# Array Coding Interview Questions (Basic to Advanced)

### Basic Level (Logic, Syntax, and Iteration)

1. Find the maximum/minimum element in an array.
2. Calculate the sum/average of all elements in an array.
3. Check if an array contains a given element.
4. Count occurrences of an element in an array.
5. Reverse an array.
6. Print all even/odd numbers in an array.
7. Find the second largest element in an array.
8. Remove duplicates from an array (without using Set).
9. Check if an array is sorted (ascending/descending).
10. Find the length of an array without using .length (in JavaScript).

### Intermediate Level (Sorting, Searching, Frequency, Patterns)

1. Find the first repeating element in an array.
2. Find the missing number in an array from 1 to N.
3. Left rotate an array by K steps.
4. Move all zeros to the end while maintaining the order.
5. Find all pairs in an array whose sum is equal to a given number.
6. Implement binary search on a sorted array.
7. Merge two sorted arrays.
8. Find the intersection of two arrays.
9. Find the union of two arrays.
10. Sort an array of 0s, 1s, and 2s (Dutch National Flag problem).

### Advanced Level (Optimized, Edge Cases, Sliding Window, Prefix/Suffix, Two Pointer, Divide & Conq

1. Find the longest subarray with sum equal to K.
2. Kadane's Algorithm - Maximum Subarray Sum.
3. Find all subarrays with 0 sum.
4. Product of array except self (without division).
5. Find the majority element (appears more than N/2 times).
6. Find the smallest subarray with a sum greater than a given value.

7. Find the number of subarrays having XOR of elements as zero.
8. Rotate an array in-place by K steps (cyclic replacements).
9. Find the median of two sorted arrays (without merging).
10. Longest increasing subsequence (LIS).
11. Count inversion pairs (Merge Sort variation).
12. Sliding Window Maximum.
13. Find the longest contiguous subarray with equal number of 0s and 1s.
14. Find the element that appears only once where every other appears thrice.
15. Find duplicates in O(1) space and O(n) time (e.g., Floyd's cycle detection).

**Bonus: Very Advanced / Competitive-Level**

1. Subarray with given XOR (using prefix xor + hashmap).
2. Maximum of minimum for every window size (Monotonic Stack).
3. Median in a stream (Heap approach).
4. Count subarrays with at most K distinct elements.
5. Find the K-th smallest pair distance.