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Narrative Visualization Webpage link: https://tina-harter.github.io/narrative-visualization-project

Code repo link: https://github.com/Tina-Harter/narrative-visualization-project

Data source link: https://github.com/CSSEGISandData/COVID-19/blob/master/csse_covid_19_data/csse_covid_19_time_series/time_series_covid19_confirmed_global.csv

Narrative Visualization Essay – Covid 19 Confirmed Cases 2020 - 2023

The primary objective of this project is to provide a detailed analysis of the confirmed COVID-19 cases globally from 2020 to 2023. Through a series of interactive bar charts, the visualization aims to highlight trends, significant data points, and the progression of the pandemic across different countries and years.

The structure of the narrative visualization follows interactive slideshow structure. Each scene in the visualization is a bar chart representing the total confirmed COVID-19 cases for each country in a specific year, including a cumulative total. The bars are annotated to highlight significant data points, such as the countries with the highest case numbers. The visual structure ensures clarity by using consistent colors and layouts, making it easy for viewers to compare data across different years.

The scenes in this narrative visualization are organized as follows: **Total Confirmed Cases (2020-2023)**, **Confirmed Cases in 2020**, **Confirmed Cases in 2021**, **Confirmed Cases in 2022** and **Confirmed Cases in 2023**. The scenes are ordered chronologically to show the progression of the pandemic. This chronological order helps users understand the development and changes in COVID-19 cases over the years.

In **Total Confirmed Cases (2020-2023)** scene**,** the United States leads with 713,877,215 confirmed cases, reflecting its significant impact during the pandemic, driven by factors such as population size and extensive testing. India, Brazil, France, Germany, and the United Kingdom also show high numbers, indicative of severe outbreaks and large populations. In contrast, North Korea is noted for having the lowest confirmed cases, with only 532, likely due to strict border controls and potential underreporting.

In **Confirmed Cases in 2020** scene, the United States recorded the highest number of confirmed COVID-19 cases, followed by India and Brazil, which had significant outbreaks that contributed to their high case counts. Brazil, with 892,348,107 cases, and Russia, with 294,490,774 cases, ranked third and fourth globally, indicating widespread transmission in these regions. Notably, several countries and regions, including North Korea, displayed zero confirmed cases or had missing data, highlighting either effective containment measures, reporting challenges, or unique circumstances like isolated populations.

In **Confirmed Cases in 2021** scene, the United States continued to have the highest number of confirmed COVID-19 cases, followed closely by India and Brazil. A notable

shift occurred as the United Kingdom surpassed Russia, with 2,245,399,868 confirmed cases, making it the fourth country with the highest number of cases globally. This indicates significant outbreaks and the spread of new variants in the UK. The chart also highlights several countries and regions, including North Korea and Tuvalu, with zero confirmed cases or missing data.

In **Confirmed Cases in 2022** scene, a significant shift occurred as France and Germany overtook the United Kingdom, with France reporting 11,051,680,181 cases and Germany 9,624,837,514 cases, making them the fourth and fifth countries with the highest number of cases globally. This change highlights major outbreaks and the spread of new variants in these countries.

In **Confirmed Cases in 2023** scene, a significant development was France and Germany surpassing Brazil, with France reporting 2,701,498,984 cases and Germany 2,572,990,530 cases, making them the third and fourth countries with the highest number of cases globally. This shift indicates ongoing significant outbreaks and the spread of new variants in these European countries.

The annotations are strategically placed to draw attention to key insights, it highlights on countries with the highest and lowest confirmed cases, as well as those with missing data. This helps guide the viewer's focus and emphasizes important aspects of the data. The visual transitions between scenes are smooth, maintaining a coherent narrative flow and helping viewers understand how the data from one year connects to the data from another.

The annotations follow a template that highlights the total confirmed cases for each country and emphasizes the countries with the highest numbers of cases. This template is used consistently across all scenes to maintain clarity and focus. Annotations change within each scene to reflect the specific data for that year, ensuring that the viewer can quickly grasp the most critical information for each period.

The parameters of the narrative visualization include the year and the total number of confirmed cases for each country. The states of the visualization are defined by the selected year, and each scene corresponds to a different state. Users can switch between states by selecting different years, which updates the bar chart to show data for that specific year.

The triggers in this interactive slide show are user clicks on the tabs for each year and hovering over the bars. Clicking on a year tab changes the state of the visualization to display the corresponding bar chart. Hovering over the bars triggers tooltips that provide detailed data for each country. These affordances are designed to be intuitive, allowing users to easily navigate and explore the data.