

Checkpoint CSA puzzle challenge (source: <https://csa.checkpoint.com>)

At last, we've found you!

We must solve this puzzle, and according to the prophecy - you are the one to solve it.

This puzzle is weird. It consists of a board with 10 columns and 10 rows, so there are 100 pieces. Yet, each piece is weird! It has four 'slices' - a top slice, a right slice, a bottom slice and a left slice.

Each slice consists of a number. For example, consider this piece:

```
-----
| \ 12 / |
| 5 \ / 3 |
| / \ |
| / 4 \ |
-----
```

Its top is 12, its right is 3, its bottom is 4 and its left is 5.
For the puzzle to be solved, all pieces must be sorted into the board, where each slice is equal to its adjacent slice.
In addition, a slice that has no adjacent slice (that is, the slice is a part of the board's border), must be 0. Other slices are never 0.
For example, the following board (with 4 pieces) is valid:

```
-----
| \ 0 / || \ 0 / |
| 0 \ / 9 || 9 \ / 0 |
| / \ || / \ |
| / 17 \ || / 11 \ |
-----
```

```
-----
| \ 17 / || \ 11 / |
| 0 \ / 6 || 6 \ / 0 |
| / \ || / \ |
| / 0 \ || / 0 \ |
-----
```

In the board above, all the border slices are equal to 0.
Consider the top-left piece. Its right slice is equal to 9, and its adjacent slice (the left slice of the top-right piece) also equals 9.

Unfortunately, we have the pieces in a shuffled order. They are given in the following format:

cube_id, [slices]; cube_id, slices; ... cube_id, slices

Where cube_id is a number from 0 to 99, and slices include the numbers in the order: top, right, bottom, left.

For instance, consider the following shuffled board:

```
-----
| \ 0 / || \ 0 / || \ 5 / |
| 18 \ / 12 || 19 \ / 7 || 19 \ / 0 |
| / \ || / \ || / \ |
| / 2 \ || / 6 \ || / 0 \ |
-----
```

```
-----
| \ 6 / || \ 14 / || \ 7 / |
| 10 \ / 2 || 10 \ / 0 || 0 \ / 12 |
| / \ || / \ || / \ |
| / 9 \ || / 5 \ || / 0 \ |
-----
```

```
-----
| \ 0 / || \ 0 / || \ 0 / |
| 7 \ / 0 || 7 \ / 17 || 17 \ / 0 |
| / \ || / \ || / \ |
| / 18 \ || / 9 \ || / 14 \ |
-----
```

A string describing the above board is the following one:
 '0,[0, 12, 2, 18]; 1,[0, 7, 6, 19]; 2,[5, 0, 0, 19]; 3,[6, 2, 9, 10];
 4,[14, 0, 5, 10]; 5,[7, 12, 0, 0]; 6,[0, 0, 18, 7]; 7,[0, 17, 9, 7]; 8,[0,
 0, 14, 17]'

We need you to solve the puzzle!

Provide us a string that looks exactly as follows:
 cube_id, times_to_rotate_clockwise; cube_id, times_to_rotate_clockwise;...
 cube_id, times_to_rotate_clockwise

For example, a solution string will look like this:
 2,2; 1,0; 6,0; 4,2; 3,0; 0,1; 8,2; 7,2; 5,3

The above string corresponds to the following (valid) puzzle:

```

-----
| \ 0 /  || \ 0 /  || \ 0 /  |
| 0 \ / 19|| 19\ / 7 || 7 \ / 0 |
| / \ || / \ || / \ |
| / 5 \ || / 6 \ || / 18 \ |
-----
| \ 5 /  || \ 6 /  || \ 18 /  |
| 0 \ / 10|| 10\ / 2 || 2 \ / 0 |
| / \ || / \ || / \ |
| / 14 \ || / 9 \ || / 12 \ |
-----
| \ 14 /  || \ 9 /  || \ 12 /  |
| 0 \ / 17|| 17\ / 7 || 7 \ / 0 |
| / \ || / \ || / \ |
| / 0 \ || / 0 \ || / 0 \ |
-----

```

Consider the top-left piece. In the string, it corresponds to '2,2', as we take cube number 2 from the input:

2,[5, 0, 0, 19]

But we rotate it clock-wise, twice, so we get [0,19,5,0].

