|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sort (time in seconds)** | **100** | **1000** | **10000** | **100000** | **1000000** | **10000000** |
| **Quicksort** | 6.47x10-4 | 1.46x10-3 | 4.76x10-3 | 4.10x10-2 | 2.06x10-1 | 2.07 |
| **Mergesort** | 1.11x10-3 | 1.93x10-3 | 6.74x10-3 | 1.06x10-1 | 3.16x10-1 | 3.16 |
| **Insertion** | 8.05x10-4 | 7.33x10-3 | 6.90x10-2 | 6.49 | 1.22x101 |  |
| **Bubble** | 3.41x10-3 | 1.65x10-1 | 1.27x102 | Half Hour |  |  |

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Lab 6 Report

Quick sort and merge sort took roughly the same time the whole way though, although quick sort proved to be faster than merge sort. Due to merge sort taking close to the same time for up to ten million values, people could choose to use either one if they wanted to, however, quick sort will go faster. Insertion sort took a considerable amount of time longer than quick sort and merge sort. It took longer to sort one hundred thousand items in a list than it took both merge sort and quick sort to sort ten million items, combined.

Bubble sort, on the other hand, took an extremely long time in comparison to even insertion sort. For ten thousand items in the list, it took bubble sort almost one thousand times as long to sort than it took insertion sort. There doesn’t seem to be really any use for bubble sort considering how excruciatingly long it takes to sort. Now, it is faster than doing that many items with no computer, and only the values and yourself. But, since that will very unlikely be a scenario that anyone will have to deal with, we don’t need to worry about that.