

PROGRAMMING EXERCISE 3

Due Date: 05/28/2023

In Exercises 1 and 2, you drew a line chart and stacked bar chart. In this exercise, you will add filtering options to those visualizations. Design a layout to place options such as a checkbox, radio button, and dropdown that enable active exploration. Here, we provide specific tasks you need to accomplish to get full credit.

You need to draw both a line chart and a stacked bar chart with the same COVID-19 dataset from Exercise 2. We will provide the template Javascript codes of Exercises 1 and 2 for your convenience. For a line chart, you should display “total_case” on a y-axis, ranging from 0 to the maximum, and years on an x-axis with the extent assigned by the date filter. A stacked bar chart is exactly the same as the guidance in Exercise 2. Once you are ready to show your graphs, please add 3 filtering options as follows:

- **Checkbox list** of countries in a *scrollable view* – 2 points
 - The selected countries will be presented on the chart (as multiple lines on the line chart and multiple bars on the bar chart)
 - If a country is unchecked, it should disappear from the chart
- **Date picker or date slider** that constrains the date range for a line chart – 2 points
- **Radio button or text button** that transforms the visualization from a line chart to a stacked bar chart or vice versa – 1 point

Please keep in mind that the range of axes should be changed along with the chart. There is no specific requirement for the design of the chart and the layout. You are allowed to google or use ChatGPT, but if you use ChatGPT, submit the queries you used. The total score that you can receive from this exercise is 5 points. Read the direction carefully, and any additional function to the graph is welcomed for practice. You can ask a question on the blackboard discussion only if it is not described in the guideline. You can use any web framework if needed, but attach an explanation to run your code (for any installation, create requirement.txt). The file title should be *studentID_firstname.zip*. Any submission past the deadline will result in 0 points.