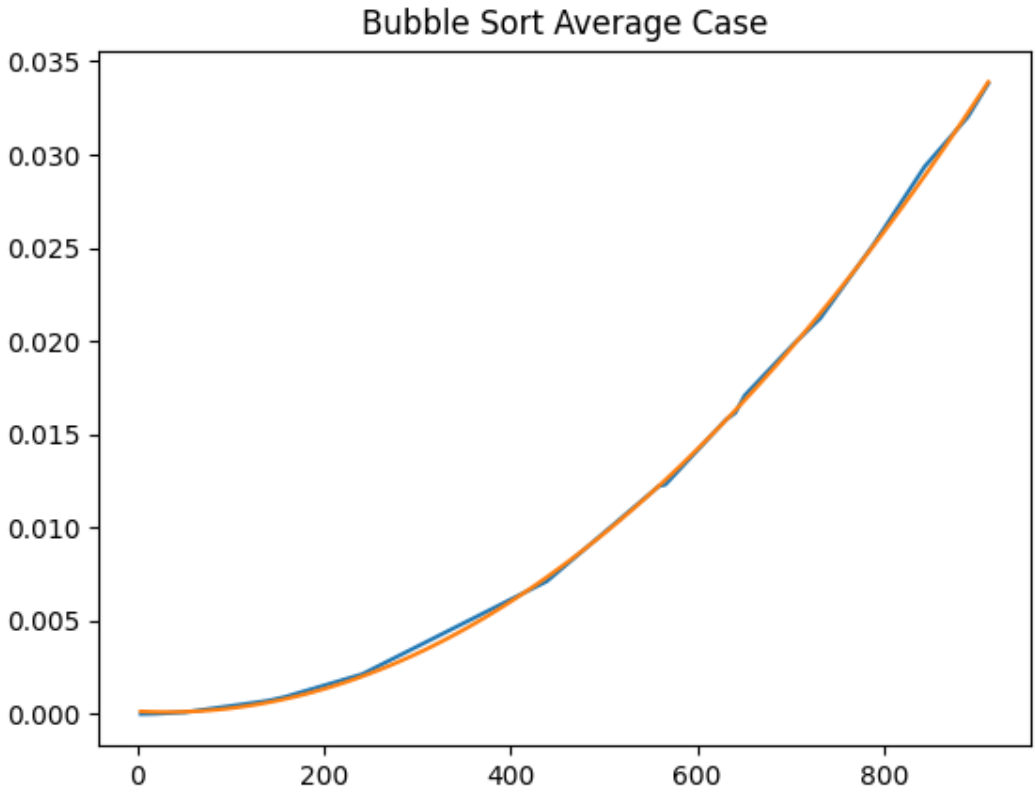
Ex2

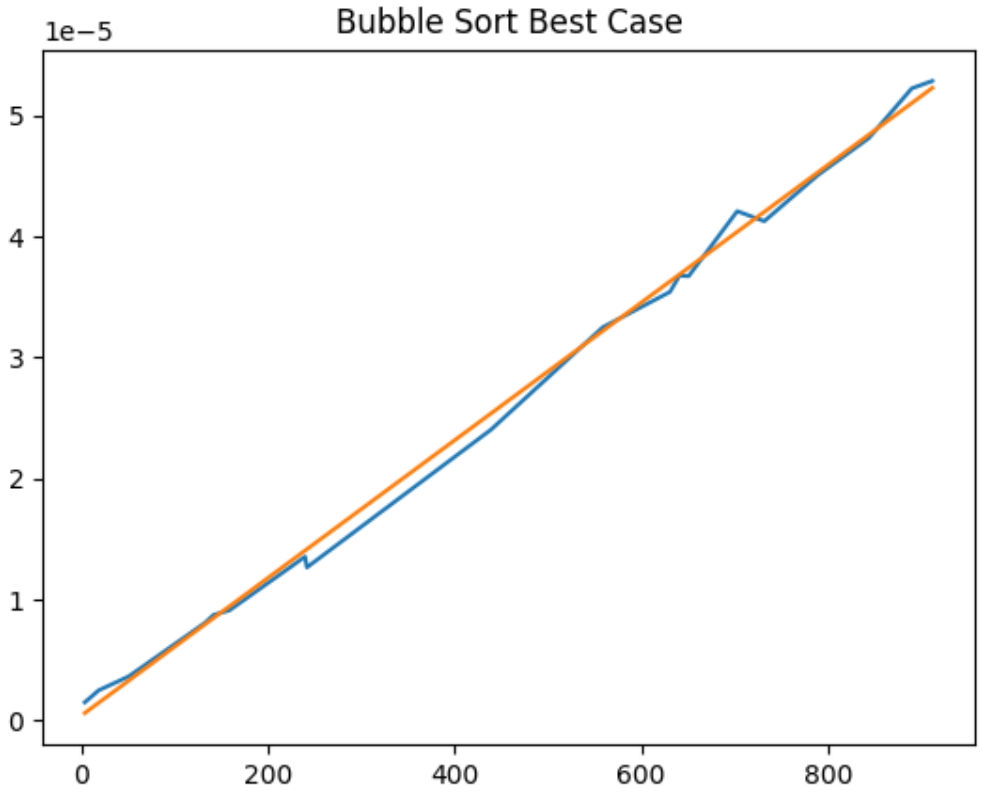
