

<b>Status</b>	Finished
<b>Started</b>	Tuesday, 18 November 2025, 8:33 PM
<b>Completed</b>	Tuesday, 18 November 2025, 9:06 PM
<b>Duration</b>	32 mins 32 secs

Question **1**

Correct

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
3 int main()
4 {
5     int a,b,n,n1,i,j,k;
6     int flag=0;
7
8     scanf("%d",&n):
```

```

9      for(a=0;a<n;a++)
10     {
11         scanf("%d",&n1);
12         int arr[n1];
13         for(b=0;b<n1;b++)
14         {
15             scanf("%d",&arr[b]);
16         }
17         scanf("%d",&k);
18         flag=0;
19         for(i=0;i<n1&&flag==0;i++)
20         {
21             for(j=i+1;j<n1;j++)
22             {
23                 if(arr[j]-arr[i]==k)
24                 {
25                     flag=1;
26                     break;
27                 }
28             }
29         }
30         printf("%d\n",flag);
31     }
32     return 0;
33 }
34
35
36
37
38
39
40
41
42
43
44

```

	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

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.

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
3  int main()
4  {
5      int test;
6      scanf("%d",&test);
7
8      int arr[test];
9      int result[test];
10
11     for(int i=0;i<test;i++)
12     {
13         scanf("%d",&arr[i]);
14     }
15
16     for(int j=0;j<test;j++)
17     {
18         int n=arr[j];
19         int half;
20
21         if(n%2==0)
22         {
23             half=n/2;
24         }
25         else
26         {
27             half=(n+1)/2;
28         }
29         result[j]=half*half;
30     }
31
32     for(int k=0;k<test;k++)
33     {
34         printf("%d\n",result[k]);
```

```

35     }
36
37     return 0;
38 }
39
40

```



	Input	Expected	Got	
✓	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

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  $\text{maxes}[i]$  representing the total number of elements  $\text{nums}[j]$  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:

$\text{nums}[\text{nums}[0], \dots, \text{nums}[n-1]]$ : first array of positive integers

$\text{maxes}[\text{maxes}[0], \dots, \text{maxes}[m-1]]$ : 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  $\text{nums}$ .

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  $\text{maxes}$ .

The next  $m$  lines each contain an integer describing  $\text{maxes}[i]$  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  $maxes = [3, 5]$ .

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  $\leq maxes[1]$ .

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,  $n = 5$ ,  $\text{nums} = [2, 10, 5, 4, 8]$ ,  $m = 4$ , 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
3  int main()
4  {
5      int i,j,k,a;
6      int n1,n2;
7      int ct;
8
9      scanf("%d",&n1);
10     int arr1[n1];
11
12     for(i=0;i<n1;i++)
13     {
14         scanf("%d",&arr1[i]);
15     }
16
17     scanf("%d",&n2);
18     int arr2[n2];
19
20     for(j=0;j<n2;j++)
21     {
22         scanf("%d",&arr2[j]);
23     }
24     for(k=0;k<n2;k++)
25     {
26         ct=0;
27         for(a=0;a<n1;a++)
28         {
29             if(arr2[k]>=arr1[a])
30             {
31                 ct++;
32             }
33         }
34         printf("%d\n",ct);
35     }
36 }
37

```

	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! ✓

