Easy Level - Day 6

Code 1: Remove Duplicates from the Sorted Array

Company: Zoho, Morgan Stanley, Microsoft, Samsung, Google, Wipro, Xome
Platform: Leetcode - 26, GFG

Fraz's and Striver's DSE sheet

Description :

Given an integer array nums sorted in non-decreasing order, remove the duplicates in-place such that each unique element appears only once. The relative order of the elements should be kept the same. Then return the number of unique elements in nums.

Consider the number of unique elements of nums to be k, to get accepted, you need to do the following things:

Change the array nums such that the first k elements of nums contain the unique elements in the order they were present in nums initially. The remaining elements of nums are not important as well as the size of nums.
Return k.
Custom Judge:

The judge will test your solution with the following code:

```
int[] nums = [...]; // Input array
int[] expectedNums = [...]; // The expected answer with correct length

int k = removeDuplicates(nums); // Calls your implementation

assert k == expectedNums.length;
for (int i = 0; i < k; i++) {
    assert nums[i] == expectedNums[i];
}
```

If all assertions pass, then your solution will be accepted.

Example 1:

Input: nums = [1,1,2]
Output: 2, nums = [1,2,_]
Explanation: Your function should return k = 2, with the first two elements of nums being 1 and 2 respectively. It does not matter what you leave beyond the returned k (hence they are underscores).

Example 2:

Input: nums = [0,0,1,1,1,2,2,3,3,4]
Output: 5, nums = [0,1,2,3,4,_,_,_,_,_]
Explanation: Your function should return k = 5, with the first five elements of nums being 0, 1, 2, 3, and 4 respectively. It does not matter what you leave beyond the returned k (hence they are underscores).

Constraints:

1 <= nums.length <= 3 * 104
-100 <= nums[i] <= 100
nums is sorted in non-decreasing order.

Code2: Three Great Candidates/ Three Ninja Candidates/ Maximum Product of Three Numbers

Company: Flipkart, Amazon, Snapdeal
Platform: Leetcode- 628, GFG, Coding Ninja
Fraz's SDE Sheet

Description :

The hiring team aims to find 3 candidates who are great collectively. Each candidate has his or her ability expressed as an integer. 3 candidates are great collectively if the product of their abilities is maximum. Given abilities of N candidates in an array arr[], find the maximum collective ability from the given pool of candidates.

Example 1:

Input:

N = 5
Arr[] = {10, 3, 5, 6, 20}

Output: 1200
Explanation: The multiplication of 10, 6 and 20 is 1200.

Example 2:

Input:

N = 5
Arr[] = {-10, -3, -5, -6, -20}

Output: -90
Explanation:

Multiplication of -3, -5 and -6 is -90.

Expected Time Complexity: O(N)
Expected Auxiliary Space: O(1)

Constraints:

3 ≤ N ≤ 107
-105 ≤ Arr[i] ≤ 105

Code3 : Chocolate Distribution problem

Company : Flipkart
Platform : GFG
Love Bubbars's SDE sheet

Description :

Given an array A[ ] of positive integers of size N, where each value represents the number of chocolates in a packet. Each packet can have a variable number of chocolates. There are M students, the task is to distribute chocolate packets among M students such that :
1. Each student gets exactly one packet.
2. The difference between maximum number of chocolates given to a student and minimum number of chocolates given to a student is minimum.

Example 1:

Input:

N = 8, M = 5
A = {3, 4, 1, 9, 56, 7, 9, 12}

Output: 6
Explanation: The minimum difference between maximum chocolates and minimum chocolates is 9 - 3 = 6 by choosing the following M packets :{3, 4, 9, 7, 9}.

Example 2:

Input:

N = 7, M = 3
A = {7, 3, 2, 4, 9, 12, 56}

Output: 2
Explanation: The minimum difference between maximum chocolates and minimum chocolates is 4 - 2 = 2 by choosing the following M packets :{3, 2, 4}.

Expected Time Complexity: O(N*Log(N))
Expected Auxiliary Space: O(1)

Constraints:

$1 \leq T \leq 100$
$1 \leq N \leq 105$
$1 \leq Ai \leq 109$
$1 \leq M \leq N$

Solutions Will Be Provided Within 24 Hrs