Bubble sort

Average case:



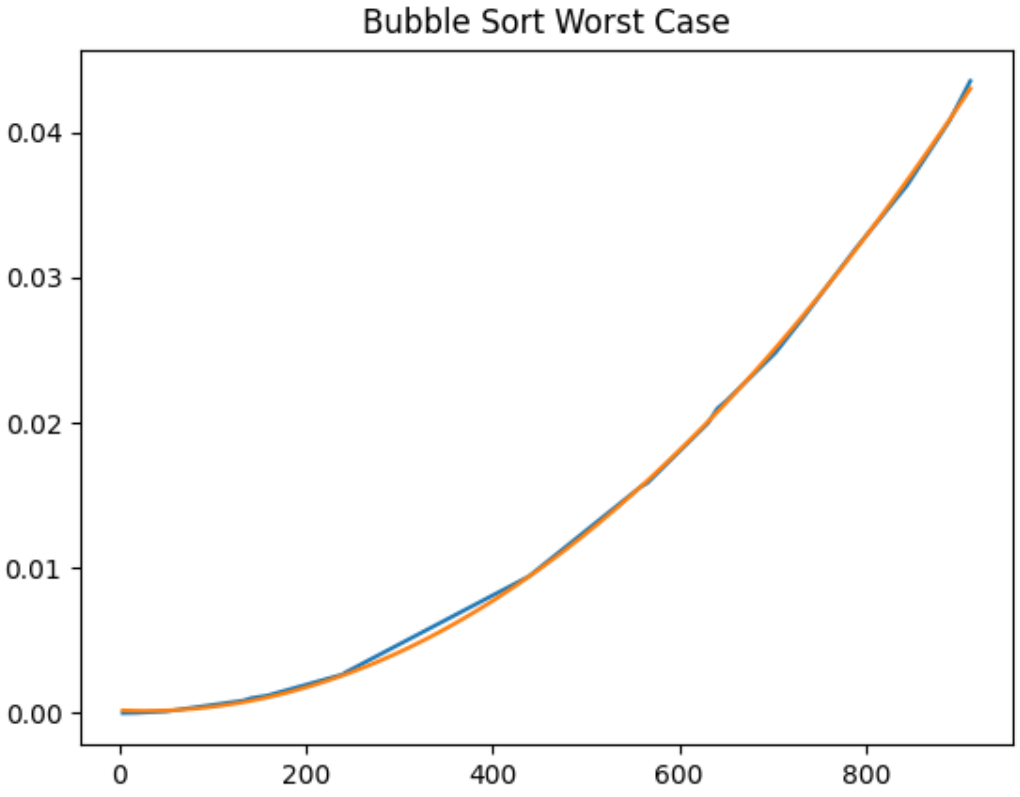
O(n^2)

Best Case



O(n)

