

Treasure

Problem ID: treasure

There is a $n \times n$ grid and m treasures are located in the grid. You'd like to collect as many treasures as possible. You are initially at $(1, 1)$, but due to a broken leg, you can move only to the right or down, eventually reaching (n, n) .

Write a program to determine the maximum number of treasures you can collect and the number of possible paths you could take to achieve this maximum treasure count based on the map of treasures.

Input

Your program will receive input from standard input.

The first line of the input contains an integer n . The following n lines each contain n characters indicating if there is treasure on that cell. The character will be 1 if there is treasure in the cell and 0 otherwise.

Output

Your program should write to standard output.

Print exactly one line containing the maximum number of treasures you can collect and the number of paths to achieve this maximum separated by a space. As the number of paths may be very large, please output the path count modulo 1,000,000,007.

Constraints

- $2 \leq n \leq 10^3$
- $0 \leq m \leq n^2$

Subtasks

You will get points for each subtask when you pass all of the testcases of the subtask.

1. $n \leq 10$ (22 points)
2. $n \leq 300$ (31 points)
3. No additional constraints (47 points)

Sample Input 1

```
5
01010
00000
10010
10010
11000
```

Sample Output 1

```
4 3
```