

Active Courses

Data Structures & Algorithms

CodeHelp - Upcoming SDE co

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Beautiful Array - LeetCode

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Problem

Submissions

### Beautiful Arrays

Accuracy: 14.54%   Submissions: 987+   Points: 30

Given an array `arr[]` of length, `N`. One has to partition the array into multiple beautiful array.

Definition of a **Beautiful Array**: If we sort the array, no two neighbor elements have a difference of more than `K`.

The task is to find the minimum number of beautiful arrays one can create from the given array

**Note:** To minimize the number of beautiful arrays, one can add `X` numbers of elements in the original array

**Example 1:**

**Input:** `arr[] = {1,1,3,1,1,6,1,1,8,10}`  
`X = 3, K = 1`

**Output:** 2

**Explanation:** You can add atmost 3 elements in the original array to make the array beautiful from the given array.  
So lets say you add 2, 7 and 9 in the original array.  
Now we can make two beautiful array from it.  
`arr1[] = {1,1,1,1,1,1,2,3}`  
`arr2[] = {6,7,8,9,10}`  
So the output will be 2.

**Example 2:**

**Input:** `arr[] = {1,7,10}`  
`X = 3, K = 2`

**Output:** 1

**Explanation:** You can add 3, 5 and 8 to the original array to make it itself a beautiful array.  
`new arr[] = {1,3,5,7,8,10}`  
Here no two neighboring elements difference greater than `X`.

**Your Task:**

You don't need to read input or print anything. Your task is to complete the function `beautifulArray()` which takes the array of integers `arr`, `x` and `k` as parameters and returns an integer, the minimum number of beautiful array.

**Constraints:**

$1 \leq N \leq 10^5$

C++ (g++ 5.4)

```
1. // } Driver Code Ends
9 // User function Template for C++
10
11 class Solution {
12 public:
13     int beautifulArray(vector<int>& a, int x, int k) {
14         // Code here
15     }
16 };
17 // } Driver Code Ends
```

Custom Input

Compile & Run

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### Strange Matrix

Accuracy: 12.88% Submissions: 2K+ Points: 40

$A[][]$  is a  $(R \times C)$  boolean matrix such that each of its element is either 0 or 1. Each row of the matrix is sorted. Find the index of the row which has the maximum number of ones. If there are multiple such rows then return the smallest index.

An array  $B[]$  of size  $R$  is used to construct matrix  $A$  such that  $B[i]$  denotes the number of zeroes in the  $i$ th row.

**Example 1:**

**Input:**

$R=3, C=3$   
 $B[]=\{1, 0, 2\}$

**Output:** 1

**Explanation:**

$A[][] = \begin{bmatrix} 0 & 1 & 1 \\ 1 & 1 & 1 \\ 0 & 0 & 1 \end{bmatrix}$

Row with index 1 has maximum number of 1s.

**Your Task:**

You don't need to read input or print anything. Your task is to complete the function **solve()** which takes  $R$  and  $C$  as input parameters and returns the index of the row which has maximum number of 1s. If there are multiple such rows then return the smallest index. The returned index must be according to 0 based indexing. The matrix  $A$  or the array  $B$  are not directly accessible. You are provided a **helper function `get(i,j)`** which will fetch the value of  $A[i][j]$ .

**Expected Time Complexity:**  $O(R+C)$

**Expected Auxiliary Space:**  $O(1)$

**Constraints:**

C++ (g++ 5.4)

```
1 // } Driver Code Ends
30 //User function Template for C++
31
32 class Solution{
33 private:
34     // do not edit this function
35     // use it to get the value of A[i][j]
36     int get(int i,int j){
37         return a.get(i,j);
38     }
39 public:
40     int solve(int R,int C){
41         //code here
42     }
43 };
44 // } Driver Code Ends
```

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### Stable Array

Accuracy: 8.03% Submissions: 2K+ Points: 50

Given an array  $a[]$  of length  $N$ . You have to make the array stable

**Definition of the Stable Array:** A array is called stable when, there exists a number  $X$ , such that every number from the array occurs only  $X$  times or zero times.

The task is to find the minimum number that needs to be removed to make the array stable.

**Example 1:**

**Input :**  $a[] = \{4,3,1,3,1,2\}$

**Output :** 2

**Explanation :** If we remove 1st and last element from the given array, then the array will be stable  
resultant array: 3 1 3 1 (every element occure only 2 times)

**Example 2:**

**Input :**  $a[] = \{1,1,2,4,1,2,2\}$

**Output :** 1

**Explanation :** If we remove 4th element i.e. 4, then the array will be stable  
resultant array: 1 1 2 1 2 2 (every element occure only 3 times)

**Your Task:**

You don't need to read input or print anything. Your task is to complete the function **stableArray()** which takes the array of integers **arr, n** as parameters and returns an integer, the minimum number of elements needs to be removed to make the given array stable

**Constraints**

$1 \leq N \leq 100000$   
 $1 \leq arr[i] \leq 10^9$

Try more examples

C++ (g++ 5.4)

```
1 // } Driver Code Ends
12 //User function Template for C++
13
14
15 class Solution{
16 public:
17     int stableArray(vector<int>& a){
18         //Code Here
19     }
20 };
21 // } Driver Code Ends
```

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ProblemSubmissions

### Awesome Pairs

Accuracy: 9.58% Submissions: 2K+ Points: 60

Geek is busy solving problems on Bitwise operators. Today while solving problems, he observed something which intrigued him very much. He discovered that there are some **awesome pairs** in a list of integers whose Bitwise AND is strictly greater than Bitwise XOR among them.

Given a list arr[] of N integers find the number of awesome pairs.

**Example 1:**

**Input:**

N = 4

arr[] = {6, 2, 5, 3}

**Output:** 2

**Explanation:**

Awesome pairs are (6, 5) and (2, 3).

**Example 2:**

**Input:**

N = 3

arr[] = {1, 1, 1}

**Output:** 3

**Explanation:** All pairs are awesome.

**Your Task:**

You don't need to read input or print anything. Your task is to complete the function **pairs()** that takes the array arr[] and its size N as input parameters and return the number of awesome pairs.

**Constraints:**

$1 \leq N \leq 10^6$

C++ (g++ 5.4)

```
1 // } Driver Code Ends
2 // Back-end complete function template for C++
3
4
5
6
7
8
9
10 class Solution {
11 public:
12     long long pairs(int N, int arr[]) {
13         // code here
14     }
15 };
16 // } Driver Code Ends
```

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