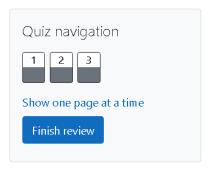
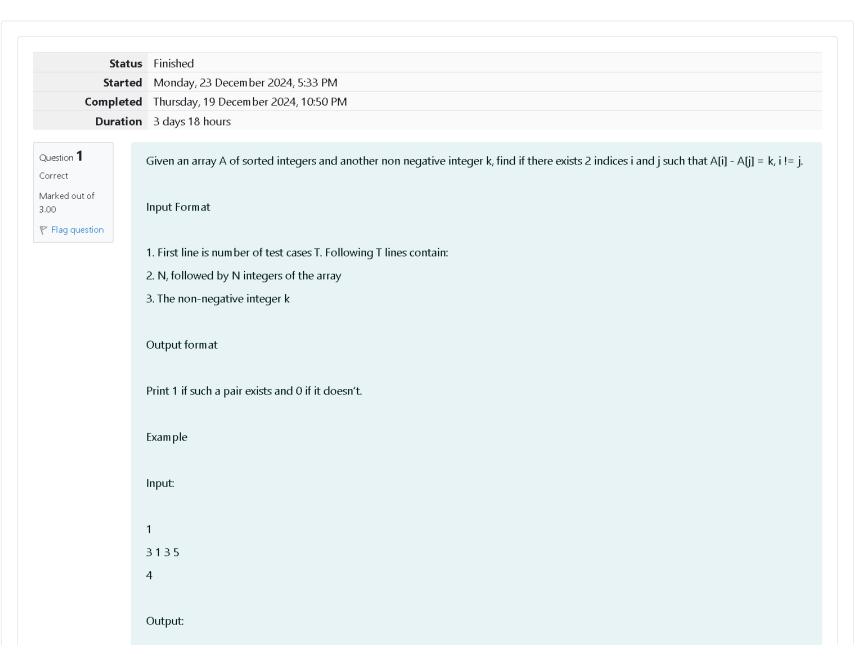
## GE23131-Programming Using C-2024





```
Input:
3135
Output:
```

## Answer: (penalty regime: 0 %)

1

1

99

0

```
1 #include<stdio.h>
2 int hasPairWithDifference(int arr[],int n,int k)
 3 ₹ {
 4
        int i=0, j=1;
        while(i<n&&j<n)
 5
 6 •
 7
            int diff=arr[j]-arr[i];
 8
            if(diff==k&&i!=j)
 9
            return 1;
            else if(diff<k)</pre>
10
11
            j++;
12
            else
13
            i++;
14
15
        return 0;
16
17
        int main()
18
19
            int t;
            scanf("%d",&t);
20
            while(t--)
21
22 1
23
                int n,k;
                scanf("%d",&n);
24
25
                int arr[n];
26
                for(int i=0;i<n;i++)</pre>
27 1
                    scanf("%d",&arr[i]);
28
29
30
                scanf("%d",&k);
```

```
31
                if(hasPairWithDifference(arr,n,k))
32 1
33
                    printf("1\n");
34
35
                else
36 -
37
                    printf("0\n");
38
39
40
        return 0;
41
42
43
```

|          | Input              | Expected | Got |          |
|----------|--------------------|----------|-----|----------|
| ~        | 1<br>3 1 3 5<br>4  | 1        | 1   | ~        |
| <b>~</b> | 1<br>3 1 3 5<br>99 | 0        | Ø   | <b>~</b> |

Passed all tests! <

Question **2**Correct
Marked out of

5.00

Flag question

Sam loves chocolates and starts buying them on the 1st day of the year. Each day of the year, x, is numbered from 1 to Y. On days when x is odd, Sam will buy x chocolates; on days when x is even, Sam will not purchase any chocolates.

Complete the code in the editor so that for each day Ni (where  $1 \le x \le N \le Y$ ) in array arr, the number of chocolates Sam purchased (during days 1 through N) is printed on a new line. This is a function-only challenge, so input is handled for you by the locked stub code in the editor.

Input Format

The program takes an array of integers as a parameter.

The locked code in the editor handles reading the following input from stdin, assembling it into an array of integers (arr), and calling

| calculate(arr).  |
|--|
| The first line of input contains an integer, T (the number of test cases). Each line i of the T subsequent lines describes the ith test case as an integer, Ni (the number of days). |
| Constraints  |
| 1 ≤ T ≤ 2 × 105  |
| $1 \le N \le 2 \times 106$   |
| $1 \le x \le N \le Y$  |
| Output Format  |
| For each test case, Ti in arr, your calculate method should print the total number of chocolates Sam purchased by day Ni on a new line.  |
| Sample Input 0   |
|  |
| 3  |
| 1  |
| 2  |
| 3  |
| Sample Output 0  |
|  |
| 1  |
| 1  |
| 4  |
|  |
| Explanation  |
| Test Case 0: N = 1   |
|  |

Sam buys 1 chocolate on day 1, giving us a total of 1 chocolate. Thus, we print 1 on a new line.

