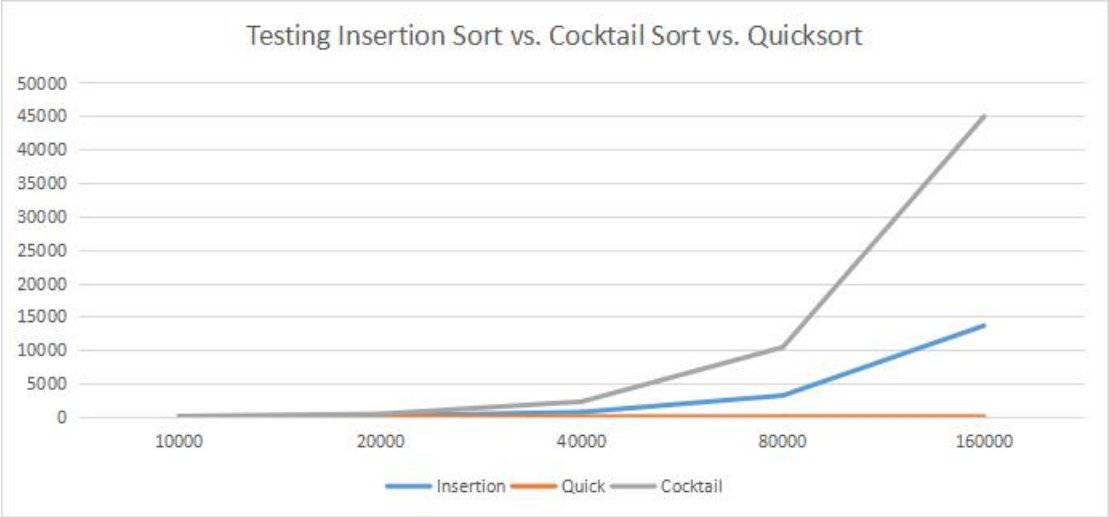
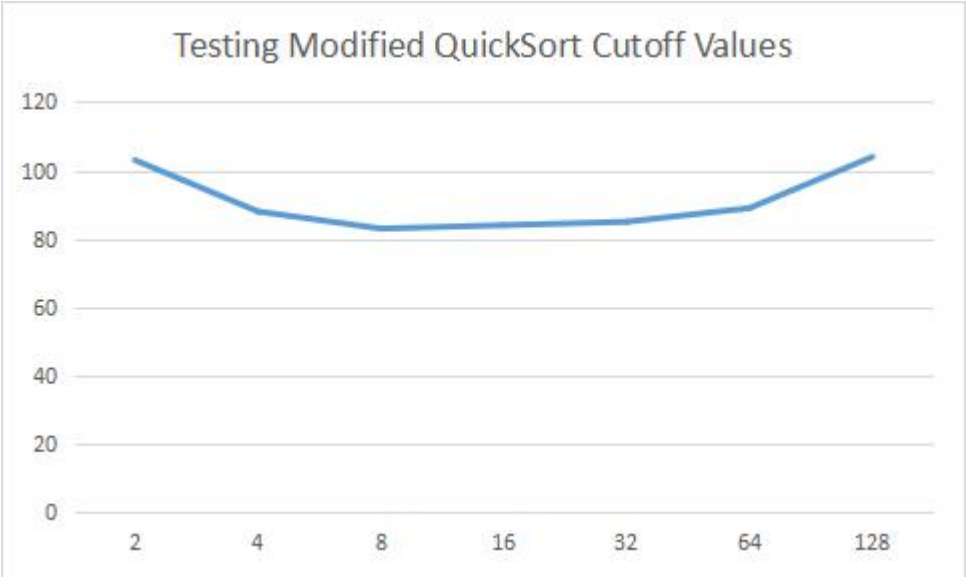
Testing Insertion Sort vs. Cocktail Sort vs. Quicksort



	Insertion	Quick	Cocktail
10000	41	1	87
20000	157	1	423
40000	694	2	2257
80000	3170	5	10394
160000	13629	11	44921

Among these three sorting methods, the one with the shortest run time is Quick Sort, and the second is Insertion Sort. Cocktail Sort takes the longest run time. This is because the runtime for Quick Sort is O(nlogn), the runtime for Insertion Sort is O(n^2), the runtime for Cocktail Sort is also O(n^2). And since Cocktail Sort makes more comparisons and movements than Insertion Sort, it will take a longer time than Insertion Sort.

Testing Modified QuickSort Cutoff Values

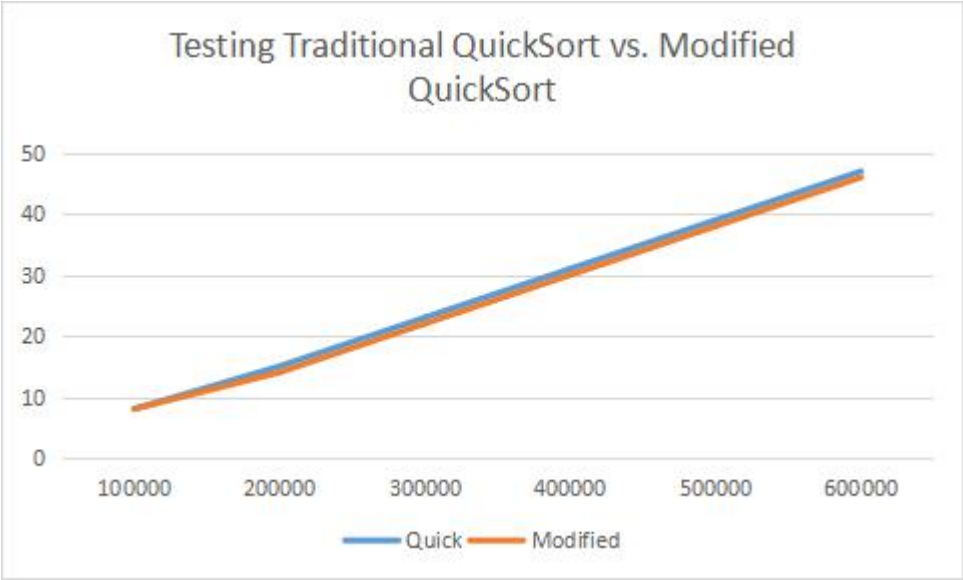


Cutoff	Modified

2	103
4	88
8	83
16	84
32	85
64	89
128	104

From the graph above, we can see that the lowest runtime is when the curoff value is 8. So the cutoff value 8 will give us the fastest performance.

Testing Traditional QuickSort vs. Modified QuickSort



	Quick	Modified
100000	8	8
200000	15	14
300000	23	22
400000	31	30
500000	39	38
600000	47	46