

Unique Sheet

Input file: **standard input**
Output file: **standard output**
Time limit: 3 seconds
Memory limit: 1024 megabytes

There is an $N \times N$ grid where each cell (i, j) contains an integer $A_{i,j}$ ($1 \leq A_{i,j} \leq (N - K)^2$). Pataro the Panda performed the following operations on this grid:

- Choose K rows out of the N rows and delete them.
- Choose K columns out of the N columns and delete them.

After performing these operations, it is said that all remaining $(N - K)^2$ integers in the grid are distinct. Find the number of ways Pataro could have performed these operations, modulo 998244353.

Two operations are considered different if and only if the set of chosen rows or the set of chosen columns is different.

Input

The input is given in the following format:

```
N K
A1,1A1,2... A1,N
⋮
AN,1AN,2... AN,N
```

- $1 \leq K < N \leq 1000$
- $1 \leq K \leq 5$
- $1 \leq A_{i,j} \leq (N - K)^2$ ($1 \leq i \leq N, 1 \leq j \leq N$)
- All input values are integers.

Output

Print the number of ways to perform the operations, modulo 998244353.

Examples

standard input	standard output
3 1 1 2 4 3 4 2 2 1 3	6
6 5 1	36
7 5 2 3 1 4 1 3 1 4 4 1 4 1 1 1 1 3 4 1 4 3 4 4 2 2 2 1 2 2 2 4 1 4 2 3 1 2 3 1 3 1 2 4 3 3 2 1 4 2 2	36

Note

In the first example, there are 6 ways to perform the operations that satisfy the condition. For each of these, the remaining $(N - K)^2$ integers are exactly 1, 2, 3, 4 in increasing order.

- Select row 1 in the first operation and column 1 in the second operation.
- Select row 1 in the first operation and column 3 in the second operation.
- Select row 2 in the first operation and column 1 in the second operation.
- Select row 2 in the first operation and column 2 in the second operation.
- Select row 3 in the first operation and column 2 in the second operation.
- Select row 3 in the first operation and column 3 in the second operation.