

Testing Sort Visualizer The Sorters 7/21/2020

Cameron Peeters:

I tested the pseudocode functionality to see that the active lines of the highlighted pseudocode matched the animation of the sorting algorithms. In order to test this I would iterate through each different sorting algorithm step by step with the next button to see what lines of code would become active and whether or not they were representative of the current position of each sorting algorithm. During my testing I figured out it would be useful to have the pseudo code to be able to highlight multiple different lines at once, but we did not get around to implementing this feature in time.

Shawn Lo:

I tested the swap and comparison counter for all the sorting algorithms. I would calculate the expected number of swaps and comparisons for an already sorted array, a backwards sorted array, and an already sorted array with `arr[0]` being the largest number. Then I would run the algorithm and compare the numbers with the expected values. The n^2 algorithms were easy to predict as they were usually something like

$$\sum_{i=1}^n n - i$$

however the algorithms that ran in logarithmic time were more difficult to calculate, and were sometimes incorrect. My results can be found in the Swaps/Comparisons spreadsheet.

Julian Shalaby:

I tested the sorting and pseudocode animations to make sure they consistently did the correct animations. I did every corner case of variations with pressing the buttons and spammed the buttons like crazy to test this.

Atticus Jones:

I tested the pseudocode dropdown functionality by clicking on it while the webpage is in different states and ensuring that it would toggle displaying the pseudocode module.

I also tested that the array is drawn correctly by varying the array size and counting the number of bars that were drawn on the screen. I also tested that the bars would not overlap the swaps/comparison counter by making an array full of the max entries. I also tested the speed slider by visually inspecting that the speed of the sort changes with the sliders input.

Alex Lee:

I reviewed the sorting algorithms to ensure that they would run correctly and that the colors matched those on the legend. I would do this by running each sort and watching to see if any errors would occur. I also tested the speed and array size slider. I did this by changing the values of the speed slider multiple times during a sort and changing it while it was paused and when pressing next. For the array size slider I changed the values during a sort, after a sort had completed, and after resetting the array to find if it was working as intended.