ACM-UCLA Tie-breaker Programming Contest 2011

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Universidad Centroccidental Lisandro Alvarado

Contest session

This problem set contains 4 problems; pages are numbered from 1 to 4.

Problem A

Angry Pigs

Source file name: `angry.c`, `angry.cpp` *or* `angry.java`
You must read from standard input and write to standard output.

Birds fall from the sky, destroying our bases! We took their eggs, I know, but it is not personal, we have to eat…

Yes, the problem, they come from everywhere and we need to stop them right now. That's your job, little piggy, tell us if they can brake our defenses, one of our *pig-with-a-funny-Mexican-hat* generals found that a bird move in uniform speed of x pixels for every s seconds, if the bird is faster than k pixels per second, they will destroy our resistance and catch us. We are in danger! So go to work!

Input

There are several cases, each consists of a line with three integers x, s and k separated by whitespaces, where $1 \leq x, s, k \leq 10^4$. The input ends with $x = s = k = 0$, this case shouldn't be processed.

Output

For each case, print "May the Force pig with us." (without quotes) if they can brake our defenses, or "The pig empire!" (again, without quotes) if they can't.

Sample input

```
5 6 3
8 3 2
0 0 0

```

Sample output

```
The pig empire!
May the Force pig with us.

```

Problem B

Bored Night

Source file name: `bored.c`, `bored.cpp` *or* `bored.java`
You must read from standard input and write to standard output.

Well, here is another math class task for your boring nights of wasting time. In mathematics GCD is the greatest common divisor. First, a common divisor for two positive numbers is a number which both numbers are divisible by, the greatest common divisor is, well, the largest of them.

It's an easy task to calculate the value for two positive integers with Euclidean algorithm:

```
int gcd (int a, int b) {
   if (b == 0)
          return a;
   else
          return gcd(b, a % b);
}
```

In this task you have to find the greatest common divisor d between two integers P and Q that is in a given range, from low to $high$ (inclusive), i.e. $low \leq d \leq high$. It is possible that there is no common divisor in the given range.

Input

The first line contains a integer Z ($1 \leq Z \leq 1000$), the test case numbers. For each test case there is a line with two integers P and Q, the two integers as described above ($1 \leq P, Q \leq 10^9$). The next line contains one integer n, the number of queries ($1 \leq n \leq 10^4$). Then n lines follow, each line contains one query consisting of two integers, low and $high$ ($1 \leq low \leq high \leq 10^9$).

Output

For each test case print n lines. The i-th of them should contain the result of the i-th query in the input. If there is no common divisor in the given range for any query, you should print -1 as a result for this query.

Sample input

```
1
9 27
3
1 5
10 11
9 11

```

Sample output

```
3
-1
9

```

Problem C

Clowns

Source file name: `clowns.c`, `clowns.cpp` *or* `clowns.java`
You must read from standard input and write to standard output.

I don't like clowns, you either. In fact, they run away from us, the Association of Clown Murderers, we keep the red nose of every clown we take down.

They transport themselves in those little scary vehicles, a dozen get in, and a dozen get out. Nobody knows what happen; it's some kind of black hole or Felix magic bag. We believe that there are no more clowns exiting of the vehicle than those that get in.

In fact, we have been tracking about how many clowns get in and how many get out in a particular vehicle; you must help us to prove our theory. We suppose that the vehicle is empty at start.

Input

The input consists of several cases, each in a line and contains an integer n, $1 \leq n \leq 100$, followed by n integers a_i ($1 \leq |a_i| \leq 10^7$), if a_i is positive means that a_i clowns got into to the vehicle at the time, and if it's negative means that $-a_i$ clowns got out, the values are given in the order they occur. The last case is followed by the line "0" (quotes for clarity.)

Output

You must write for each case a line with "Right" if the events support our theory, or "Wrong" elsewhere, without the quotes in both cases.

Sample input

```
5 3 4 -5 2 -1
6 2 -3 4 1 2 -10
0

```

Sample output

```
Right
Wrong

```

Problem D

Drop Stones

Source file name: `drop.c`, `drop.cpp` *or* `drop.java`
You must read from standard input and write to standard output.

Do you know about Game of Nim? It's a simple game for two players. At first there n stacks of stones, where i-th stack has a_i stones. At any turn, the player chooses a non-empty stack and removes one or more stones from that stack, if all the stacks are empty then the player loses the game and the other one wins.

Let's say that Alice and Bob are playing the game, Bob plays first. Who would win if they play optimally, i.e. if a player has a strategy to win no matter what the other one does, he will follow it.

Input

There will be multiple test cases, each one with 2 lines, the first with a integer n, the number of stacks ($1 \leq n \leq 10^3$) and the second with n integers a_i ($1 \leq a_i \leq 10^8$). The input ends with EOF.

Output

For each case print the name of the winner of the case.

Sample input

```
3
1 4 2
3
1 5 4

```

Sample output

```
Alice
Bob

```