# Dual Pivot Quick Sort:

The following sorting algorithms were implemented on varying input sizes ranging from 1M to 16M numbers.

1. Dual Pivot Quick Sort: This algotihm involves picking two pivots at the start and at the end and runs better than the normal quicksort algorithm.
2. Quick sort: This is the generic quick sort algorithm.

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| Sorting Algorithm/input size(millisecond) | 1M | 2M | 5M | 10M | 16M |
| Random quicksort | 105 | 231 | 491 | 1078 | 1909 |
| quicksort | 120 | 273 | 693 | 1314 | 2218 |

# Select Algorithm:

The following sorting algorithms were implemented on varying input sizes ranging from 1M to 16M numbers.

1. Creating a Max heap of size n and returning the top k elements
2. Creating a Min heap of size k and returning the heap
3. Quick select algorithm similar to that of randomized quick sort

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| --- | --- | --- | --- |
| Sorting Algorithm/input size(millisecond) | 1M | 5M | 10M |
| Max heap | 71 | 399 | 841 |
| min heap | 27 | 139 | 228 |
| quick select | 44 | 89 | 195 |