

Question 1

Average time of 100 sorts in nanoseconds

n (list size)	Insertion	Merge
5	417	565
20	1,179	4,239
50	4,208	11,071
100	16,356	14,607
500	31,763	37,843
1000	94,073	113,815
2000	372,285	242,348
3000	765,773	256,165
4000	1,405,148	384,674

InsertionSort is faster, with the exception of  $n=100$ , for  $n < 2000$ . For  $n \geq 2000$ , the time for mergeSort increases much more slowly than for insertionSort.

Question 2

Average time of 100 radix sorts in nanoseconds

n (list size)	Base 2	Base 10	Base 16
5	1,015	549	572
20	5,136	1,941	1,299
50	1,0588	2,380	1,460
100	25,186	4,689	3,279
500	76,219	32,971	20,077
1000	82,248	45,822	22,072

2000	195,015	84,915	28,475
3000	247,200	96,806	31,673
4000	335,910	131,867	36,536

Base 16 is the fastest when sorting with radix sort. The second fastest is the decimal base, and binary comes in last.