

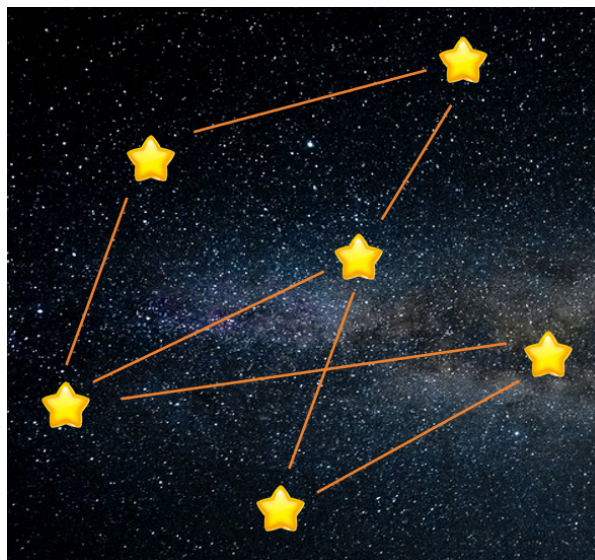
Stargazer

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

*When you fell, earth wrote patterns on your coat
These stains my badge, proof I'm still afloat*

MiserableMagical gazes at the starry sky and inputs all the stars' information into a software. The sky can be considered a 2D plane, and each star has unique x and y coordinates. The i -th star's coordinates are (i, p_i) , where p_i is a permutation of integers from 1 to n . The software automatically generates a "star map" based on the stars' information. Two stars are connected by a bright line if one is to the upper right of the other and the rectangle formed by them contains no other stars. In other words, stars i and j are connected if $i < j$, $p_i < p_j$, and there is no k such that $i < k < j$ and $p_i < p_k < p_j$.

Here is an illustration for a "star map":



Once, MiserableMagical's software crashed, and when he reopened it, all the information was lost. He only remembers that the star map has no cycles and that some pairs of stars are not connected. You need to calculate the number of all possible "starry skies".

Input

The first line contains an integer n ($3 \leq n \leq 20$), representing the number of stars.

The next n lines each contain n integers $a_{i,j}$ ($a_{i,j} \in \{0,1\}$). If $a_{i,j} = 0$, it means stars i and j are not directly connected. If $a_{i,j} = 1$, it means stars i and j are either directly connected or not directly connected. It is guaranteed that $a_{i,i} = 0$ and $a_{i,j} = a_{j,i}$.

Output

Output an integer representing the number of all possible "starry skies". **Note that you do not need to take the modulo for this problem.**

Examples

standard input	standard output
3 0 1 1 1 0 0 1 0 0	3
5 0 1 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 0 1 1 1 1 1 0	89

Note

There are 3 possible “starry skies” in the first example, as shown below:

