**Array Rotations :**

1. [Program for array rotation](https://www.geeksforgeeks.org/array-rotation/)
2. [Reversal algorithm for array rotation](https://www.geeksforgeeks.org/program-for-array-rotation-continued-reversal-algorithm/)
3. [Block swap algorithm for array rotation](https://www.geeksforgeeks.org/block-swap-algorithm-for-array-rotation/)
4. [Program to cyclically rotate an array by one](https://www.geeksforgeeks.org/c-program-cyclically-rotate-array-one/)
5. [Search an element in a sorted and rotated array](https://www.geeksforgeeks.org/search-an-element-in-a-sorted-and-pivoted-array/)
6. [Given a sorted and rotated array, find if there is a pair with a given sum](https://www.geeksforgeeks.org/given-a-sorted-and-rotated-array-find-if-there-is-a-pair-with-a-given-sum/)
7. [Find maximum value of Sum( i\*arr[i]) with only rotations on given array allowed](https://www.geeksforgeeks.org/find-maximum-value-of-sum-iarri-with-only-rotations-on-given-array-allowed/)
8. [Maximum sum of i\*arr[i] among all rotations of a given array](https://www.geeksforgeeks.org/maximum-sum-iarri-among-rotations-given-array/)
9. [Find the Rotation Count in Rotated Sorted array](https://www.geeksforgeeks.org/find-rotation-count-rotated-sorted-array/)
10. [Quickly find multiple left rotations of an array](https://www.geeksforgeeks.org/quickly-find-multiple-left-rotations-of-an-array/)
11. [Find the minimum element in a sorted and rotated array](https://www.geeksforgeeks.org/find-minimum-element-in-a-sorted-and-rotated-array/)
12. [Reversal algorithm for right rotation of an array](https://www.geeksforgeeks.org/reversal-algorithm-right-rotation-array/)
13. [Find a rotation with maximum hamming distance](https://www.geeksforgeeks.org/find-a-rotation-with-maximum-hamming-distance/)
14. [Queries on Left and Right Circular shift on array](https://www.geeksforgeeks.org/queries-left-right-circular-shift-array/)
15. [Print left rotation of array in O(n) time and O(1) space](https://www.geeksforgeeks.org/print-left-rotation-array/)
16. [Find element at given index after a number of rotations](https://www.geeksforgeeks.org/find-element-given-index-number-rotations/)
17. [Split the array and add the first part to the end](https://www.geeksforgeeks.org/split-array-add-first-part-end/)

[More >>](https://www.geeksforgeeks.org/tag/rotation/)

**Arrangement Rearrangement :**

1. [Rearrange an array such that arr[i] = i](https://www.geeksforgeeks.org/rearrange-array-arri/)
2. [Write a program to reverse an array or string](https://www.geeksforgeeks.org/write-a-program-to-reverse-an-array-or-string/)
3. [Rearrange array such that arr[i] >= arr[j] if i is even and arr[i]<=arr[j] if i is odd and j < i](https://www.geeksforgeeks.org/rearrange-array-arri-arrj-even-arri/)
4. [Rearrange positive and negative numbers in O(n) time and O(1) extra space](https://www.geeksforgeeks.org/rearrange-positive-and-negative-numbers-publish/)
5. [Rearrange array in alternating positive & negative items with O(1) extra space | Set 1](https://www.geeksforgeeks.org/rearrange-array-alternating-positive-negative-items-o1-extra-space/)
6. [Move all zeroes to end of array](https://www.geeksforgeeks.org/move-zeroes-end-array/)
7. [Move all zeroes to end of array | Set-2 (Using single traversal)](https://www.geeksforgeeks.org/move-zeroes-end-array-set-2-using-single-traversal/)
8. [Minimum swaps required to bring all elements less than or equal to k together](https://www.geeksforgeeks.org/minimum-swaps-required-bring-elements-less-equal-k-together/)
9. [Rearrange positive and negative numbers using inbuilt sort function](https://www.geeksforgeeks.org/rearrange-positive-negative-numbers-using-inbuilt-sort-function/)
10. [Rearrange array such that even positioned are greater than odd](https://www.geeksforgeeks.org/rearrange-array-such-that-even-positioned-are-greater-than-odd/)
11. [Rearrange an array in order – smallest, largest, 2nd smallest, 2nd largest, ..](https://www.geeksforgeeks.org/rearrange-array-order-smallest-largest-2nd-smallest-2nd-largest/)
12. [Double the first element and move zero to end](https://www.geeksforgeeks.org/double-first-element-move-zero-end/)
13. [Reorder an array according to given indexes](https://www.geeksforgeeks.org/reorder-a-array-according-to-given-indexes/)
14. [Rearrange positive and negative numbers with constant extra space](https://www.geeksforgeeks.org/rearrange-positive-and-negative-numbers/)
15. [Arrange given numbers to form the biggest number](https://www.geeksforgeeks.org/given-an-array-of-numbers-arrange-the-numbers-to-form-the-biggest-number/)
16. [Rearrange an array such that ‘arr[j]’ becomes ‘i’ if ‘arr[i]’ is ‘j’](https://www.geeksforgeeks.org/rearrange-array-arrj-becomes-arri-j/)
17. [Rearrange an array in maximum minimum form | Set 1](https://www.geeksforgeeks.org/rearrange-array-maximum-minimum-form/)
18. [Rearrange an array in maximum minimum form | Set 2 (O(1) extra space)](https://www.geeksforgeeks.org/rearrange-array-maximum-minimum-form-set-2-o1-extra-space/)
19. Move all negative numbers to beginning and positive to end with constant extra space
20. [Move all negative elements to end in order with extra space allowed](https://www.geeksforgeeks.org/move-ve-elements-end-order-extra-space-allowed/)
21. [Rearrange array such that even index elements are smaller and odd index elements are greater](https://www.geeksforgeeks.org/rearrange-array-even-index-elements-smaller-odd-index-elements-greater/)
22. [Positive elements at even and negative at odd positions](https://www.geeksforgeeks.org/positive-elements-even-negative-odd-positions/)
23. [Replace every array element by multiplication of previous and next](https://www.geeksforgeeks.org/replace-every-array-element-by-multiplication-of-previous-and-next/)
24. [Shuffle a given array](https://www.geeksforgeeks.org/shuffle-a-given-array/)
25. [Segregate even and odd numbers](https://www.geeksforgeeks.org/segregate-even-odd-numbers-set-3/)

