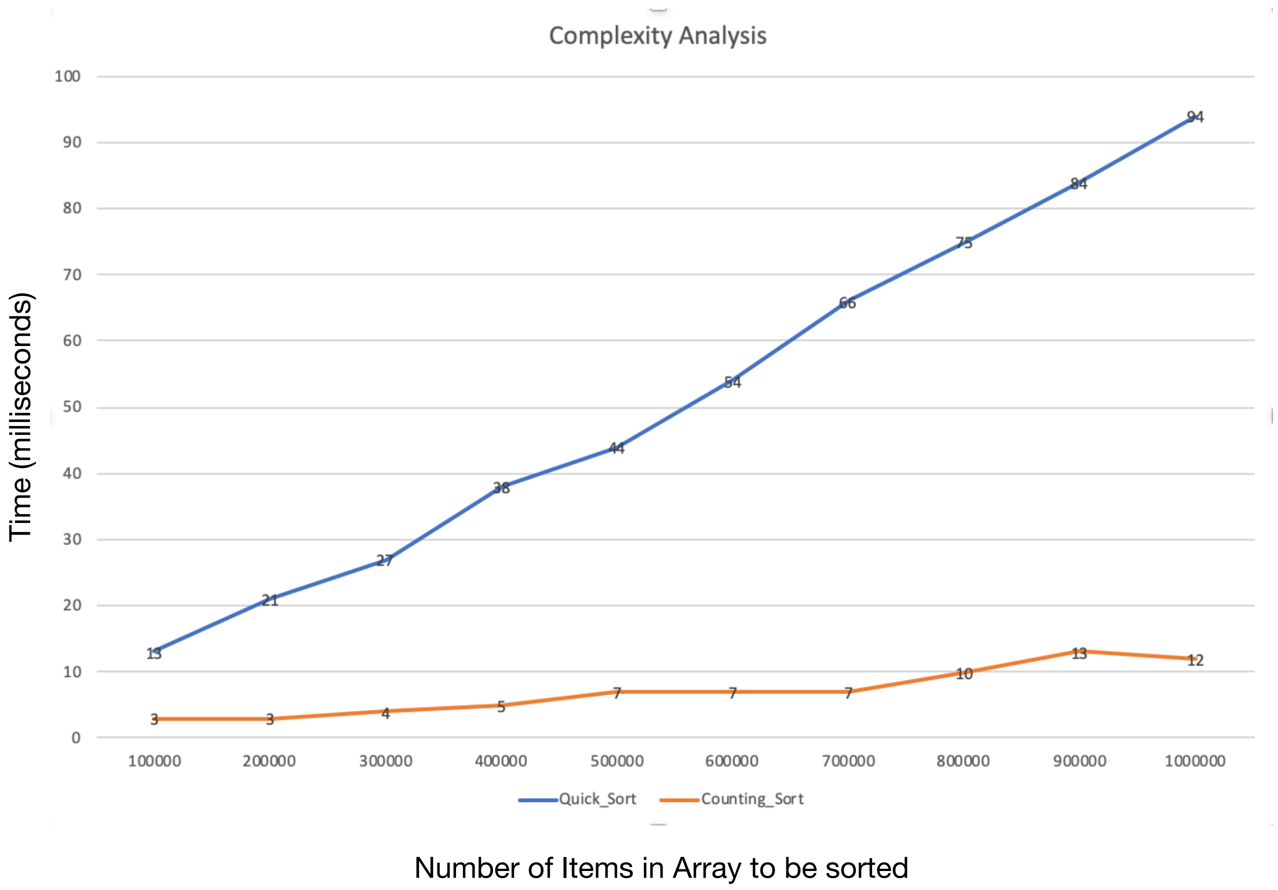
HW2



Both Quick Sort and Counting Sort have better performance than the previous homework’s Insertion Sort and Merge Sort.

Out of the sorting algorithms (Merge, Heap, Max Heap and Quick Sort), Quick Sort is the most efficient in practice and theoretically performs at a time complexity of O(n^2).
In its worst case of O(n^2), the partitioning process is picking either the largest or smallest element as its point to swap.

Counting Sort’s time complexity O(k+n), which however, is a better performing time complexity than Quick Sort’s. Counting Sort is much faster because it uses the values as keys in the array stored in an extra storage array.

In my code’s output, the complexity of both the Quick Sort and Counting Sort resembles that of their theoretical’s; Counting Sort performing better than Quick Sort.