Comparisons between merge sort and quicksort execution times

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The average execution time was calculated using random integer arrays as inputs.

Looking at the graph we can see that merge sort is slower than quick sort when the size of the array is is smaller than 1 million elements. When we reach really big arrays that is 10 million or more, merge sort is faster (see table 1). It seems that quicksort is better for ”smaller arrays” and merge sort works better for really big arrays (1 million elements or more).

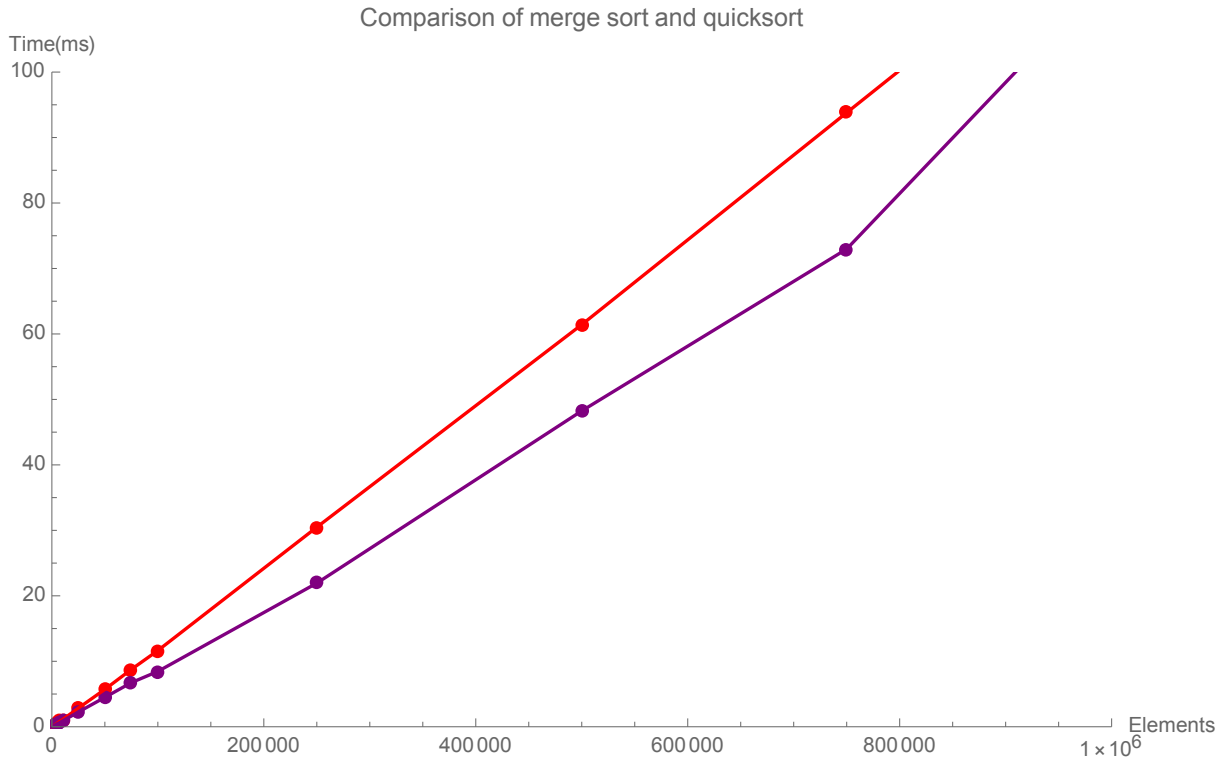

Figure 1: Comparison of merge sort (red) and quicksort (purple)

Number of elements	Merge sort	Quicksort
10	0.004092	0.008831
100	0.01711	0.01802
1 000	0.1130	0.09349
10 000	1.089	0.8682
100 000	11.64	8.454
1 000 000	126.1	115.4
10 000 000	1348	1570
100 000 000	14198	17271

Table 1: Comparisons of merge sort and quicksort execution times