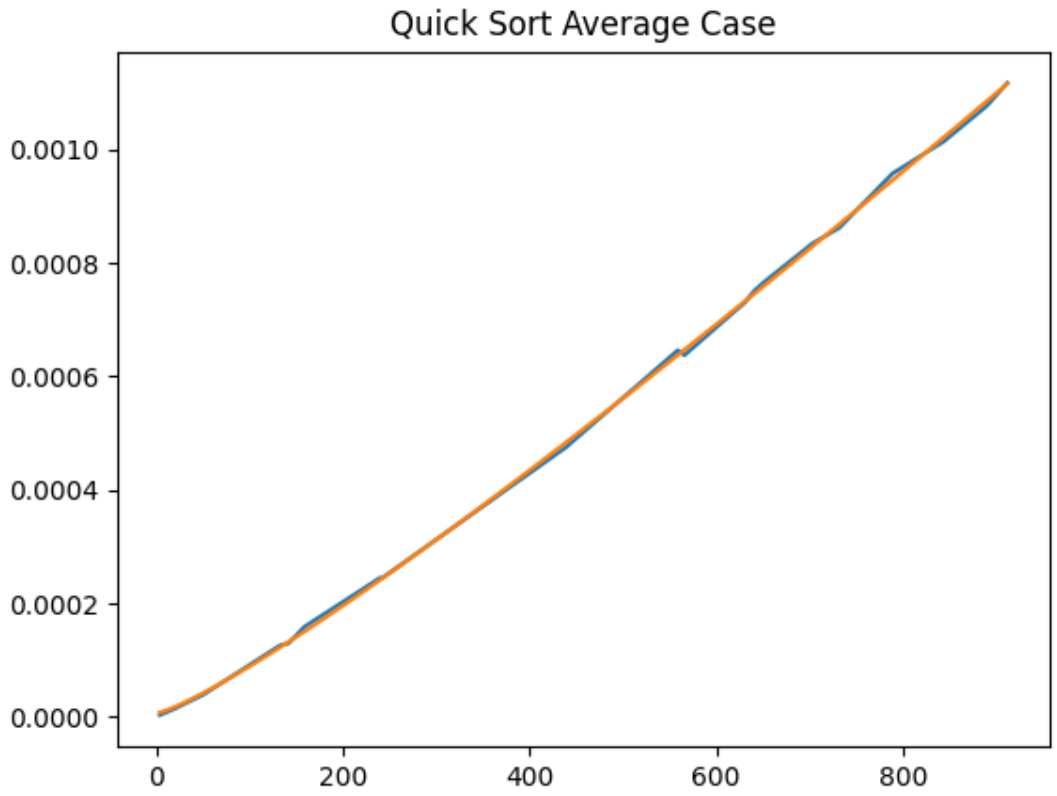
Worst Case



O(n^2)

