### **Basic Level Questions:**

1. **Find the Maximum and Minimum Element in an Array**
   * Given an array, find the smallest and largest element.

**Example:**  
Input: [3, 5, 1, 8, 2]

Output: Min = 1, Max = 8

1. **Reverse an Array**
   * Reverse a given array in-place.

**Example:**  
Input: [1, 2, 3, 4, 5]

Output: [5, 4, 3, 2, 1]

1. **Find Second Largest Element**
   * Find the second largest number in an array without sorting.

**Example:**  
Input: [10, 20, 4, 45, 99]

Output: 45

### **Intermediate Level Questions:**

1. **Move All Zeros to End**
   * Move all zeros in an array to the end while maintaining the relative order of non-zero elements.

**Example:**  
Input: [0, 1, 0, 3, 12]

Output: [1, 3, 12, 0, 0]

1. **Find Missing Number in an Array (1 to N)**
   * An array contains numbers from 1 to N with one missing number. Find it in **O(N)** time.

**Example:**  
Input: [1, 2, 4, 5, 6]

Output: 3

1. **Find the First Non-Repeating Element**
   * Find the first element that appears only once in an array.

**Example:**  
Input: [4, 5, 1, 2, 1, 2, 5]

Output: 4

**7.Move all positive numbers to the end.**

Input:[-1,12,13,0,-19,15,-10]

Output:[-1,-19,-10,0,12,15,13]

### **Advanced Level Questions (LeetCode Style):**

1. **Product of Array Except Self (LeetCode #238)**
   * Given an array nums, return an array output such that output[i] is the product of all elements except nums[i], without using division.

**Example:**  
Input: [1, 2, 3, 4]

Output: [24, 12, 8, 6]

1. **Find the Longest Consecutive Sequence (LeetCode #128)**
   * Find the longest consecutive sequence of numbers in a sorted array.

**Example:**  
Input: [100, 4, 200, 1, 3, 2]

Output: 4 (Because [1, 2, 3, 4] is the longest sequence)

1. **Two Sum Problem (LeetCode #1)**
   * Find two numbers in an array that add up to a given target sum.

**Example:**  
Input: nums = [2, 7, 11, 15], target = 9

Output: [0, 1] (Indices of 2 and 7)

1. **Find the Majority Element (LeetCode #169, Moore’s Voting Algorithm)**
   * Find the element that appears more than n/2 times in an array.

**Example:**  
Input: [3, 3, 4, 2, 4, 4, 2, 4, 4]

Output: 4

**12.finds the primary and secondary diagonals of a square matrix:**

Input:1 2 3

4 5 6

7 8 9

output:Primary Diagonal: 1 5 9

Secondary Diagonal: 3 5 7