ASSIGNMENT 2
Due Date: Sunday, 02/04/2017 23:59
(10 Points)

Assignment Submission: *Turn in your assignment by the due date through LMS**. Prepare and upload **one zip file** that you will name as <your first name>_<your last name>_ assignment2. See individual questions for what you should return.*

You can and encouraged to discuss HTML, CSS, SVG, JavaScript and D3 with each other.
However, all work in questions (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 TAs.

Part A

In the first part of the assignment, you will use the exchange rate data of 32 countries in the *exchange_rates.json* file proved to you. Your task is to construct a bar chart that compares the exchange rates of a given country against the rest of the countries. You should have a **combobox** like the one shown in Figure 2.1 below which allows the user to choose the base currency. By default this combobox should be set to USD. Each bar should represent the exchange rate between the base currency and the currency that the bar is depicting. When the user selects a different base currency through the combobox, your bar chart must be updated accordingly. Your graph should have proper axes and tick marks.

You should also have radio buttons that allow the user to switch between the **linear** and the **logarithmic** scale. When the logarithmic scale is selected, your vertical axis and bars should be updated to reflect this change (Note that log scale domain has to be all positive or negative in D3. So, don't use 0 as domain starting point)

When the linear scale is selected, your vertical axis should have a range from 0-20. Any exchange rates beyond this range should be represented with a bar that extends all the way up to 20, but with a text on top of them annotating the actual rate. As an example, if the exchange rate between USD and CZK is 1 USD = 35.2 CZK, then the bar for CZK should have a text element on top of it with the value 35.2 as shown in Figure 2.1 below. ***Although it is not shown in the sample figure below, you should have a bar for each of the currencies in the exchange_rates.json file (excluding the selected base currency) i.e., 31 bars in total.***
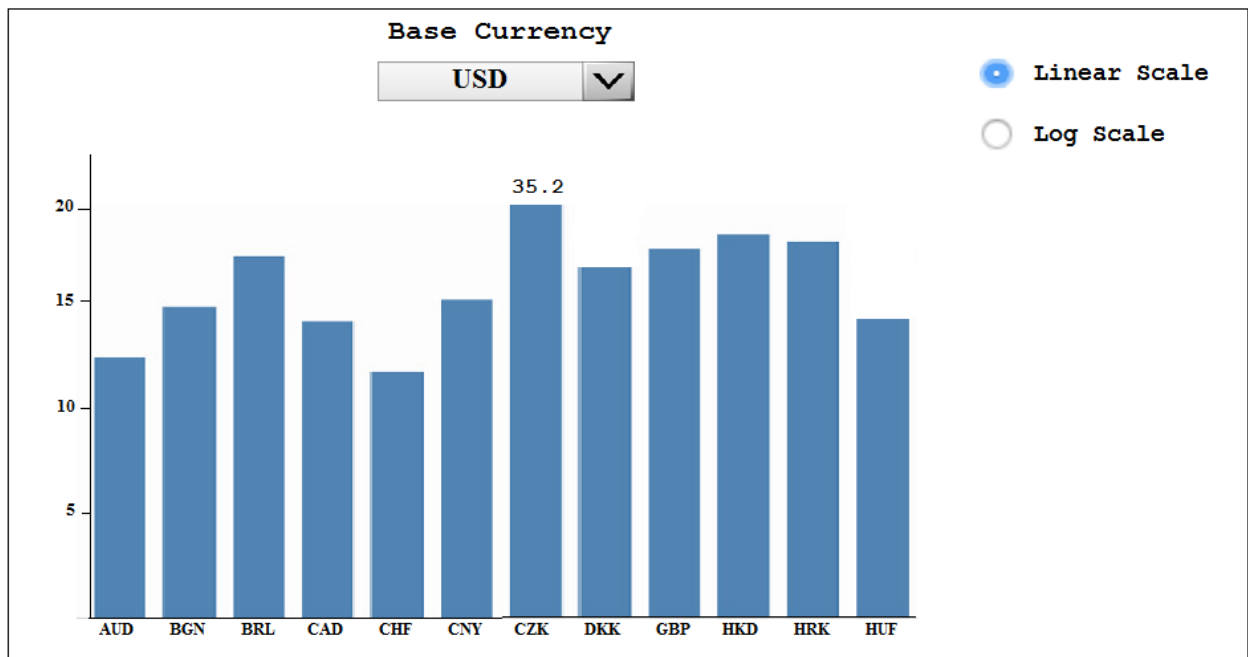
Figure 2.1 – Bar chart showing exchange rates among different countries

Please return in PartA directory:

- All your HTML, JavaScript and CSS files (you can have sub-directories under PartA 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.