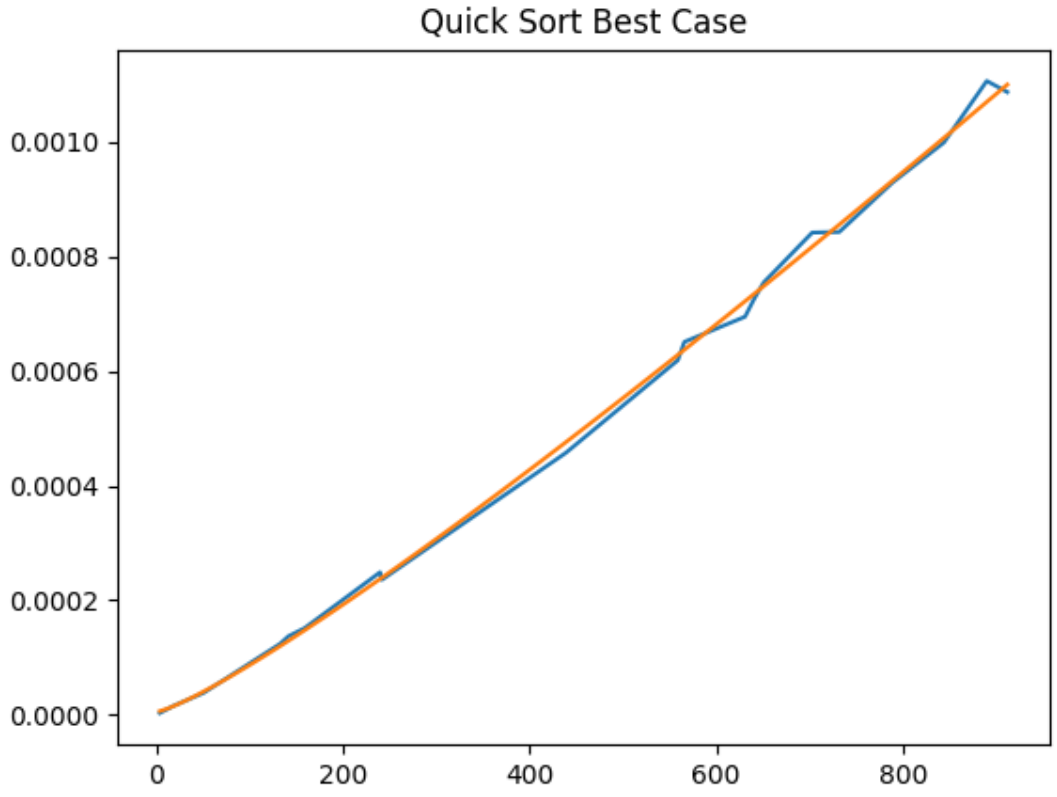
Quick Sort

Avg Case



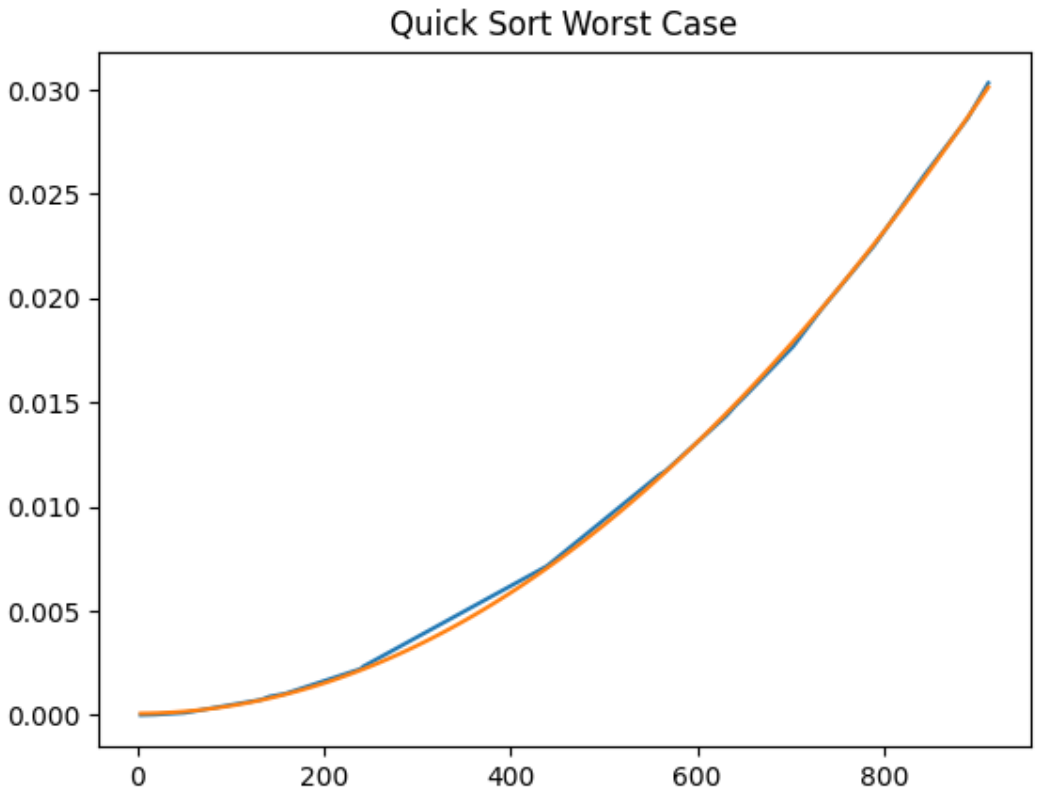
O(nlogn)

Best Case



O(nlogn)

