Selam Van Voorhis
Computer Science Final Project Writeup

Flooding due to Climate Change

URL: https://selamvv.github.io/FinalProject/
Repository url : https://github.com/selamvv/FinalProject.git

Description Of Cause:

My cause is the increase in flooding due to Climate Change. Flooding is normally a natural and unavoidable disaster but, in this case, it is a byproduct of the human caused climate change. Floods are a threat to animal and human habitats and lives. There are many people who would disagree with this cause; they are called climate change deniers, they fail to accept that human actions are causing the earth to warm up at an unnatural and unsustainable rate.

The dimensions I chose to present the validity of my cause was the rate at which the sea is rising, the increasing rate of participation, the declining mass of glaciers and the increase in temperature. All of the data is globally collected and graphed in the time span from 1993 to 2014 as these were the dates where there was data provided for all of the dimensions. The information gathered for the glaciers was from the WGMS (World Glacier Monitoring Service) – a network of, at present, about 125 glaciers in 25 countries/regions, representing tier 2 and 3 sites. The rate of the rise in temperature was gathered from the Global Historical Climatology Network-Monthly (GHCN-M) data set. It shows the annual mean temperature anomalies in degrees Celsius; positive **anomaly** indicates that the observed **temperature** was warmer than the reference value. I found my dataset for sea rise from the US Environmental Protection Agency. It shows average absolute sea level change, which refers to the height of the ocean surface.

Findings:

Between 1993 and 2014, temperature is rising, the cumulative glacier mass is decreasing, the sea level is rising, and precipitation is increasing. Although this conclusion does not guarantee the link between climate change and the increased rise in flooding, all the elements that contribute to flooding are melting glaciers, increased sea levels, increased precipitation, and the increase in temperature.

The glacier mass decrease and the rise in sea levels stand out the most in the graph as they have the greatest slopes, this was surprising to me personally as I didnt even know that the sea level was rising.

I used a multi-axis, multi-line graph to represent this data as there were several different ranges of data, too many to plot on an x and y axis. This data needed to be a line chart to represent the relationship between the datasets and time; the trend of the data.

Difficulties in Code:
The most difficult pieces of creating this visualization were aligning the y-axis labels.

Shows truth (only one of these)	
5%	Displays information with at least 5 dimensions about a topic
15%	Effectively displays information that is easy to navigate and understand
25%	Makes an effective (and truthful) argument to dispel a myth

Beauty and Engagement (all that apply)	
5%	Effective layout and decoration using css
10%	Pleasing interactions, intuitive actions occur due to hovers or clicks
5%	Engaging animation
5%	Animation is central to understanding the data

Embracing the Medium (only one of these)	
5%	Static information that can be displayed using a standard spreadsheet.
15%	Leverages interactivity to access all dimensions of data (but may not all at once)
25%	Effectively combines at least 5 dimensions of data in a visualization

Level of Difficulty	(only one of these)
5%	Histogram, pie chart, stacked bar chart (assumes use of libraries)

15%	Tree, Choropleth, Chord, Tree packing (assumes use of libraries)
20%	Unique visualization or unique addition to an existing visualization

Documentation - (all that apply) as a paper turned in both electronically on the site and in paper form last day of class.	
10%	Describes what a user should see, how they interact with it, and how they will interpret it. Your document should reference relevant ideas from Cairo. (You may reference chapters not assigned to the class)
5%	Lists Sources of data and rates the authenticity of the sources
5%	Fills out this rubric and evaluates their contributions
-5%	If not turned in, on paper, on due date.

Extra - Be it data collection, complex algorithms, unified field theory, or just soap. Be sure to talk about it.	
??%	If you do not report on this, then it didn't happen. If you are not sure if it would count as something extra, then go on a report it anyway.