

# GE23131-Programming Using C-2024

Attempts allowed: 3

This quiz has been configured so that students may only attempt it using the Safe Exam Browser.

Time limit: 2 hours

Grading method: Highest grade

## Your attempts

Attempt 1	
Status	Finished
Started	Monday, 23 December 2024, 5:33 PM
Completed	Thursday, 28 November 2024, 4:50 PM
Duration	25 days
<div>Review</div>	

The Safe Exam Browser keys could not be validated. Check that you're using Safe Exam Browser with the correct configuration file.

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## Question 1

Correct

Marked out of 3.00

 [Flag question](#)

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

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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--){
7          int n;
8          scanf("%d",&n);
9          int a[n];
10         for(int i=0;i<n;i++)
11         {
12             scanf("%d",&a[i])
13         }
14         int k;
15         scanf("%d",&k);
16         int flag=0;
17         for(int i=0;i<n;i++)
18         {
19             for(int j=i+1;j<n
20             {
21                 if(a[i]-a[j]=
22             }
23         }
24         if(flag) break;}
25         printf("%d\n",flag);
26     }
27 }
```

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

10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27

```
a[j]-a[i]==k){flag=1;break;}
```

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

Passed all tests! ✓

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

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     int t;
4     scanf("%d",&t);
5     while(t--){
6         int n,c=0;
```

```

2  ▼ nt main(){
3      int t;
4      scanf("%d",&t);
5  ▼  while(t--){
6          int n,c=0;
7          scanf("%d",&n);
8  ▼  for(int i=0;i<=n;i++){
9          if(i%2!=0) c=c+i;
10     }printf("%d\n",c);
11     }
12

```

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

```

2  ▼ nt main(){
3      int t;
4      scanf("%d",&t);
5  ▼  while(t--){
6          int n,c=0;
7          scanf("%d",&n);
8  ▼  for(int i=0;i<=n;i++){
9          if(i%2!=0) c=c+i;
10     }printf("%d\n",c);
11     }
12

```

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

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.

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  $0 \leq i < m$ .

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  $\leq$  `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

3

4

### Explanation 1

We are given,  $n = 5$ ,  $\text{nums} = [2, 10, 5, 4, 8]$ ,  $m = 4$ , and  $\text{maxes} = [3, 1, 7, 8]$ .

1. For  $\text{maxes}[0] = 3$ , we have 1 element in  $\text{nums}$  ( $\text{nums}[0] = 2$ ) that is  $\leq \text{maxes}[0]$ .
2. For  $\text{maxes}[1] = 1$ , there are 0 elements in  $\text{nums}$  that are  $\leq \text{maxes}[1]$ .
3. For  $\text{maxes}[2] = 7$ , we have 3 elements in  $\text{nums}$  ( $\text{nums}[0] = 2$ ,  $\text{nums}[2] = 5$ , and  $\text{nums}[3] = 4$ ) that are  $\leq \text{maxes}[2]$ .
4. For  $\text{maxes}[3] = 8$ , we have 4 elements in  $\text{nums}$  ( $\text{nums}[0] = 2$ ,  $\text{nums}[2] = 5$ ,  $\text{nums}[3] = 4$ , 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];
```

```

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



```

18         ans = 0;
19     }printf("%d\n",ans);
20 }
21

```

	Input	Expected	Got	
✓	4	2	2	✓
	1	4	4	
	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

Quiz navigation

1

2

3