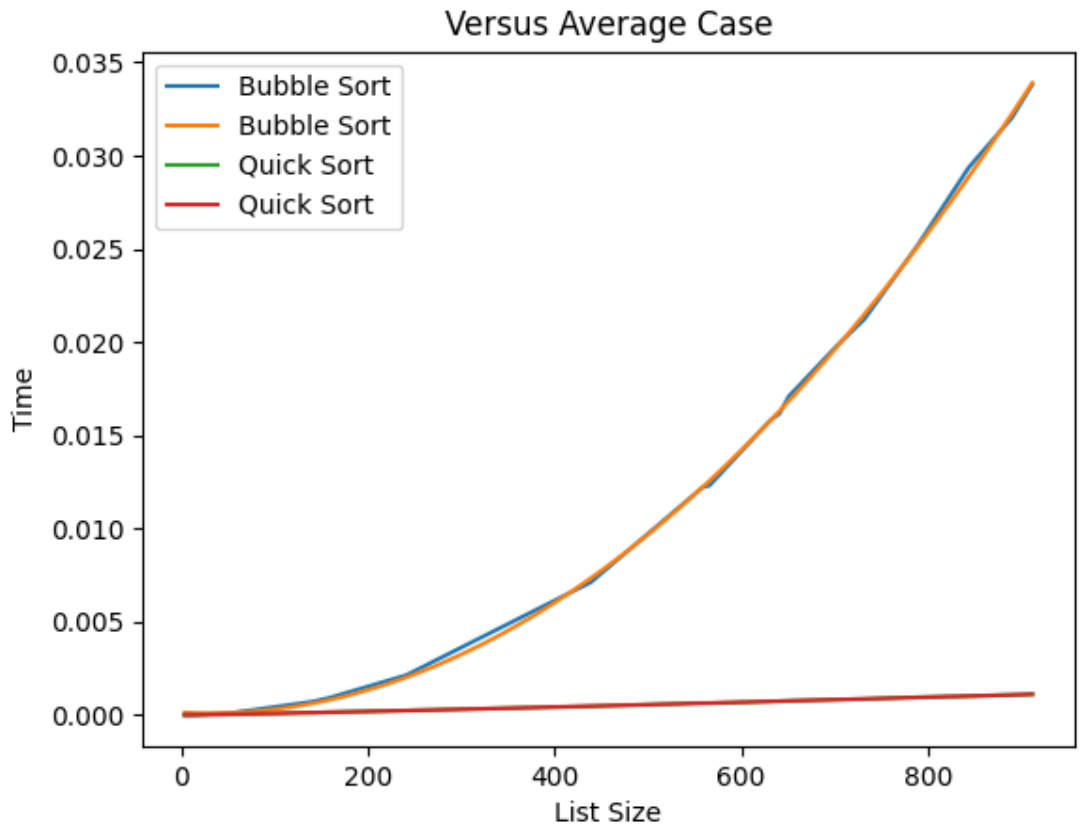
Worst Case



O(n^2)