[More >>](https://www.geeksforgeeks.org/array-data-structure/array-rearrangement/)

**Order Statistics :**

1. [K’th Smallest/Largest Element in Unsorted Array | Set 1](https://www.geeksforgeeks.org/kth-smallestlargest-element-unsorted-array/)
2. [K’th Smallest/Largest Element in Unsorted Array | Set 2 (Expected Linear Time)](https://www.geeksforgeeks.org/kth-smallestlargest-element-unsorted-array-set-2-expected-linear-time-2/)
3. [K’th Smallest/Largest Element in Unsorted Array | Set 3 (Worst Case Linear Time)](https://www.geeksforgeeks.org/kth-smallestlargest-element-unsorted-array-set-3-worst-case-linear-time/)
4. [K’th Smallest/Largest Element using STL](https://www.geeksforgeeks.org/kth-smallestlargest-element-using-stl/)
5. [k largest(or smallest) elements in an array | added Min Heap method](https://www.geeksforgeeks.org/k-largestor-smallest-elements-in-an-array/)
6. [Kth smallest element in a row-wise and column-wise sorted 2D array | Set 1](https://www.geeksforgeeks.org/kth-smallest-element-in-a-row-wise-and-column-wise-sorted-2d-array-set-1/)
7. [Program to find largest element in an array](https://www.geeksforgeeks.org/c-program-find-largest-element-array/)
8. [Find the largest three elements in an array](https://www.geeksforgeeks.org/find-the-largest-three-elements-in-an-array/)
9. [Find all elements in array which have at-least two greater elements](https://www.geeksforgeeks.org/find-elements-array-least-two-greater-elements/)
10. [Program for Mean and median of an unsorted array](https://www.geeksforgeeks.org/program-for-mean-and-median-of-an-unsorted-array/)
11. [Median of Stream of Running Integers using STL](https://www.geeksforgeeks.org/median-of-stream-of-running-integers-using-stl/)
12. [Minimum product of k integers in an array of positive Integers](https://www.geeksforgeeks.org/minimum-product-k-integers-array-positive-integers/)
13. [K-th Largest Sum Contiguous Subarray](https://www.geeksforgeeks.org/k-th-largest-sum-contiguous-subarray/)
14. [K maximum sum combinations from two arrays](https://www.geeksforgeeks.org/k-maximum-sum-combinations-two-arrays/)
15. [K maximum sums of overlapping contiguous sub-arrays](https://www.geeksforgeeks.org/k-maximum-sum-overlapping-contiguous-sub-arrays/)
16. [K maximum sums of non-overlapping contiguous sub-arrays](https://www.geeksforgeeks.org/k-maximum-sums-non-overlapping-contiguous-sub-arrays/)
17. [k smallest elements in same order using O(1) extra space](https://www.geeksforgeeks.org/k-smallest-elements-order-using-o1-extra-space/)
18. [Find k pairs with smallest sums in two arrays](https://www.geeksforgeeks.org/find-k-pairs-smallest-sums-two-arrays/)
19. [k-th smallest absolute difference of two elements in an array](https://www.geeksforgeeks.org/k-th-smallest-absolute-difference-two-elements-array/)
20. [Find Second largest element in an array](https://www.geeksforgeeks.org/find-second-largest-element-array/)
21. [Find k numbers with most occurrences in the given array](https://www.geeksforgeeks.org/find-k-numbers-occurrences-given-array/)
22. [Find the smallest and second smallest elements in an array](https://www.geeksforgeeks.org/to-find-smallest-and-second-smallest-element-in-an-array/)
23. [Find the smallest missing number](https://www.geeksforgeeks.org/find-the-first-missing-number/)
24. [Maximum sum such that no two elements are adjacent](https://www.geeksforgeeks.org/maximum-sum-such-that-no-two-elements-are-adjacent/)
25. [Maximum and minimum of an array using minimum number of comparisons](https://www.geeksforgeeks.org/maximum-and-minimum-in-an-array/)

