Paytm - Programming - Dec 2024

1. Problem Statement: Zig-Zag Array

Given an array of integers, modify it in such a way that it follows a zig-zag pattern. A zig-zag array is one where for each integer, its adjacent integers are both greater than or less than itself.

In other words:

- Use L to represent a lower value and H to represent a higher value.
- The array must follow one of the patterns: [L, H, L, H, ...] or [H, L, H, L, ...].

To achieve this zig-zag pattern, you can replace any element with any other integer (positive, negative, or zero).

Task:

Write a function minOperations that determines the minimum number of replacements required to transform the given array into a zig-zag pattern.

Function Description:

Complete the function minOperations with the following parameters:

- int arr[n]: an array of integers.

Returns:

- int: the minimum number of operations required to turn arr into a zig-zag array.

Example:

Input: arr = [1, 2, 3, 4, 5]

Output: = 2

2. Problem Statement: Subarray with Given Sum

Given an array of n integers and a required sum k, find the number of **subarrays** whose sum is equal to the required sum. A subarray is defined as a **contiguous segment** of the array.

Function Description:

Complete the function countNumberOfSubarrays with the following parameters:

- int arr[n]: The given array of integers.
- int k: The required sum.
Returns:

- long int: The number of subarrays with a sum equal to k

Example:

Input:

arr = [1, 2, 3, 0]
k = 3
Output:

3

Explanation:

There are three subarrays whose sum equals k = 3

[1,2]

[3]

[3,0]