Problem | Editorial | Submissions | Comments

Chocolate Distribution Problem

Difficulty: **Easy** Accuracy: **49.91%** Submissions: **268K+** Points: **2** Average Time: **15m**

Given an array **arr[]** of positive integers, 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 -

i. Each student gets **exactly** one packet.

ii. The difference between maximum number of chocolates given to a student and minimum number of chocolates given to a student is minimum and return that minimum possible difference.

Examples:

Input: arr = [3, 4, 1, 9, 56, 7, 9, 12], m = 5
Output: 6
Explanation: The minimum difference between maximum chocolates and minimum chocolates is 9 - 3 = 6 by choosing following m packets :[3, 4, 9, 7, 9].

Input: arr = [7, 3, 2, 4, 9, 12, 56], m = 3
Output: 2
Explanation: The minimum difference between maximum chocolates and minimum chocolates is 4 - 2 = 2 by choosing following m packets :[3, 2, 4].

Input: arr = [3, 4, 1, 9, 56], m = 5
Output: 55
Explanation: With 5 packets for 5 students, each student will receive one packet, so

Java (21) Start Timer

```java
class Solution {
    public static int findMinDiff(ArrayList<Integer> arr, int m) {
        Collections.sort(arr);
        int minDiff = Integer.MAX_VALUE;

        for (int i = 0; i + m - 1 < arr.size(); i++) {
            minDiff = Math.min(minDiff, arr.get(i + m - 1) - arr.get(i));
        }
        return minDiff;
    }
}
```

Custom Input | Compile & Run | Submit

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Smallest subarray with sum greater than x

Difficulty: **Easy** Accuracy: **37.07%** Submissions: **154K+** Points: **2** Average Time: **20m**

Given a number **x** and an array of integers **arr**, find the smallest subarray with sum greater than the given value. If such a subarray do not exist return 0 in that case.

Examples:

Input: x = 51, arr[] = [1, 4, 45, 6, 0, 19]
Output: 3
Explanation: Minimum length subarray is [4, 45, 6]

Input: x = 100, arr[] = [1, 10, 5, 2, 7]
Output: 0
Explanation: No subarray exist

Constraints:

$1 \le arr.size, x \le 10^5$

$0 \le arr[] \le 10^4$

Try more examples

Java (21) Start Timer

```java
class Solution {
    public static int smallestSubWithSum(int x, int[] arr) {
        int n = arr.length;
        int sum = 0, start = 0, minLen = Integer.MAX_VALUE;

        for (int end = 0; end < n; end++) {
            sum += arr[end];

            while (sum > x) {
                minLen = Math.min(minLen, end - start + 1);
                sum -= arr[start++];
            }
        }
        return minLen == Integer.MAX_VALUE ? 0 : minLen;
    }
}
```

Problem | Editorial | Submissions | Comments

Three way partitioning

Difficulty: **Easy** Accuracy: **41.58%** Submissions: **187K+** Points: **2** Average Time: **20m**

Given an **array** and a range **a**, **b**. The task is to partition the array around the range such that the array is divided into three parts.
1) All elements smaller than **a** come first.
2) All elements in range **a** to **b** come next.
3) All elements greater than **b** appear in the end.
The individual elements of three sets can appear in any order. You are required to return the modified array.

Note: The generated output is true if you modify the given array successfully. Otherwise false.

Geeky Challenge: Solve this problem in O(n) time complexity.

Examples:

Input: arr[] = [1, 2, 3, 3, 4], a = 1, b = 2
Output: true
Explanation: One possible arrangement is: {1, 2, 3, 3, 4}. If you return a valid arrangement, output will be true.

Input: arr[] = [1, 4, 3, 6, 2, 1], a = 1, b = 3
Output: true
Explanation: One possible arrangement is: {1, 3, 2, 1, 4, 6}. If you return a valid arrangement, output will be true.

Java (21) Start Timer

```java
class Solution {
    public static void threeWayPartition(int[] arr, int a, int b) {
        int low = 0, mid = 0, high = arr.length - 1;

        while (mid <= high) {
            if (arr[mid] < a) {
                int temp = arr[low];
                arr[low] = arr[mid];
                arr[mid] = temp;
                low++;
                mid++;
            }
            else if (arr[mid] > b) {
                int temp = arr[mid];
                arr[mid] = arr[high];
                arr[high] = temp;
                high--;
            }
            else {
                mid++;
            }
        }
    }
}
```

Custom Input | Compile & Run | Submit

Minimum swaps and K together

Difficulty: **Medium** Accuracy: **26.0%** Submissions: **141K+** Points: **4**

Given an array **arr** and a number **k**. One can apply a swap operation on the array any number of times, i.e choose any two index i and j (i < j) and swap arr[i] , arr[j] . Find the **minimum** number of swaps required to bring all the numbers less than or equal to **k** together, i.e. make them a contiguous subarray.

