

GE23131-Programming Using C-2024

Quiz navigation



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Status	Finished
Started	Monday, 23 December 2024, 5:33 PM
Completed	Monday, 23 December 2024, 2:56 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:

1
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-->0)
7     {
8         int n;
9         scanf("%d",&n);
10        int a[n];
11        for(int i=0;i<n;i++)
12        {
13            scanf("%d",&a[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[i]-a[j]==k || a[j]-a[i]==k)
23                {
24                    flag=1;
25                    break;
26                }
27            }
28        }
```

```
29         if(flag)break;}
30         printf("%d\n",flag);
31     }
32 }
33
```

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

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 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

For each test case, T_i in arr , your `calculate` method should print the total number of chocolates Sam purchased by day N_i 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 {
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            {
14                c=c+i;
15            }
16        }
17        printf("%d\n",c);
18    }
19 }
20 }
```

	Input	Expected	Got	
✓	3 1 2 3	1 1 4 3	1 1 4 3	✓
✓	10 71 100 86 54 40 9 77 9 13 98	1296 2500 1849 729 400 25 1521 25 49 2401 98	1296 2500 1849 729 400 25 1521 25 49 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}.

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 $\text{nums}[j] \leq \text{maxes}[i]$ 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[n-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 `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 `maxes[i]` where $0 \leq i < m$.

Sample Case 0

Sample Input 0

```
4
1
4
2
4
2
3
5
```

Sample Output 0

```
2
4
```

Explanation 0

We are given $n = 4$, `nums` = [1, 4, 2, 4], $m = 2$, and `maxes` = [3, 5].

- For `maxes[0]` = 3, we have 2 elements in `nums` (`nums[0]` = 1 and `nums[2]` = 2) that are \leq `maxes[0]`.
- 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 \leq `maxes[1]`.

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

Sample Case 1

Sample Input 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].

- For `maxes[0]` = 3, we have 1 element in `nums` (`nums[0]` = 2) that is \leq `maxes[0]`.
- For `maxes[1]` = 1, there are 0 elements in `nums` that are \leq `maxes[1]`.
- 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;
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            {
20                ans++;
21            }
22        }
23    }
24    printf("%d\n",ans);
25 }
26
27 }
```

	Input	Expected	Got	
✓	4 1 4 2 4 2 3 5	2 4	2 4	✓
✓	5 2 10 5 4 8 4 3 1 7 8	1 0 3 4	1 0 3 4	✓

Passed all tests! ✓