CPSC 446/546
Assignment 2
Due 9/23/2019, 11:59 pm

Upload to Canvas as a zip file named *yourfirstname_yourlastname*_2.zip.

This assignment requires you to develop visualizations using D3. Do your own coding using code provided with the assignment and examples given in the Scott Murray textbook. **Do not use any code from the internet that you may find that creates visualizations similar to those required in problems.** If we find that code you use for a solution is taken from an internet source, you will receive a zero for the entire assignment.

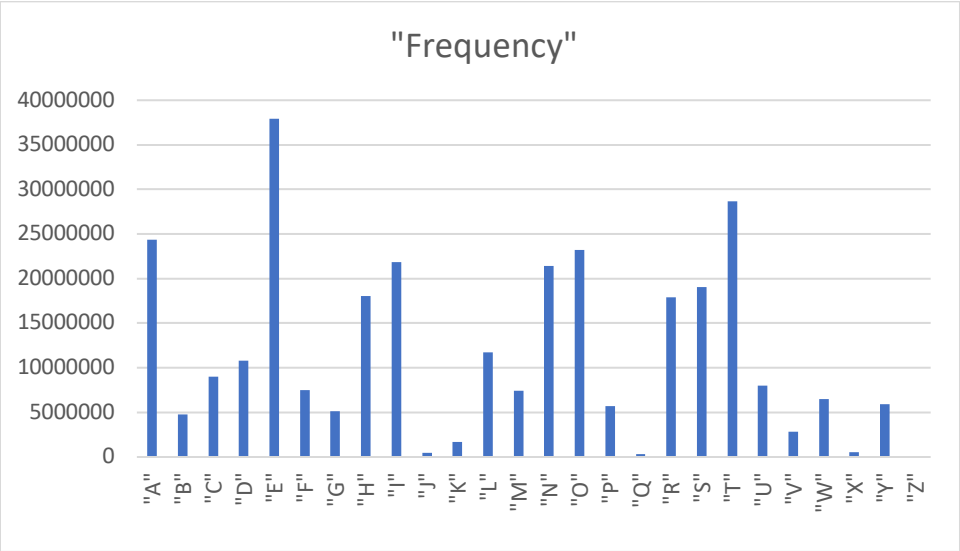
Be sure to edit your files to include the version of d3.js that is included in this assignment. Be sure to upload this file with your solutions.

As in Assignment 1 do not worry about getting pixel accurate results to match examples. You may use https://developer.mozilla.org/enUS/docs/Web/JavaScript/Reference to do tutorials and look up syntax.

Note that some parts of the questions are for all students and some are additional work for **CPSC 546** only.

1. Bar charts (20 pts) :

(CPSC 446 and CPSC 546) Using D3 create a bar chart from the data in letter_frequency.csv (original source https://people.sc.fsu.edu/~jburkardt/data/csv/csv.html). You should have one bar for each letter of the alphabet, with a label on the horizontal axis for each letter. Below is a version I made with Excel. **You should make one in D3 that looks better!** You should not have " marks around the letters and labels.



2. Scatter plots (20 pts):

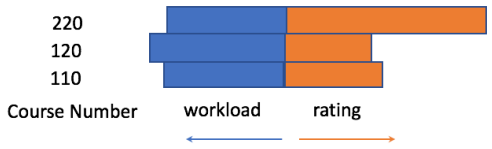
(CPSC 446 and CPSC 546) Using D3 create a scatter plot from the data about Major League Baseball teams in 2012 that is given in mlb.csv (original source https://people.sc.fsu.edu/%7Ejburkardt/data/csv/mlb_teams_2012.csv) You should plot payroll in millions on the horizontal axis, and number of games won on the vertical. Your plot should have scales and labels. Color code the data according to whether the team is in the National League (N) or American League (A). Here is a poorly scaled, uncolored, unlabeled version I made with Excel.

3. Course Table (30 pts):

(CPSC 446 and CPSC 546) In coursetable.com, choose a Yale department, and create a csv file of the department's courses and their ratings and workload. Use D3 to create a labeled visualization of rating versus workload similar to that shown the first day in class

To get a 5x5 grid, round the values to 1,2,3,4,5. Make any labeling changes you feel would improve the legibility of the visualization. You can also make workload horizontal and rating vertical. Be sure to add a title to the visualization.

(CPSC 546 only) **F**rom coursetable.com, plot a stack of data for the courses, starting with the lowest numbered course on the bottom. Plot a bar to the left for workload, and to the right for the rating. This will show any trends for workload and ratings with course level. The example below was made in Powerpoint. Code your visualization in D3, and choose your own labels and colors.



4. Visualizing gradients: (30 pts)

https://www.edwardtufte.com/bboard/q-and-a-fetch-msg?msg_id=0003nk

(CPSC 446 and CPSC 546) Using D3 create an effective visualization similar to that shown in slide 74 of lecture 2 illustrating cancer survival rates. The dataset is given in cancer_survival.csv with this assignment. A starter file is given as cancer_survival_starter.html. At a minimum you need to add labels for the values. Make additional changes including (but not limited to) changing the colors and spacing to make the visualization easier to understand. Include a text file explaining the decisions you made modifying the visualization.

(CPSC 546 only) Add some marks to the visualization that indicate the standard error for each survival rate (the spreadsheet columns ending in “se”).