Sorting Algorithms - Viva Questions & Answers

Bubble Sort

Q: What is Bubble Sort?

A: A simple comparison-based algorithm where each pair of adjacent elements is compared and swapped if out of order.

Q: What is the time complexity of Bubble Sort?

A: O(n^2) in worst and average case.

Q: Is Bubble Sort stable?

A: Yes, Bubble Sort is a stable sorting algorithm.

Selection Sort

Q: What is Selection Sort?

A: An algorithm that repeatedly finds the minimum element and places it at the beginning.

Q: What is the time complexity of Selection Sort?

A: O(n^2) in all cases.

Q: Is Selection Sort stable?

A: No, it is not a stable sort.

Insertion Sort

Q: What is Insertion Sort?

A: It builds the sorted array one item at a time by comparing and inserting elements.

Q: What is the best-case time complexity?

A: O(n) when the array is already sorted.

Q: Is Insertion Sort stable?

A: Yes, it is stable.

Merge Sort

Q: What is Merge Sort?

A: A divide-and-conquer algorithm that divides the array into halves, sorts and merges them.

Q: What is the time complexity of Merge Sort?

A: O(n log n) in all cases.

Q: Is Merge Sort stable?

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A: Yes, Merge Sort is stable.

Quick Sort

Q: What is Quick Sort?

A: A divide-and-conquer algorithm that picks a pivot and partitions the array.

Q: What is the average and worst-case time complexity?

A: Average: O(n log n), Worst: O(n^2).

Q: Is Quick Sort stable?

A: No, Quick Sort is not stable.