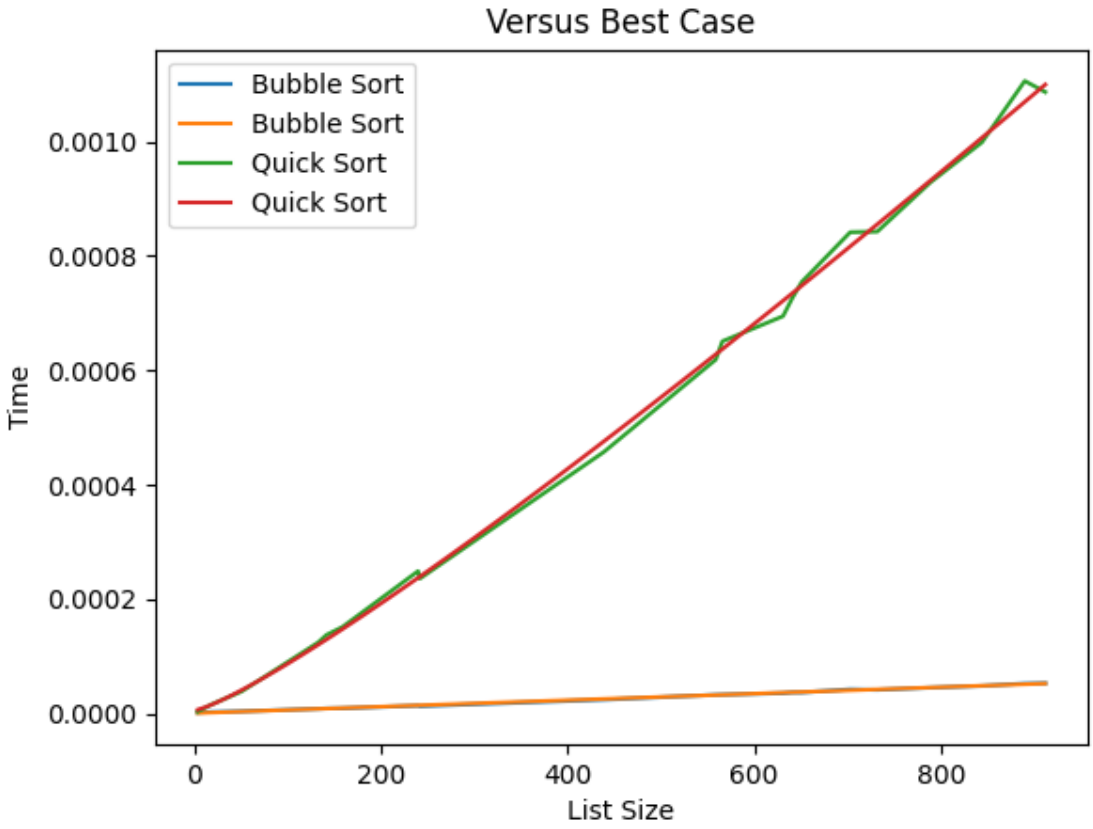
Comparisons

Avg Case



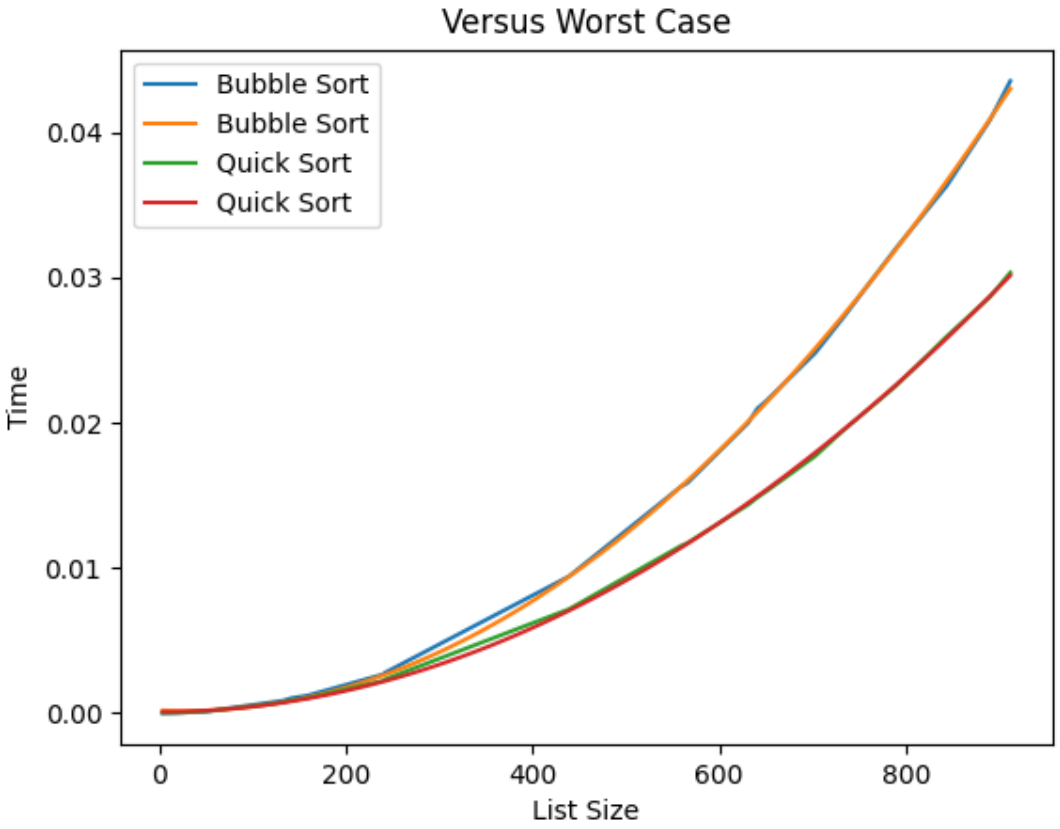
Quick Sort performs much better than bubble sort in Avg cases.

Best Case



In Best Case Bubble sort performed better than quick sort

worst case



In worst case quick sort performed slightly better than bubble sort

4. From the plot, in the average case, for around 700 to 750 elements, Bubble Sort shows an execution time of approximately 20ms, which is about 25 times slower than Quicksort for the same instance (approximately 0.8ms). Therefore, an input size of 750 could be considered a threshold for small inputs.