Speed Test Between Different Sorts

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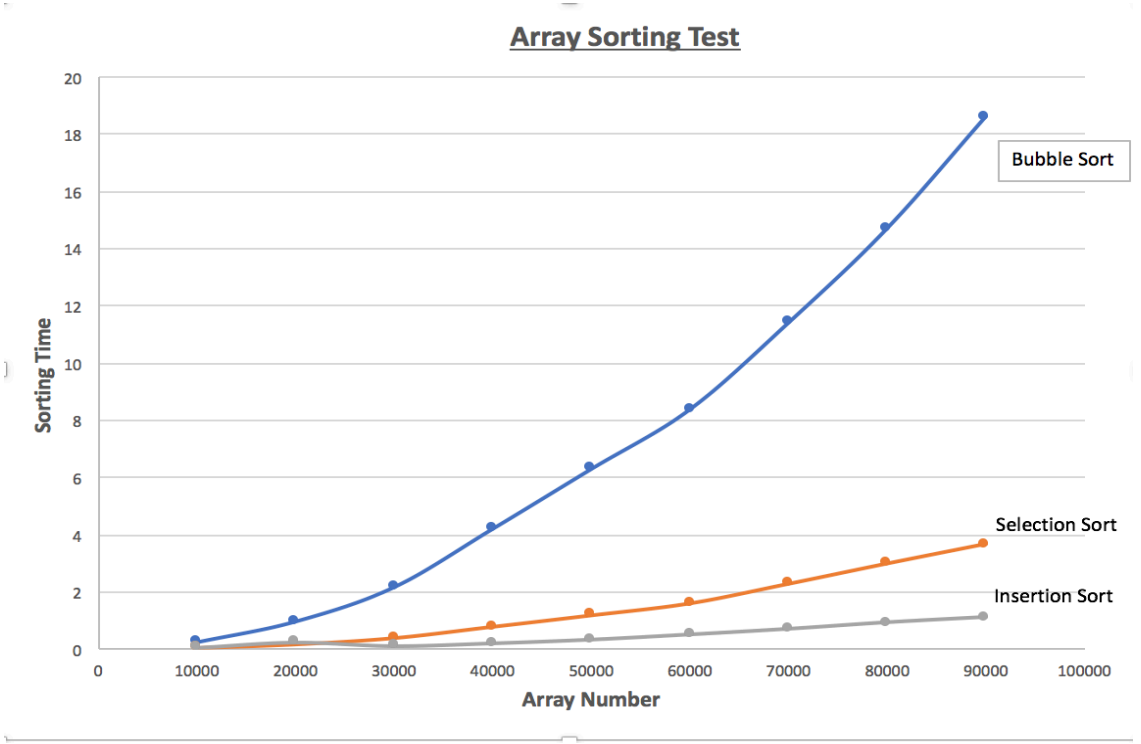
Graph showing the Speed test result:

	Bubble Sort	Selection Sort	Insertion Sort
No. of Sort	time	time	time
10000	0.256	0.072	0.069
20000	0.979	0.194	0.247
30000	2.176	0.411	0.131
40000	4.212	0.802	0.222
50000	6.305	1.198	0.347
60000	8.389	1.614	0.52
70000	11.419	2.292	0.708
80000	14.718	2.996	0.926
90000	18.627	3.676	1.102



Insertion Sort:

- It maintains a sorted sub-array, and repetitively inserts new elements into it. The process is as following:
- Take the first element as a sorted sub-array.
- Insert the second element into the sorted sub-array (shift elements if needed).
- Insert the third element into the sorted sub-array.
- Repeat until all elements are inserted.
- O(n^2)

Selection Sort:

- It repetitively pick up the smallest element and put it into the right position:
- Find the smallest element, and put it to the first position.
- Find the next smallest element, and put it to the second position.
- Repeat until all elements are in the right positions
- O(n^2)

Bubble Sort:

- It repetitively compares adjacent pairs of elements and swaps if necessary.
- Scan the array, swapping adjacent pair of elements if they are not in relative order. This bubbles up the largest element to the end.
- Scan the array again, bubbling up the second largest element.
- Repeat until all elements are in order.
- O(n^2)

Conclusion:

All three sorts have the some efficiency but looking at the sorting time and the graph, out of these three sort the fastest is Insertion Sort, second Fastest is Selection Sort and Bubble sort is the slowest and therefore takes the most time.