D3 Workshop Assignment 1

CS 571 - Data Visualization & Exploration

Due: **June 10, 2024**, 11:59pm Eastern Time

1 Instructions

This assignment consists of two programming problems. Your work should be your own.

The starter code for the assignment can be found here.

The code contains two directories: **problem-1/** and **problem-2/**.

- The **problem-1/** directory contains an HTML file (**index.html**), a Javascript file (**jerry.js**), and a **data/** directory containing a JSON file (**jerry_codes.json**).
- The **problem-2/** directory contains an HTML file (**index.html**), a CSS file (**style.css**), a Javascript file (**scatterplot.js**), and a **data/** directory containing a CSV file (**museums_edited.csv**).

You will likely need to run a simple http server to test the website you create for each of the questions. To do so, you will need to run the following command in a terminal:

python -m http.server 8000 –bind 127.0.0.1

Note: You will need to change directories in your terminal to the **problem-1/** or **problem-2/** directory when you run the above command.

After running the command, open your browser and navigate to the website hosted at 127.0.0.1:8000.

Note: When updating your code, remember to save the files and refresh your browser tab.

2 Programming

Problem 1. (40 points) Turn Jerry into an SVG!

In this problem, you will use d3.js to create an SVG version of Jerry using data from **jerry_codes.json**.

The **jerry_codes.json** file contains a two-dimensional array of strings. Each string represents the color of a single Jerry pixel in the format **rgb(<RED>, <GREEN>, <BLUE>)**. Note: This string format is a valid value for the CSS attribute "fill".

Todo:

- ☐ In **problem-1/jerry.js**, complete the **makeJerry** function.

Your code should create an SVG that looks something like this:

Problem 2. (60 points) Create a Scatter Plot Visualization using D3!

In this problem, you will create a scatter plot visualization of museum data.

The **museums_edited.csv** file in the **problem-2/data/** directory contains an array of objects representing museums in the United States. Each object contains several properties. The properties you should consider for your scatter plot visualization are:

Income (number): the museum's income in a given tax year

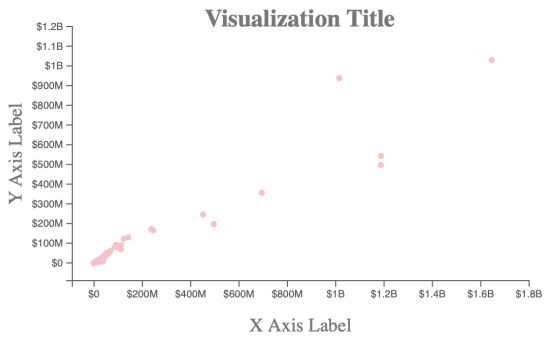
Revenue (number): the museum's revenue in a given tax year

Museum Type (string): the type of museum

Todo:

- ☐ In **problem-2/index.html**, include **style.css** and **scatterplot.js** using the appropriate tags.
- ☐ In **problem-2/index.html**, give the ** ** tag an **id** for reference.
- ☐ In **problem-2/style.css**, style the **dot**, **title**, and **axis-label** classes.
- ☐ In **problem-2/scatterplot.js**, update the **container_id** variable to contain the **id** of the html div.
- ☐ In **problem-2/scatterplot.js**, complete the **drawDots** function.
- ☐ In **problem-2/scatterplot.js**, complete the **drawScatterPlot** function.
- ☐ In **problem-2/scatterplot.js**, complete the **filterMuseums** function.
- ☐ In **problem-2/scatterplot.js**, complete the **main** function.

Your code should create an SVG that looks something like this:



Note: You should replace the labels and title to appropriate labels for the museum dataset.

Extra Credit. (10 points) Make the visualization unique using CSS styles and D3.

Extra Credit. (10 points) Adjust the code to work for any dataset using javascript function parameters. Provide a link to the dataset you used to test your generalized code.