

## **Datatoink.com Design – Todd Kawakita**

This project is based off of HTML, CSS/Bootstrap, JQuery/Javascript/SVG, PHP, and MySQL. It operates under a simplified PHP framework similar to Kohana using MVC that I found online and it makes good use of CSS Bootstrap in pursuit of good design choices. I use a SVG library called Raphael and specifically an offshoot of Raphael called g.Raphael. In trying to choose between Canvas vs. SVG, I went with SVG on account of the ability to still traverse the DOM.

g.Raphael is an imperfect library. While it's great that it provided me with a launching point, it also caused me a lot of problems. For one, g.Raphael does not support negative values for bar charts—it graphs them but if the values get too negative they start to fall off the bottom of the page. I thought I could fix this by cutting the height in half when a negative value was detected but that turned out not to solve the problem.

I ran into another problem with stacked negative values as well. It turns out that g.Raphael simply plots the stacked data in the order of the array and the stacked bar chart effect is achieved by drawing one bar on top of another so the bar behind looks like it's sitting on top of the bar in front. In reality it's the height of the ones in front plus its actual value. This worked for all positive values, 1, 2, 3 or all negative values, -1, -2, -3 but it didn't work for a mixture, say 5, -1, 2. This led to problems of bars obscuring other bars. My solution after much paper and pencil trial and error was to turn all the bars into positive bars and then flip the ones that were negative. Then scale the bars to their actual values. Then sum up the values of the bars beneath it according to the actual order. It honestly took me three days of head banging to finally get this right after multiple failed attempts.

To label the actual bars, I actually needed to transpose the graphing array data! This is because of the nature of these stacked bars and how they aren't placed on top but behind each other.

The log in and sign up fields used Ajax and came out beautiful. Unfortunately, I ran out of time to implement the loading of saved settings from the database.

Ultimately, I learned a lot of jQuery and I feel like I got really good at using CSS selectors and traversing the DOM. I do think my initial scope was too ambitious though. I started off as having two main goals: teaching data visualization and providing tools for data visualization. Ultimately the tools were created first and were buggy. I didn't feel comfortable moving on to the teaching without having the is a website designed to help people visualize data without needing to know how to code. I suppose this is what the real world and product implementation is like.