Statement problem Spray

Paul has a huge problem caused by the presence of bugs in his house and now he must kill the N colonies of bugs that have infested his house.
Since he is a very abstract person, he lives in a M-dimensional cube, where every position can be represented as an array of coordinates $(A_1, A_2, \ldots, A_M)$ with integer values ranging from 0 to $B-1$. A colony of bugs is represented by its position.
Since bugs are social entities, they try to unify the colonies. Thereby, if two colonies are adiacent in the house (the position of one is obtained by adding or subtracting 1 from a single coordinate of the position of the other), they build a tunnel, unifying the 2 colonies.

Paul knows the positions of the N colonies, and he wishes to block all the tunnels between them. In order to do that he can buy special sprays.
There are N types of sprays, using the i^{th} type will destroy all the tunnels that have one of its ends in the i^{th} colony.
Paul needs to know the minimum number of sprays he needs in order to block all the tunnels.

Input

From *stdout* you will read on the first line the numbers N, M, B.
On the next N lines there are M numbers between 0 and $B-1$ representing the position of each colony.

Output

On the first and only line of *stdout* you will print the minimum number of sprays needed to block all the tunnels.

Restrictions

- $1 \leq N \leq 10^4$
- $1 \leq B \leq 10^9$
- $1 \leq M \leq 100$
- It is guaranteed that any two colonies have distinct positions.
- For tests worth 30 points: $1 \leq N \leq 10$

Example

stdin	stdout
5 3 4 1 1 1 1 1 2 1 1 3 1 2 1 1 2 3	2

Explanation

We will buy two sprays:

- One of type 1
- One of type 3