

## Lamps

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.** The first line of the input file `LAMPS.IN` 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.** The output file `LAMPS.OUT` must contain exactly  $N$  lines describing the states of the lamps after  $M$  seconds, starting with the lamp number 1.

<b>Sample.</b>	<code>LAMPS.IN</code>	<code>LAMPS.OUT</code>
	3 1	0
	0	1
	0	1
	1	