Help Tony With Loop

- **Problem**

Tony is 10 years old. His brother is a CSE Student. Tony takes some basic lessons about computer programming from his brother. He learned about FOR LOOP yesterday & came to know that FOR LOOP could be used to make different shape structures with numbers.

So, he created a shape with numbers & tried to write code to implement it. But with his knowledge, he is not able to do it properly & His brother is also not at home.

Can you help tony by solving the problem?

The shape is made with number & will change based on the input number N. The shape includes number upto N.

Input Format

input is an integer number N.

Constraints

$1<=N<=10$

Output Format

Output is a shape made with number up to N.Output ends with a new line.

Sample Input 0

```
3
```

Sample Output 0

```
111
22
3
22
111
```

Sample Input 1

4

Sample Output 1

1111
222
33
4
33
222
1111

Solution

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

using namespace std;

int main()

{

    int n;

    scanf("%d", &n);

    for(int i=0; i<n; i++)

    {

        for(int j=n-i; j>0; j--)

        {

            printf("%d", i+1);

        }

        printf("\n");

    }

    for(int i=1; i<n; i++)
```

```c
    {
        for(int j=n-i; j<=n; j++)
        {
            printf("%d", i+1);
        }
        printf("\n");
    }
    return 0;
}
```

The Beard Man

There is a Man on a planet named Bob, but no one remember his named. Everyone knows him with a different name which is 'Beard Man'.

The growth of his beard is growing in an equational way. Every day his beard grow up 10% of his previous day's beard size. It means if the initial size of S (after trimmed) is 5cm after one day the size will be 10% extra and follow the pattern.

Your task is to find out what is the size of his beard after N days.

Input Format

Input starts with a integer T, the number of test cases. Each case stars with two number S and N.

Constraints

```
0<T<100
0<S<=100
0<=N<=366
```

Output Format

For each case you need to print the height of the Beard after N days. See the output format.

Sample Input 0

```
2
10 1
20 2
```

Sample Output 0

```
Case 1: 11.00 cm
Case 2: 24.20 cm
```

Solution:

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

using namespace std;

int main()

{

    freopen("test.txt", "r", stdin);

    int t;

    scanf("%d", &t);

    for(int i=1; i<=t; i++)

    {

        double a;

        int b;

        scanf("%lf%d", &a, &b);
```

```c
        for(int i=0; i<b; i++)
            a+=(a*0.1);
        printf("Case %d: %.2lf cm\n", i, a);
    }
    return 0;
}
```

Faulty Robot1

locked

Rita is 13 years old & she is interested in the automatic calculation.

She created a robot with programming that takes a number N & adds all digits of N side by side & makes a number named K.

then for each digit of N, the robot changes the digit with a random digit(0-9) and makes a number P. Now it adds all digits of P side by side & makes a number named L.

The robot gives output by subtracting K from L.The robot replies with "ERROR" without quotation marks if the output is a negative number.

Now, Rita challenged you to make the robot that will take an input N where $0<=N<=10^{18}$ & gives an output.

Input Format

 Input is an integer value N where $0<=N<=10^{18}$. Input ends with EOF.

Constraints

$0<=N<=10^{18}$

$0<=P<=10^{18}$

$0<=K<=10^{18}$

$0<=L<=10^{18}$

$-10^{18}<=$output number$<=10^{18}$

Output Format

For Negative value output, print "ERROR" without quotation a new line.

For non-negative value output, print the number with a new line. Output number range -
10^18<=number<=10^18

Sample Input 0

```
1
57978698
2
7422825
963325
```

Sample Output 0

```
Case 1: 0
Case 2: ERROR
Case 3: 0
Case 4: 3
Case 5: 7
```

Solution:

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

using namespace std;

long long fun(long long p)

{

    long long sum1=0;

    long long p1;

    while(p!=0)

    {


        p1=p%10;

        p=p/10;

        sum1=sum1+p1;
```

```cpp
    }
    return sum1;
}
int main()
{
    freopen("test.txt", "r", stdin);
    int arr[10]= {1,1,2,6,6,3,9,9,9,9};
    long long n, i=1;
    while(scanf("%lld",&n)==1)
    {
        long long sum=0,dum=0;
        long long rum=0,pum=0;
        long long a,k,l;
        if(n==0)
            cout<<"Case "<<i++<<": "<<"1"<<endl;
        else
        {
            while(n!=0)
            {
                a=n%10;
                n=n/10;
                sum=sum+a;
                rum=rum+arr[a];
            }
```

```cpp
        while((sum/10)!=0)

