Sorting Algorithms - 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 Sorting Algorithms Last Updated : 20 Jan, 2026 A Sorting Algorithm is used to rearrange a given array or list of elements in an order. For example, a given array [10, 20, 5, 2] becomes [2, 5, 10, 20] after sorting in increasing order and becomes [20, 10, 5, 2] after sorting in decreasing order. There exist different sorting algorithms for different different types of inputs, for example a binary array, a character array, an array with a large range of values or an array with many duplicates or a small vs large array. The algorithms may also differ according to output requirements. For example, stable sorting (or maintains original order of equal elements) or not stable. Sorting is provided in library implementation of most of the programming languages. These sorting functions typically are general purpose functions with flexibility of providing the expected sorting order (increasing or decreasing or by a specific key in case of objects). Basics Introduction to Sorting Applications of Sorting Sorting Algorithms: Comparison Based : Selection Sort , Bubble Sort , Insertion Sort , Merge Sort , Quick Sort , Heap Sort , Cycle Sort , 3-way Merge Sort Non Comparison Based : Counting Sort , Radix Sort , Bucket Sort , Pigeonhole Sort Hybrid Sorting Algorithms : IntroSort , TimSort Library Implementations: qsort() in C sort() in C++ STL Arrays.sort() in Java with examples Collections.sort() in Java with Examples Sort a List in Python Sorting in JavaScript Easy Problems Check if Sorted Sort an array of two types Sort a String Sort a Matrix Sort a Linked List Sort in Wave Form Sort from Different Machines Check if any two intervals overlap Missing elements of a range Sort by set bits counts Sort even and odd placed in different orders Sort strings by lengths Merge Two Sorted Sort when two halves are sorted 2 Sum - Pair in a Sorted Array Intersection & Union of two Sorted Meeting Rooms K-th smallest after removing given Set Medium Problems Sort by Frequency Minimum Increments to Make Unique Merge Overlapping Intervals Maximum intervals overlap Minimum Platforms Chocolate Distribution Problem Min and Max Amount to Buy All Three Way Partitioning Sort an array of 0s, 1s and 2s Sort a linked list of 0s, 1s and 2s Inversion count K-th Smallest K Smallest Elements 3 Sum - Find Any 3 Sum - Closest Triplet Smallest Difference Triplet from Three arrays Merge K Sorted Arrays Min Unsorted Subarray to make array sorted Sort a nearly sorted Sort n numbers in range from 0 to n^2 – 1 Sort an array of 1 to n Sort according to order defined by another Permute two arrays such that all pair suns are greater than K 4 Sum - Find Any [More problems an 4 Sum are in Hard Section] Hard Problems Merge Without Extra Space Top K Frequent Elements 3 Sum - Distinct Triplets 4 Sum - Distinct Quadruples 4 Sum - All Quadruples 4 Sum - Closest Quadruple Surpasser Counts in an Array Minimum consecutive number subsets Min swaps to reach given array Sort after applying an equation Closest Pair of Points Quick Links : Practice Problems on Sorting Sorting Interview Questions Quiz on Sorting DSA Tutorial Comment Article Tags: Article Tags: Sorting DSA