Examples :

Input: arr[] = [2, 1, 5, 6, 3], k = 3
Output: 1
Explanation: To bring elements 2, 1, 3 together, swap index 2 with 4 (0-based indexing), i.e. element arr[2] = 5 with arr[4] = 3 such that final array will be- arr[] = [2, 1, 3, 6, 5]

Input: arr[] = [2, 7, 9, 5, 8, 7, 4], k = 6
Output: 2
Explanation: To bring elements 2, 5, 4 together, swap index 0 with 2 (0-based indexing) and index 4 with 6 (0-based indexing) such that final array will be- arr[] = [9, 7, 2, 5, 4, 7, 8]

Input: arr[] = [2, 4, 5, 3, 6, 1, 8], k = 6
Output: 0

Java (21) Start Timer

```java
class Solution {
    public static int minSwap(int[] arr, int k) {
        int n = arr.length;

        int good = 0;
        for (int x : arr)
            if (x <= k) good++;

        if (good == 0) return 0;

        int bad = 0;
        for (int i = 0; i < good; i++)
            if (arr[i] > k) bad++;

        int ans = bad;

        for (int i = 0, j = good; j < n; i++, j++) {
            if (arr[i] > k) bad--;
            if (arr[j] > k) bad++;
            ans = Math.min(ans, bad);
        }
        return ans;
    }
}
```

Custom Input Compile & Run Submit

Problem | Editorial | Submissions | Comments

Median of an Array

Difficulty: **Basic** Accuracy: **44.57%** Submissions: **151K+** Points: **1**

Given an array **arr[]** of integers, calculate the median.

Examples:

Input: arr[] = [90, 100, 78, 89, 67]
Output: 89
Explanation: After sorting the array middle element is the median

Input: arr[] = [56, 67, 30, 79]
Output: 61.5
Explanation: In case of even number of elements, average of two middle elements is the median.

Input: arr[] = [1, 2]
Output: 1.5
Explanation: The average of both elements will result in 1.5.

Constraints:

$1 <= arr.size() <= 10^5$

$1 <= arr[i] <= 10^5$

Java (21) Start Timer

```java
import java.util.*;

class Solution {
    public static double findMedian(int[] arr) {
        Arrays.sort(arr);
        int n = arr.length;

        if (n % 2 != 0)
            return arr[n / 2];

        return (arr[n / 2 - 1] + arr[n / 2]) / 2.0;
    }
}
```

Custom Input Compile & Run Submit

Problem List | Submit | Premium

Description | Accepted | Editorial | Solutions | Submissions

74. Search a 2D Matrix

Solved

Medium | Topics | Companies

You are given an `m x n` integer matrix `matrix` with the following two properties:

- Each row is sorted in non-decreasing order.
- The first integer of each row is greater than the last integer of the previous row.

Given an integer `target`, return `true` *if* `target` *is in* `matrix` *or* `false` *otherwise*.

You must write a solution in `O(log(m * n))` time complexity.

Example 1:

1	3	5	7
10	11	16	20
23	30	34	60

17.7K | 343 | 0 Online

Code

Java | Auto

```
13            else if (val < target) left = mid + 1;
14            else right = mid - 1;
15        }
16
17        return false;
18    }
19 }
20
```

Saved | Ln 20, Col 1

Testcase | Test Result

Accepted Runtime: 0 ms

Case 1 | Case 2

Input

matrix =
[[1,3,5,7],[10,11,16,20],[23,30,34,60]]

target =
3

Output

true

Row with max 1s

Difficulty: **Medium** Accuracy: **33.09%** Submissions: **376K+** Points: **4**

You are given a 2D binary array **arr[][]** consisting of only 1s and 0s. Each row of the array is sorted in non-decreasing order. Your task is to find and return the index of the first row that contains the maximum number of 1s. If no such row exists, return -1.

Note:

- The array follows 0-based indexing.
- The number of rows and columns in the array are denoted by n and m respectively.

Examples:

Input: arr[][] = [[0,1,1,1], [0,0,1,1], [1,1,1,1], [0,0,0,0]]
Output: 2
Explanation: Row 2 contains the most number of 1s (4 1s). Hence, the output is 2.

Input: arr[][] = [[0,0], [1,1]]
Output: 1
Explanation: Row 1 contains the most number of 1s (2 1s). Hence, the output is 1.

Input: arr[][] = [[0,0], [0,0]]
Output: -1
Explanation: No row contains any 1s, so the output is -1.

Java (21) Start Timer

```java
// User function Template for Java
class Solution {
    public int rowWithMax1s(int arr[][]) {
        int n = arr.length;
        if (n == 0) return -1;
        int m = arr[0].length;

        int maxRow = -1;
        int row = 0, col = m - 1;

        while (row < n && col >= 0) {
            if (arr[row][col] == 1) {
                maxRow = row; // update row with more 1s
                col--;        // move left to check for more 1s
            } else {
                row++;        // move down to next row
            }
        }

        return maxRow;
    }
}
```

Custom Input Compile & Run Submit