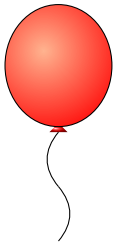

A: Blink

Unhappy with the dim lighting in his barn, Farmer John has just installed a fancy new chandelier consisting of N ($3 \leqslant N \leqslant 16$) lights bulbs arranged in a circle.

The cows are fascinated by this new light fixture, and enjoy playing the following game: at time T, they toggle the state of each light bulb if its neighbor to the left was turned on at time $T-1$. They continue this game for B units of time ($1 \leqslant B \leqslant 10^{15}$). Note that B might be too large to fit into a standard 32-bit integer.

Given the initial states of the light bulbs, please determine their final states after B units of time have elapsed.

Input

- Line 1: Two space-separated integers, N and B.
- Lines 2..$(N+1)$: Line $i+1$ contains the initial state of bulb i, either 0 (off) or 1 (on).

Output

- Lines 1..N: Line i should contain the final state of bulb i, either 0 (off) or 1 (on).

Sample Input

```
5 6
1
0
0
0
0
```

Sample Output

```
1
1
1
0
1
```

Sample Explanation

There are five light bulbs. The first is initially on, and the others are off.

The light bulb states are as follows:

Time	T=0	1	0	0	0	0
Time	T=1	1	1	0	0	0
Time	T=2	1	0	1	0	0
Time	T=3	1	1	1	1	0
Time	T=4	1	0	0	0	1
Time	T=5	0	1	0	0	1
Time	T=6	1	1	1	0	1