        {

            sum=fun(sum);

        }

        while((rum/10)!=0)

        {

            rum=fun(rum);

        }

        if((rum-sum)>=0)

            cout<<"Case "<<i++<<": "<<rum-sum<<endl;

        else

            cout<<"Case "<<i++<<": "<<"ERROR"<<endl;

        }

    }

    return 0;

}
```
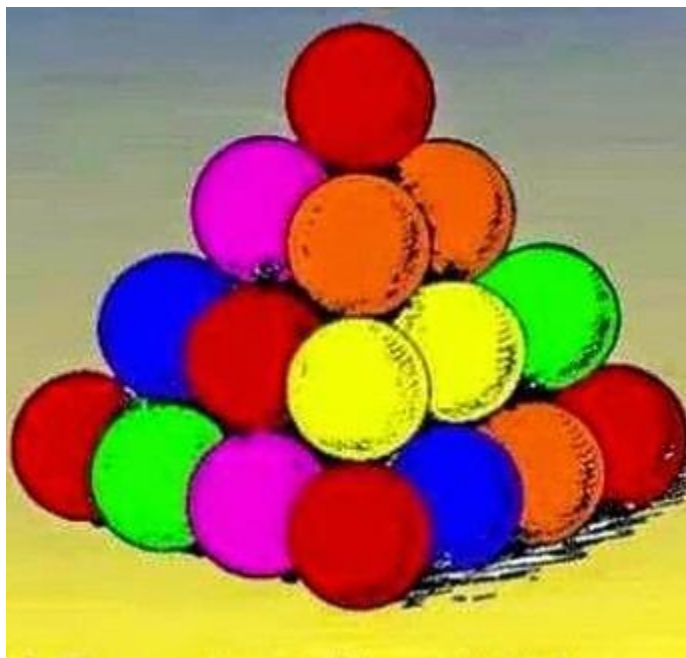
Guess the Amount

locked

In this problem your task is simple. You have tell how many balls A are there if there N layers of balls.

Input Format

Input starts with a integer T, the number of test cases. Each case has a single input N.

Constraints

```
0<T<=100
0<=N<=10^3
```

Output Format

The output contains the value of A.

Sample Input 0

```
3
2
```

```
5
4
```

Sample Output 0

```
5
55
30
```

Solution:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int t;
    scanf("%d", &t);
    while(t--)
    {
        int n;
        scanf("%d", &n);
        n= (n*(n+1)*((2*n)+1))/6;
        printf("%d\n", n);
    }
    return 0;
}
```

Print your source code

- **Problem**

-

Write a program to convert farrenheit temparature into celcius. The equation is c/5=(f-32)/9

Input Format

Input starts with a testcase T. Each test case starts with an integer f.

Constraints

T>1 f>0

Output Format

Your task is to print your source code along with converted temparature into celcius(print ceiling value). see output format.

Sample Input 0

```
2
240
120
```

Sample Output 0

```
Case 1:
Source Code:
#include<stdio.h>
#include<math.h>
int main()
{
int c,f;
scanf("%d",&f);
c=ceil((f-32)/9.0*5);
printf("%d\n",c);
return 0;
}
Output:
116
Case 2:
```

```
Source Code:
#include<stdio.h>
#include<math.h>
int main()
{
int c,f;
scanf("%d",&f);
c=ceil((f-32)/9.0*5);
printf("%d\n",c);
return 0;
}
Output:
49
```

Solution:

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

using namespace std;

int main()

{

string a= "Source Code:\n#include<stdio.h>\n#include<math.h>\nint
main()\n{\nint c,f;\nscanf(\"%d\",&f);\nc=ceil((f-
32)/9.0*5);\nprintf(\"%d\\n\",c);\nreturn 0;\n}\nOutput:\n";

    int t;

    cin>>t;

    for(int i=1; i<=t; i++)

    {

        int c,f;

        scanf("%d",&f);

