Missing number in array

hash

```
#include <bits/stdc++.h>

using namespace std;

int findMissNum(vector<int>& arr, int N) {
    int miss;
    vector<bool> hash(N + 1);
    hash[0] = true;
    for (auto a: arr)
        hash[a] = true;
    for (int i = 0; i < hash.size(); ++i) {
        if (!hash[i]) {
            miss = i;
        }
    }
    return miss;
}

int main() {
    int T;
    scanf("%d", &T);
    while (T--) {
        int N;
        scanf("%d", &N);
        vector<int> arr;
        for (int i = 0; i < N - 1; ++i) {
            int num;
            scanf("%d", &num);
            arr.push_back(num);
        }
        printf("%d\n", findMissNum(arr, N));
    }
    return 0;
}
```

Sum

对1~N求和，然后减去所有的数，剩余的值为所缺失的数字

```
// C++ program of above approach
#include<iostream>
using namespace std;
```

```
class gfg
{

/* getMissingNo takes array and
size of array as arguments*/
public : int getMissingNo (int a[], int n)
{
        int i, total;
        total = (n + 1) * (n + 2) / 2;
        for ( i = 0; i< n; i++)
                total -= a[i];
        return total;
}
};

/*Driver code */
int main()
{
        gfg g;
        int a[] = {1, 2, 4, 5, 6};
        int miss = g.getMissingNo(a, 5);
        cout << miss;
}

// This code is contributed by SoM15242
```