Array Data Structure - GeeksforGeeks

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Courses Tutorials Practice Jobs DSA Tutorial Interview Questions Quizzes Must Do Advanced DSA System Design Aptitude Puzzles Interview Corner DSA Python Technical Scripter 2026 Explore DSA Fundamentals Logic Building Problems Analysis of Algorithms Data Structures Array Data Structure String in Data Structure Hashing in Data Structure Linked List Data Structure Stack Data Structure Queue Data Structure Tree Data Structure Graph Data Structure Trie Data Structure Algorithms Searching Algorithms Sorting Algorithms Introduction to Recursion Greedy Algorithms Tutorial Graph Algorithms Dynamic Programming or DP Bitwise Algorithms Advanced Segment Tree Binary Indexed Tree or Fenwick Tree Square Root (Sqrt) Decomposition Algorithm Binary Lifting Geometry Interview Preparation Interview Corner GfG160 Practice Problem GeeksforGeeks Practice - Leading Online Coding Platform Problem of The Day - Develop the Habit of Coding DSA Course 90% Refund Array Data Structure Last Updated : 22 Jan, 2026 An array is a fundamental and linear data structure that stores items at contiguous locations. Note that in case of C/C++ and Java-Primitive-Arrays, actual elements are stored at contiguous locations. And in case of Python, JS, Java-Non-Primitive, references are stored at contiguous locations. It offers mainly the following advantages over other data structures. Random Access : i-th item can be accessed in O(1) Time as we have the base address and every item or reference is of same size. Cache Friendliness : Since items / references are stored at contiguous locations, we get the advantage of locality of reference. Arrays are used to build other data structures like Stack Queue, Deque, Graph, Hash Table, etc. An array is not useful in places where we have operations like insert in the middle, delete from middle and search in a unsorted data. Basics Introduction Applications In Different Language Arrays in C Vector in C++ STL Arrays in Java ArrayList in Java List in Python Arrays in C# Arrays in JavaScript Basic Problems Print Alternates Leaders in an array Check if Sorted Remove Duplicates from Sorted Generate all Subarrays Reverse an Array Rotate an Array Zeroes to End Min Increments to Make Equal Min Cost to Make Size 1 Easy Problems Duplicate within K Distance Make Even Positioned Greater Sum of all Subarrays Stock Buy and Sell – Multiple Transactions Single Among Doubles Missing Number Missing and Repeating Only Repeating from 1 to n-1 Sorted Subsequence of Size 3 Max Subarray Sum Equilibrium index Two Sum - Find if there is a Pair Two Sum - Closest Pair [More problems on 2 Sum in Medium Section] Split array into three equals Maximum Consecutive 1s with K Flips Prerequisite for the Remaining Problems Binary Search Selection Sort , Insertion Sort , Binary Search , QuickSort , MergeSort , CycleSort , and HeapSort Sort in C++ / Sort in Java / Sort in Python / Sort in JavaScript Two Pointers Technique Prefix Sum Technique Basics of Hashing Window Sliding Technique Medium Problems Make arr[i] = i Maximum Circular Subarray Sum Reorder according to given indexes Product Except Self K-th Largest Sum Subarray Smallest missing number Smallest subarray with sum greater than x Majority Element Count possible triangles Sub-array with given sum Longest Subarray with Equal 0s and 1s Longest Common Span in Two Binary Arrays Construct an array from its pair-sum array 2 Sum - All Pairs 2 Sum - Distinct Pairs 3 Sum - Find Any 3 Sum - Closest Triplet 4 Sum - Find Any [More problems on 4 Sum in Hard Section] Hard Problems Surpasser Count Trapping Rain Water Top K Frequent Elements Kth Missing Positive Number in a Sorted Array Stock Buy and Sell - At Most K Transactions Stock Buy and Sell - At Most 2 Transactions Median in a Stream Smallest Difference Triplet from 3 arrays Max occurred in n ranges 3 Sum - Distinct Triplets 3 Sum - All Triplets 4 Sum - Distinct Quadruples 4 Sum - All Quadruples 4 Sum - Closest Quadruple Expert Problems for Competitive Programmers MO’s Algorithm Square Root (Sqrt) Decomposition Sparse Table Range sum query using Sparse Table Range Minimum Query Range LCM Queries Merge Sort Tree for Range Order Statistics Minimum jumps to reach end Space optimization using bit manipulations Max value of Sum(i*arr[i]) with only rotations Quick Links : Practice Problems on Arrays Array Interview Questions Quiz on Arrays DSA Tutorial Comment Article Tags: Article Tags: DSA Arrays