        c=ceil((f-32)/9.0*5);
```

```cpp
        cout<<"Case "<<i<<":\n"<<a<<c<<endl;
    }
    return 0;
}
```

Suddenly Life Becomes Busy!!

- **Problem**

- *Submissions*

Our dashing hero Danny has recently got married and that has created a lot of problems for him, at least that is what his friends think. So many broken promises, so many missed ap- pointments and dinners. Err! Danny, now is losing tracks of even simplest of calculations, so you must help him to decide whether he can at- tend his meeting or not. Danny is busy with his wife for a large portion of the day. This large portion is denoted by a starting time and an ending time. Then Danny has an important meeting in a day, he misses that if it overlaps or touches (For example, if Danny's time span with his wife

nishes at 18:00 and the meeting starts at 18:00 then the two schedules con ict and Danny misses the meeting) the time scheduled for his wife. Given the time span Danny has allotted for his wife and the time span of the meeting you, will have to find whether Danny misses that meeting or not.

Input Format

First line of the input file contains an integer N ($0 < N < 2001$) which denotes how many sets of inputs are there. The input for each set is given in two lines. The description for each set is given below: First line of each set contains two strings separated by a single space. These two strings denote the time span Danny is busy with his wife. The second line also contains two strings which denotes the time when Danny has to attend a meeting. All the strings that denote time are of the format hh:mm (two digit for hour and two digit for minute). For example " forty five past eight" (Morning) is denoted as "08:45","forty five past 9" (night) is denoted as "21:45". You can assume that all times are valid 24-hour clock time, starting time strictly precedes ending time and all times are within a single day.

Constraints

$0 < N < 2001$

Output Format

For each set of input produce one line of output. This line contains the serial of output followed by a string which denotes Danny's decision. If Danny can attend the meeting then print "Hits Meeting" and if Danny misses (Mrs) the meeting as it con icts with the time allotted for his wife print "Mrs Meeting" instead.

Sample Input 0

```
3
17:47 22:40
06:18 17:04
10:44 17:05
01:11 01:27
03:36 19:02
14:33 15:24
```

Sample Output 0

```
Case 1: Hits Meeting
Case 2: Hits Meeting
Case 3: Mrs Meeting
```

Solution:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main() {
    int t;
    scanf("%d",&t);
    for(int i=1;i<=t;i++){
        int wh1, wm1, wh2, wm2, oh1,om1, oh2, om2;
        scanf("%d:%d %d:%d", &wh1, &wm1, &wh2, &wm2);
        wh1 = wh1*60 + wm1;
        wh2 = wh2*60 + wm2;
        scanf("%d:%d %d:%d", &oh1, &om1, &oh2, &om2);
        oh1 = oh1*60 + om1;
        oh2 = oh2*60 + om2;
        if(wh2 < oh1 || wh1 > oh2)
            printf("Case %d: Hits Meeting\n",i);
        else
            printf("Case %d: Mrs Meeting\n",i);

    }
    return 0;
}
```

I love Bangladesh

-

-

Bangladesh is a small country of south Asia. It was free from Pakistan in 1971. For the liberation many people (about 30 lacks) sacrificed their lives. It has an area of about 1 lack 47 thousand 5 hundred and 70 Square kilometer. The capital city of Bangladesh is Dhaka. Almost of our country speak the Bengali language. In 1952 we gained our mother tongue. It was a glorious acquisition for us. Although Bangladesh is a small country but a large number of people lives their (about 16 core). Normally Bangladesh is independence it can be tell but actually the people of Bangladesh is not free from financial problems. We are mainly Muslims but Hindus, Buddhists and Christians also live here. Bangladesh has many age old traditions. People observe different festivals on different occasions. EID-UL-FITAR, EID-UL- AZHA, Pahela Baishakh etc are the most common traditions. Naturally Bangladesh is so beautiful. Bangladesh is a River-irrigated country. The Padma, The Meghna and The Jamuna are the main big Rivers of this country. Jute, Rice, Tea, Sugarcane, fruit, Cotton etc are the main crops of the country. Without these Bangladesh has a big Mangrove forest name's 'Sundarban" and a longest Sea beach name's Cox's Bazar. The national beast of this country is Royal Bengal Tiger. The national game of Bangladesh is Hadudu. The national bird is Doyel. The national flower is Shapla. The national fruit of the country is Jack-fruit. The shatgombuj Mosque, The Buddhist Bihar, Mahastangar etc are also visible place. By consideration whole side Bangladesh is so beautiful. So I feel proud for my country

Input Format

No input.

Constraints

0<=n

Output Format

Print a integer number 'n' that indicates how many times "Bangladesh" word has been used in this page.

Solution:

```cpp
#include <iostream>
using namespace std;
int main() {
    printf("13\n");
    return 0;
}
```

Help Anjan!!!

locked

Anjan Nandy is a student of CSE department of USTC. He is very Lazy Boy. One Day he is playing a interesting game with his friend Efty. The game is like that, efty has to make a string with some latter, anjan's task is to sort the string with decending order & find how many times he has to swapping for this sort. But for his lazyness he wants to make a program to solve the problem... So he wants to hire you for writting the code to solve the problem.

Note: 1. If string starts with latter than all character of the string will be latter without space.

