

# National Id Card

locked

- [Problem](#)
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Maruf is 'N' years old. Recently he wants to take a computer course in a Training Center. To get admission he has to submit his nid number to the training center. But unfortunately he has not apply for nid card yet. Now your task is to find that his age is eligible for nid card or not.

## Input Format

Input is a integer numbe N which denotes the age of maruf. Input will be terminated by EOF.

## Constraints

$0 \leq N \leq 100$

## Output Format

Print "Yes." for being eligible or "No." for not being eligible. Each output ends with new line.

## Sample Input 0

```
19
14
20
```

## Sample Output 0

```
Yes.
No.
Yes.
```

Solution:

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

```
using namespace std;

int main()
{
    freopen("test.txt", "r", stdin);
    int n;
    while(scanf("%d", &n)==1)
    {
        if(n>=18)
            printf("Yes.\n");
        else
            printf("No.\n");
    }
    return 0;
}
```

# Possible ways of standing to collect ticket

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There are n lines in a ticket counter to collect the ticket. But the space of each line is not same. If you want to collect ticket from even line you should stand horizontally by maintaining a space with other people and you should stand vertically if you want to collect ticket from odd line in ticket counter. Remember, Each line 'i' can accomodate only 'i' person. Consider following figure(here 4 lines are available in a ticket counter):

| Ticket Counter |        |             |         |
|----------------|--------|-------------|---------|
| Line 1         | Line 2 | Line 3      | Line 4  |
| 1              | 1 2    | 1<br>2<br>3 | 1 2 3 4 |

Your task is to show the output in which way i person can stand in i'th line.

## Input Format

There are several test cases. Input will be terminated by EOF. Each line of input starts with an integer N that represents how many lines of ticket counter is available to collect ticket.

## Constraints

$N > 0$  and  $N \leq 100$

## Output Format

Your task is to show the possible ways of standing in the line to collect the ticket for N available lines. Print "Test Case #:" before each test case where # indicates test case no. Consider Format given in the sample output section.

### Sample Input 0

5

### Sample Output 0

Test Case 1:

Line 1:

1

Line 2:

1 2

Line 3:

1

2

3

Line 4:

1 2 3 4

Line 5:

1

2

3

4

5

Solution:

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

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int n, t=1;
```

```
    while(scanf("%d", &n)==1)
```

```
    {
```

```
        printf("Test Case %d:\n", t++);
```

```
for(int i=1; i<=n; i++)
{
    printf("Line %d:\n", i);
    if(i%2==0)
    {
        for(int j=1; j<=i; j++)
            printf("%d ", j);
        printf("\n");
    }
    else
    {
        for(int j=1; j<=i; j++)
            printf("%d\n", j);
    }
}
return 0;
}
```

# Loop the string

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Make a program that will take two words A & B as input & give output in a special pattern [showed in sample output] of word A if both are same.

## Input Format

first input is integer T means test case. 2nd and 3rd input are A & B where  $A, B \leq 10$ .

Note: Input are not case sensitive.

## Constraints

$T \leq 100$

$A \leq 10$

$B \leq 10$

## Output Format

Output will be same as showed pattern in sample output if the words are same. Note, the output letter is in uppercase.

If the words are not same it will print "Not Same." Without quotation.

After each set output, a new line will be printed.

## Sample Input 0

```
4
book BooK
ajjak Kajjak
Football Football
no kno
```

## Sample Output 0

```
Case 1:
```

```
B
00
000
KKKK
Case 2:
Not Same.
Case 3:
F
00
000
TTTT
BBBBB
AAAAAA
LLLLLLL
LLLLLLLL
Case 4:
Not Same.
```

Solution:

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

using namespace std;

int main()
{
    string a, b;
    int t;
    scanf("%d", &t);
    for(int i=1; i<=t; i++)
    {
        cin>>a>>b;
        for(int j=0; j<a.length() || j<b.length(); j++)
```

```
{  
    a[j] = toupper(a[j]);  
    b[j] = toupper(b[j]);  
}  
if(a==b)  
{  
    printf("Case %d:\n", i);  
    for(int j=0; j<a.length(); j++)  
    {  
        for(int k=0; k<=j; k++)  
            cout<<a[j];  
        cout<<endl;  
    }  
}  
else  
    printf("Case %d:\nNot Same.\n", i);  
  
}  
}
```



# Feed The Cow 1

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Nasim is a cowboy. One day he went to the field with his cow. He bonnd his cow with a rope & a stake. he kept some grass in a basket near the cow. Suddenly he felt tired & slept under a tree. After sometimes the cow felt very hungry. It saw the grass on the basket & ran away towards the basket. Now your task is to find out the result that the cow can reach to the basket or not.

Note:

1. You are given Co-ordinates of two points
  - a. last point the rope (a1, a2)
  - b. point of the basket (b1, b2)
2. Co-ordinates of the stake point always (0,0) {begining point of the rope}

## Input Format

There are several test cases. Input will be terminated by EOF. Each line of input starts with 4 numbers (a1, a2, b1, b2) that represents the Co-ordinates of two points.

