Week 06

Question 1:

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 != j.

Input Format:

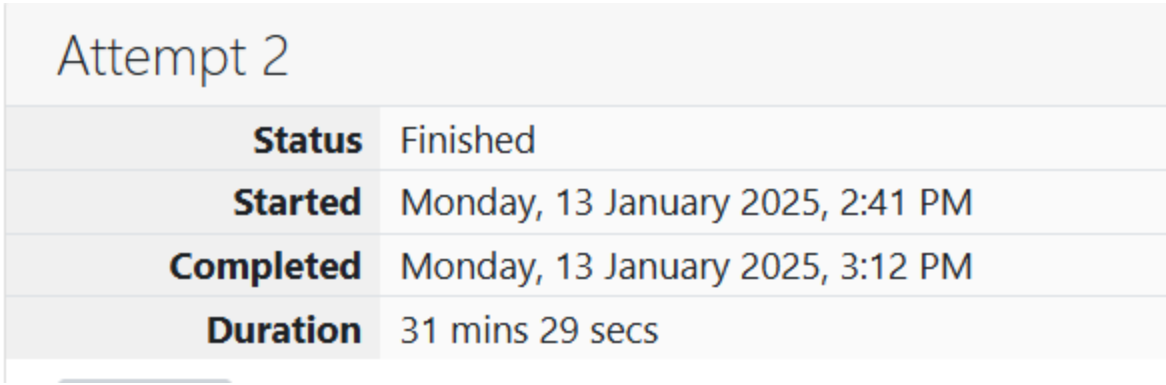
1. First line is number of test cases T. Following T lines contain:

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.

Program:



Week-06-01-Practice Session-Coding: Attempt review | REC-CIS

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swer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main(){
    int t;
    scanf("%d",&t);
    for(int w=0;w<t;w++){
        int n,c=0,k;
        scanf("%d",&n);
        int arr[n];
        for(int i=0;i<n;i++){
            scanf("%d",&arr[i]);
        }
        scanf("%d",&k);
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                if((arr[j]==arr[i]-k)&&i!=j){
                    c=1;
                    break;
                }
            }
        }
        printf("%d\n",c);
    }
    return 0;
}
```

Output:

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

Passed all tests! ✓

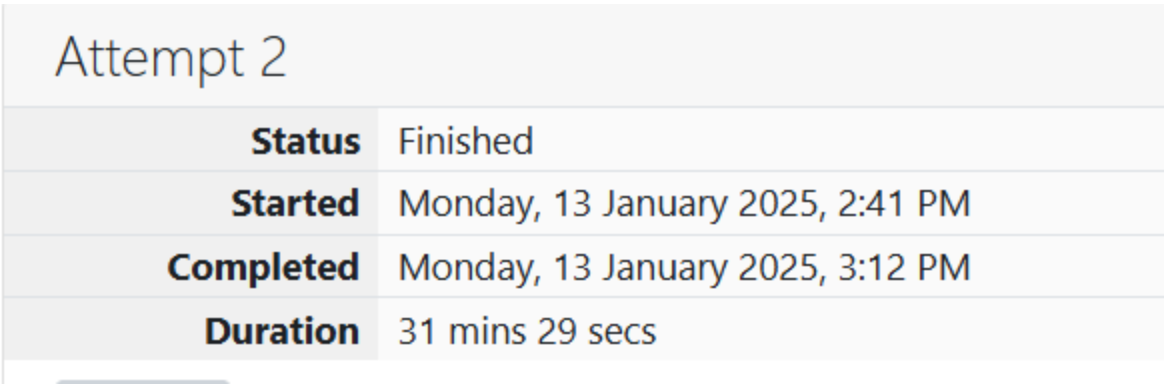
Question 2:

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 Ni (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 first line of input contains an integer, T (the number of test cases). Each line i of the T subsequent lines describes the ith test case as an integer, Ni (the number of days).

Program:



nswer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main(){
    int t;
    scanf("%d",&t);
    int arr[t];
    for (int w=0;w<t;w++){
        scanf("%d",&arr[w]);
    }
    for(int i=0;i<t;i++){
        int c=0;
        for(int j=1;j<=arr[i];j++){
            if(j%2 !=0){
                c+=j;
            }
        }
        printf("%d\n",c);
    }
    return 0;
}
```

Output:

	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	✓

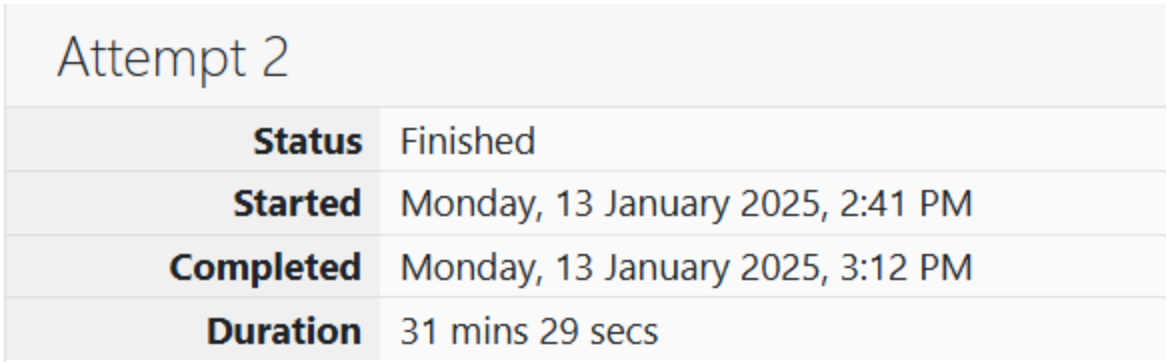
Passed all tests! ✓

Question 3:

The number of goals achieved by two football teams in matches in a league is given in the form of two lists.

- 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.
- 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}.



Program:

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nswer: (penalty regime: 0 %)

```c
#include<stdio.h>
int main(){
    int n,m,c;
    scanf("%d",&n);
    int array[n];
    for(int i=0;i<n;i++){
        scanf("%d",&array[i]);
    }
    scanf("%d",&m);
    int arre[m];
    for(int i=0;i<m;i++){
        scanf("%d",&arre[i]);
    }
    for(int i=0;i<m;i++){
        c=0;
        for(int j=0;j<n;j++){
            if(array[j]<=arre[i]){
                c++;
            }
        }
        printf("%d\n",c);
    }
    return 0;
}
```

Output:

	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! ✓