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**Range Queries :**

1. [MO’s Algorithm](https://www.geeksforgeeks.org/mos-algorithm-query-square-root-decomposition-set-1-introduction/)
2. [Sqrt (or Square Root) Decomposition Technique | Set 1 (Introduction)](https://www.geeksforgeeks.org/sqrt-square-root-decomposition-technique-set-1-introduction/)
3. [Sparse Table](https://www.geeksforgeeks.org/sparse-table/)
4. [Range sum query using Sparse Table](https://www.geeksforgeeks.org/range-sum-query-using-sparse-table/)
5. [Range Minimum Query (Square Root Decomposition and Sparse Table)](https://www.geeksforgeeks.org/range-minimum-query-for-static-array/)
6. [Range Queries for Frequencies of array elements](https://www.geeksforgeeks.org/range-queries-for-frequencies-of-array-elements/)
7. [Constant time range add operation on an array](https://www.geeksforgeeks.org/constant-time-range-add-operation-array/)
8. [Range LCM Queries](https://www.geeksforgeeks.org/range-lcm-queries/)
9. [GCDs of given index ranges in an array](https://www.geeksforgeeks.org/gcds-of-a-given-index-ranges-in-an-array/)
10. [Queries for GCD of all numbers of an array except elements in a given range](https://www.geeksforgeeks.org/queries-gcd-numbers-array-except-elements-given-range/)
11. [Number of elements less than or equal to a given number in a given subarray](https://www.geeksforgeeks.org/number-elements-less-equal-given-number-given-subarray/)
12. [Number of elements less than or equal to a given number in a given subarray | Set 2 (Including Updates)](https://www.geeksforgeeks.org/number-elements-less-equal-given-number-given-subarray-set-2-including-updates/)
13. [Queries for counts of array elements with values in given range](https://www.geeksforgeeks.org/queries-counts-array-elements-values-given-range/)
14. [Queries for decimal values of subarrays of a binary array](https://www.geeksforgeeks.org/queries-for-decimal-values-of-subarray-of-a-binary-array/)
15. [Count elements which divide all numbers in range L-R](https://www.geeksforgeeks.org/count-elements-which-divide-all-numbers-in-range-l-r/)
16. [Number whose sum of XOR with given array range is maximum](https://www.geeksforgeeks.org/number-whose-sum-of-xor-with-given-array-range-is-maximum/)
17. [XOR of numbers that appeared even number of times in given Range](https://www.geeksforgeeks.org/xor-numbers-appeared-even-number-times-given-range/)
18. [Array range queries over range queries](https://www.geeksforgeeks.org/array-range-queries-range-queries/)
19. [Array range queries for searching an element](https://www.geeksforgeeks.org/array-range-queries-for-searching-an-element/)
20. [Array range queries for elements with frequency same as value](https://www.geeksforgeeks.org/array-range-queries-elements-frequency-value/)
21. [Maximum Occurrence in a Given Range](https://www.geeksforgeeks.org/maximum-occurrence-given-range/)
22. [Number of indexes with equal elements in given range](https://www.geeksforgeeks.org/number-indexes-equal-elements-given-range/)
23. [Merge Sort Tree for Range Order Statistics](https://www.geeksforgeeks.org/merge-sort-tree-for-range-order-statistics/)
24. [Total numbers with no repeated digits in a range](https://www.geeksforgeeks.org/total-numbers-no-repeated-digits-range/)
25. [Difference Array | Range update query in O(1)](https://www.geeksforgeeks.org/difference-array-range-update-query-o1/)

