Game With Stones

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Porfiry and Rodion are playing with stones. They have a pile of m stones, and n boxes, arranged in a row. They consider different distributions of all stones to boxes. Each such distribution can be described with n non-negative integers $a_1, a_2, \ldots, a_n$ such that $a_1 + a_2 + \cdots + a_n = m$.

Rodion loves to move stones from a pile to adjacent one. In one step, he can take exactly one stone from some non-empty box and put it to one of adjacent boxes. For two distributions $a = (a_i)$ and $b = (b_i)$, Porfiry defined value $W(a, b)$ as minimum number of Rodion's moves required to transform distribution a to distribution b.

After some observation, Porfiry gave Rodion the following task: given k distributions $(a_i^1), (a_i^2), \ldots, (a_i^k)$, find distribution b, such that the total distance $W(a^1, b) + W(a^2, b) + \cdots + W(a^k, b)$ is minimum possible.

Input

The first line of the input contains three space-separated integers n, m and k ($1 \le n, k \le 1000$, $1 \le m \le 10^9$).

The j-th of the following k lines contains a description of the j-th distribution, represented by n non-negative integers $a_1^j, a_2^j \ldots, a_n^j$ ($a_1^j + a_2^j + \cdots + a_n^j = m$).

Output

Output optimal distribution b. If there is more than one optimal answer, print any of them.

Example

standard input	standard output
4 10 3 1 2 3 4 4 2 1 3 1 3 4 2	1 3 3 3