

# Odd Cycle Check

Time limit: 1000 ms  
Memory limit: 128 MB

`</>Template` `≡Interactive`

In a distant country there are  $n$  ( $1 \leq n \leq 10^4$ ) cities, but there aren't any roads connecting them. To make things better, the king of the country has decided to build exactly one road every day, the  $i^{th}$  road connecting two distinct cities  $a_i$  and  $b_i$ . Because the country has the technology to build bridges and tunnels, you can assume two roads never intersect.

The system of roads is *special* if it's possible to start in some city  $a$ , move along an **odd** number of roads and end up in the starting city  $a$ .

Your goal is to find the first day when the system of roads becomes special. This problem is interactive, meaning you'll have to communicate with a special program called the *interactor*. More details follow below.

## Interaction

First you should read a single integer  $n$ .

Each of the following lines contains two integers  $a$  and  $b$ , representing two cities connected by a new road.

After reading every pair of integers  $a$  and  $b$ , you should output 1 if the graph is not special, or 0 if it just became special. In case you print 0, your program should stop.

**Warning:** You should print your answer (0 or 1) **before** reading the next line of input.

**Warning 2:** Don't forget to flush after every output operation!

## Constraints and notes

- $3 \leq n \leq 10^4$
- It is guaranteed the system of roads will become special in the first  $2 * 10^4$  days.

Interaction		
<div>4</div> <div>1 4</div>		<div>1</div>
<div>2 1</div>		<div>1</div>
<div>3 2</div>		<div>1</div>
<div>4 2</div>		<div>0</div>
<div>4</div> <div>1 2</div>		<div>1</div>
<div>1 3</div>		<div>1</div>
<div>4 2</div>		<div>1</div>
<div>3 4</div>		<div>1</div>
<div>4 1</div>		<div>0</div>
<div>5</div> <div>1 2</div>		<div>1</div>
<div>2 3</div>		<div>1</div>
<div>3 4</div>		<div>1</div>
<div>4 5</div>		<div>1</div>
<div>5 1</div>		<div>0</div>
<div>6</div> <div>1 3</div>		<div>1</div>
<div>5 6</div>		<div>1</div>
<div>4 3</div>		<div>1</div>
<div>4 6</div>		<div>1</div>
<div>3 5</div>		<div>1</div>
		<div>1</div>

Interaction

6 1

1

2 1

1

2 4

1

3 6

0