[More >>](https://www.geeksforgeeks.org/array-data-structure/array-range-queries/)

**Optimization Problems :**

1. [Largest Sum Contiguous Subarray](https://www.geeksforgeeks.org/largest-sum-contiguous-subarray/)
2. [Maximum profit by buying and selling a share at most twice](https://www.geeksforgeeks.org/maximum-profit-by-buying-and-selling-a-share-at-most-twice/)
3. [Find the subarray with least average](https://www.geeksforgeeks.org/find-subarray-least-average/)
4. [Find the minimum distance between two numbers](https://www.geeksforgeeks.org/find-the-minimum-distance-between-two-numbers/)
5. [Minimize the maximum difference between the heights](https://www.geeksforgeeks.org/minimize-the-maximum-difference-between-the-heights/)
6. [Minimum number of jumps to reach end](https://www.geeksforgeeks.org/minimum-number-of-jumps-to-reach-end-of-a-given-array/)
7. [Dynamic Programming | Set 14 (Maximum Sum Increasing Subsequence)](https://www.geeksforgeeks.org/dynamic-programming-set-14-maximum-sum-increasing-subsequence/)
8. [Smallest subarray with sum greater than a given value](https://www.geeksforgeeks.org/minimum-length-subarray-sum-greater-given-value/)
9. [Find maximum average subarray of k length](https://www.geeksforgeeks.org/find-maximum-average-subarray-of-k-length/)
10. [Count minimum steps to get the given desired array](https://www.geeksforgeeks.org/count-minimum-steps-get-given-desired-array/)
11. [Number of subsets with product less than k](https://www.geeksforgeeks.org/number-subsets-product-less-k/)
12. [Find minimum number of merge operations to make an array palindrome](https://www.geeksforgeeks.org/find-minimum-number-of-merge-operations-to-make-an-array-palindrome/)
13. [Find the smallest positive integer value that cannot be represented as sum of any subset of a given array](https://www.geeksforgeeks.org/find-smallest-value-represented-sum-subset-given-array/)
14. [Size of The Subarray With Maximum Sum](https://www.geeksforgeeks.org/size-subarray-maximum-sum/)
15. [Find minimum difference between any two elements](https://www.geeksforgeeks.org/find-minimum-difference-pair/)
16. [Space optimization using bit manipulations](https://www.geeksforgeeks.org/space-optimization-using-bit-manipulations/)
17. [Longest Span with same Sum in two Binary arrays](https://www.geeksforgeeks.org/longest-span-sum-two-binary-arrays/)

**Sorting :**

1. [Alternative Sorting](https://www.geeksforgeeks.org/alternative-sorting/)
2. [Sort a nearly sorted (or K sorted) array](https://www.geeksforgeeks.org/nearly-sorted-algorithm/)
3. [Sort an array according to absolute difference with given value](https://www.geeksforgeeks.org/sort-an-array-according-to-absolute-difference-with-given-value/)
4. [Sort an array in wave form](https://www.geeksforgeeks.org/sort-array-wave-form-2/)
5. [Merge an array of size n into another array of size m+n](https://www.geeksforgeeks.org/merge-one-array-of-size-n-into-another-one-of-size-mn/)
6. [Sort an array which contain 1 to n values](https://www.geeksforgeeks.org/sort-array-contain-1-n-values/)
7. [Sort 1 to N by swapping adjacent elements](https://www.geeksforgeeks.org/sort-1-n-swapping-adjacent-elements/)
8. [Sort an array containing two types of elements](https://www.geeksforgeeks.org/sort-array-containing-two-types-elements/)
9. [Sort elements by frequency | Set 1](https://www.geeksforgeeks.org/sort-elements-by-frequency/)
10. [Count Inversions in an array | Set 1 (Using Merge Sort)](https://www.geeksforgeeks.org/counting-inversions/)
11. [Two elements whose sum is closest to zero](https://www.geeksforgeeks.org/two-elements-whose-sum-is-closest-to-zero/)
12. [Shortest Un-ordered Subarray](https://www.geeksforgeeks.org/shortest-un-ordered-subarray/)
13. [Minimum number of swaps required to sort an array](https://www.geeksforgeeks.org/minimum-number-swaps-required-sort-array/)
14. [Union and Intersection of two sorted arrays](https://www.geeksforgeeks.org/union-and-intersection-of-two-sorted-arrays-2/)
15. [Find Union and Intersection of two unsorted arrays](https://www.geeksforgeeks.org/find-union-and-intersection-of-two-unsorted-arrays/)
16. [Sort an array of 0s, 1s and 2s](https://www.geeksforgeeks.org/sort-an-array-of-0s-1s-and-2s/)
17. [Find the Minimum length Unsorted Subarray, sorting which makes the complete array sorted](https://www.geeksforgeeks.org/minimum-length-unsorted-subarray-sorting-which-makes-the-complete-array-sorted/)
18. [Median in a stream of integers (running integers)](https://www.geeksforgeeks.org/median-of-stream-of-integers-running-integers/)
19. [Count the number of possible triangles](https://www.geeksforgeeks.org/find-number-of-triangles-possible/)
20. [Find number of pairs (x, y) in an array such that x^y > y^x](https://www.geeksforgeeks.org/find-number-pairs-xy-yx/)
21. [Count all distinct pairs with difference equal to k](https://www.geeksforgeeks.org/count-pairs-difference-equal-k/)
22. [Print All Distinct Elements of a given integer array](https://www.geeksforgeeks.org/print-distinct-elements-given-integer-array/)
23. [Construct an array from its pair-sum array](https://www.geeksforgeeks.org/construct-array-pair-sum-array/)
24. [Merge two sorted arrays with O(1) extra space](https://www.geeksforgeeks.org/merge-two-sorted-arrays-o1-extra-space/)
25. [Product of maximum in first array and minimum in second](https://www.geeksforgeeks.org/product-maximum-first-array-minimum-second/)

