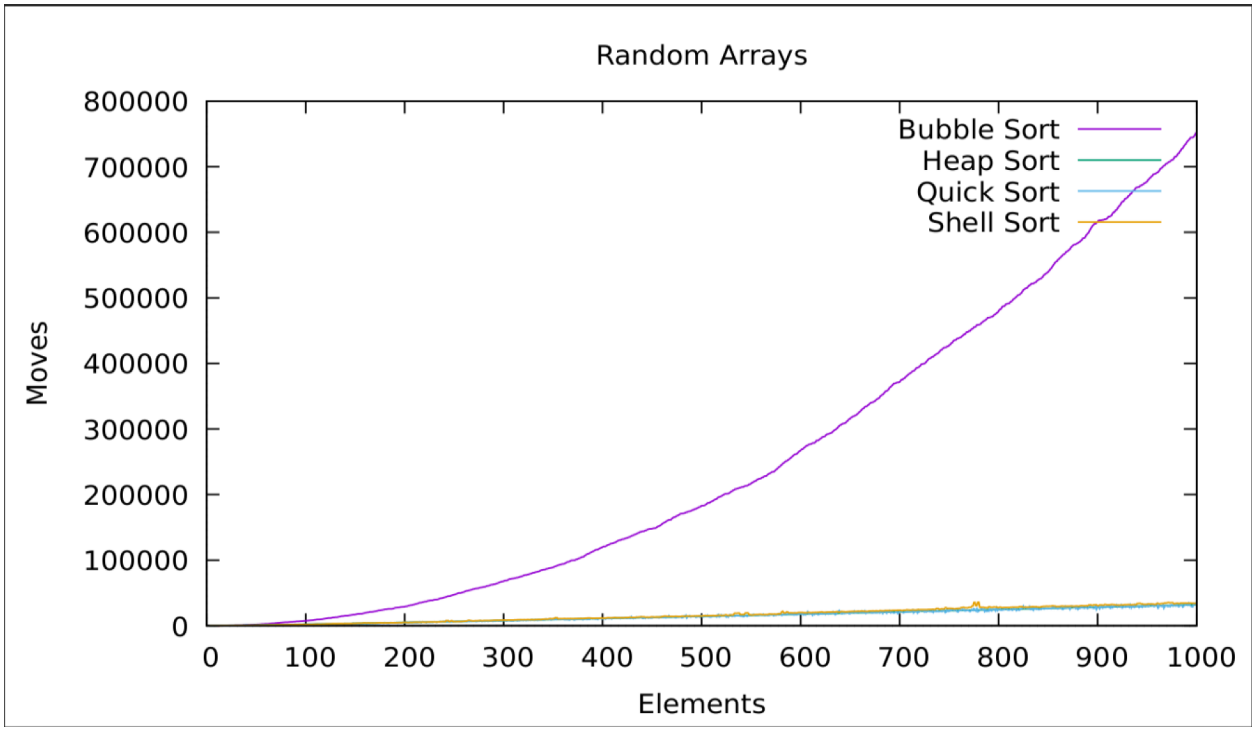
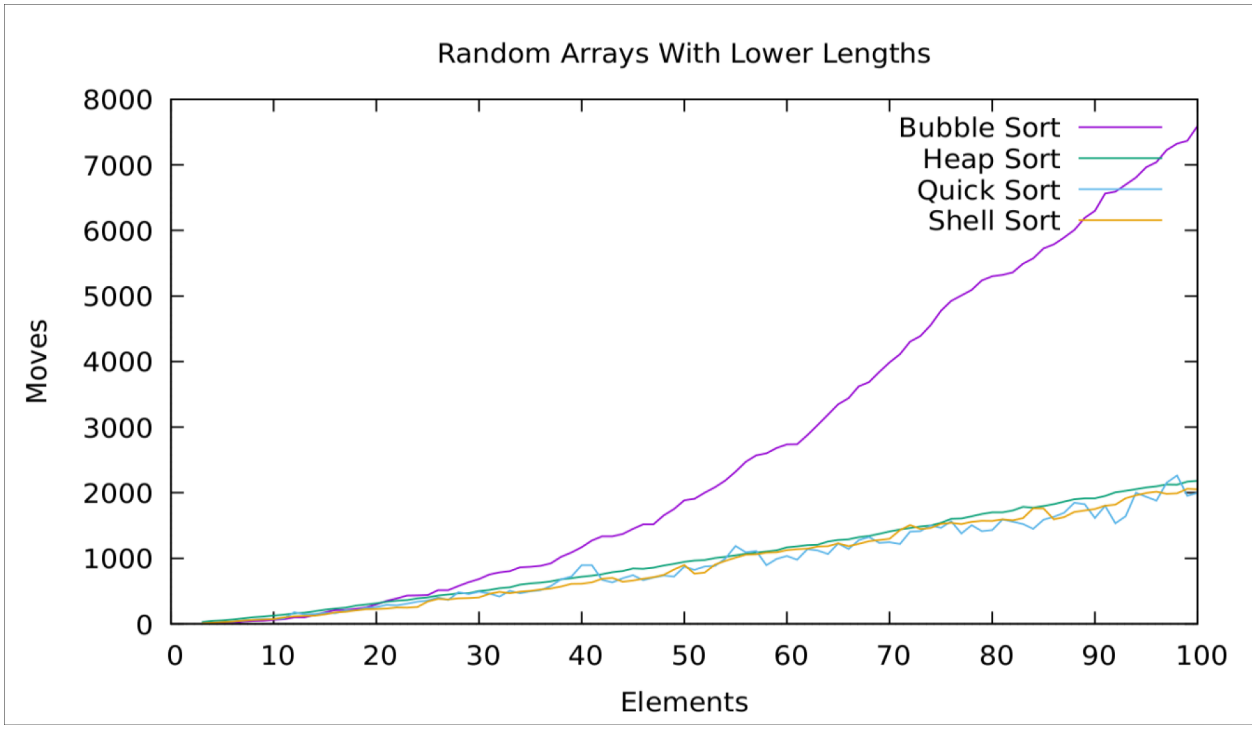
