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.

Sample.

LAMPS.IN	LAMPS.OUT
3 1	0
0	1
0	1
1	