Narrative Visualization Project Description

Review Criteria

An essay will be required and will be submitted along with the URL of the narrative visualization. This essay is an important piece of the assignment as it is used for you to communicate your understanding of the concepts of narrative visualization and how they apply to the one you created.

The essay should contain the following sections.

- **Messaging**. What is the message you are trying to communicate with the narrative visualization?

This data visualization project displays the relationship between GDP per capita and life expectancy for all countries and the changes that have occurred between 2008 and 2015. We can usually observe from the scatterplot site that as the year goes by, the GDP per capita of countries increases and life expectancy increases, and that countries with higher GDP per capita appear to have longer life expectancies. The highest GDP per capita and life expectancy are found in China Macco nations. The GDP per capita and life expectancy are both lower in Sub-Saharan African nations. Even when GDP is high, life expectancy isn't as high as in nations with comparable GDP in other regions.

- **Narrative Structure.** Which structure was your narrative visualization designed to follow (Martini glass, interactive slide show or drop-down story)? How does your narrative visualization follow that structure? (All of these structures can include the opportunity to "drill-down" and explore. The difference is where that opportunity happens in the structure.)

I've used the Interactive slideshow structure with eight scenes to show the GDP per capita as x axis and life expectancy as y-axis from 2008 through 2015. And also with Prev and Next buttons so that the viewer can easily see the changes by previous or next year.

Visual Structure. What visual structure is used for each scene? How does it ensure the viewer can understand the data and navigate the scene? How does it highlight to urge the viewer to focus

on the important parts of the data in each scene? How does it help the viewer transition to other scenes, to understand how the data connects to the data in other scenes?

Simplified scene navigation for the Interactive slide show narration model so that viewers can move to the next scene by selecting years to see how GDP per capita and life expectancy change from year to year.

The visualization's eight scenes all follow the same format. The conclusion from the overview of the data visualization and conveying the main message to the visitor are located in the top portion of the template.

In the main page, the plotting section SVG is followed by scattering plot chart color information to show the different regions colored in the circle. Each circle represents one of the world's countries. When the viewer hovers their mouse over a circle, a tooltip appears with additional information about that country, such as its country's name, GDP per capita (PPP), life expectancy, and region.

The legend allows the viewer to see the chart more clearly. I added a region legend on the bottom right side and chose rainbow colors (red, orange, yellow, green, cyan, blue, and purple) to represent each of the seven regions. Also there are seven checkboxes in each region to prevent circles from overlapping from the overall chart. As a result, users can see more clearly by selecting regions one by one.

- **Scenes.** What are the scenes of your narrative visualization? How are the scenes ordered, and why

Those eight scenes are ordered year to year from 2008 to 2015 as I wanted to tell the story. For instance, when the user selects 2008, then only the GDP and life expectancy related data from the year 2008 will show up in the graph. The scene promotes consistent visual structure and keeps the user oriented from transitions of each year. As the year changes, the data of the graph will change as a flow chart as well.

- **Annotations**. What template was followed for the annotations, and why that template? How are the annotations used to support the messaging? Do the annotations change within a single scene, and if so, how and why

The annotation followed the GDP per capita change obviously from that year with the animation showing. For instance, when a user clicks the year 2011, the circles from the chart flow and decrease dramatically, as we can make an annotation conclusion in that year. As of 2012, there has not changed as much as the country from Libya. So we can analyze and draw an annotation to make a classification to the viewer. As users see the conclusion in 2012, the annotation in the 2011 scene is cleared. So each year's annotation will disappear when the user selects other years. So from the year 2011 and 2012, the GDP in Libya was falling and rising significantly due to the Libyan war starting to end.

Below are all the annotated conclusions that I researched and analyzed by the world political news from Google:

2008: Zimbabwe GDP reduces due to political instability and hyperinflation

2009: Many countries' GDP is decreasing as a result of the recession, housing & stock market crashed

2011: Libya's GDP falls significantly as a result of the Libyan war and the death of Muammar Gaddafi

2012: Libya's GDP rises following the end of the war

2013: The Central African Republic's GDP is declining as a result of the civil war 2013

2015: Sierra Leone's GDP declines as a result of theEbola virus pandemic

2015_02: Ireland's GDP increases as a result of the inclusion of foreign firms in the state balance

- **Parameters.** What are the parameters of the narrative visualization? What are the states of narrative visualization? How are the parameters used to define the state and each scene?

Internally, the current visualization implementation has a few parameters:

1. Plotting works differently based on a given time, which indicates the year 2008 to 2015 slideshows.
2. The selected regions with different color show from each country as a variable in the scatter plot chart
3. The animation of the scatter plot with details shows the country name, GDP, Life expectancy, and region as parameters from each circle in the chart.

- **Triggers.** What are the triggers that connect user actions to changes of state in the narrative visualization? What affordances are provided to the user to communicate to them what options are available to them in the narrative visualization?
    1. Senses navigation slide show: Prev, 2008, … 2015 and Next. D3 code internally keeps track of the current scene location and calls different functions with parameters to show the scatter plot and slight changes from year to year. The parameter [Time] changes depending on the Time value by year. For instance, if the user chooses slide 2008, then animate, Time=2008, and show annotation2008. If you select the 2009 slide, then animate, Time =2009, show annotation2009, and clear annotation2008.
    2. Checkbox from the region: if the viewer only wants to observe the South Asia region, First unchect the rest of the regions checkbox and leave the South Asia checked, then only the circles based d3 data listed countries from this region will appear in the graph, the rest of the countries will be hidden from the chart. Also the animation of circles appears.