SAMDEVARAJA J 2024-CSE S2

Week-06-One-Dimensional Arrays

Week-06-01-Practice Session-Coding

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 != 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.

Source code:

```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==1)
            {
                break;
            }
        }
        printf("%d\n",flag);
    }
    return 0;
}
```

Result:

	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 Ni (where 1 ≤ x ≤ N ≤ 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.

Source code:

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

Result:

	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.

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 maxes[i] representing the total number of elements nums[j] satisfying nums[j] ≤ maxes[i] where 0 ≤ j < n and 0 ≤ 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[n-1]]: second array of positive integers

Source code:

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

Result:

	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! ✓