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Lab Write - Up (Que-Ans)
Practical - 11

Q.1) What is Sorting?
→ The arrangement of given preffered data (elements) in a permuted order is called sorting.
eg:- unsorted :- 5, 16, 37
sorted :- 1, 3, 5, 6, 7

Q. 2) Why we need Sorting
→ By sorting data, it is easier to search through it quickly and easily. It makes the data more approacheable and understandable.
It makes an order of sequential data.

Q3) Explain Best, Average, Worst case analysis of selection and Bubble Sort.
→ Selection Sort -
Best case is $\Omega(n^2)$
Average case is $\Theta(n^2)$
Worst case is $O(n^2)$

Best case complexity is n^2 when array is sorted. Worst case complexity is n^2 when array is independent of distributed or data.

→ Bubble sort — Best case is $\Omega(n^2)$
Average case = $\Theta(n^2)$
Worst case $O(n^2)$

Best case complexity is n when array is sorted. Worst case complexity is n^2 when array is reverse solved.

Q.4) What is stability in sorting? Which sorting algorithms are not stable?

→ A sorting algorithm is said to be stable if two objects with equal ~~keeps~~ keys appear in same order is sorted output as they appear in input unsorted array. Some sorting algorithm is stable by the nature like insertion sort, merge sort and bubble sort.

Some algorithms which are not stable are:- ~~sort~~ quick sort, heap sort etc