Array, Merging, Sorting and Searching

Author : AI Generated **Date :** 2025

Array Techniques

Arrays store multiple values of the same data type and support operations like traversal, insertion, deletion, and sorting.

Array Order Reversal

Reversing an array means swapping elements to arrange them in the opposite sequence.

Array Counting or Histogramming

Histogramming counts occurrences of different elements within an array, useful in statistical analysis.

Maximum and Minimum of a Set

Finding the largest and smallest values in an array helps in data analysis and optimization problems.

Removal of Duplicates

Techniques like sorting followed by comparison eliminate duplicate elements in an array.

Partitioning

Partitioning divides an array into sections based on a pivot element, commonly used in quicksort.

Longest Monotone Subsequence

A subsequence where elements increase or decrease monotonically, useful in pattern recognition.

Sorting Techniques

Sorting arranges elements in a specific order using algorithms like bubble sort, selection sort, and insertion sort.

Bubble Sort

Bubble sort repeatedly swaps adjacent elements until the list is sorted.

Selection Sort

Selection sort repeatedly finds the smallest element and moves it to the sorted section.

Insertion Sort

Insertion sort builds a sorted array one element at a time by placing each new element in its correct position.

Searching Algorithms

Searching finds specific elements within an array using linear or binary search methods.

Linear Search

Linear search sequentially checks each element in an array until a match is found.

Binary Search

Binary search divides a sorted array into halves to quickly locate an element.

Pseudocode and Flowchart

Pseudocode provides an algorithm's step-by-step representation, while flowcharts visually illustrate process flows.