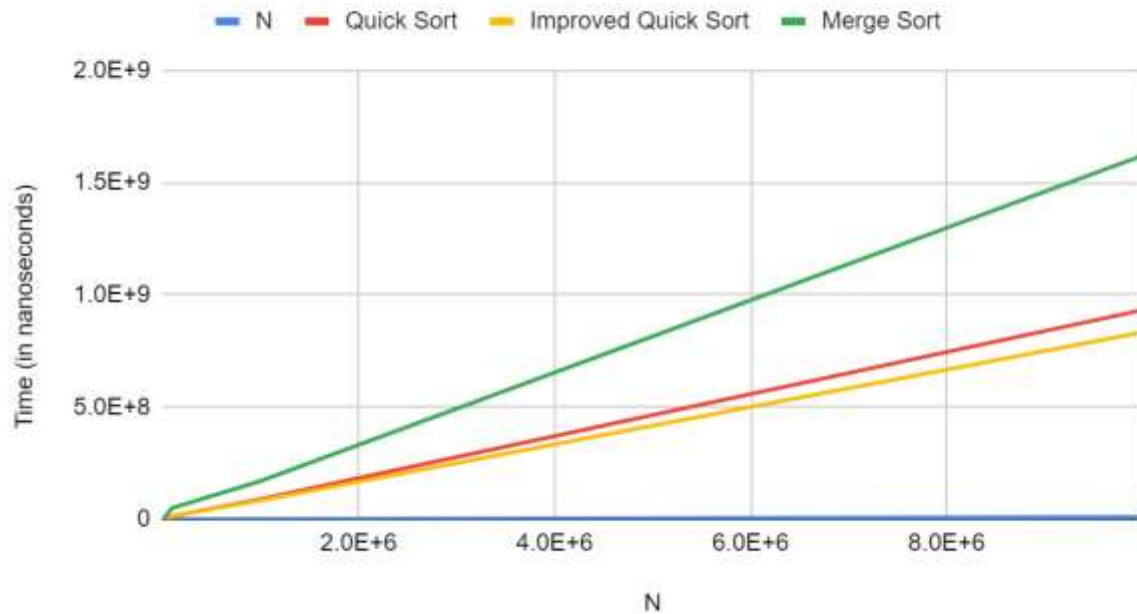# Quick Sort and Improved Quick Sort



Quick sort vs Improved Quick sort vs Merge sort

We can see here that Quick sort, Improved quick sort and Merge sort all work in time complexity O(nlogn).

Although they all have the same time complexity, Quick sort and Improved quick sort are both significantly faster than Merge sort.

Quick sort and Merge sort also have the added benefit of being in-place algorithms. When I attempted to sort an array of 100,000,000 (one hundred million) elements. Quick sort and Improved quick sort were both successful, but Merge sort caused a java heap error due to the amount of memory it uses.