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**Searching :**

1. [Search, insert and delete in an unsorted array](https://www.geeksforgeeks.org/search-insert-and-delete-in-an-unsorted-array/)
2. [Search, insert and delete in a sorted array](https://www.geeksforgeeks.org/search-insert-and-delete-in-a-sorted-array/)
3. [Given an array A[] and a number x, check for pair in A[] with sum as x](https://www.geeksforgeeks.org/write-a-c-program-that-given-a-set-a-of-n-numbers-and-another-number-x-determines-whether-or-not-there-exist-two-elements-in-s-whose-sum-is-exactly-x/)
4. [Searching in an array where adjacent differ by at most k](https://www.geeksforgeeks.org/searching-array-adjacent-differ-k/)
5. [Find common elements in three sorted arrays](https://www.geeksforgeeks.org/find-common-elements-three-sorted-arrays/)
6. [Find position of an element in a sorted array of infinite numbers](https://www.geeksforgeeks.org/find-position-element-sorted-array-infinite-numbers/)
7. [Find the only repetitive element between 1 to n-1](https://www.geeksforgeeks.org/find-repetitive-element-1-n-1/)
8. [Find the element that appears once](http://quiz.geeksforgeeks.org/find-the-element-that-appears-once/)
9. [Maximum Subarray Sum Excluding Certain Elements](https://www.geeksforgeeks.org/maximum-subarray-sum-excluding-certain-elements/)
10. [Maximum equlibrium sum in an array](https://www.geeksforgeeks.org/maximum-equlibrium-sum-array/)
11. [Equilibrium index of an array](https://www.geeksforgeeks.org/equilibrium-index-of-an-array/)
12. [Leaders in an array](https://www.geeksforgeeks.org/leaders-in-an-array/)
13. [Ceiling in a sorted array](https://www.geeksforgeeks.org/ceiling-in-a-sorted-array/)
14. [Majority Element](https://www.geeksforgeeks.org/majority-element/)
15. [Check for Majority Element in a sorted array](https://www.geeksforgeeks.org/check-for-majority-element-in-a-sorted-array/)
16. [Check if an array has a majority element](https://www.geeksforgeeks.org/check-array-majority-element/)
17. [Two Pointers Technique](https://www.geeksforgeeks.org/two-pointers-technique/)
18. [Find a peak element](https://www.geeksforgeeks.org/find-a-peak-in-a-given-array/)
19. [Find the two repeating elements in a given array](https://www.geeksforgeeks.org/find-the-two-repeating-elements-in-a-given-array/)
20. [Find a Fixed Point in a given array](https://www.geeksforgeeks.org/find-a-fixed-point-in-a-given-array/)
21. [Find sub-array with given sum](https://www.geeksforgeeks.org/find-subarray-with-given-sum/)
22. [Maximum triplet sum in array](https://www.geeksforgeeks.org/maximum-triplet-sum-array/)
23. [Smallest Difference Triplet from Three arrays](https://www.geeksforgeeks.org/smallest-difference-triplet-from-three-arrays/)
24. [Find a triplet that sum to a given value](https://www.geeksforgeeks.org/find-a-triplet-that-sum-to-a-given-value/)
25. [Find all triplets with zero sum](https://www.geeksforgeeks.org/find-triplets-array-whose-sum-equal-zero/)

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