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CSS 342 Program 4 Chart**

**X-Axis: Vector Size. Y-Axis: Time in Milliseconds**

* Bubble Sort and Insertion Sort take significantly longer to sort than all the other sorts.
* Quicksort appears to take the least time compared to all other sorts.
* BubbleSort takes the longest to sort data, by a long shot.
* Insertion and Bubble are much more inefficient than MergeSort ,QuickSort, and ShellSort.
* Array Sorting Time Complexity:

BubbleSort – [ **Best:** n ] [**Average:** n^2] [**Worst:** n^2] [**Stable:** Yes] [**Method:** Exchanging]

InsertionSort - [ **Best:** n ] [**Average:** n^2] [**Worst:** n^2] [**Stable:** Yes] [**Method:** Insertion]

MergeSort -[ **Best:** nlogn ] [**Average:** nlogn] [**Worst:** nlogn] [**Stable:** Yes] [**Method:** Merging]

IterativeMergeSort- Same as Merge Sort, saves more memory.

QuickSort -[ **Best:** nlogn ] [**Average:** nlogn] [**Worst:** n^2] [**Stable:** No] [**Method:** Partitioning]

ShellSort - -[ **Best:** nlogn ] [**Average:** n^4/3] [**Worst:** n^3/2] [**Stable:** No] [**Method:** Insertion]

**(Information for Time complexity is from Wikipedia: https://en.wikipedia.org/wiki/Sorting\_algorithm)**