The puzzle is the puzzle

General instructions

- Work with PyCharm
- It is recommended to 'play around' with the Python interpreter.
- Adhere to conventions.
- Check your solution before handing it in.

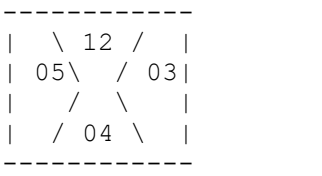
The puzzle is the puzzle

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.

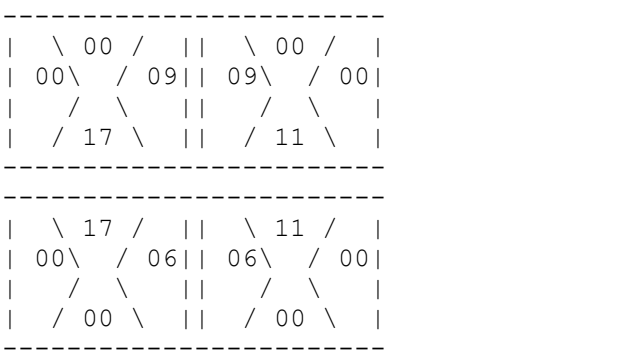
Each slice consists of a number. For example, consider this piece:



Its top is 12, its right is 3, its bottom is 4 and its left is 5. We do not distinguish '5' and '05'.

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.

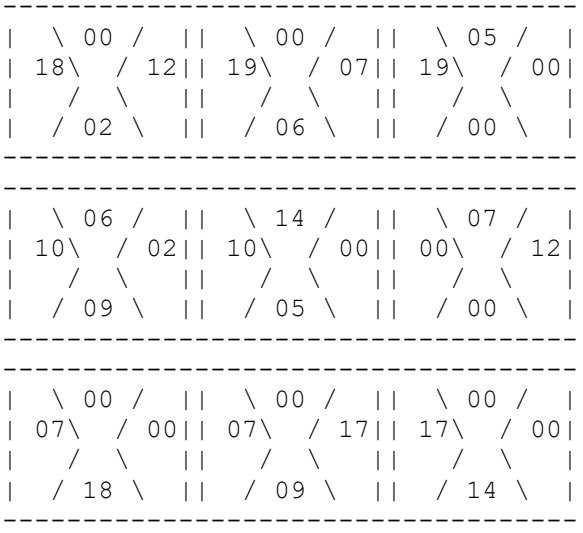
For example, the following board (with 4 pieces) is valid:



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:



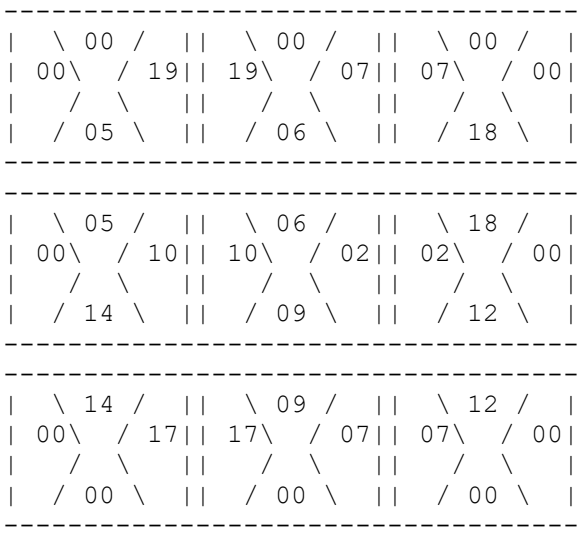
A string describing the above board is the following one:
'0,[0, 12, 2, 18]; 1,[0, 7, 6, 19]; 2,[5, 0, 0, 19]; 3,[6, 2, 9, 10]; 4,[14, 0, 5, 10]; 5,[7, 12, 0, 0]; 6,[0, 0, 18, 7]; 7,[0, 17, 9, 7]; 8,[0, 0, 14, 17]'

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:



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! Look at the next page…

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

Good luck!