## Constraints

$0 \leq a1, a2, b1, b2 \leq 100$

## Output Format

Print "Yes." if the cow can reach to the basket. Otherwise print "No."

## Sample Input 0

```
5 5 5 5
4 2 5 2
5 6 6 5
```

## Sample Output 0

Yes.  
No.  
Yes.

Solution:

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

using namespace std;

int main()
{
    freopen("test.txt", "r", stdin);
    double a1, a2, b1, b2;
    while(scanf("%lf%lf%lf%lf", &a1, &a2, &b1, &b2)==4)
    {
        double sum1, sum2;
        sum1 = sqrt((a1*a1)+(a2*a2));
        sum2 = sqrt((b1*b1)+(b2*b2));
        if(sum2<=sum1)
            printf("Yes.\n");
        else
            printf("No.\n");
    }
}
```

# The Unfortunate Gamble

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**Taniya** is a mad cricket-loving girl. Now she's in Australia to watch the **2020 ICC Men's T20 World Cup**.

She's a big fan of the England cricket team. She never misses a single match.

Yesterday was a very bad night for Taniya. The semifinal match between **England** and **New Zealand** happened. The night before the match, her friend Sam challenged her a bet on the match.

**Sam** challenged that England will never win the match. As Taniya is a big fan of England, she spent a huge amount of money on the bet.

Unfortunately, England lost the match, and so did Taniya. Now she's trying to calculate how much she lost in the bet. But she only remembers the amount she had before the match, and the amount she has now. **She wants to know how much money she lost in percentage**. Taniya is very weak in math, so she's having trouble calculating. So she comes to you, another good friend of hers. **Taniya** knows you're a good programmer, so she wants you to write a program for her that'll do the task.

**You have to write a program that'll calculate the money she lost in percentage. You'll be given two numbers, the money she had before and the money she has after the match.**

Taniya promised that she'll buy you a drink if you help her.

## Input Format

The input consists of two numbers, **n** and **k** ( $1 \leq k \leq n \leq 10^5$ ), where **n** and **k** denotes the **amount of money** she had before and after the match. Input will be terminated by EOF.

## Constraints

$$1 \leq k \leq n \leq 10^5$$

## Output Format

Print a number, the percentage of loss in the gamble. **If the result is a fraction, print the integer part only.**

**Sample Input 0**

1000 800

**Sample Output 0**

20

**Sample Input 1**

984 256

**Sample Output 1**

73

Solution:

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n, k;
    while(scanf("%d%d", &n, &k)==2)
    {
        n = ((n-k)*100)/n;
        cout<<n<<endl;
    }
    return 0;}
```

# The $3n + 1$ Return

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Consider the following operation on an arbitrary positive integer,  $P$ :

- If the number,  $P$  is even, divide it by two.
- If the number,  $P$  is odd, triple it and add one.

The conjecture is that no matter what value of the starting number, the sequence will always reach 1.

Your task is to find out how many iteration 'I' needed to reach to 1.

## Input Format

Each input starts with a value  $T$ , the number of test case. Next  $T$  line contains an integer,  $P$ .

## Constraints

$0 < T < 100$   
 $0 < P \leq 10^5$

## Output Format

For each case you need to find out  $I$ . If the value of 'I' less then 100 you should print "Low Iteration Value!", if the value of 'I' greater then 100 then you should print "High Iteration Value!" else print "Perfect!"

## Sample Input 0

```
3
12
17
12343
```

## Sample Output 0

```
Low Iteration Value!
Low Iteration Value!
High Iteration Value!
```

Solution:

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

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int t;
```

```
    scanf("%d", &t);
```

```
    while(t--)
```

```
    {
```

```
        long long i=0, n;
```

```
        scanf("%lld", &n);
```

```
        while(n!=1)
```

```
        {
```

```
            if(n%2)
```

```
                n=(n*3)+1;
```

```
            else
```

```
                n/=2;
```

```
            i++;
```

```
        }
```

```
        if(i<100)
```

```
        printf("Low Iteration Value!\n");  
    else  
        printf("High Iteration Value!\n");  
  
    }  
}
```

# Tricky Difference

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You have 3 numbers A, B and C.

Your task is to find the mean of them and difference between mean and those numbers.

## Input Format

Each line of input contains 3 numbers.

## Constraints

$0 < A, B, C < 10^7$

## Output Format

For each line of input you have to print which number/numbers have minimum difference from the mean value.

## Sample Input 0

```
8 9 10
10 50 50
35 25 30
```

## Sample Output 0

```
B
B C
C
```

Solution:

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

