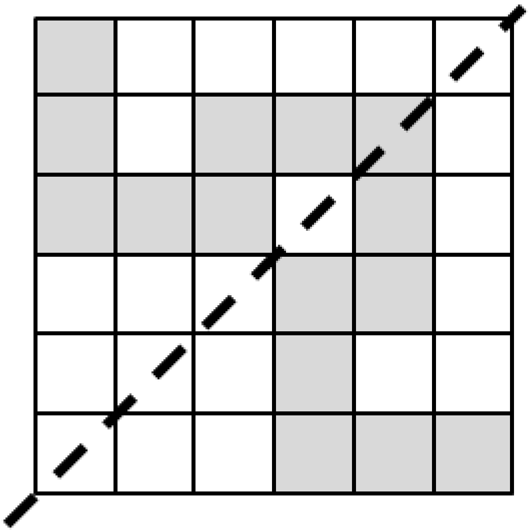
G	Optimal Symmetric Paths **Input:** Standard Input **Output:** Standard Output

Optimal Symmetric Paths

You have a grid of n rows and n columns. Each of the unit squares contains a non-zero digit. You walk from the top-left square to the bottom-right square. Each step, you can move left, right, up or down to the adjacent square (you cannot move diagonally), but you cannot visit a square more than once. There is another interesting rule: your path must be symmetric about the line connecting the bottom-left square and top-right square. Below is a symmetric path in a 6x6 grid.



Your task is to find out, among all valid paths, how many of them have the minimal sum of digits?

Input

There will be at most 25 test cases. Each test case begins with an integer n ($2<=n<=100$). Each of the next n lines contains n non-zero digits (i.e. one of 1, 2, 3, …, 9). These n^2 integers are the digits in the grid. The input is terminated by a test case with n=0, you should not process it.

Output

For each test case, print the number of optimal symmetric paths, modulo 1,000,000,009.

Sample Input	Output for Sample Input
2 1 1 1 1 3 1 1 1 1 1 1 2 1 1 0	2 3

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