

# Twist and whirl - want to cheat

[English](#)

[Vietnamese](#)

A well-known sharper I\*\*\* invented a new way to swindle people. There are  $N$  thimbles on the table, and there is a small ball with the number under each of them. The balls are numbered with numbers from 1 to  $N$  from left to right. At one operation I\*\*\* changes the order of some subsequence of successive thimbles to the opposite. Your task is to find the order of numbers (from left to right) in sequence after all of his manipulations. The total number of manipulations is  $M$ .

## Input

The first line contains two integer numbers  $N$  and  $M$  ( $1 \leq N \leq 100000$ ,  $1 \leq M \leq 100000$ ) separated by a space. Each of the following  $M$  lines contains two integer numbers  $P_i, Q_i$  ( $1 \leq P_i \leq Q_i \leq N$ ) - positions of the leftmost and rightmost thimbles in rotated sequence.

## Output

Output the sequence of  $N$  numbers - the numbers of balls in the thimbles from left to right.

## Sample

### Input

```
5 2
1 3
4 5
```

### Output

```
3 2 1 5 4
```

### Input

```
5 2
1 4
2 5
```

### Output

```
4 5 1 2 3
```

**Note: A naive solution would result in TLE. Have fun!**