Narrative Visualization By Sanjeev Kumar

Link: D3 Data Visualization

Messaging.

It has been seen that countries with high GDP have low mortality rates. This is because a vast portion of their income is spent on improving the healthcare facilities of their country. I can support my statement based on the correlation in my narrative visualization.
As part of the visualization, my aim was to understand the following:

- How does the GDP Per Capita change over time for all countries?
- How does the Mortality rate change over time for all countries?
- Is there any correlation between GDP and Mortality?

Narrative Structure.

I have followed the **Martini Glass'** structure, wherein the scenes of GDP and Mortality are firstly author-driven, and later on, have a user-interactive space.
There are a total of 3 scenes in this visualization.
The first scene is of GDP where the first graph is author controlled, showing the change in the GDP levels of the countries according to time.
In the second scene, I have given the author the option to choose any country to watch the change in their Mortality rates.

Scene 1 and Scene 2 are the stem of the glass which gives the focused (narrowed) author-driven message about the GDP and mortality and the Scene 3 becomes the mouth of the glass where the user can explore the data about multiple countries and compare them.

Visual Structure.

All the pages are divided into three horizontal sections, where the upper region is for the title, the dropdown for the page, and the third section is for the annotations related to the page.

The color scheme of the graphs and other components of the page follows a similar pattern across all the screens. The tooltips in all three scenes follow the same design. They are populated with the right data depending on the scene.

Every point in the graph has a tooltip attached, which makes it easier for the user to get the details of the data he is viewing. The layout of every tooltip is the same, so the user doesn't have any difficulty adjusting to it, and referring to its contents.

The user can use the various navbar buttons to move from one scene to another. This would help him get a better understanding of the relation between GDP and the Mortality of a nation.

Scenes.

I have included a total of 3 Scenes.

Scene 1

It shows the change in the GDP of different countries across decades. We can notice that there, the GDP of all countries dropped during the great recession of 2008, and whilst the COVID-19 pandemic.

Scene 2

In scene 2, we can notice the change in the mortality values of any country selected from the dropdown. We can notice that the overall mortality levels of the countries have decreased drastically in the last decade.

Scene 3

In Scene 3, we can spot the correlation between the GDP and Mortality values of the countries for a particular year. The year is selected using a dropdown. We notice that the graph plotted is hyperbolic, which proves that the GDP of a nation and its mortality rates are directly linked to each other.

Annotations.

I have annotated Scene I to draw attention to the decline in GDP that resulted from the Great Recession (2008–2009) and the decline in GDP in 2020 as a result of the Covid-19 pandemic.
I have used a tooltip in scene 1 to show the GDP value of the country for a particular year in US$.

I annotated the Mortality Scene with the mortality rate for the years 2000–2020 using a tooltip. We can notice that the mortality rate of the countries decreases over the years.

In the third scene, we can notice the correlation between the GDP and Mortality of a country. And as we progress over the years, we can see that the mortality rate of countries decreases and the GDP of countries increases. This supports our statement that the GDP of a country and its mortality rate is directly linked.

The annotation does not change throughout the course of a single scene. Rather, it alters when a scene is changed by first clearing the previous annotation and then loading the new annotation.

Parameters.

Scene : The window/scene where the necessary data is displayed. If it's a GDP scene, the data of the GDP graph is populated.
Country: Select any country to view the trend in its data over the last two decades.
Year: To select a year to see the correlation between GDP and mortality for that year.
Annotations: A separate div to show the data of the scene.
hashCountry: The country selected from the drop-down is passed as a has value to the URL of the page. It is then transferred to the next scene and passed as the default selected option on the other page. Works between Scenes 1&2.
SelectedYear: To select the year to be shown on the loading of the screen.

The different States of my data visualization.

Each page has its required parameters.

1. For scenes 1&2, the hashCountry is the parameter used to maintain consistency between the data being populated in the two scenes.
2. The pathname of each page determines which scene to be shown to the user.

Triggers.

The triggers used are:

- Each page has a navbar which has buttons for different pages, with different scenes
- The buttons in the navbar have an onClick function attached, that opens the scene mentioned as text in the button.
- The GDP page loads Scene 1.
- The Mortality button loads Scene 2.
- The Correlation of GDP & Mortality button loads up Scene 3.

- Dropdown in Scene 1 and Scene 2 is a parameter which helps in changing the state for each country.
- Dropdown in Scene 3 is a parameter which helps in changing the state for the selected year.

- I have maintained uniformity in the country selected between scenes 1 & 2 by passing the country selected from the drop-down as a hash value to the URL while redirecting.

The following affordances are available in my project:

1. GDP button for Scene 1.
2. Mortality button for Scene 2
3. Correlation between GDP and Mortality button for Scene 3.
4. Select tags in each scene to view the data for the required country or year.
5. Tooltip for each data point, and annotations as and when needed.