**Final Writeup**

I tend to find out to what extent will health expenditure influence the Covid-19 testing rate in order to provide some analyse for medical agencies. The two tables on the web page use line chart and scatter chart to show the relationship between health expenditure and Covid-19 test. The former shows their positive relationship and the latter shows a clearer relationship. My project also provides the visitors opportunities to understand the specific date of health expenditure per capita in 2021, saving users from having to scour the charts for interested country/region data.

There are two high points in this project in my opinion and they both relate to interactivity in some way. The first is the interactive design of the data points in the two charts (using function (concept from week 4)). Initially, in my preconceptions, the labels for each data point should be displayed directly in the table, which is what I did in excel at first, but when displayed on the web page it would look a bit cluttered. I then came up with this interactive way of having the ISO-code of the country displayed when the mouse is moved over the point, and not displayed again when the mouse is moved away. Doing this makes the screen more aesthetically pleasing and also more interactive.

To achieve this, I use tooltips. Both charts have tooltips enabled in their options objects, with the same callback function defined for the "label" property. The callback function is called for each tooltip item that is being displayed, and it is responsible for returning the text that should be shown in the tooltip. In the line chart, the callback function returns the data value for the data point at the current index of the tooltip item. In the scatter chart, the callback function returns the label for the data point at the current index of the tooltip item. The label is the name of the country, which is stored in the "labels" array.

The second highlights I think is the design of the button. The addEventListener() method is used to add an event listener to the button element.(concepts from week 5). When a user clicks the button, the event listener will execute the function that is passed as the second argument to addEventListener().

One of the more innovative aspects is the case-insensitive design. toLowerCase() method is used to convert the user input to lowercase characters. By doing so, it can compare the lowercase version of the user input with the lowercase version of the target string ("banana") using the strict equality operator (===) to check if they match, regardless of the case of the characters.

In addition, I also use button:hover {}, button:focus {} and button:active {} to make the user aware that their mouse is over the button, as the colour of the button will change if they do so.

The new things I learnt include the use of tooltips and. toLowerCase() that I mentioned above. Also, I learnt how to display two charts side by side on a web page, using display: flex which sets the display property of #chart-container to flex, which is a layout property that arranges child elements in a flexible and responsive manner (ChatGPT). The second rule #chart-container canvas { width: 50%; } sets the width of any canvas element that is a child of #chart-container to 50% of the width of its parent element, which is #chart-container(ChatGPT). These two function taught me how to achieve the results.

I learnt a lot from writing this web code, apart from technical coding skills. First of all, there is no doubt that the ability to use artificial intelligence to assist in learning has improved a lot, as at first I would only ask chatgpt the most basic questions and often did not get the guidance I wanted. Secondly, my ability to deal with stress has improved, as this is my first time learning coding, which, unlike social studies, often involves moments of overwhelm and often without direction. But as I continue to train, my patience in dealing with code has gradually improved and I am able to face bugs in my code more calmly and coolly.

**Weekly Entries**

* Week 9: data search button and the scatter chart (not finished yet, need to improve; the progress and problems are shown in js file)
* Week 10: finish the button function, but still don’t know how to achieve case-insensitive function
* Week 11: give up the idea of map, make another line chart instead and learn how to control the dimensions of a table's vertical and horizontal coordinates
* Week 12: after getting the link of the data, finally understand how to use the Fetch() and successfully apply the data into function. Finish two charts but still need to make it side-by side and improve page layout.
* Week 13: finalise the project by adjusting the style, front and other features of the text, chart and line. Also I figure out how to increase the interactivity of the button.

**Week 9 documentation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week | Concept | How I've used it | Line number | Filename |
| 2 | how to link your CSS/JS file to webpage | Using <script> and <link> | Covid-19 Graph.html: 4,5 | Covid-19 Graph.html |
| 3 | Initialising variables | Using const | dfChart.js:6,7,8 etc. | dfChart.js |
| 4 | Function | Using function to create the scatter chart | dfChart.js:17 | dfChart.js |
| 5 | event | Using .addEventListener() to make event listening | dfChart.js:61 | dfChart.js |
| 7 | Chart.js | Using chart.js library to make a scatter chart | Covid-19 Graph.html: 4 | Covid-19 Graph.html |
| 8/9 | Entering data into a table | I’m trying to extract data from local excel file using fetch() | dfChart.js:2 | dfChart.js: |

**Week 10 questions**

What is your project about?

(A 1-2 wordanswer that describes your main focus, e.g., climate change)

Covid-19

What is the data you plan to use?

(A link to the dataset with one sentence describing it)

the Covid-19 situation of 240 countries all around th world at the end of 2021 based on the data from

<https://ourworldindata.org/>

What is the question you plan to answer?

(One sentence that ends with a question mark that could act like the title of your data story)

To what extent will health expenditure influence the Covid-19 testing rate?

Why is this an important question?

(Three sentences, each of which has some evidence, e.g., “According to the United Nations…” to justify why the question you have chosen is important

1. A study published in the Journal of Global Health found that countries with higher healthcare spending per capita had higher testing rates for COVID-19. The study analyzed data from 148 countries and found that healthcare spending was the strongest predictor of testing rates, even after controlling for other factors such as GDP per capita, population density, and government response measures.
2. A report from the World Health Organization (WHO) on COVID-19 testing strategies emphasizes the importance of adequate funding and resources for testing. The report notes that countries with strong health systems and sufficient resources have been able to implement more effective testing strategies, leading to better control of the pandemic.
3. An article published in the Lancet Global Health highlights the impact of health system weaknesses on COVID-19 testing rates. The article notes that countries with weak health systems, including those with inadequate funding and infrastructure, have struggled to implement effective testing strategies.

Which rows and columns of the dataset do you plan to use, to answer this question?

(Actual names of the values you plan to filter (rows) or subset (columns) the data on)

**Columns:** Iso; location; Log-tests; health expenditure per capita; total\_tests\_per\_thousand; Log Health expenditure; Log-tests

**Rows**: all the available data for 2021-4-19