EECS 428 / ECE 578
DATA VISUALIZATION
Spring 2015

ASSIGNMENT 2

Due Date: *Wednesday, April 15th, 2015, 23:59*
(12 Points)

Assignment Submission: *Turn in your assignment by the due date through LMS. Prepare and upload* ***one zip file*** *that should have* ***one subdirectory for each part of the assignment*** *(PartA & PartB). 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 questions 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.***

PART A: *Function Visualizer*

In the first part of this assignment, you will choose four different continuous functions (such as exp(x), log(x),…) and plot the values these functions take for a user specified input range. The possible list of functions as you know from your algebra classes is quite large, and you are free to pick any four functions. The more varied the functions are, the better it is for your visualization. You should have four different checkboxes next to the graph, where each checkbox corresponding to a function in the graph. The user should be able to hide/display a certain function in the graph, depending on the check state of the box: checked or unchecked. Secondly, draw two input boxes below the graph that allow the user to specify any input range of his/her choice. You can specify minimum/maximum input values and/or a maximum range of input values (difference between the minimum and maximum value) of your own choice to prevent undesirable results. But you should specify that as a caution or warning below the graph, or as an alert when it is entered. There should be an update button next to the two input boxes that, when clicked, update the graph according to the entered values.

The axes in your graph should have tick marks (not shown in the example below) and the corresponding input/output values. Axes should be updated as well when the input/function output values changes.

Note: You can user built-in Javascript functions defined in the Math object. Review the list here. If it doesn't have your favorite functions, you can check the list here or implementation your own function.

The final result should look similar to the figure below. Note that the size/position of the area (SVG canvas) that the functions are drawn should not change. However, you should scale the input values (based the user

Fonksiyonları yazmamıza gerek yok, listeden seçip kullanabiliriz.

specified minimum and maximum values) and the function values (based on the values the selected functions take) to fully utilize the graph area.

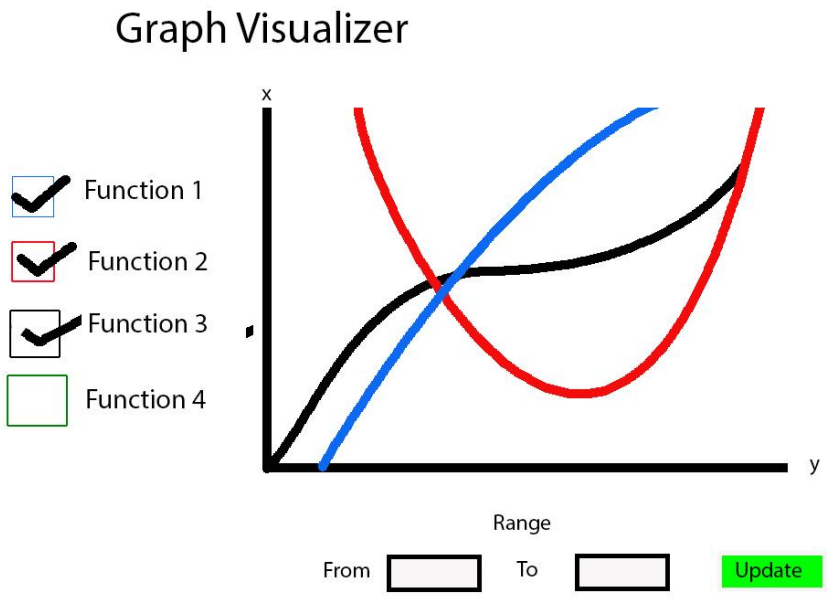

Figure 1: Function Visualizer

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.

PART B: *Trend Graphs*

Data json dosyasından alınacak.

In the second part of this assignment, you have data of 192 countries in *countries.json* file (can be found in LMS). The file contains information about the population, GDP, life expectancy, and many other aspects for the different countries from 1995 to 2012. You are asked to depict the trend of three (3) aspects for each country, namely, ***population***, ***GDP***, and ***life expectancy***. You are only required to depict the changes in the first ten years (1995- 2004). Each aspect should be displayed using a different chart form: Bar Chart, Line Chart, and Area Chart (see example here). A dropdown menu (select box) that lists the countries specified in the file should be provided. ***You should populate the dropdown menu using D3.*** When a country is selected from the list, three charts that reflect three aspects of the country (population, GDP, and life expectancy) is drawn. Your final result should look something like the figure below. You graph should

have proper axes and tick marks. The axes should scale when the selected country changes to fully utilize the chart area.

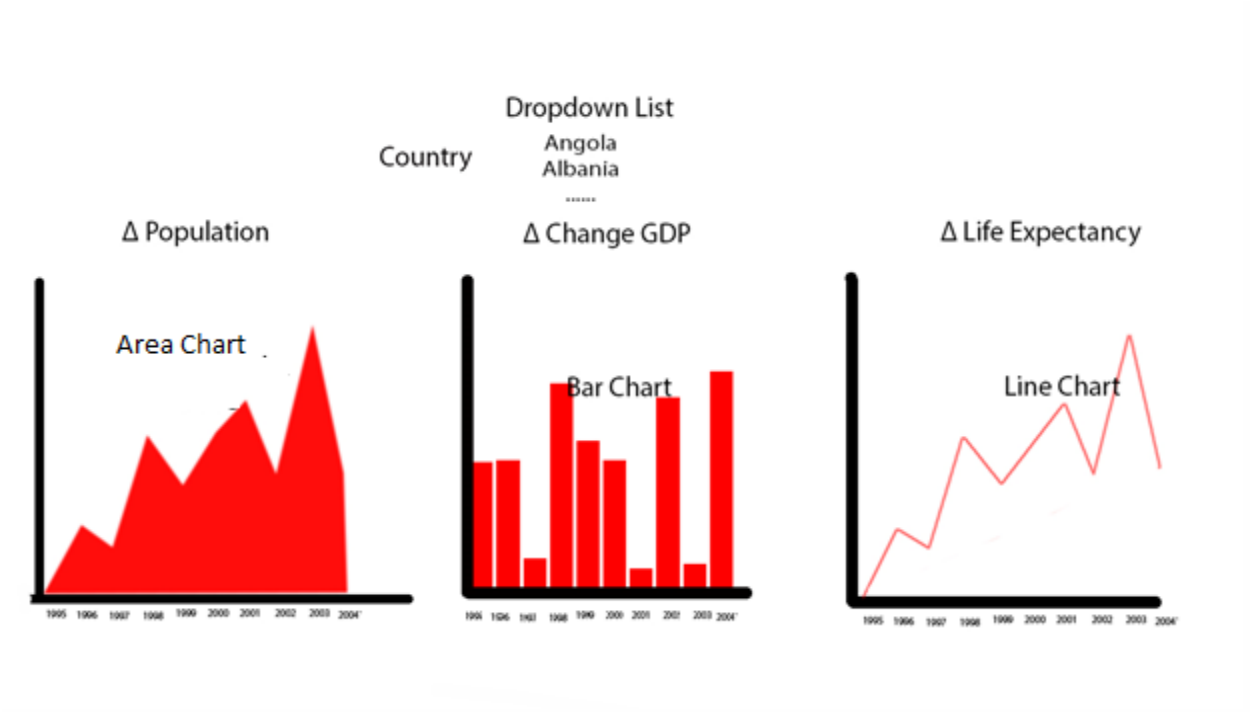

Figure 2: Trend Graphs

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.