Misread Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	256 megabytes

As you might know, the best way to come up with problems is misreading statements. So here you have one problem created in such a way.

There are m stones and k of their distributions into n boxes. Each distribution of stones can be represented as an array of non-negative integers a such that $a_1 + \ldots + a_n = m$. Alice will construct a distribution of stones b for which she will define $\text{cost}(b, a)$ as the minimal number of operations described below needed to make a equal to b:

- Take 1 stone from box i ($1 \le i \le n$) with a positive number of stones and put it in box j ($1 \le j \le n$).

She wants to find the minimal sum of costs for the optimal distribution b to all given distributions.

Input

First line contains 3 integers n, m, k ($1 \le n, k \le 400, 1 \le m \le 10^9$) — number of boxes, stones, and distributions.

Each of the next k lines contains n non-negative integers $a_{i,j}$ ($a_{i,1} + \ldots + a_{i,n} = m$) — description of the distributions.

Output

Output a single integer — answer to the problem.

Examples

standard input	standard output
5 12 3 3 0 4 1 4 5 2 3 1 1 1 2 3 5 1	8
1 1 2 1 1	0

Note

For the first sample case, one possible optimal distribution is $b = \{3, 2, 3, 2, 2\}$. For this distribution b we have:

- For $a = \{3, 0, 4, 1, 4\}$ we have $\text{cost}(b, a) = 3$ since we can apply operations in the following order: $\{3, 0, 4, 1, 4\} \to \{3, 1, 4, 1, 3\} \to \{3, 2, 4, 1, 2\} \to \{3, 2, 3, 2, 2\}$.
- For $a = \{5, 2, 3, 1, 1\}$ we have $\text{cost}(b, a) = 2$ since we can apply operations in the following order: $\{5, 2, 3, 1, 1\} \to \{4, 2, 3, 1, 2\} \to \{3, 2, 3, 2, 2\}$.
- For $a = \{1, 2, 3, 5, 1\}$ we have $\text{cost}(b, a) = 3$ since we can apply operations in the following order: $\{1, 2, 3, 5, 1\} \to \{1, 2, 3, 4, 2\} \to \{2, 2, 3, 3, 2\} \to \{3, 2, 3, 2, 2\}$.

So the sum of costs is 8. It can be shown that it is not possible to obtain a smaller sum of costs.