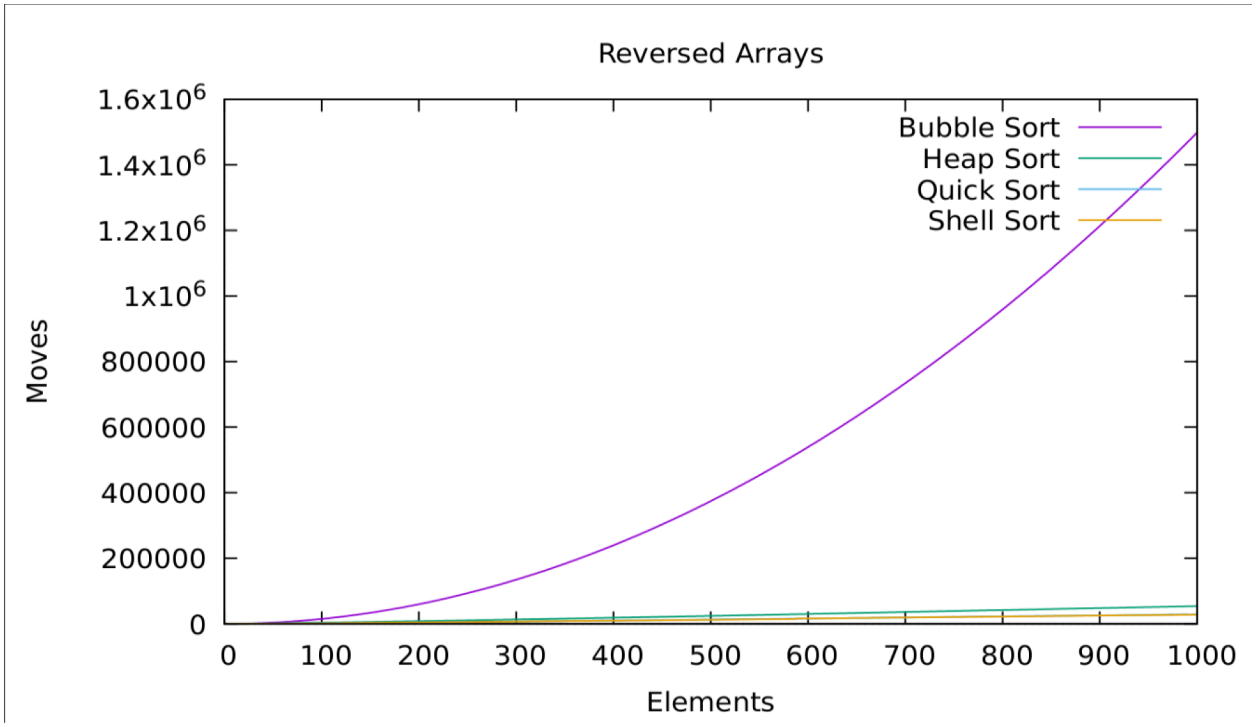
Assignment 4 Writeup

