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Information Visualization -- Cases and death of COVID-19 in the United States

Final Report

ABSTRACT

Kevin is an American and he lives in Texas. He wants to know whether the number of deaths caused by COVID-19 that happens in the state this September decreases compared to the last month. When logging this system, he will see an entire United States map and a line chart, both of which show the case data in the United States as a whole from 1/1 to 11/27. To get the data he wants, he can firstly use the bar to choose the month “Sep” and then press the button called “death” above the map to ask the system for highlighting the death data in Sep in the line chart. Then he can move his mouse onto Texas on the map and it will show the total number of deaths in Sep in Texas. After that, he can click Texas to get a line chart of cumulative death numbers in Texas from 9/1 to 9/30, which is shown below the United States map.

I. INTRODUCTION

COVID-19, one of the most powerful viruses throughout human history, dominated 2020, which has impacted nearly everything unprecedentedly, no matter for the macro countries or individuals. Although in China the influence of COVID-19 has been restrained, in many other countries, especially in America, the public is still unaware of its infectivity, far away from bringing it under control and getting back to normal life. However, so far we couldn’t find a good visualization that clearly shows how serious

the whole country and every state are affected.

Two months ago, we experienced the 2020 election and noticed that most of the mainstream media made intuitional maps that effectively communicate the blue and red tension. These graphs attracted the attention of the whole nation. Hence, we think that a nice map showing the idea of how COVID-19 has been spreading in America, just like how the political issues are well visualized, may awaken people's consciousness against the virus, and accordingly, save lives. In this visualization project, we traced the spread of COVID-19 not only in America as a whole but also in every state of America from January.

II. THE DATASET AND FEATURES

We include a map of the United States. On the map, we use the mark Area to represent each state and use channel color saturation to represent how large the number of cases(or deaths) is in this specific state. Below the map, we draw a line chart to show the number of cases(or deaths) of COVID-19 in the whole United States from 1/1 to 11/27.

III. METHODOLOGY AND EXPLANATION

We use two UI widgets to achieve data updating. One is a choosing bar, which contains "Total", "Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov". Initially, the bar's value was "Total", demonstrating the spread in the United States from 1/1 to 11/27. The other is two buttons, one is "cases" and the other is "deaths". Initially, the map and the line chart shows the case data. When choosing a month in the bar and then press the button "deaths", it highlights the death data in the corresponding month in the line chart.

Moreover, we use two kinds of interactions. One is the mouseover. When you move your mouse onto a specific state, you will see a toolkit showing the name of this state and a total number of cases(or death) from 1/1 to 11/27 (if bar value is “Total”) or in a specific month (if bar value is a month). The other is click. When you click a specific state, the line chart will show you the spread of COVID-19 in this state.

