CS416 Summer 2023 – Project: Narrative Visualization

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Interactive Slides: A Glance at Ohio Valley June Average Temperature Throughout Centuries

1. Messaging:
   Global warming has been a hot topic for more than a decade, yet in recent years the media simply shifts this focus to a variety of other climate topics. Such a trend of revealing the cons of factory pollution and environmental damage caused by developing countries seems less frequently reported. Combining with the view that even the last effect of Ozone layer's destruction has been proved to be a bit of an exaggeration in recent years, more and more journalists/politicians have been pondering about whether developing nations' factory pollution had caused such an enormous impact on average global temperature. Using NOAA's temperature data over a particular region of US, we perhaps can get more insights on this.

   Ohio Valley is one of the Rusty Belt areas and certainly reflects the change of carbon dioxide/other greenhouse gases, in theory, over the centuries because there had been a mass exodus of the manufacturing industry. It is also located near the Mid-West region of the US where coastal climate could only affect it to a significantly lower degree.

   This dataset shows the differential of the mean temperature in absolute value (71.5 Fahrenheit, as measured from 1901-2000) during 1880s until 2023. We should see that it is not necessary for the manufacturing industry to be the main protagonist of an increasing temperature, as shown by the time-period intervals.

2. Narrative Structure:
   The structure is more of an interactive slideshow setup, although I did use the martini glass rationale to tell the user what the temperature truly represents. The narrative is divided into 4 different time intervals: 1895 – 1935, 1936 – 1976, 1977 – 2023, and all years throughout. Users can use the mouse to investigate the individual data point and see their associated date/year to capture the micro perspective. The forward and back arrow instead provide opportunities for users to look at the data back and forth, more abiding to a macro perspective. By implementing SVG element that we've practiced in assignments 7 and 8, users can get a better sense of both the micro and macro perspectives for the temperatures.
   The color choices also show my narrative purposes: a rather cold period with green, the hottest pink, a gradually cooling blue, and an overall gray-blue to conclude.

3. Visual Structure:

Each time period uses the same visual structure, where a general x-y coordinate graph sets the stage, with x-axis being the years of that interval and y-axis being the average temperatures associated with those years.

The main graph is displayed at the right side, where users can freely move their mouses to check the individual data point while also observing the general trends/fluctuations of each time period. Tick marks on the y-axis also show the range of these temperatures.

The right-side story telling is the textual narratives for this project. It briefly summarizes the general trend of each interval while also pointing out the differences between the manufacturing industries' impacts, the media's distorted depictions, and the true landscape. On The color choices are realized from my .html file. Users also can freely move forward and backward.

4. Scenes:
   As illustrated above, the visualization was divided into 4 different scenes. I also chose to use the line graph to show the fluctuations and extreme values in a more straightforward manner. I did not add too many aiding visual tools to make further interpretations as we've learnt from this class that verbose visualizations cause unnecessary confusions and perhaps misinterpretations. What the users truly get from my narrative depends on whether they can capture the true scenes here over Ohio Valley's June.

5. Annotations:
   Basic annotations and tooltips from d3.js libraries have been implemented throughout the project. They are mainly used for detailed individual data points and are consistent throughout the entire project.
   I didn't use them for the main message I want to convey at the right side because they are conclusions and direct comparisons that should be conveyed to the users in a clearer manner.

6. Parameters:
   The most important parameters would be state. I've created 4 states to represent the 4 stages the users would have seen. They control which time period to be seen by the users' own clicking actions, and are heavily connected with the drawData() SVG method. The logic of them being applied in the addEventListener will be illustrated below.

7. Triggers:
   The triggering move made by the users would be their clicking. On the navigation board where we have the 4 time periods for the users to choose, the 'click' action associated with async function addEventListener would trigger the changes of states. Afterward, the render() function would be called to perform the drawData operations. This essentially controls what graphs the user could see. The hopping over actions would trigger the const container, which would perform the annotation display on the screen with the line graph.