

Coding Fiesta H9

End-term Report

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A.Food for Animals:

Check whether the given food packets are sufficient for the animals or not.

The maximum universal food packets required for dogs are $\max(0, x-a)$ and for cats are $\max(0, y-b)$. We simply have to check that sum of these two should not be more than c (number of universal food packets).

```
#include<bits/stdc++.h>
using namespace std ;

int main() {
    int t ;
    cin >> t ;
    while(t-->0) {
        int a,b,c,x,y;
        cin >> a>>b>>c>>x>>y ;
        int c1 = x-a;
        int c2 = y-b;
        if( c1 < 0) c1 =0 ;
        if( c2 < 0) c2= 0;
        if( c1+c2 <= c) cout << "YES" <<endl ;
        else cout << "NO" << endl;
    }
}
```

B. Make it Increasing:

For the given array of integers, we have to tell whether we can convert this sequence into the sequence such that $a_i > a_{i-1}$. The operation we can perform is $a_i = a_i/2$.

We have to tell how many such operations are needed to get the desired sequence.

If not possible, print '-1'.

So we check whether $a_{i-1} \geq a_i$, then we perform the operation and increase the count by 1, We continue this till a_0

```
#include <bits/stdc++.h>
using namespace std;
typedef long long ll;

int main()
{
    int t;
    cin>>t;
    while(t--){
        int n;
        cin>>n;
        int a[n];
        for(int i=0;i<n;i++){
            cin>>a[i];
        }
        int c=0;
        for(int i=n-1;i>0;i--){
            if(a[i]>0){
                while(a[i-1]>=a[i]){
                    a[i-1]/=2;
                    c++;
                }
            }
            else {c=-1;break;}
        }
        cout<<c<<endl;
    }
}
```

C: Detective Task:

To find how many people can be the suspect.

So from the given string find, the last index(a) at which 1 was present and the first index(b) where 0 is present.

Therefore, all the people from the first 0 and the last one are suspect.

```
#include <bits/stdc++.h>
using namespace std;

int main()
{
    int t;
    cin>>t;
    while(t--){
        string s;
        cin >> s;
        int n = s.size();
        int a=-1 , b=-1;

        for(int i = 0; i<n; i++){
            if( s[i] == '0' ){ b=i ; break; }
        }
        for(int i=n-1 ; i>=0 ;i--){
            if( s[i] == '1' ){ a=i; break; }
        }

        int sspt;
        if( a ==-1 && b ==-1 ) sspt = n;
        else if( a== -1 ) sspt = b+1;
        else if( b== -1 ) sspt = n-a;
        else sspt = b-a+1;
        cout << sspt << endl;
    }
}
```