Candy Distribution 2

Submissions Attempted by: 196 | Solved by: 137 | Partially Solved by: 12 |

Combinatorics Easy Math Edit

LIVE EVENTS 1

This question is direct application of "Strong Form of Pigeonhole Principle".

Pigeonhole Principle :

If n+1 objects are placed into n boxes, then atleast one box contains one or more objects.

Proof: Lets suppose each of the n boxes contains 1 object each. So in total there are n objects. Since, we started with n+1 objects this is a contradiction, so some box contains atleast 2 objects.

Strong Form of Pigeonhole Principle :

Let `q1,q2,q3,.....,qn` be positive integers. Now, if we put `q1+q2+q3+. . . +qn-n+1` objects into n boxes, then either the first box contains at least `q1` objects, or the second box contains atleast `q2` objects, ..., or the nth box contains `qn` objects.

Proof: Lets suppose each of the ith box contains fewer than `qi` objects, to be precise lets say each of the ith box contains `qi-1` objects. If this was the case than the total number of objects we will have is `(q1-1)+(q2-1)+.....+(qn-1) = q1+q2+.....+qn-n` objects. But as we started with `q1+q2+....+qn-n+1` objects there exists a ith box which contains `qi-1+1 = qi` objects. Thus we conclude that there exist a ith box which contains atleast `qi` objects in it.

Now, in this problem we can directly use the strong form of pigeonhole principle and so the answer will be `A[1]+A[2]+.....+A[n]-n+1`

Edit Editorial

Author Solution by Ashish Khatkar

```
/*
ID: ashish1610
PROG: Candy Distribution 2
LANG: C++
*/
#include<bits/stdc++.h>
using namespace std;
```

```
#define ll      long long int
int main()
{
        int t;
        scanf("%d",&t);
        while(t--)
        {
                int n;
                scanf("%d",&n);
                ll ans=0,tmp;
                for(int i=0;i<n;++i)
                {
                        scanf("%lld",&tmp);
                        ans+=tmp;
                }
                ans++;
                ans-=n;
                printf("%lld\n",ans);
        }
        return 0;
}
```

Tester Solution by Chandan Singh

```
#include <iostream>
#include <algorithm>
#include <cassert>
using namespace std;
int main()
{
    int test,N;
    cin>>test;
    assert(test>=1 && test<=10);
    while(test--)
    {
        cin>>N;
         assert(N>=1 && N<=100000);
        long long int Sum=0,num;
        for(int i=0;i<N;i++)
        {
                cin>>num;
             assert(num>=1 && num<=1000000000);
                Sum+=num;
        }
        cout<<(Sum-(N-1))<<endl;
    }
    return 0;
}
```

PROFILE IMPACT

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PROBLEMS SUGGESTED FOR YOU

Xenny and Uniqueness
Solved by 541

Lunch Boxes
Solved by 136

Array's Problem
Solved by 11

more...

RECENT SUBMISSIONS

User	Result	Time	Lang
kailash_...		2.2431	C++
kailash_...		2.2842	C++
007		2.2589	C++
007		2.2746	C++
007		2.2513	C++
Ankit Ch...		2.5091	PHP
Filimono...		0.9562	C++

View All

TRENDING NOTES

Number Theory - III
written by Boris Sokolov

Exact String Matching Algorithms
written by Alei Reyes

Binary Indexed Tree or Fenwick Tree
written by Chandan Mittal

Small tricks in for loop
written by Rangeesh

Strings And String Functions
written by Vinay Singh

more ...

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Horlicks Hack 4 Fun

03 Sep 2015, 09:00 PM IST

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CODE-HUNT-2F

21 Oct 2015, 05:00 PM IST

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Zoomcar Ruby Challenge

23 Oct 2015, 06:00 PM IST

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Diona iOS Developer Hiring Challenge

24 Oct 2015, 12:00 PM IST

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Tipstat Android Developer Hiring Challenge

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D'code

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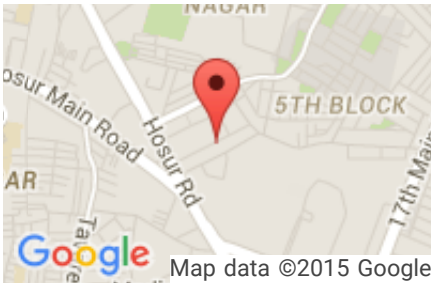

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