Now consider the top-middle piece. In the string, it corresponds to '1,0'. That is, we take cube number 1 from the input:

1,[0, 7, 6, 19]

And we don't rotate it at all (that is, rotate it 0 times) - as it's already in the right direction.

Got it?

Help us solve the puzzle!

The puzzle we have is:

```
0,[5, 14, 9, 7]; 1,[15, 14, 2, 13]; 2,[7, 16, 5, 0]; 3,[14, 5, 0, 6];
4,[10, 18, 9, 12]; 5,[16, 9, 7, 20]; 6,[9, 18, 18, 14]; 7,[0, 14, 7, 19];
8,[15, 1, 16, 7]; 9,[17, 19, 3, 10]; 10,[7, 12, 2, 19]; 11,[7, 0, 14, 2];
12,[7, 18, 8, 9]; 13,[0, 5, 17, 20]; 14,[20, 3, 0, 0]; 15,[14, 16, 3, 18];
16,[5, 9, 5, 7]; 17,[19, 1, 0, 3]; 18,[9, 11, 0, 5]; 19,[12, 1, 12, 18];
20,[7, 14, 1, 6]; 21,[20, 15, 20, 8]; 22,[14, 14, 5, 9]; 23,[4, 5, 13, 0];
24,[12, 15, 14, 14]; 25,[9, 5, 20, 17]; 26,[14, 12, 13, 17]; 27,[15, 0, 19,
19]; 28,[12, 0, 3, 7]; 29,[1, 14, 18, 12]; 30,[4, 17, 7, 18]; 31,[2, 18, 5,
1]; 32,[8, 11, 0, 4]; 33,[16, 4, 8, 5]; 34,[19, 9, 11, 0]; 35,[19, 0, 0,
11]; 36,[17, 4, 0, 8]; 37,[17, 18, 18, 7]; 38,[2, 17, 1, 12]; 39,[14, 7,
10, 6]; 40,[9, 10, 18, 20]; 41,[17, 20, 9, 3]; 42,[5, 0, 18, 19]; 43,[18,
14, 7, 20]; 44,[9, 12, 16, 9]; 45,[6, 6, 9, 0]; 46,[12, 17, 17, 10]; 47,[6,
3, 13, 10]; 48,[9, 2, 8, 17]; 49,[18, 9, 0, 11]; 50,[4, 19, 4, 8]; 51,[0,
1, 3, 4]; 52,[0, 7, 11, 6]; 53,[7, 20, 8, 4]; 54,[12, 5, 1, 5]; 55,[16, 7,
20, 5]; 56,[20, 7, 6, 0]; 57,[6, 13, 10, 6]; 58,[9, 18, 16, 18]; 59,[13, 2,
8, 0]; 60,[3, 7, 7, 4]; 61,[19, 19, 1, 2]; 62,[7, 2, 12, 20]; 63,[4, 5, 7,
14]; 64,[12, 5, 16, 12]; 65,[7, 3, 0, 12]; 66,[20, 14, 10, 5]; 67,[12, 0,
1, 13]; 68,[12, 8, 9, 2]; 69,[8, 17, 5, 9]; 70,[17, 8, 16, 1]; 71,[20, 9,
12, 5]; 72,[5, 2, 19, 3]; 73,[9, 0, 0, 15]; 74,[14, 0, 10, 5]; 75,[20, 2,
1, 8]; 76,[9, 2, 1, 0]; 77,[20, 9, 2, 5]; 78,[18, 16, 11, 7]; 79,[5, 12, 1,
0]; 80,[2, 7, 17, 17]; 81,[13, 19, 5, 7]; 82,[1, 15, 19, 8]; 83,[19, 12, 4,
9]; 84,[0, 9, 14, 4]; 85,[13, 16, 12, 20]; 86,[9, 3, 19, 0]; 87,[7, 15, 18,
19]; 88,[14, 20, 0, 1]; 89,[12, 14, 8, 9]; 90,[8, 0, 12, 8]; 91,[0, 4, 18,
0]; 92,[4, 13, 1, 17]; 93,[11, 14, 0, 8]; 94,[8, 16, 13, 8]; 95,[11, 4, 16,
12]; 96,[7, 0, 11, 14]; 97,[13, 10, 0, 19]; 98,[19, 17, 5, 5]; 99,[20, 7,
12, 2]
```

Good luck!