

GE23131-Programming Using C-2024

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Status	Finished
Started	Monday, 23 December 2024, 5:33 PM
Completed	Monday, 16 December 2024, 1:07 PM
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Question **1**

Correct

Marked out of 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,n,k;
5     scanf("%d",&t);
6     while(t--)
7     {
8         scanf("%d",&n);
9         int a[n];
10        for(int i=0;i<n;i++)
11        {
```

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

	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

 [Flag question](#)

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)
13                c=c+i;
14        }
15        printf("%d\n",c);
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

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}.

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 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 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 $\text{maxes}[3] = 8$, we have 4 elements in nums ($\text{nums}[0] = 2$, $\text{nums}[2] = 5$, $\text{nums}[3] = 4$, and $\text{nums}[4] = 8$) that are $\leq \text{maxes}[3]$.

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         {
18             if(tb[j]>=ta[i])
19                 ans++;
20         }
21         printf("%d\n",ans);
22     }
23 }
```

	Input	Expected	Got
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	4			
	2			
	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! ✓

Finish review