DS- Assignment

Insertion Sorting :-

In Insertion sort we modify the original array by inserting the lower element at the right place in the original array only Thus it does not require any extra space. Hence it is called "In-place sorting.

Space complexity = $O(1)$

Be Operation in this Algorithm

(i) Comparison

(ii) Swapping

In best case :-

Algorithm only compares the elements

So, Time complexity = $O(n)$

Quick sorting :-

It follows the principal of Divide & conquer

Time complexity

Worst case

$T = O(n^2)$

Best Case

$T = O(n \log n)$

Bubble Sort :-

Time Complexity.

For n element $(n-1)$ Comparisons are done.

$$T(n) = \frac{n^2(n-1)}{2} = \frac{n^2-n}{2}$$

$$T(n) = n^2$$

Bubble-Sort is efficient if for array of small size

Time Complexity merge sort $O(n \log n)$

" Insertion $O(n^2)$