

Unhappy with the dim lighting in his barn, Farmer John has just installed a fancy new chandelier consisting of N ($3 \leq N \leq 16$) light 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 ($1 \leq B \leq 10^{15}$). 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.

PROBLEM NAME: blink

INPUT FORMAT:

* Line 1: Two space-separated integers, N and B .

* Lines 2..1+N: Line $i+1$ contains the initial state of bulb i , either 0 (off) or 1 (on).

SAMPLE INPUT (file blink.in):

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

INPUT DETAILS:

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

OUTPUT FORMAT:

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

SAMPLE OUTPUT (file blink.out):

```
1
1
1
0
1
```

OUTPUT DETAILS:

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