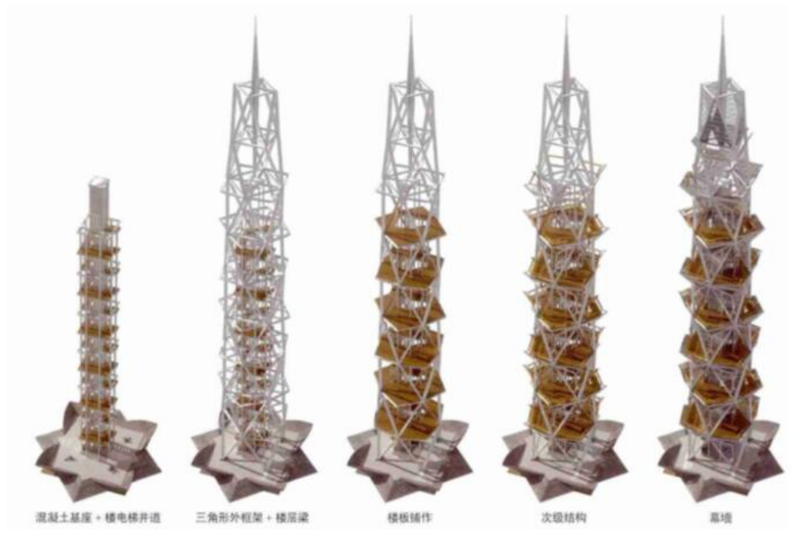
Welcome Game!

Description

Motivation

The new semester begins, and freshmen flood into ShanghaiTech. In order to welcome these new friends, a welcome game is held every year.[hw1.pdf]

Last year, a material tower model was left, waiting for a lucky buddy this year. New crazy game rules are designed for it. Only one person can derive this amazing model!



Game rule

1. "m" freshmen stand in a ring, and everyone is assigned an ID from 1 to "m" . ("m" is a positive integer) sequently. The game is round-based.
2. The first round begins at person with ID 1 in the circle. A counting proceeds around the circle following the ascending order(of ID), skipping n - 1 people, and removing the n_th player out of the game. (m <= n)
3. The i_th round begins after the person removed from the last round. A counting proceeds around the circle again following the ascending order(of ID), skipping n - i people, and removing the (n - i + 1)_th player out of the game.(1 <= i <= m - 1).
4. The game ends after m - 1 round, left with a winner.

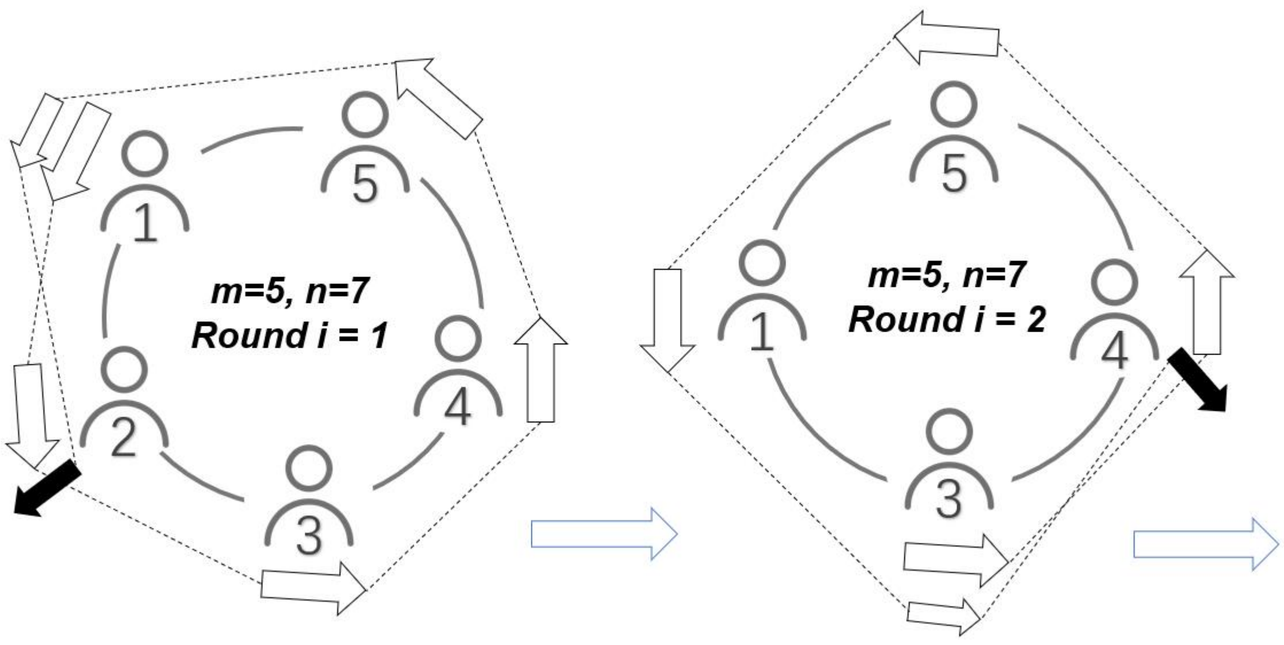


figure 1: the visualization of m = 5, n = 7

Goal

Your friend begs you to "hack" this game, since some position in this ring is sure to belong to the winner. You cannot wait to construct a script to figure out that position by C/C++.

Input

Two postive integer, "m"and "n"(1 <= m <= n), separated by a space.

For 50% cases, 1<=m<=n<=6000;

For 100% cases, 1<=m<=n<=100000, m*n<=10^9.

Output

A postive integer "p" (1 <= p <= m), denoting the ID of winner.

Sample Input 1

```
100 200
```

Sample Output 1

```
22
```

Sample Input 2

```
2019 3000
```

Sample Output 2

```
104
```

Hint

Criterion

1. Review the C/C++ programming. After you manipulate the usage of the built-in array, you will reach the limited level (50 % of points).
2. After you manipulate the usage of the linked list, you will get the rest of points (100 % of points).
3. More fancy algorithms are welcome, but we strongly recommand you to practise the usage of the linked list.

Information

ID	1
Time Limit	1000MS
Memory Limit	256MB
IO Mode	Standard IO
Created By	root
Level	Low
Score	100
Tags	Show

Statistic Details