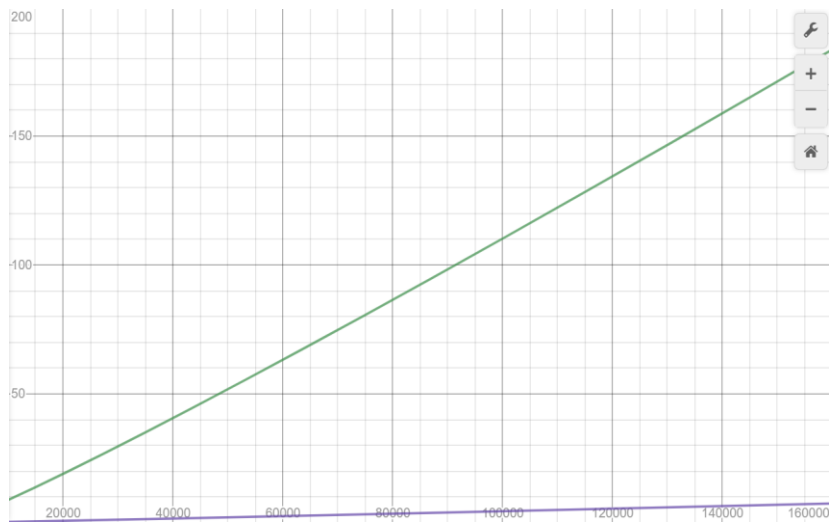
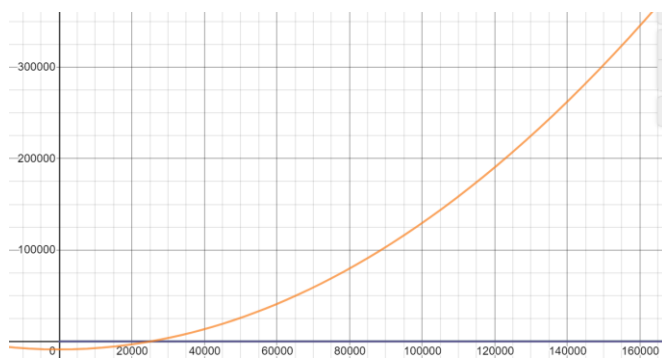


1. Insertion Sort & MergeSort & QuickSort:

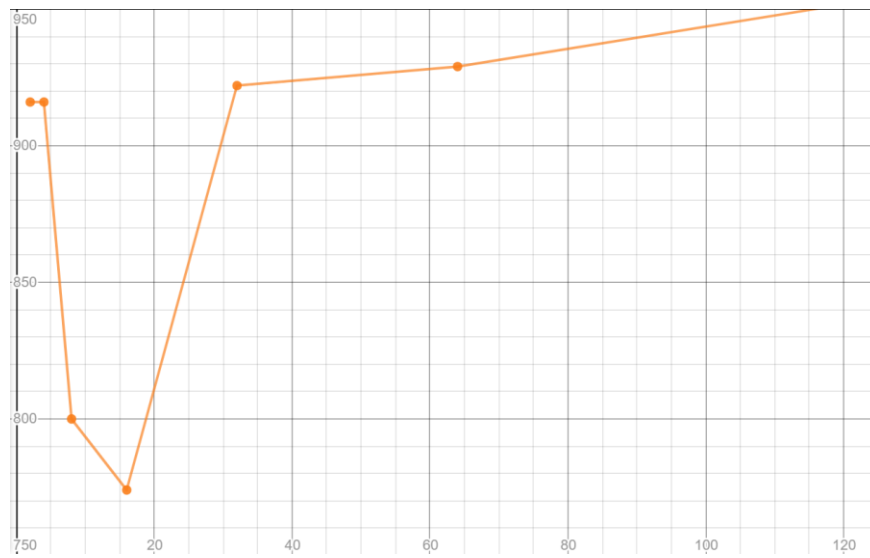
The result of each sort is listed below: (y1 is Insertion sort, y2 Merge Sort, y3 Quick Sort)

x	y1	y2	y3
10000	699	14	8
20000	3079	14	9
40000	13985	33	13
80000	60026	64	30
160000	349940	196	88

And the graphs showing their difference is attached here, with orange being Insertion Sort, red being Quick Sort, blue being Merge Sort. As shown in the data, the running time of Insertion sort is immensely larger than those of Mergesort and QuickSort, thus I tried showing them in two graphs:



2.

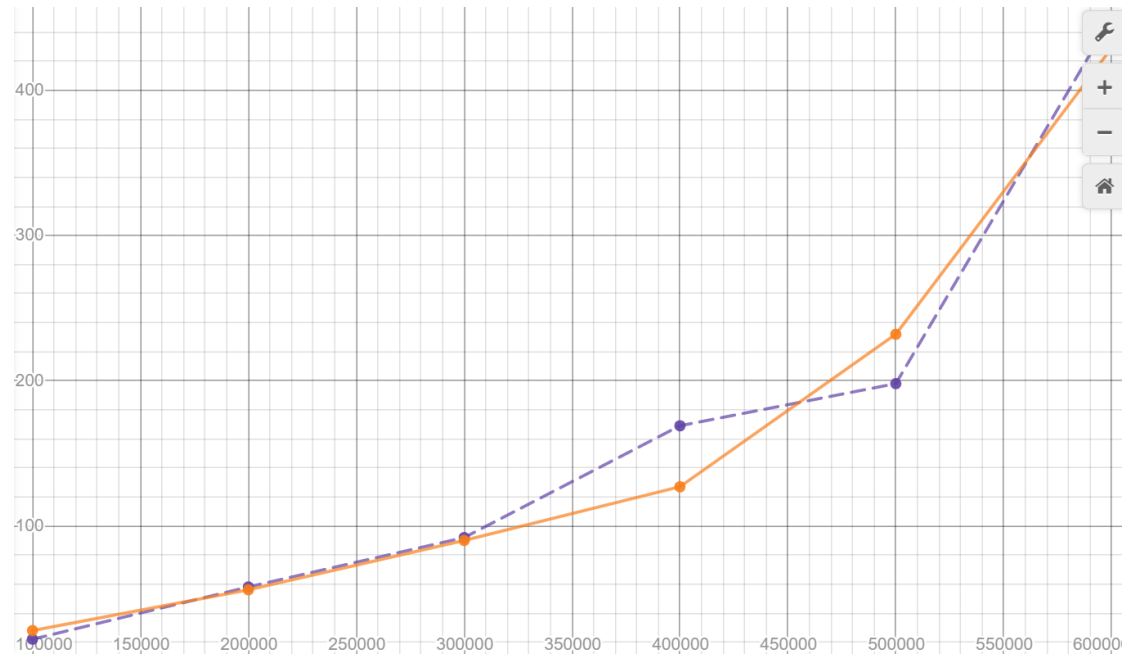


CutOff value 16 gives a best performance. As cutoff value increases, the performance goes better at first and worst at end.

2	916
4	916
8	800
16	774
32	922
64	929
128	955

3.

	MQS	QS
100000	28	22
200000	56	58
300000	90	92
400000	127	169
500000	232	198
600000	429	450



Where orange line represents Modified Quicksort and purple dashed line represents QuickSort.