

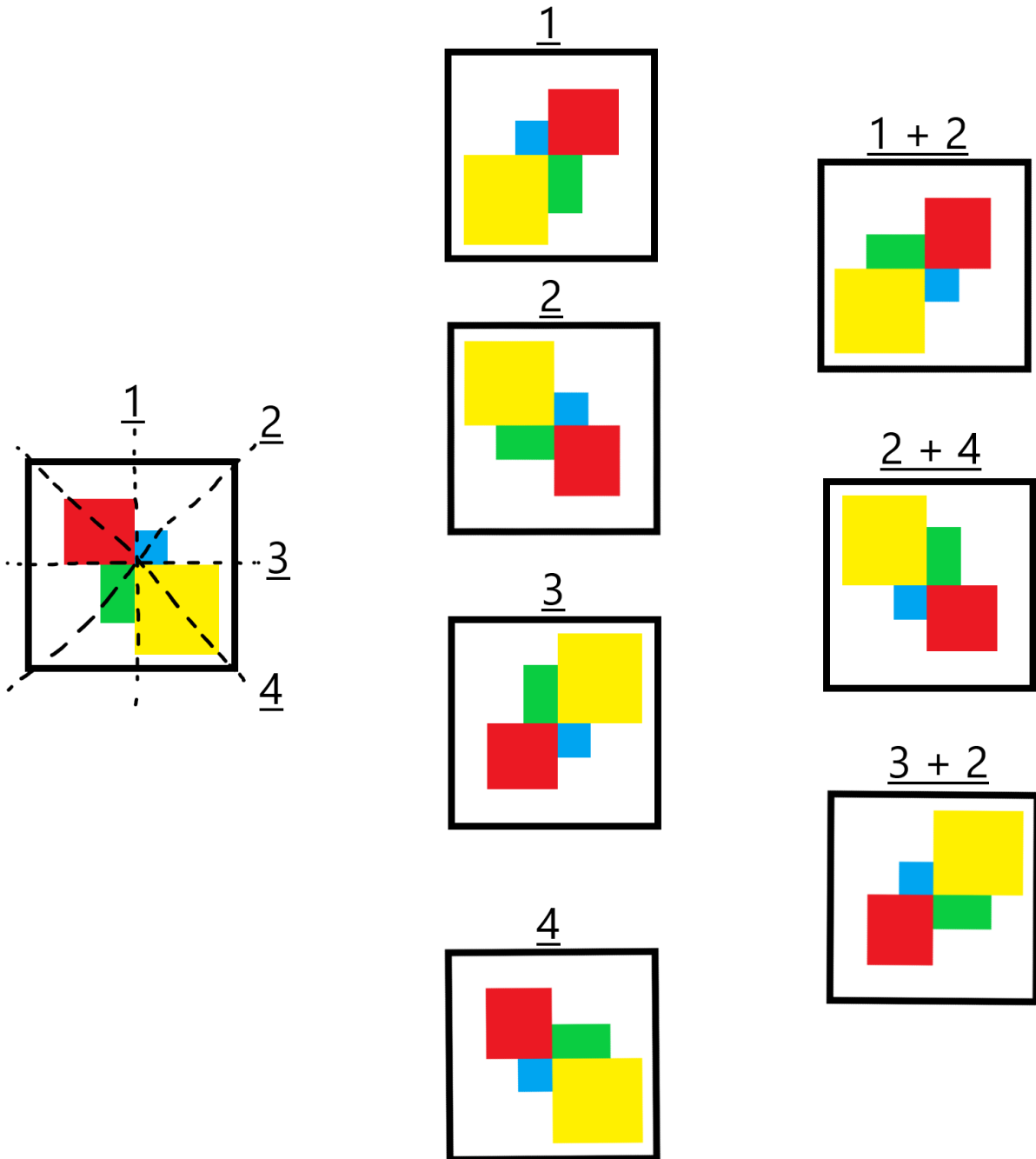
Mirror Images

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

points: 100 · problem code: mirrorimages · author: glipR

Kasey is a digital artist who designs 8 bit logos for her clients. She is a bit of a lazy (a.k.a. inventive) worker though, and wants to get the most out of her designs.

Whenever Kasey makes a design to give to clients, she also tries flipping her art to give additional designs to other clients. With just flipping alone, there are 4 axis against which Kasey can flip her square artwork, and generate 7 other designs:



However, Kasey doesn't want to give two identical images to her clients, or they will suspect something. Can you help Kasey identify how many unique flip designs there are?

Input

Input will start with a single integer n , the height/width of the design. Input will then contain n lines, each containing n characters (either `.` or `X`)

Output

Output should contain a single integer k , the number of unique designs possible

Example

Input

```
4
X..X
.X..
..X.
X..X
```

Output

```
2
```

There are only two possible designs:

```
X..X
.X..
..X.
X..X
```

and

```
X..X
..X.
.X..
X..X
```

Constraints

- $1 \leq n \leq 1000$