COVID-19 confirmed case distribution in US

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This narrative visualization is based off COVID-19 confirmed case number in US dataset from 1/22/2020 to 7/22/2020, credit to JHU (https://github.com/CSSEGISandData/COVID-19/tree/master/csse_covid_19_data/csse_covid_19_time_series).

Messaging

The message of this project is to visualize the geographical distribution and growth trend of COVID-19 as the time moving forward and provide availability to discover hotspots of each state at any point of time.

Narrative Structure

This project is based off drill-down story structure. As the project is being loaded, an overview of latest situation is presented. The map shows the case geographical distribution and presents case number magnitude in terms of circle diameter, meanwhile overlapping transparent circles indicate the severity of COVID-19, the darker, the more confirmed cases the area has. A line chart animates the growth from 1/22/2020 to 7/22/2020.

With the knowledge of the overall picture, each state on the map is highlighted on hovering and can be clicked to drill down, with the help of Date Slider to choose specific date, a bar chart shows case numbers among all the counties in the state on any date. With the choice of date, the map is also updated, so that viewer is able to drill from the overview scene down to specific state.

Visual Structure

This project consists of a US map - presenting case geographical distribution during the timeframe, the color density and circle diameter help viewer to learn the distribution and clustering of confirmed cases. When viewer hovers on any state, the state is highlighted and state name is popped as tooltip, which leads viewer to click on the state. The click will trigger bar chart to be displayed, viewer will explore other states.

The overview line chart – plotting case growth during the timeframe, by showing the overall growth with time, the line chart leads viewer to the Date Slider to drill down to other date, which is also the trigger to switch among scenes. The line chart uses caption and annotation to introduce the purpose and important data points to viewer.

The bar chart depends on the choice of date and state – the caption displays the current choice of date and state and tooltips on each bar are displaying case number for each county in the selected state.

Scenes

There are many scenes in this project, the overview scene is comprised of the latest distribution on the map with a growth line chart. As viewer drilling down along the timeline and the choice of state, each combination leads viewer to another scene to discover case distribution of each state at any point of time.

The story starts from the overview scene, the succeeding order of other scenes depends on viewer's self, since this is a free-form user interaction drilling down storyline, viewer makes the decision to discover own interest.

Annotations

The annotations used in this project is located on the overview line chart, showing a surging time point and the latest data point of the dataset.

The annotations are constructed by a horizontal dot line and a vertical dot line crossing the line in the chart with text above the horizontal dot line.

Using a line annotation is visually clear to locate the position of the underlining point. It also points out extra information out of the line chart.

The annotations are steady on one single scene, because annotation is used to highlight critical data point for the current scene and is a part of important information.

Parameters

The parameters in this project are date and choice of state. The date varies from 1/22/2020 to 7/22/2020 and the choice of state only includes main states of the US.

Every combination of date and state produces a bar chart to present a county-wise case distribution, namely, each combination represents the states of parameters. In the case that the choice of state and date didn't have confirmed case, a message of 'No Confirmed Case' is shown instead of the bar chart.

Triggers

The trigger is a callback function with the combination of date and choice of state as arguments. When viewer changes either parameter, the bar chart will be updated accordingly.

The Date Slider is provided for viewer to drag to change date and each state on the map is highlighted on hovering to be clicked on, viewer can easily change visualization from scene to scene.