

# GE23131-Programming Using C-2024

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Quiz navigation



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Question 1

Correct

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3.00

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Given an array A of sorted integers and another non negative integer k, find if there exists 2 indices i and j such that  $A[i] - A[j] = k, i \neq j$ .

Input Format

- 1. First line is number of test cases T. Following T lines contain:
- 2. N, followed by N integers of the array
- 3. The non-negative integer k

Output format

Print 1 if such a pair exists and 0 if it doesn't.

Example

Input:

3 1 3 5

4

Output:

1

Input:

1

3 1 3 5

99

Output:

0

**Answer:** (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int main()
3 {
4     int t;
5     scanf("%d",&t);
6     while(t--)
7     {
8         int n;
9         scanf("%d",&n);
10        int a[n];
11        for (int i=0; i<n; i++)
```

```
14     }
15     int k;
16     scanf("%d",&k);
17     int flag=0;
18     for(int i=0;i<n;i++)
19     {
20         for(int j=i+1;j<n;j++)
21         {
22             if((a[j]-a[i])==k)
23             {
24                 flag=1;
25                 break;
26             }
27         }
28         if(flag)
29             break;
30     }
31     printf("%d\n",(flag)?1:0);
32 }
33 return 0;
34 }
```

	Input	Expected	Got	
✓	1 3 1 3 5 4	1	1	✓
✓	1 3 1 3 5 99	0	0	✓

Passed all tests! ✓

Marked out of  
5.00

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on days when  $x$  is even, Sam will not purchase any chocolates.

Complete the code in the editor so that for each day  $N_i$  (where  $1 \leq x \leq N \leq Y$ ) 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  $i$ th test case as an integer,  $N_i$  (the number of days).

#### Constraints

$$1 \leq T \leq 2 \times 10^5$$

$$1 \leq N \leq 2 \times 10^6$$

$$1 \leq x \leq N \leq Y$$

#### Output Format

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.

chocolates. Thus, we print 4 on a new line.

**Answer:** (penalty regime: 0 %)

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

	Input	Expected	Got	
✓	3	1	1	✓
	1	1	1	
	2	4	4	
	3			
✓	10	1296	1296	✓
	71	2500	2500	

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

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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}.

nums[j] satisfying  $\text{nums}[j] \leq \text{maxes}[i]$  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[m-1]]: second array of positive integers

Constraints

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

Input Format For Custom Testing

Input from stdin will be processed as follows and passed to the function.

The first line contains an integer  $n$ , the number of elements in nums.

The next  $n$  lines each contain an integer describing  $\text{nums}[j]$  where  $0 \leq j < n$ .

The next line contains an integer  $m$ , the number of elements in maxes.

The next  $m$  lines each contain an integer describing  $\text{maxes}[i]$  where  $0 \leq i < m$ .

Sample Case 0

Sample Input 0



1  
4  
2  
4  
2  
3  
5

Sample Output 0

2  
4

Explanation 0

We are given  $n = 4$ ,  $\text{nums} = [1, 4, 2, 4]$ ,  $m = 2$ , and  $\text{maxes} = [3, 5]$ .

1. For  $\text{maxes}[0] = 3$ , we have 2 elements in  $\text{nums}$  ( $\text{nums}[0] = 1$  and  $\text{nums}[2] = 2$ ) that are  $\leq \text{maxes}[0]$ .
2. For  $\text{maxes}[1] = 5$ , we have 4 elements in  $\text{nums}$  ( $\text{nums}[0] = 1$ ,  $\text{nums}[1] = 4$ ,  $\text{nums}[2] = 2$ , and  $\text{nums}[3] = 4$ ) that are  $\leq \text{maxes}[1]$ .

Thus, the function returns the array  $[2, 4]$  as the answer.

Sample Case 1

5  
2  
10  
5  
4  
8  
4  
3  
1  
7  
8

Sample Output 1

1  
0  
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  $\leq maxes[1]$ .

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;
5     scanf("%d",&S1);
6     int ta[S1];
7     for(int i=0;i<S1;i++)
8         scanf("%d",&ta[i]);
9     scanf("%d",&S2);
10    int tb[S2];
11    for(int i=0;i<S2;i++)
12        scanf("%d",&tb[i]);
13    for(int j=0;j<S2;j++)
14    {
15        ans=0;
16        for(int i=0;i<S1;i++)
17            if(tb[j]>=ta[i])
18                ans++;
19        printf("%d\n",ans);
20    }
21 }
```

	Input	Expected	Got	
✓	4	2	2	✓
	1	4	4	

	2			
	3			
	5			
✓	5	1	1	✓
	2	0	0	
	10	3	3	
	5	4	4	
	4			
	8			
	4			
	3			
	1			
	7			
	8			

Passed all tests! ✓

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