EECS 428 / ECE 578
DATA VISUALIZATION
Spring 2015

ASSIGNMENT 3

Due Date: *Tuesday, May 5th, 2015, 23:59*
(12 Points)

Assignment Submission: *Turn in your assignment by the due date through LMS.* *Prepare and upload* ***one zip file****. Name the zip file as <your first name>_<your last name>_ assignment1. See individual questions for what you should return.*

You can discuss JavaScript, D3 and question with each other. ***However, implementation must be your own; you must neither copy from nor provide assistance to anybody else (including online resources). If you need guidance for any question, talk to the instructor or TA.***

Colored Interactive Scatter Plot

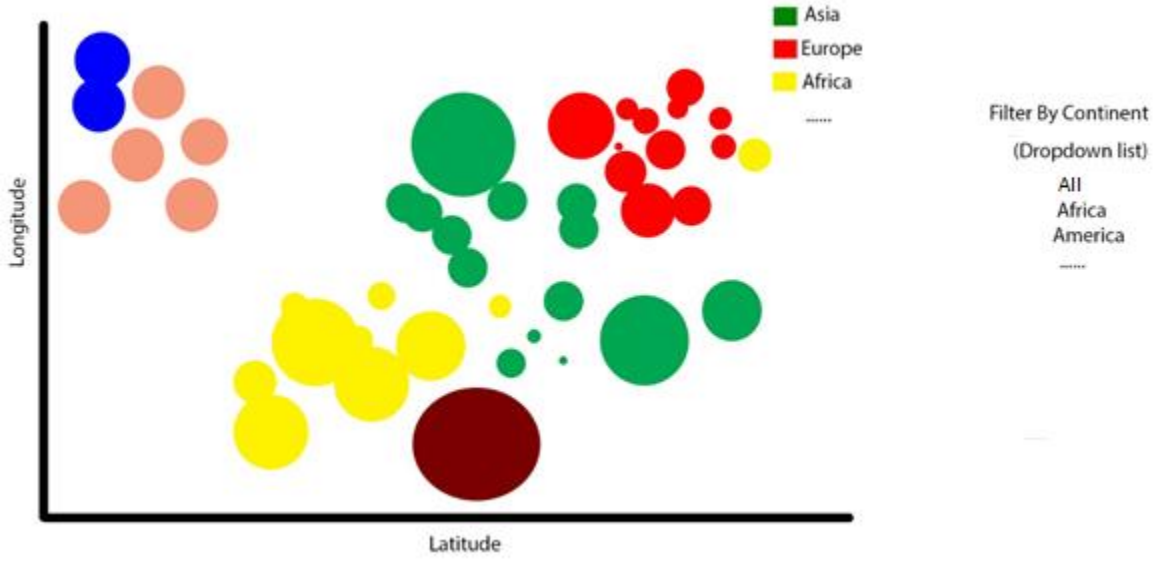

Figure 1 Reference Sketch Figure

Drawing the plot

In this assignment, you will use the same countries data file, *countries.json*, from the assignment #2. You will draw a scatterplot by using coordinates of counties as x and y axes.

Geographical coordinates*:* Based on the values of longitude and latitude provided in data file for each country, a circle (data point) for each country should be drawn on the graph and positioned accordingly. The scatter plot would roughly correspond to a world map.

Color and size of data points:

Size of the data points: the radius (or area) of any data point should be proportional to the size of the corresponding country's population. Since the variation is very high across the countries, make sure to select minimum & maximum sizes for radius, say (5px to 50px), and map the population data to this range by using a scale. You can select min and max numbers based on your graph area. Data points (circles) should not be too small (i.e. difficult to see and select) or too large (i.e. covers a very large part of the graph).

Coloring and filtering of Data Points: Draw a select element (dropdown menu) next to the graph, and populate it with continent names. The user should be able to filter the countries plotted on the graph by continent from this list. There should be also an option to select all continents ('*All*') in dropdown menu. Each continent should be given a different color. You should show the color-continent mapping on your graph as shown in the reference figure. When '*All*' option is selected, all the countries - colored with respect to their continent- are displayed on the scatterplot. Please note that when a particular continent is selected (i.e., county list is filtered to a smaller group), the axes should scale properly to effectively use the full graph area.

Scatterplot Events:

MouseOver: When a mouse moves over a data point in the scatterplot, a tooltip should appear with the name, the latitude and longitude values of the country. For example, Turkey (Longitude : 32.3606 , Latitude 39.7153). You can create and style the tooltip anyway you prefer.

Click : When a user clicks a certain data point (country), a graph (in a rectangular box) that provides a more detailed information about the country should appear. This graph is a bar chart that depicts the changes in the GDP over the decade 1995-2004 (from the previous assignment). Note that the box doesn't need to be fully contained inside the scatterplot graph.

Please return in a directory:

- All your HTML, JavaScript and CSS files (you can have sub-directories if you prefer). Your main HTML file should be named as ***index.html***. When we open *index.html* in our web browser (*Chrome* will be used for grading), the visuals should show up in the main page.