

Problem L. XOR Transformation

Input file: *standard input*
 Output file: *standard output*
 Time limit: 2 seconds
 Memory limit: 1024 mebibytes

You are given an integer array of length N : $X = [x_0, x_1, \dots, x_{N-1}]$.

Let us define a transformation of X , which is $F_k(X) = [f_{k,0}(X), f_{k,1}(X), \dots, f_{k,N-1}(X)]$, as follows:

- k is an integer between 1 and N , inclusive.

- $f_{k,i}(X) = \bigoplus_{j=0}^{k-1} x_{(i+j) \bmod N}$, where i is an integer between 0 and $N-1$, inclusive, and \oplus is bitwise XOR.

You are also given two integers T and K . Calculate the value $F_K^T(X)$ and print it. Note that $F_K^1(X) = F_K(X)$ and $F_K^t(X) = F_K(F_K^{t-1}(X))$ for $t > 1$.

Input

The first line contains three integers: N , K , and T ($1 \leq K \leq N \leq 10^5$, $1 \leq T \leq 10^{18}$).

The second line contains N non-negative integers x_0, x_1, \dots, x_{N-1} ($0 \leq x_i \leq 10^9$), where x_i is the i -th element of the array X , numbered from zero.

Output

Let $F_K^T(X) = [a_0, a_1, \dots, a_{N-1}]$. Print the N integers a_0, a_1, \dots, a_{N-1} on the first line.

Examples

standard input	standard output
5 3 1 3 0 2 1 2	1 3 1 0 1
5 3 2 3 0 2 1 2	3 2 0 0 3
5 3 3 3 0 2 1 2	1 2 3 0 2
5 3 15 3 0 2 1 2	3 0 2 1 2
11 5 1000000000000000000 2 2 4 5 9 1 5 7 7 1 8	13 4 5 8 1 0 5 10 3 4 8