

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

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

1

Input:

1

3 1 3 5

99

Output:

0

Answer: (penalty regime: 0 %)

```
1 #include<stdio.h>
2 int main(){
3     int T,N,K;
4     scanf("%d",&T);
5     for(int i=0;i<T;i++){
6         int f=0;
7         scanf("%d",&N);
8         int A[N];
9         for(int j=0;j<N;j++){
10             scanf("%d",&A[j]);
11         }
12         scanf("%d",&K);
13         for(int j=0;j<N;j++){
14             for(int l=0;l<N;l++){
15                 if(A[j]-A[l]==K){
16                     f++;
17                     break;
18                 }
19             }
20         }
21     }
22 }
```

```

14     for(int l=0;l<N;l++){
15         if(A[j]-A[l]==K){
16             f++;
17             break;
18         }
19     }
20 }
21
22 }
23 if(f==0){
24     printf("0\n");
25 }
26 else{
27     printf("1\n");
28 }
29 f=0;
30 }
31 return 0;
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

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 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 N,x=0;
5      scanf("%d",&N);
6      int A[N];
7      for(int j=0;j<N;j++){
8          scanf("%d",&A[j]);
9      }
10     for(int j=0;j<N;j++){
11         for(int i=1;i<=A[j];i++){
12             if(i%2!=0){
13                 x=x+i;
14             }
15         }
16         printf("%d\n",x);
17         x=0;
18     }
19     return 0;
20 }
```

| | 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

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.

- 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:

`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`.

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 $n = 4$, $\text{nums} = [1, 4, 2, 4]$, $m = 2$, 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

Sample Input 1

5

2

10

5

4

8

4

3

1

7

0

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 $\leq maxes[1]$.
3. 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     int m,n,c=0;
4     scanf("%d",&m);
5     int A[m];
6     for (int i=0;i<m;i++){
7         scanf("%d",&A[i]);
8     }
9     scanf("%d",&n);
10    int B[n];
11    for(int i=0;i<n;i++){
12        scanf("%d",&B[i]);
13    }
14    for(int i=0;i<n;i++){
15        for(int j=0;j<m;j++){
16            int h=B[i];
17            if(A[j]<=h){
18                c++;
19            }
20        }
21        printf("%d\n",c);
22        c=0;
23    }
24 }
```

| | 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