

Programming and implementing the various sorting algorithms proves a lot easier than expected. Despite how essential and widely used they are, they are actually pretty simple. I suppose this is a big part of their success. Now, let's get into them and see what else I learned from this assignment. First of all, it is interesting how the recursive implementations required me to think a bit more about their implementation. I think in part because I did the non-recursive algorithms first, so I had not planned much for the recursive one. I did not initially add the arguments the functions need, as the non recursive functions only need access to the array. I fixed this by creating a separate function to hold the originally array, and then calls the algorithm within itself.

When it comes to run time, quick sort and merge sort really took the cake! Which is interesting, as they were the ones using recursion and required a bit more thinking about their implementation. It seems in part their success is due to the recursive aspects, and the versatility that provides. Bubble sort, on the other hand, was by far the slowest, which I suppose makes sense as it is definitely the most simple of the algorithms. Finally, select and insert behaved as expected.

While empirical analysis brought us all this great data to analyze and draw conclusions from, it took awhile to implement. In fact it is such a hassle to implement we have a whole assignment on it! So the disadvantages I have come to learn about empirical analysis are implementing it, and implementing it correctly. I realized a huge problem can occur and be missed, causing huge errors down the line, if the empirical analysis is incorrectly implemented. For instance, I was incorrectly using the ctime functions, and originally got answers that did not make much sense. In my case, I was still learning these functions so was looking out for any errors like these and was able to

identify and fix it. However, if it was a subtler bug or something I missed, it could prove drastic.