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Part B

In the second part of this assignment, you will use the data of 192 countries in the *countries.json* file provided to you. The file contains information about the population, GDP, life expectancy, and many other aspects for the different countries from 1995 to 2012. Your task is to plot the population growth (in %), against the GDP growth (in %) of all of the **European** countries between the years 2000 and 2012 (i.e., look at the values at year 2000 & 2012 and calculate the change). Your graph should be a scatterplot like the one shown in Figure 2.2. You should also have a **legend** which represents every country with a different color. Use proper ranges for axis scales. *Although it has not been shown in the sample figure below, your horizontal and vertical axes should have tick marks representing the GDP and population growth respectively. Additionally, if there is drop in population or GDP (negative grow) for any country, it should be depicted as well.*
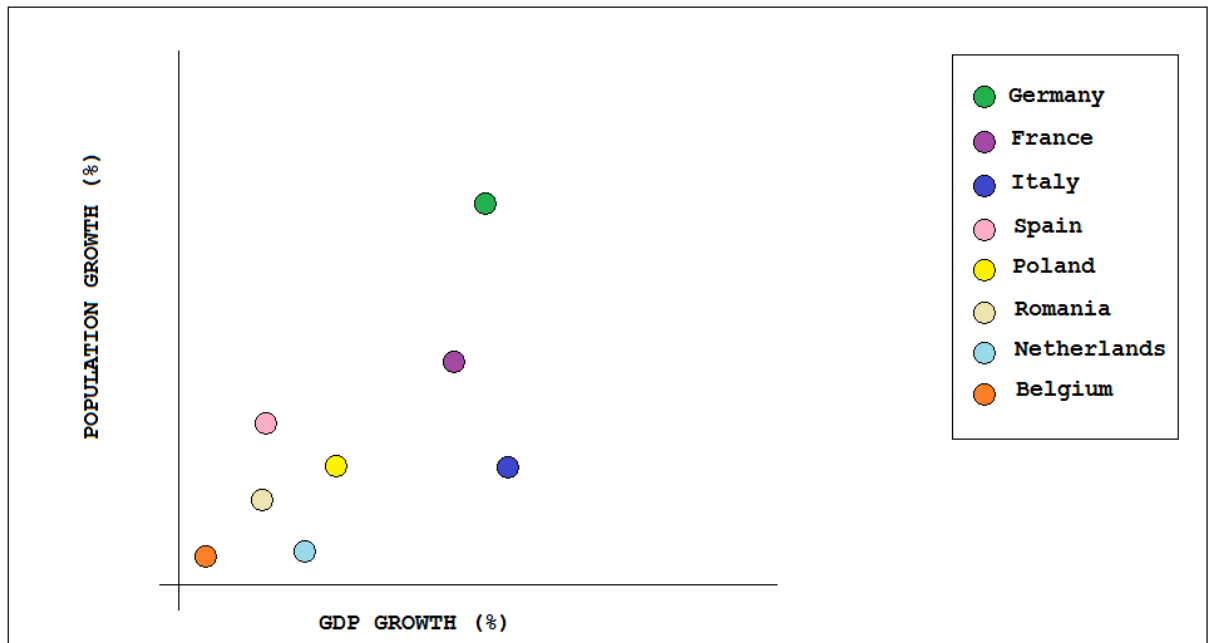
Figure 2.2 – Scatter plot showing relationship between population growth and GDP growth for European Countries

Please return in PartB directory:

- All your HTML, JavaScript and CSS files (you can have sub-directories under PartB 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.