Paranidharan.R
ECE-D
240801238

ProblemStatement1:
GivenanarrayAofsortedintegersandanothernonnegativeintegerk,findif there exists2indicesiandjsuchthatA[i]-A[j]=k,i!=j.
InputFormat
1. FirstlineisnumberoftestcasesT.FollowingTlinescontain:
2. N,followedbyNintegersofthearray
3. Thenon-negativeintegerk
Outputformat
Print1ifsuchapairexistsand0ifitdoesn't.
SampleInput:
1
3135
4
SampleOutput:
1

Answer: (penalty regime: 0 %)

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

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

Passed all tests! ✓

ProblemStatement2:
Samloveschocolatesandstartsbuyingthemonthe1stdayoftheyear.Each dayofthe
year,x,isnumberedfrom1toY.Ondayswhenxisodd,Samwillbuyx chocolates;on dayswhenxiseven,Samwillnotpurchaseanychocolates.
CompletethecodeintheeditorsothatforeachdayN_i($1 \le x \le N \le Y$) inarray arr,thenumberofchocolatesSampurchased(duringdays1throughN)is printedona
newline.Thisisafunction-onlychallenge,soinputishandledforyoubythe lockedstub
codeintheeditor.
InputFormat
Theprogramtakesanarrayofintegersasaparameter.

Thelockedcodeintheeditorhandlesreadingthefollowinginputfromstdin, assembling
itintoanarrayofintegers(arr),andcallingcalculate(arr).
Thefirstlineofinputcontainsaninteger,T(thenumberoftestcases).Each lineiof
theTsubsequentlinesdescribestheithtestcaseasaninteger,Ni(the numberofdays).
Constraints
1≤T≤2×105
1≤N≤2×106
1≤x≤N≤Y
OutputFormat
Foreachtestcase,Tiinarr,yourcalculatemethodshouldprintthetotal numberof chocolatesSampurchasedbydayNionanewline.
SampleInput0
3
1
2
3
SampleOutput0
1
1
4

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>
int main(){
    int t;
    scanf("%d",&t);
    while(t--){
        int n,c=0;
        scanf("%d",&n);
        for(int i=0;i<=n;i++){
            if(i%2!=0){
                c+=i;
            }
        }
            printf("%d\n",c);

    }
}
```

	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! ✓

ProblemStatement3:
Thenumberofgoalsachievedbytwofootballteamsinmatchesinaleagueis giveninthe
formoftwolists.Consider:
• FootballteamA,hasplayedthreematches,andhasscored{1,2,3}goals ineachmatch
respectively.
• FootballteamB,hasplayedtwomatches,andhasscored{2,4}goalsin eachmatch
respectively.
• Yourtaskistocompute,foreachmatchofteamB,thetotalnumberof matches of team A,
• whereteamAhasscoredlessthanorequaltothenumberofgoalsscored by team B in
thatmatch.

Intheabovecase:
• For2goalsscoredbyteamBinitsfirstmatch,teamAhas2matcheswith scores 1 and 2.
• For4goalsscoredbyteamBinitssecondmatch,teamAhas3matches with scores 1, 2
and3.Hence,theanswer:{2,3}.
Completethecodeintheeditorbelow.Theprogrammustreturnanarrayof mpositive
integers,oneforeachmaxes[i]representingthetotalnumberofelements nums[j]
satisfyingnums[j]≤maxes[i]where0≤j<nand0≤i<m,inthegivenorder. It has the following:
nums[nums[0],...nums[n-1]]:firstarrayofpositiveintegers
maxes[maxes[0],...maxes[n-1]]:secondarrayofpositiveintegers
Constraints:
2≤n,m≤105,1≤nums[j]≤109,where0≤j<n,1≤maxes[i]≤109,where0 ≤i<m.
InputFormatForCustomTesting
Inputfromstdinwillbeprocessedasfollowsandpassedtothefunction.
Thefirstlinecontainsanintegern,thenumberofelementsinnums.
Thenextnlineseachcontainanintegerdescribingnums[j]where0≤j<n.
Thenextlinecontainsanintegerm,thenumberofelementsinmaxes.
Thenextmlineseachcontainanintegerdescribingmaxes[i]where0≤i<m.
SampleInput
4
1
4
2
4
2
3
5
SampleOutput

2
4

Answer: (penalty regime: 0 %)

```c
#include <stdio.h>
int main(){
    int s1,s2,ans;
    scanf("%d",&s1);
    int ta[s1];
    for(int i=0;i<s1;i++){
        scanf("%d",&ta[i]);}
        scanf("%d",&s2);
        int tb[s2];

    for(int i=0;i<s2;i++){
        scanf("%d",&tb[i]);
    }
    for(int j=0;j<s2;j++){
        ans=0;
        for(int i=0;i<s1;i++){
            if(tb[j]>=ta[i]){
                ans++;
            }
        }printf("%d\n",ans);
    }
}
```

	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! ✓