Problem B. Entanglement

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	256 mebibytes

Consider an array A of length N and an array B of length M. An *entanglement* of these two arrays is a matrix C of size $N \times M$ such that for all $0 \leq i \leq N - 1$ and $0 \leq j \leq M - 1$, at least one of the following conditions holds: $C[i][j] = A[i]$ or $C[i][j] = B[j]$.

You are given a matrix C of size $N \times M$ and a number K. Your task is to count the number of pairs of arrays (A, B) such that:

- A has length N.

- B has length M.

- A and B consist of values from the set $\{1, 2, \ldots, K\}$.

- C is an entanglement of A and B.

Print the number of such pairs modulo $10^9 + 7$.

Input

The first line of input contains three integers N, M and K ($1 \leq N, M \leq 300$, $1 \leq K \leq N \times M$).

Each of the following N lines contains M integers separated by spaces, the j-th number on the i-th of these lines is $C[i - 1][j - 1]$.

Output

Print a single line containing a single integer: the number of pairs of arrays (A, B) modulo $10^9 + 7$.

Example

standard input	standard output
2 2 2 1 1 1 2	5