Documentation page

* + *Your design process: How did you go about designing the visualization? What are some of the initial designs / ideas you attempted in the beginning? A good way to document your design process is to scan your sketches and include them in the documentation page.*

**Design Process:**

In building this visualization, I was considering various charts to display the breadth of data between the datasets that were made available. The data included coordinates to create a map, locations of where deaths occurred, age and sex of each victim, the locations of nearby water pumps, and also a day by day count of total deaths from Cholera in a 42 day period. John Snow had most of this information when he created a map to visualize where deaths were occurring during the Cholera outbreak of 1854. Through his juxtaposition of death locations on top of a map of a London neighborhood, he was able to see how a great number of these deaths were aggregated around a particular water pump. As it turns out, that water pump was contaminated, and it was not until putting the pieces together with the aid of this visual that the cause of the outbreak was discovered. This was a foundational moment for the fields of public health and data visualization.

So I knew I wanted to re-create a map similar to what John Snow made. I also knew that I wanted to create a separate chart depicting deaths over time, in hope that this could interact with the map to enable the user to see the progression of deaths over time. I had a slew of ideas to try with various line-charts, histograms, stacked bars, and scatterplots but unfortunately I am just a beginner with learning code and all of this had to be made in D3. So stay tuned! I plan to add more visuals to explore this data space.

I had drafted some ideas in Excel to get a feel for what I might see for the quantitative data. It was helpful to get a gauge of what my time chart should approximate and also helped me identify that some visuals I have in mind would not work with the data as is, because it would need some recoding to match what I was trying to depict. For instance, the deaths over time does not match the death locations data in a one-to-one, row by row, way. So by utilizing IDs with data points and creating a new variable in my dataset to have the accumulative death counts, I was able to connect these two datasets. It is an amazing feature being able to create interactivity in this way! D3 has the power!

**Rationale of my design choices:**

First off, I wanted to have my map and time chart side by side so the user could interact with them and see what was happening on both visuals without having to zoom out. I knew I wanted to keep the colors as simple as possible. The colors I chose fall into the spectrum of the most common colors, special colors if you will, like yellow, orange, green, red, blue. I wound up focusing on blues and greens aside from drawing and using text with black. I actually first chose red, green, and blues but after doing more research on colorblindness (three different types), it became clear to me that what seems easily distinguishable with reds and greens popping out against each other was actually not that easy to distinguish for people with Deuteranopia, for instance. So with that in mind, I adjusted my color scheme, with the aid of Color Brewer, to be more friendly for folks who are colorblind. This is how I wound up with the particular shades of blue and green on my map, those should still be distinguishable, on the level of luminance, for people looking at this with eyes that have different distributions of cones on their retinas than my own. I also chose to have the death locations light up in a color tested in this color-blind friendly color scheme, and as the user scrolls out the death locations turn black. I thought this would be helpful to distinguish all the deaths one had scrolled over up to that point, in other words, I thought this use of color could be a valuable investigative tool.

*Rationale of your design choices: This should be a rigorous explanation of the design choices you made. For example, why did you use color to encode a particular variable? Why did you arrange your charts in a particular way?*

* + Describe how you used your visualizations to discover facts or answer questions you had. Include evidence to support your findings as screenshots from the visualization. In this case, we have a clear hypothesis to start with, but are there other nuggets of insights one can uncover?