Test Case 1: N = 2

Sam buys 1 chocolate on day 1 and 0 on day 2. This gives us a total of 1 chocolate. Thus, we print 1 on a new line.

Test Case 2: N = 3

Sam buys 1 chocolate on day 1, 0 on day 2, and 3 on day 3. This gives us a total of 4 chocolates. Thus, we print 4 on a new line.

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int main()
3 ₹ {
       int t;
4
       scanf("%d",&t);
5
       while(t--)
6
7 +
8
           int n,c=0;
           scanf("%d",&n);
9
           for(int i=0;i<=n;i++)</pre>
10
11 •
               if(i%2!=0)
12
               c=c+i;
13
14
15
           printf("%d\n",c);
16
17 }
```

|          | Input | Expected | Got  |   |
|----------|-------|----------|------|---|
| <b>~</b> | 3     | 1        | 1    | ~ |
|          | 1     | 1        | 1    |   |
|          | 2     | 4        | 4    |   |
|          | 3     |          |      |   |
| ~        | 10    | 1296     | 1296 | ~ |
|          | 71    | 2500     | 2500 |   |
|          | 100   | 1849     | 1849 |   |
|          | 86    | 729      | 729  |   |

| 54 | 400  | 400  |
|----|------|------|
| 40 | 25   | 25   |
| 9  | 1521 | 1521 |
| 77 | 25   | 25   |
| 9  | 49   | 49   |
| 13 | 2401 | 2401 |
| 98 |      |      |
|    |      |      |

Passed all tests! 🗸

Question **3**Correct

Marked out of

7.00

Flag question

The number of goals achieved by two football teams in matches in a league is given in the form of two lists. Consider:

- Football team A, has played three matches, and has scored { 1, 2, 3 } goals in each match respectively.
- Football team B, has played two matches, and has scored { 2, 4 } goals in each match respectively.
- Your task is to compute, for each match of team B, the total number of matches of team A, where team A has scored less than or equal to the number of goals scored by team B in that match.
- In the above case:
- For 2 goals scored by team B in its first match, team A has 2 matches with scores 1 and 2.
- For 4 goals scored by team B in its second match, team A has 3 matches with scores 1, 2 and 3.

Hence, the answer: {2, 3}.

Complete the code in the editor below. The program must return an array of m positive integers, one for each maxes[i] representing the total number of elements nums[j] satisfying nums[j]  $\leq$  maxes[i] where  $0 \leq$  j < n and  $0 \leq$  i < m, in the given order.

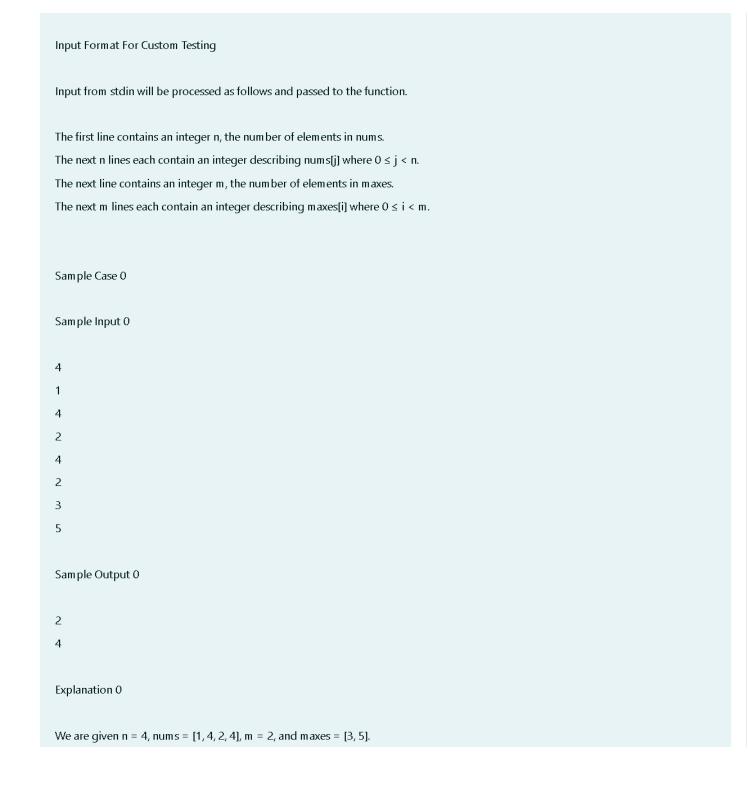
It has the following:

```
nums[nums[0],...nums[n-1]]: first array of positive integers
```

maxes[maxes[0],...maxes[n-1]]: second array of positive integers

## Constraints

- $2 \le n, m \le 105$
- $1 \le \text{nums}[j] \le 109$ , where  $0 \le j < n$ .
- $1 \le \max[i] \le 109$ , where  $0 \le i < m$ .