2. If string starts with number than all character of strings will be number without space.

3. String is not case-sensitive.

Input Format

Input will start with test case t (0

Constraints

0

Output Format

Print a integer number N that denotes the number of swapping.

Sample Input 0

```
3
152
jhk
1523
```

Sample Output 0

```
Case 1: 2
Case 2: 2
Case 3: 4
```

Solution:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int t;
    cin>>t;
    for(int i=1; i<=t; i++)
    {
    string a;
    char temp;
    int sum=0;
    cin>>a;
    for(int i=a.length()-1; i>=0; i--)
    {
        for(int j=i-1; j>=0; j--)
        {
            if(toupper(a[i])>toupper(a[j]))
            {
                temp = a[j];
                a[j] = a[i];
                a[i] = temp;
                sum++;
            }
```

```
        }

    }

    cout<<"Case "<<i<<": "<<sum<<endl;

    }

}
```

Corona

- **Problem**

-

If you are affected by corona you are corona positive and you need to be quarantined otherwise you are safe

Input Format

Input will be terminated by EOF. each line of input starts with a string S that indicates that are you affected by corona or not.

Constraints

length of S is greater than 0

Output Format

You should print "You are corona positive" if the answer S is corona otherwise print "You are safe" with quotes. Remember the compiler is not case sensitive.

Sample Input 0

```
corona
influenza
```

Sample Output 0

```
"You are corona positive"
"You are safe"
```

Solution:

```cpp
#include<bits/stdc++.h>
using namespace std;
int main()
{
    char a[1000];
    while(scanf("%s", a)==1)
    {
        for(int i=0; i<strlen(a); i++)
        {
            a[i]=tolower(a[i]);
        }
        if(strcmp(a, "corona")==0)
        {
            printf("\"You are corona positive\"\n");
        }
        else
        {
            printf("\"You are safe\"\n");
        }
    }

}
```

Validity check

locked

- **Problem**

-

suppose, Number = 245 and Base = 8 then given Number is valid in base 8 but when Number = 248 in Base 8 Number is not valid in the base because 8 is not a digit of a Base 8. similarly, Number 374 in Base 6 is not valid because 7 is not a digit of base 6. Generally, In Base 'n', the valid digits are 0 to n-1.

Input Format

Input starts with a integer T. Following T lines contains 2 integers Number and Base.

Constraints

Number>0 and Number<100000000000, Base >1 and Base<11

Output Format

Print "Valid" if given number exists in the given base otherwise print "invalid" with quotes

Sample Input 0

```
3
987654321 10
101111111 8
24557898 2
```

Sample Output 0

```
Valid
Valid
Invalid
```

Solution:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int t;
    cin>>t;
    while(t--)
    {
        char a[10000];
        int i=0, c;
        scanf("%s", a);
        scanf("%d", &c);
        for(int j=0; j<strlen(a); j++)
        {
            if((a[j]-48)>=c)
            {
                i=1;
                printf("Invalid\n");
                break;
            }
        }
```

```c
    if(i==0)
    {
        printf("Valid\n");
    }
  }
}
```

Convert a number into single digit

- **Problem**

-

suppose, N= 3456 and B=10 where N is the number and B is the base number. so, the converted single digit of N will be 9. 3+4+5+6=18 1+8=9. but in case, N=3456 and B=8. The converted single digit will be 4. 3+4+5+6=22 2+2=4 so you have given N and B. your task is to find the converted single digit of base B. Do not worry - Valid Number N of base B will be provided for you in the test case. Each base B contains digits from 0 to B-1.

Input Format

Each line will have two inputs N and B. Input will be terminated by EOF.

Constraints

N>0 and N<10000, B>1 and B<11

Output Format

Just show the converted single digit of base B

Sample Input 0

```
3456 10
3456 8
3456 9
```

Sample Output 0

```
9
4
2
```

Solution:

```cpp
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int N,B;
    while(scanf("%d%d",&N,&B)==2){
        int X=0,K=0;
    if(B==10)
    {
      s:
      while(N>0)
      {
        X=X+N%10;
        N=N/10;
      }
      if(X>9)
      {
        N=X;
        X=0;
        goto s;
      }
    }
    else
```

```cpp
    {
       x:
        while(N>0)
        {
            X=X+N%10;
            if(X>=B){
                X=X-B;
                K++;
            }
            N=N/10;
        }
        X=X+K*10;
        K=0;
        if(X>=B)
        {
            N=X;
            X=0;
            goto x;
        }
    }
    cout<<X<<endl;
    }
    return 0;
}
```