```
using namespace std;
```



```
int main()
{
    double a, b, c, d;
    while(scanf("%lf%lf%lf", &a, &b, &c)==3)
    {
        d=(a+b+c)/3;
        a=abs(a-d);
        b=abs(b-d);
        c=abs(c-d);
        d = min(a, min(b, c));
        if(a==d)
            printf("A ");
        if(b==d)
            printf("B ");
        if(c==d)
            printf("C ");
        printf("\n");
    }
    return 0;
}
```

# Find Smallest One

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There are 'N' bins in a room. In each bin, there will be 'm' quantities of number card(integer) in each bin. From those 'm' quantities of number card you have to find smallest number card of each bin and the position you have found the number card. See output format. Suppose, There are 4 bins and 5 number card in each bin. see following figure:

|              |              |              |              |
|--------------|--------------|--------------|--------------|
| 5            | 3            | 30           | 13           |
| 67           | 4            | 43           | 45           |
| 4            | 2            | 22           | 26           |
| 3            | 12           | 122          | 128          |
| 1            | 66           | 664          | 662          |
| <b>Bin 1</b> | <b>Bin 2</b> | <b>Bin 3</b> | <b>Bin 4</b> |

Smallest number cards are 1(position 5), 2(position 3), 22(position 3), 13(position 1) in 1st, 2nd, 3rd and 4th bin respectively.

## Input Format

Each test case starts with two integers 'N' and 'm' represents bin no and quantities of number card. After that there will be 'N' lines. Each line (represents bin no.) contains 'm' integer inputs for each bin indicates value of number card. Input will be terminated by EOF.

## Constraints

$0 < N \leq 1000$  and  $-32767 < m \leq +32767$

## Output Format

Print "Test Case #:" where # indicates test case no. Then show "Bin @:" where @ represents bin no in a new line. Then Show the smallest card number of that bin and its position in the bin. see the format in sample output section.

### Sample Input 0

```
4 5
5 67 4 3 1
3 4 2 12 66
30 43 22 122 664
13 45 26 128 662
2 4
23 33 21 20
77 23 129 30000
```

### Sample Output 0

```
Test Case 1:
Bin 1:Smallest number card - 1 , position - 5
Bin 2:Smallest number card - 2 , position - 3
Bin 3:Smallest number card - 22 , position - 3
Bin 4:Smallest number card - 13 , position - 1
Test Case 2:
Bin 1:Smallest number card - 20 , position - 4
Bin 2:Smallest number card - 23 , position - 2
```

### Solution:

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

using namespace std;

int main()
{
    int n, m, a, k, h, p=1;
    while(scanf("%d%d", &n, &m)==2)
    {
        printf("Test Case %d:\n", p++);
        for(int i=1; i<=n; i++)
```

```
{
    k=999999;
    for(int j=1; j<=m; j++)
    {
        scanf("%d", &a);
        if(a<k)
        {
            h=j;
            k=a;
        }
    }

    printf("Bin %d:Smallest number card - %d , position - %d\n", i, k, h);
}

return 0;
}
```

# LOVE USTC!!!

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- [Problem](#)
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University of Science & Technology Chittagong (USTC) (Bengali: বিজ্ঞান ও প্রযুক্তি বিশ্ববিদ্যালয়, চট্টগ্রাম) is a first private university in Bangladesh. The university was established with the sponsorship of a private charity on May 13, 1989. Previously it was started as Institute of Applied Health Sciences (IAHS), later it was upgraded to USTC as a full phased university after the promulgation of the Private University Act, 1992. In January 2018 IAHS renamed as Dr Nurul Islam Memorial Institute of Applied Health Science.

Vision UNIVERSITY OF SCIENCE AND TECHNOLOGY CHITTAGONG (USTC) envisions promoting professionals and excellent leadership catering to the technological progress and development needs of the country.

Mission UNIVERSITY OF SCIENCE AND TECHNOLOGY CHITTAGONG (USTC) is committed to provide quality and excellent computer-based academic programs responsive to the emerging challenges of the time. It is dedicated to nurture and produce competent world class professional imbued with strong sense of ethical values ready to face the competitive world of arts, business, science, social science and technology.

Quality Policy “Quality shall be adhered to in conformity with the prescribed national and international standards of quality and excellence including those provided by the professional bodies and organizations. The University of Science and Technology Chittagong is committed to translate into actions the programs, projects and activities related to the sustainable delivery of quality management operation system. The students being the valued customers are the central focus of the university shall be provided with utmost care and attention to meet their primordial needs and future career success. In view of this commitment, the university shall exert best efforts to harmonize its action through collaboration, cooperation and consultation with every unit and components of the university.”

Goals ☐ Sustain development and progress of the university ☐ Continue to upgrade educational services and facilities responsive of the demands for change and needs of the

society □ Inculcate professional culture among management, faculty and personnel in the attainment of the institution's vision, mission and goals □ Enhance research consciousness in discovering new dimensions for curriculum development and enrichment □ Implement meaningful and relevant community outreach programs reflective of the available resources and expertise of the university □ Establish strong networking of programs, sharing of resources and expertise with local and international educational institutions and organizations □ Accelerate the participation of alumni, students and professionals in the implementation of educational programs and development of projects designed to expand and improve global academic standards

Your task is very simple. You have to just print "LOVE USTC".

### **Input Format**

Here is not input. You have to just print the out put. Sample code is below here:

```
#include <stdio.h>
int main()
{
    printf("LOVE USTC!!!\n");
    return 0;
}
```

### **Constraints**

0

### **Output Format**

Print "LOVE USTC!!!" without quotation mark.

### **Sample Output 0**

LOVE USTC!!!

Solution:

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    printf("LOVE USTC!!!\n");
```

```
    return 0;
```

```
}
```