Rotating Square

There is an n×n square of integers, which could look like this.

1	5	9	13
2	6	10	14
3	7	11	15
4	8	12	16

Of course, this is another magic square. If I asked it to rotate 90, 180, 270 degrees clockwise around the lower left corner (the coordinate (4,1)), the result will look like these:

4	3	2	1
8	7	6	5
12	11	10	9
16	15	14	13

90 degrees

16	12	8	4
15	11	7	3
14	10	6	2
13	9	5	1

180 degrees

13	14	15	16
9	10	11	12
5	6	7	8
1	2	3	4

270 degrees

If it is rotated by 0 or 360 degrees, it becomes the same as the original layout.

Task

Given a square of integer and degree of clockwise rotation, you are to print a rotated square around the lower left corner.

Input

The first line has an integer n ($0<n\leq500$). The following n lines contain values of cells in the square. At line i of these n lines, it contains members of row i. Each line has n nonnegative integers separated by a blank. Each integer is less than 2,000,000,000. The last line has an integer d ($0\leq d\leq9999$).

Output

There should be n lines of rotated square in the same format as input. If degree is not the right angle of 0,90,180,270 degrees print “No output”.

Example1

Input

```
4
1 5 9 13
2 6 10 14
3 7 11 15
4 8 12 16
180
```

Output

```
16 12 8 4
15 11 7 3
14 10 6 2
13 9 5 1
```

Input

```
3
10 11 12
13 14 15
16 17 18
270
```

Output

```
12 15 18
11 14 17
10 13 16
```

Input

```
3
10 11 12
13 14 15
16 17 18
271
```

Output

```
No output
```