Baltic OI '03 P5 - Lamps

Time limit: 3.0s **Memory limit:** 64M

Baltic Olympiad in Informatics: 2003 Day 2, Problem 2

There is a castle with a circular main hall. There are N lamps numbered from 1 to N on the wall of the hall. Each of the lamps can be either on or off. At each second the lamp number i changes its state if the lamp number $i+1$ is on, except the lamp number N changes its state if the lamp number 1 is on.

Your task is, given the initial states of all lamps at some moment, to find their states after M seconds.

Input Specification

The first line of the input contains two integers N $(0 < N \leq 10^6)$ and M $(0 \leq M \leq 10^9)$. The next N lines contain the initial states of the lamps, starting with the lamp number 1. A line containing 0 means that the lamp is off and 1 means that the lamp is on.

Output Specification

The output must contain exactly N lines describing the states of the lamps after M seconds, starting with the lamp number 1.

Sample Input

```
3 1
0
0
1
```

Sample Output

```
0
1
1
```