In this assignment I implemented 4 different sorting algorithms. This writeup has graphs and comments comparing their performances.

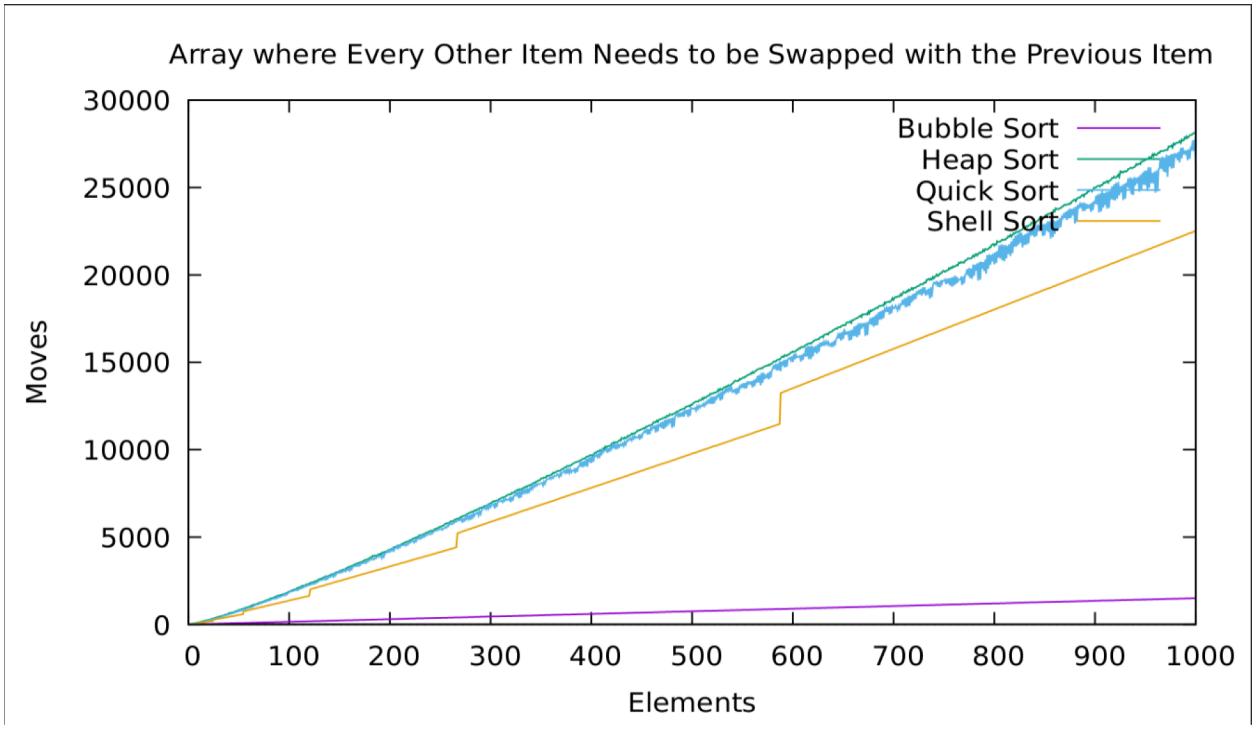




For purely Random Arrays Heap, Quick, and Shell Sorts vastly outperform Bubble Sort once the length of the arrays gets bigger. The lines in the graphs are not perfectly straight because I did not take the average over multiple seeds, so they have some random variance.



Shell sort performs the best on reversed arrays, and bubble sort is far behind again.



Because the arrays were almost sorted bubble sort was able to sort them in only one passthru. The other sorting algorithms did not get a very big advantage.

Conclusions:

Heap, Quick, and Shell sort perform very similarly, and Bubble sort performs much worse. Bubble sort works fine on arrays with less elements or on arrays that are very close to being sorted.