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Learning About Sorting

During Assignment 7, we were assigned to create different algorithms to sort custom sized double arrays. The algorithms that I used were: Quick Sort, Merge Sort, Selection Sort, Insertion Sort, Bubble Sort, and Shell Sort. Throughout the process of programming and implementing the algorithms, I have learnt much.

One aspect that I learnt is that the time differences were much more drastic than I expected. I think this is because I didn't really consider the actual math of the runtimes. I thought that the computer would just be slow if given a massive array of doubles, but in reality, the sorting speed was mostly dependent on how efficient the algorithms were. Some of the tradeoffs picking one algorithm over the another were runtime, memory usage, and ease of coding the algorithm. I assume that using C++ allowed for the results to be much faster. From what I know, C and C++ are the fastest programming languages, and I assume that the results would be slower if I had used something like Python or Java, especially with large amounts of data. I cannot think of too many shortcomings of this empirical analysis because I felt like I did a pretty good job making sure that only the runtime of the actual algorithm was taken into consideration. I guess some other shortcomings may be if I wrote the algorithm incorrectly or differently than the average person, but I assume that mine are sound since they are derived from lecture and the textbook material. Shell sort would be the most susceptible though, since I learnt it through an online source. Overall, Assignment 7 was a great kinesthetic learning experience for sorting.