

# Tree Constructor

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            1 second  
Memory limit:         256 megabytes

MianKing has a Graph Constructor : The input of it is a sequence  $a_{1..n}$  ( $0 \leq a_i < 2^{60}$ ) and the output of it is an undirected graph with  $n$  nodes, edge  $(x, y)$  is in this graph if and only if  $(a_x \text{ or } a_y) = 2^{60} - 1$

For example, if the input is  $a_{1..3} = \{2^{60} - 1, 2^{60} - 2, 1\}$ , the output is the graph  $\{(1, 1), (1, 2), (1, 3), (2, 3)\}$

Now GreenKing has a tree with  $n$  nodes, MianKing wants to find a sequence as input to get this tree. You need to help him find a sequence satisfy the condition.

## Input

The first line has one integer  $n$ .

Then there are  $n - 1$  lines, each line has two integers  $(x, y)$  denotes an edge in the tree.

$1 \leq n \leq 100$ .

## Output

Output  $n$  integers  $a_{1..n}$  denotes the sequence you find.

You should guaranteed that  $0 \leq a_i < 2^{60}$

It's guaranteed that the solution always exists.

## Example

standard input	standard output
3 1 2 2 3	1 1152921504606846974 1