Sorts Detective Christian Guerra PID: A17660168

Secret Numbers: 660168

<u>Alpha is Quick Sort:</u> I would agree that Alpha is quick sort because it takes the same number of comparisons as merge sort but not only that it takes less movements as well, so I thin this makes sense because of a relative short array, I also tried it with a large size and I could say it it almost increased twice its size.

Betta is Insertion Sort: Although this and Epsilon were almost identical in numbers, the reason I say Betta is Insertion sort is because it does not never take less to sort an array when the array has a size of 3 for example, it always takes roughly 10-12 movements to sort a really short array proving that $O(n^2)$ is in play and not $O(n\log n)$.

<u>Gamma is Check Sort:</u> The reason I think Gamma is check sort is because every time I run a relatively short array(10-16)It returns these large numbers from 200 to 500, descarting selection, quick, sort and insertion sort, I don't think it is merge sort because its time complexity is o(nlogn) and I don't think it is bubble sort because Check sort is also way slower than it.

<u>Delta is Bubble Sort:</u> I think Bubble sort is shown in delta, its worst time complexity is also $O(n^2)$ and attempting to sort it this way it gave me roughly the same (28 out of 34 movements) so because of that I think it is Bubble sort and not a sorting method such as selection sort.

Epsilon is Merge sort: I think Epsilon is merge sort because while sorting a reversed array of length 5 and doing it on paper I saw that it takes roughly 5 comparisons being the same length of the array but takes 24 movements to accomplish, and this makes sense because its worst time complexity is O(nlogn) and it takes relatively shorter comparisons than the others.

Zeta is Selection Sort: I think this one is selection sort because no matter what the length of the list is it always calculates a total comparison for roughly $O(n^2)$ its size, for example in the reversed array of 5 it took roughly n^2 to compare it.