E. Vanya and Balloons

time limit per test: 3 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

Vanya plays a game of balloons on the field of size $n \times n$, where each cell contains a balloon with one of the values 0, 1, 2 or 3. The goal is to destroy a cross, such that the product of all values of balloons in the cross is maximum possible. There are two types of crosses: normal and rotated. For example:

```
**o**
**o**
ooooo
**o**
**o**
```

or

```
o***o
*o*o*
**o**
*o*o*
o***o
```

Formally, the cross is given by three integers r, c and d, such that $d \le r, c \le n - d + 1$. The normal cross consists of balloons located in cells (x, y) (where x stay for the number of the row and y for the number of the column), such that $|x - r| \cdot |y - c| = 0$ and $|x - r| + |y - c| < d$. Rotated cross consists of balloons located in cells (x, y), such that $|x - r| = |y - c|$ and $|x - r| < d$.

Vanya wants to know the maximum possible product of the values of balls forming one cross. As this value can be large, output it modulo $10^9 + 7$.

Input

The first line of the input contains a single integer n ($1 \le n \le 1000$) — the number of rows and columns in the table with balloons.

The each of the following n lines contains n characters '0', '1', '2' or '3' — the description of the values in balloons.

Output

Print the maximum possible product modulo $10^9 + 7$. Note, that you are not asked to maximize the remainder modulo $10^9 + 7$, but to find the maximum value and print it this modulo.

Examples

input
4 1233 0213 2020 0303
output
108

input

```
5
00300
00300
33333
00300
00300
```

output

```
19683
```

input

```
5
00003
02030
00300
03020
30000
```

output

```
108
```

input

```
5
21312
10003
10002
10003
23231
```

output

```
3
```

input

```
5
12131
12111
12112
21311
21212
```

output

```
24
```

Note

In the first sample, the maximum product is achieved for a rotated cross with a center in the cell $(3, 3)$ and radius 1: $2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 = 108$.