

D. Gargari and Permutations

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Gargari got bored to play with the bishops and now, after solving the problem about them, he is trying to do math homework. In a math book he have found k permutations. Each of them consists of numbers $1, 2, \dots, n$ in some order. Now he should find the length of the longest common subsequence of these permutations. Can you help Gargari?

You can read about longest common subsequence there:

https://en.wikipedia.org/wiki/Longest_common_subsequence_problem

Input

The first line contains two integers n and k ($1 \leq n \leq 1000$; $2 \leq k \leq 5$). Each of the next k lines contains integers $1, 2, \dots, n$ in some order — description of the current permutation.

Output

Print the length of the longest common subsequence.

Examples

input

Copy

```
4 3
1 4 2 3
4 1 2 3
1 2 4 3
```

output

Copy

Codeforces Round #264 (Div. 2)

Finished

→ Virtual participation

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Start virtual contest

→ Problem tags

dfs and similar dp graphs
implementation *1900

No tag edit access

→ Contest materials

- Announcement
- Tutorial (en)

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Note

The answer for the first test sample is subsequence [1, 2, 3].

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