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Design Critique Homework 08

For the Coronavirus Dashboard visualization, I decided to implement a continuous color scale. Compared to the alternative of using discrete color steps, as shown in the lab implementation, a continuous color scale is best suited for accurately conveying the number of cases and deaths (absolute and relative) on the US map. I will further compare the continuous and discrete methods and use the provided articles to support my implementation of a continuous color scale.

The primary reason that a continuous color scale is best suited is because the purpose of the Dashboard is to allow users to visually compare states' COVID-19 cases and deaths quickly and efficiently. By appropriately choosing the number of stops on the gradient scale, users can identify which states see a higher number of cases versus other states. A discrete color scale could also achieve this purpose, but it is less effective in allowing users to compare regions. In the article, Rost states that "discrete steps sacrifice nuance for that quick readability".[1] In our dashboard visualization, it is certainly true the continuous scale allows for a more nuanced interpretation of the map data.

The second reason is because a discrete color scale risks an aggregation problem.[2] For example, if we were to bin the COVID-19 data into 4 discrete buckets, it runs the risk of bucketing the values of e.g. 25,000 and 25,500 into two separate buckets, while grouping e.g. 20,500 and 25,000 in the same bucket. This is clearly wrong because the former two values are much closer in magnitude than the latter, but they are grouped in separate buckets. This aggregation problem makes it difficult to glean important information for the visualization and even misrepresents the data grouping.

For these two reasons we explored, I decided that a continuous color scale is the best fit for our Coronavirus Dashboard. Next, I will briefly explore the issue of displaying absolute values on a choropleth map.

Displaying absolute values on a choropleth map is difficult because we cannot compare that data without knowing the population of each region (e.g. state population in our coronavirus map). Therefore, a choropleth map is best suited for relative data (e.g. number of cases per capita or relative to state population). A possible alternative, while using absolute data, is to implement a symbol map; however, this solution runs the risk of answering a different question. For example, a symbol map for our COVID-19 data may simply answer the question of "Where do people live in the US" rather than answering where the highest number of cases occur.

[1] https://blog.datawrapper.de/choroplethmaps/
[2] https://policyviz.com/2017/11/02/choosing-map-bins/