

## Problem A. Game of Throws

**Time Limit** 1000 ms

**Mem Limit** 1048576 kB

**OS** Linux

Daenerys frequently invents games to help teach her second grade Computer Science class about various aspects of the discipline. For this week's lesson she has the children form a circle and (carefully) throw around a petrified dragon egg.

The  $n$  children are numbered from 0 to  $n - 1$  (it is a Computer Science class after all) clockwise around the circle. Child 0 always starts with the egg. Daenerys will call out one of two things:

1. a number  $t$ , indicating that the egg is to be thrown to the child who is  $t$  positions clockwise from the current egg holder, wrapping around if necessary. If  $t$  is negative, then the throw is to the counter-clockwise direction.
2. the phrase `undo  $m$` , indicating that the last  $m$  throws should be undone. Note that undo commands never undo other undo commands; they just undo commands described in item 1 above.

For example, if there are 5 children, and the teacher calls out the four throw commands `8 -2 3 undo 2`, the throws will start from child 0 to child 3, then from child 3 to child 1, then from child 1 to child 4. After this, the `undo 2` instructions will result in the egg being thrown back from child 4 to child 1 and then from child 1 back to child 3. If Daenerys calls out 0 (or  $n$ ,  $-n$ ,  $2n$ ,  $-2n$ , etc.) then the child with the egg simply throws it straight up in the air and (carefully) catches it again.

Daenerys would like a little program that determines where the egg should end up if her commands are executed correctly. Don't ask what happens to the children if this isn't the case.

### Input

Input consists of two lines. The first line contains two positive integers  $n$   $k$  ( $1 \leq n \leq 30$ ,  $1 \leq k \leq 100$ ) indicating the number of students and how many throw commands Daenerys calls out, respectively. The following line contains the  $k$  throw commands. Each command is either an integer  $p$  ( $-10\,000 \leq p \leq 10\,000$ ) indicating how many positions to throw the egg clockwise or `undo  $m$`  ( $m \geq 1$ ) indicating that the last  $m$  throws should be undone. Daenerys never has the kids undo beyond the start of the game.

# Output

Display the number of the child with the egg at the end of the game.

## Sample 1

Input	Output
5 4 8 -2 3 undo 2	3

## Sample 2

Input	Output
5 10 7 -3 undo 1 4 3 -9 5 undo 2 undo 1 6	2