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Project 3 Report

For Project 3, I have designed an "app" that calculates the max, min, mean, median, and range of three numbers. All of the image assets that I included in this web page were either copyright-free or created and edited by myself. The theme I used for this project was the Small Business theme by Start Bootstrap, https://startbootstrap.com/template/small-business. In the footer of my web page, I made sure to give credit to Start Bootstrap for this theme.

There were many improvements I aimed to make in this project to make my web page a very user-friendly app that anyone could use. The first thing I aimed for was a clean, simplistic, and inviting website design. Since the template I chose was rather plain, I decided to use CSS and other assets to make the page appealing. For example, the background for my website, which has math symbols and other icons, was made from a photo I found on the Internet that I edited so that the picture would flow in the background without random cut-offs. I also gave the center white `div` both a gray border to match the background image and a border shadow to make it pop out at the user when they enter the web page. Lastly, I made the answers that the user receives after they hit "Calculate!" both large and bold so that it would be easy for any user to see the results. Another improvement that I wanted to make was making the website be able to take multiple numbers. While I stuck with the fixed amount of 3 numbers with a separate input box for each number for this project, my project could easily be modified in the future to take more than 3 numbers separated by commas in a single input box. This modification would require a slight change in the content within my HTML's `form` tag and modification of the JavaScript code. However, most of my JavaScript calculation functions (findMin, findMax,

findMean, and findRange) would be able to function for an array of numbers of any length. The only calculation function that would need minor changes is the findMedian function, which currently sorts the array and returns the value at index 1 (the middle of the 3 numbers in the array). Since the array would not always be of length three if the user decided how many numbers they could input, the findMedian function cannot simply return the value at index 1 of the array since this might not work for all cases. Finally, my last major improvement worth mentioning was the inclusion of an alert if the user does not enter three numbers into the input boxes on my web page. I used the function `isNaN` to check whether the values entered by the user are legal or not.

The most time consuming part of this project was error-checking my JavaScript code. JavaScript definitely brought me some challenges for this project. I felt very comfortable with writing most of the HTML and CSS program myself; I only referenced w3schools for clarifying more complex topics such as the border and border shadow aforementioned. However, after reading all of the Zybooks chapters about JavaScript that were applicable to this project, I was still struggling quite a bit with writing in JavaScript. For a while, my calculations were not working correctly because I had mixed up C++ syntax with JavaScript syntax. Luckily I was able to catch these mistakes, but it took a very long time to figure out where the errors exactly were because Brackets did not put flags on any of the errors. Now that I have completed the assignment, I feel slightly more comfortable with JavaScript, but I still would like to study it more so that I understand more than just the basics.

I used Brackets as my text editor and Chrome as my browser of choice for this project. To ensure that I was using the correct HTML tags and CSS syntax, I referenced W3 Schools, https://www.w3schools.com/html/default.asp, and the Zybooks textbook. I used

https://www.javascripttutorial.net/javascript-array-sort/ to learn how to properly use the `sort` function to sort the values in my numerical array in my findMedian function. Lastly, I used https://validator.w3.org/ to validate the HTML program.