CS 360/560: Data Visualization

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Fundamentals of visualization including data sources, representations, and graphical integrity. Visualization of scalars, vectors, and high-dimensional data. Visual perception and color theory. Applications from medical imaging, social media, sports, security and surveillance domains. PREREQ: CS 245.

Assignment 5 - Multidimensional Visualization in D3 - (100 points)

Due date: 2/28/2022 at 11:59pm

For this assignment, choose a dataset and make the following charts in [D3](#).

Create a separate Vizhub for every visualization and post the links on your website. Submit a link to your website. Make sure to **name your Vizhub appropriately** (Bubble chart in D3, Line chart in D3, Scatter plot matrix in D3, etc.)

Here are the specifications for this assignment:

To get a C (75):

- Implement a **bubble chart** with color to visualize four dimensions represented using the x-axis, the y-axis, the size of the circle, and the color of the circle.

- The chart must have a x- and a y-axis with axis labels

- The chart must have a descriptive title

- The data must be loaded from a CSV file

To get a B (85):

- Complete the requirements for a C and

- Implement a **line chart** with time on the x-axis

- The axes in the chart must have the appropriate number of ticks and axis labels

- The data must be loaded from a CSV file

To get an A(95):

- Complete the requirements for a B and

- Implement a **scatterplot matrix** for multiple variables.

- Display at least a 3x3 matrix in the scatterplot matrix

- The data must be loaded from a CSV file

To get an A+ (100):

- Complete the requirements for an A and

- For the bubble chart, allow a viewer to learn about a specific data element by showing them a tooltip on mouse hover

○ For the line chart, display at least 3 or more lines in the same chart

Extra credit:

○ Add a color and shape legend to the bubble chart using [d3-legend](2 points)

○ Implement tooltips for the line chart on hover for individual points in the chart (2 points)

○ Highlight the matrix cell based on mouse position for the scatterplot matrix (2 points)

○ For categorical variables, allow filtering by clicking on the value of the variable (For example, if there are three regions of origin for cars - Japan, USA, Europe, then clicking on Europe, should only show the data for cars manufactured in Europe). (3 points)

Notes:

○ There are *many* d3 examples online. If you use parts of an example or refer to one for your assignment, please **make sure to mention that in the code very clearly**. You will get a 0 on the entire assignment, if you do not cite your references.

○ Points will be deducted for **bad/wrong** chart design. Refer to Chapter 1 and/or check with us if you have any questions about your design.

○ You will get a zero (0) if you do not **read data from a CSV file**.

Submitting the assignment

- For every visualization, post a link to your Vizhub sketch (mark it private, invite the TA and me as collaborators) and test it out before posting a link to it on your own website.

- Submit a link to your **website** on Canvas.

Design by [NodeThirtyThree](#) + [Free CSS Templates](#)