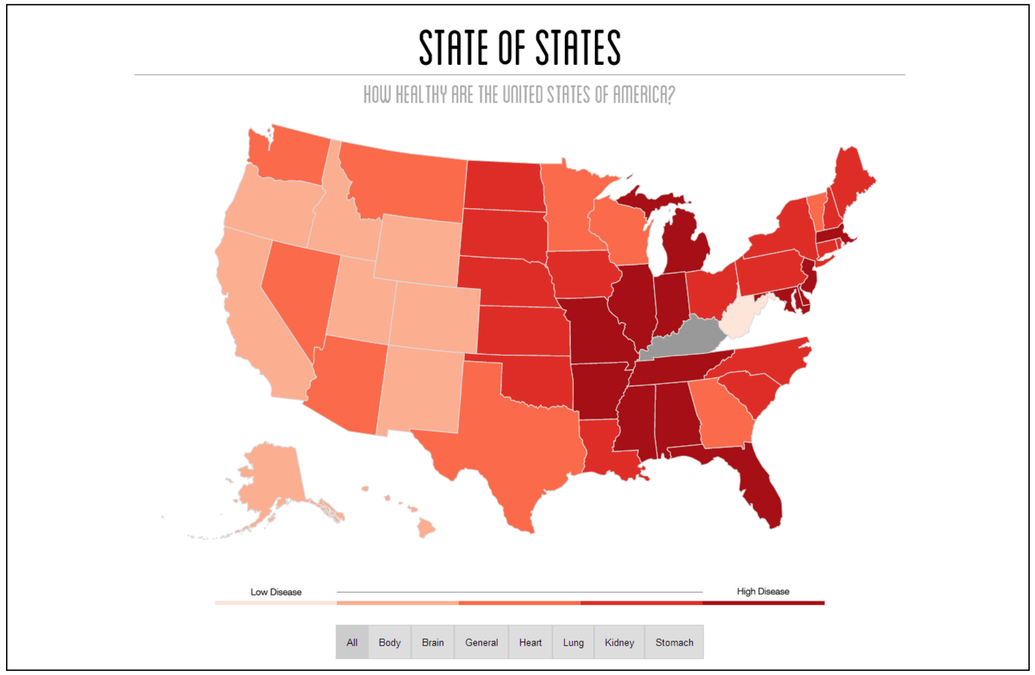
Later filters were added

The primiary confusion about the filter was whether to make them multi-selectable or to make them select only one at a time

Finally it was deciced to make them only select one at a time, and an All Filter was added to sum it all up.

Final Visualization



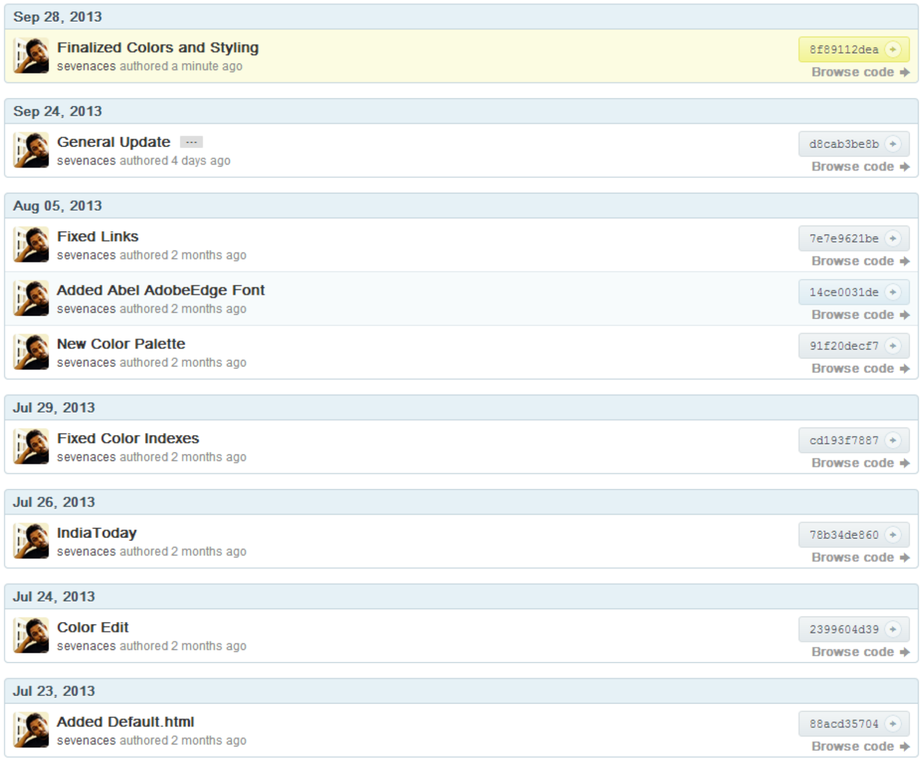


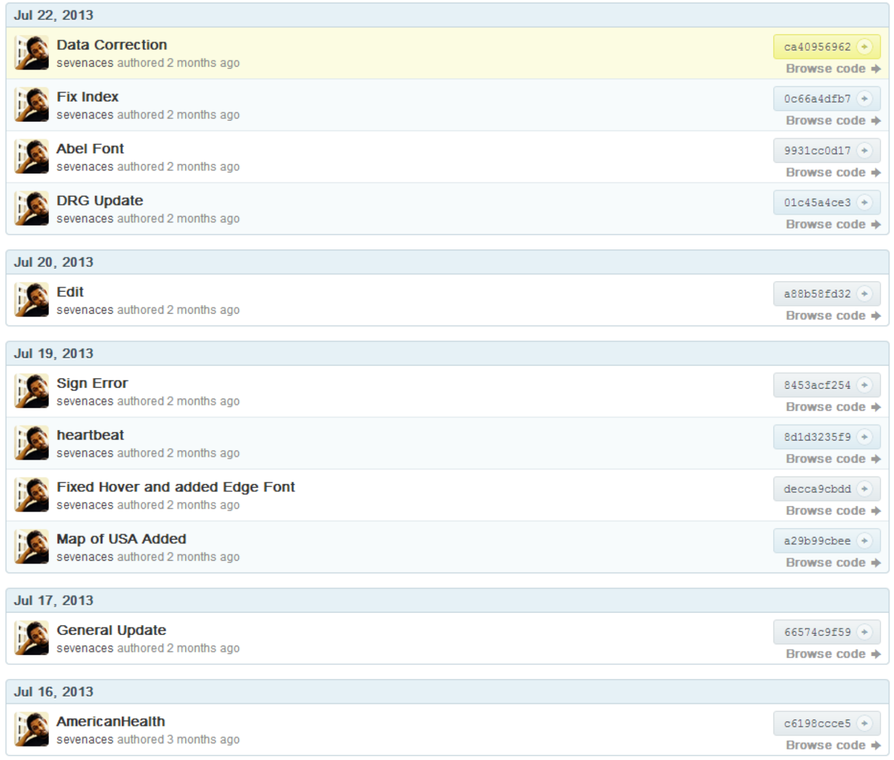
The final iteration

It can be found online at

http://sevenaces.github.io/americanhealth/

Github History





The developmental history recorded by github.

Can be viewed at :
https://github.com/sevenaces/sevenaces.github.io/commits/master/americanhealth