Problem K. K-ones xor

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given integers n, m and an array $a_1, a_2, ..., a_n$ of length n consisting of m-bit integers. You are also given an integer k. You need to find m-bit integer x, which has no more than k ones in binary representation. Out of all this numbers, you need to find such number, that after applying $a_i = max(a_i, a_i \oplus x)$ to the array, sum of the array will be maximal. $\oplus$ denotes the operation of bitwise XOR. If there are multiple such numbers, you need to find the minimal one.

Input

The first line of input file contains three integers n, m, k. The second line of input file contains the array $a_1, a_2, ..., a_n$.

$$1 \le n \le 10^5$$
$$1 \le m \le 30$$
$$0 \le k \le m$$
$$0 \le a_i < 2^m$$

Output

Output single number x - answer for the task.

$$0 \le x < 2^m$$

Examples

standard input	standard output
3 2 2 3 2 2	1
2 1 1 0 0	1