SJSU - CS 235 Project 2 (Spring) –

Data Visualization User Interface for the Web

In this assignment, you will build a web-based interactive visualization of complex data! This assignment will have a research component. As the developer, you will research sources of published data and find an implementation strategy that will best fit the design you have chosen. We will be covering some JavaScript development examples in class (P5). A few starting points for your research will be outlined below. This can be implemented as a team project of two (2) or an individual project.

Learning Objectives

After this assignment, you will be able to (1) apply your knowledge of some of the user-interface patterns we learned in class (2) become familiar some of the sources of pubic data available on the web and (3) become familiar with the state-of-the art development tools for web development.

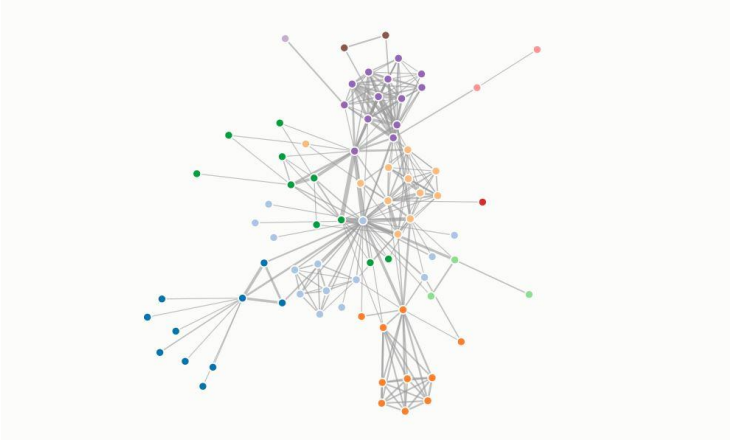

Image Source: https://bost.ocks.org/mike/fisheye/ - An Example of using fisheye distortion in D3.

Basic Functionality

For this application, I am looking primarily at your ability to provide a user experience that enables the user to **explore** the data:

- Create a window/canvas within your webpage that displays your data visualization. The type of representation will depend on the data set that you choose. A dataset depending two variables may be represented by a plot. A dataset with interconnections might be best represented with a graph.
- The data should be interactive. *This is a minimum requirement.* The user should be able to explore the data with a set of interactive features (using selection and mouse) not a "display or output only" interface.
- Don't focus too much on additional widgets on the page. Focus on only those controls needed to explore the data itself.
- Apply the design patterns we learned on class for data visualization.
- "Publish" your application to the class via a temporary development URL (we will discuss method in class)

Suggested Steps

1. Set up the JavaScript development environment (P5) and project structure we will be covering in class. This will be presented as an example, but if you want to use a different libraries, you can as long as the majority of the development work is done by yourself.

2. Research potential data sites. *Note that the data must be different from what you will be accessing for your semester project if you choose to do a data vis project.*
3. You will have to learn enough JavaScript programming to produce a visual/interactive representation of your data (ex: graph, chart etc.) I have provided several readings as a starting point.
4. Part of this assignment is to select an implementation strategy. What libraries or tools might be available to meet the needs of application? Are there interactive features available to help support the design you have chosen?

Potential areas to Explore for Interactivity

- Design patterns which user mouse "hover over" to show details of the data.
- "Filters" to show selected parts of the data.
- Zooming/Scrolling to focus on parts of the data.
- Your own ideas…

What to Submit

1. Submit the project in one *.zip file. (please use this compressed format)
2. Include in the project a screen shot of your application in action for the gallery
3. URL where the application can be run from.
4. Any specific instructions on how to run it that is not self-explanatory

Due Date

This is a two-week assignment. Due date will be posted in Canvas system.

Grading Criteria

Rubric will be provided with the assignment.

Important:

1. In addition to the criteria above, I will be looking at the quality of the code submitted which includes coding style, efficiency of algorithm implementation and succinct comments where required.
2. I am expecting that the student's deliverable will contain all original code with exception of libraries. In the case that an external method/algorithm is used, it needs to have a citation or assignment will be rejected.

Suggested Sources

- Data - Data.gov: very rich data site with many sources in JSON format (making it easy to read for JavaScript tools).
- Jsoneditoronline.org – a convenient tool for looking at json files, parsing information and looking at potential data fields for display.