IV. DEMONSTRATION

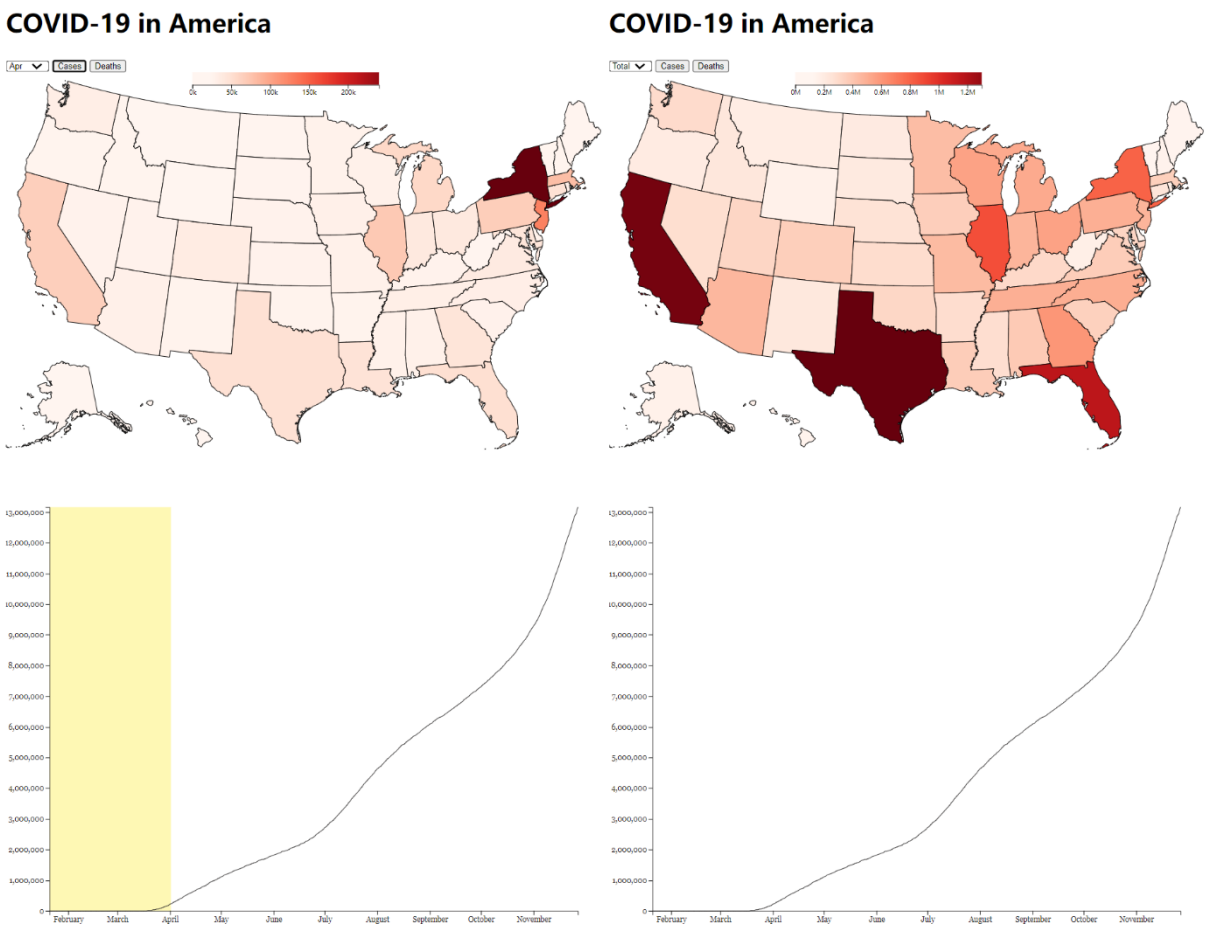

Figure 1 Cases in the United States till April vs. till November

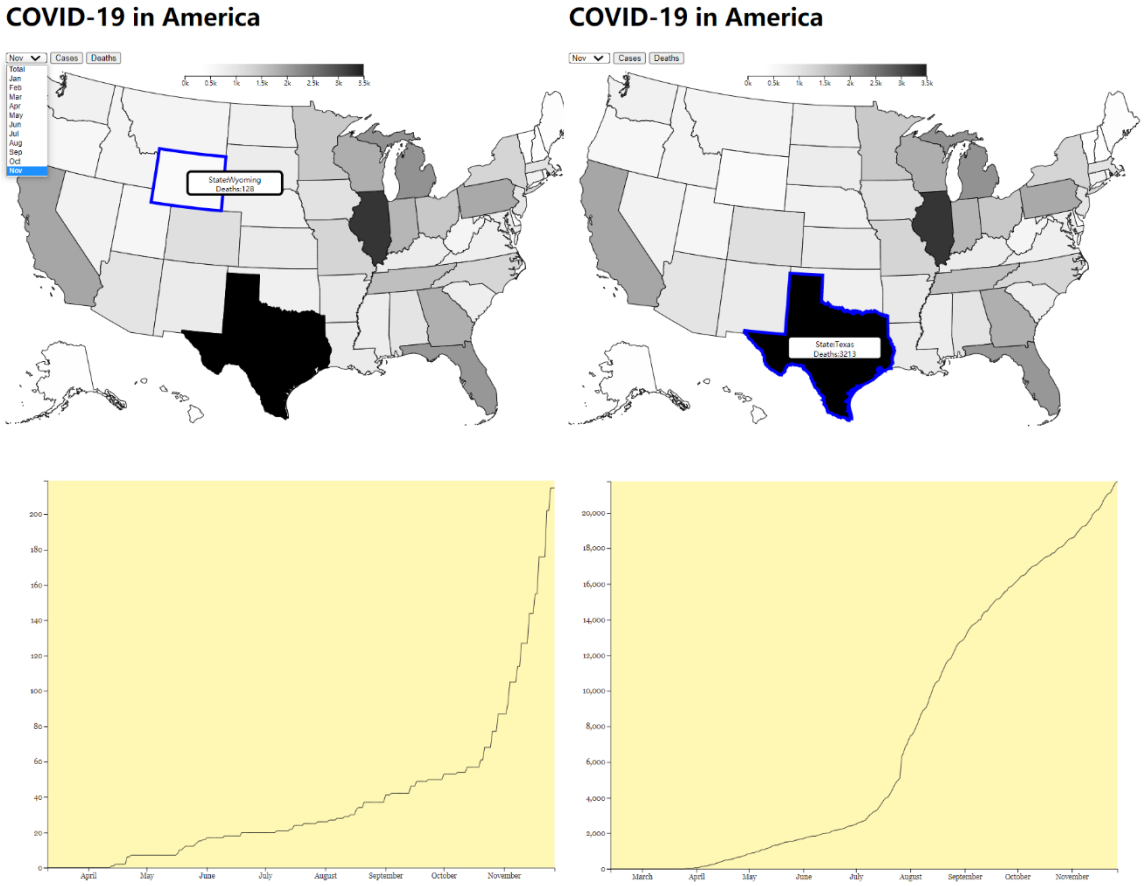

Figure 2 Deaths in Wyoming and Texas till Nov.

V. DATASET FOR REFERENCE

nytimes/covid-19-data

https://github.com/nytimes/covid-19-data

topojson/us-atlas

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