```
1. For maxes[0] = 3, we have 2 elements in nums (nums[0] = 1 and nums[2] = 2) that are \leq maxes[0].
2. For maxes[1] = 5, we have 4 elements in nums (nums[0] = 1, nums[1] = 4, nums[2] = 2, and nums[3] = 4) that are ≤ maxes[1].
Thus, the function returns the array [2, 4] as the answer.
Sample Case 1
Sample Input 1
5
2
10
5
3
8
Sample Output 1
1
3
4
Explanation 1
We are given, n = 5, nums = [2, 10, 5, 4, 8], m = 4, and maxes = [3, 1, 7, 8].
1. For maxes[0] = 3, we have 1 element in nums (nums[0] = 2) that is \leq maxes[0].
```

- 2. For maxes[1] = 1, there are 0 elements in nums that are  $\leq$  maxes[1].
- 3. For maxes[2] = 7, we have 3 elements in nums (nums[0] = 2, nums[2] = 5, and nums[3] = 4) that are  $\leq$  maxes[2].
- 4. For maxes[3] = 8, we have 4 elements in nums (nums[0] = 2, nums[2] = 5, nums[3] = 4, and nums[4] = 8) that are  $\leq$  maxes[3].

Thus, the function returns the array [1, 0, 3, 4] as the answer.

Answer: (penalty regime: 0 %)

```
1 #include(stdio.h>
 2
   int main()
 3 ₹ {
 4
        int s1,s2,ans;
        scanf("%d",&s1);
 5
        int ta[s1];
 6
 7
        for(int i=0;i<s1;i++)</pre>
        scanf("%d",&ta[i]);
 8
 9
        scanf("%d",&s2);
10
        int tb[s2];
        for(int i=0;i<s2;i++)</pre>
11
12
        scanf("%d",&tb[i]);
13
        for(int j=0;j<s2;j++)</pre>
14
15
            ans=0;
            for(int i=0;i<s1;i++)</pre>
16
17 •
18
                if(tb[j]>=ta[i])
19
                 ans++;
20
21
            printf("%d\n",ans);
22
23 }
```

|          | Input | Expected | Got |    |
|----------|-------|----------|-----|----|
| <b>~</b> | 4     | 2        | 2   | ~  |
|          | 1     | 4        | 4   |    |
|          | 4     |          |     |    |
|          | 2     |          |     |    |
|          | 4     |          |     |    |
|          | 2     |          |     |    |
|          | 3     |          |     |    |
|          | 5     |          |     |    |
|          |       |          |     |    |
| ./       | 2     | 1        | 0   | ./ |

| 5 4 4 8 8 8 4 3 1 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 4 8 4 3 1 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 4 8 4 3 1 1 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 4<br>8<br>4<br>3<br>1<br>7<br>8 | 4<br>8<br>4<br>3<br>1<br>7<br>8               | 10 | ) 3 | , | 3 |  |
|---|---|---|---------------------------------|---|----|-----|---|---|--|
| 8<br>4<br>3<br>1<br>7                                   | 8<br>4<br>3<br>1<br>7<br>8                      | 8<br>4<br>3<br>1<br>7<br>8                    | 8<br>4<br>3<br>1<br>7<br>8      | 8 4 3 1 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 | 5  | 4   |   | 4 |  |
| 4<br>3<br>1<br>7  | 4<br>3<br>1<br>7<br>8                           | 4<br>3<br>1<br>7<br>8                         | 4<br>3<br>1<br>7<br>8           | 4<br>3<br>1<br>7<br>8                         |    |     |   |   |  |
| 3<br>1<br>7   | 3<br>1<br>7<br>8                                | 3<br>1<br>7<br>8                              | 3<br>1<br>7<br>8                | 3<br>1<br>7<br>8                              |    |     |   |   |  |
|   | 1<br>7<br>8                                     | 1<br>7<br>8                                   | 1<br>7<br>8                     | 1<br>7<br>8                                   |    |     |   |   |  |
|   | 8   | 8   | 8                               |   | 1  |     |   |   |  |
| 8   |   |   |                                 |   | 7  |     |   |   |  |
|   |   | Passed all tests! ✓                           | Passed all tests! ✓             | Passed all tests! ✓                           | 8  |     |   |   |  |
|   |   | Finish  |                                 |   |    |     |   |   |  |