

	Naïve Bubble	Optimized Bubble	Quicksort
Array size 10	0.000002	0.000002	0.000003
Array size 100	0.000058	0.000028	0.000015
Array size 1000	0.004058	0.002368	0.000241
Array size 10,000	0.546196	0.385965	0.003106
Array Size 100,000	57.290745	42.010483	0.045901
Array Size 1,000,000	NA	NA	0.516239
Array Size 10,000,000	NA	NA	6.094937
Array Size 100,000,000	NA	NA	68.037063

Naïve Bubble sort is the slowest out of the three as you can see Naïve Bubble you are comparing already sorted element after 1 loop. After each loop, the end element is sorted with largest element on the order. So, you are comparing already sorted element.

Quicksort is faster out of three because we are dividing array into partition and sorting and merging. The partition array is sorted recursively. In bubble sort total number of loops is $n-1$ and each loop we are comparing two consecutive number which is faster than bubble.

Although Bubble sort is so bad, it is still widely used and taught because it is easier to understand and use and code.

For the larger array of the size 1,000,000 it was taking longer time I waited for hours but it was still not loading.