# Felt-Tips Five

On rainy winter's days, Tina adores the simple pleasure of colouring in. For Christmas, she received a dozen new felt-tip pens but, due to excessive and vigorous colouring, she only has 5 different colours left: red, green, blue, black, and (her favourite) yellow.

Recently, Tina has become obsessed with Marco Sweetmeat's Atlas: an encyclopedic collection of maps. Ever a drab explorer, Marco's maps are all in black and white, with only a casual hint of grey to add interest. Tina has decided to rectify this aesthetic error by colouring the maps in.

Each map shows distinct regions with borders. An example is given to the right.

Tina likes a challenge - she wants to colour each map with her 5 felt-tips so that no two bordering regions are the same colour.

INPUT   First, you will be given an integer **n**, denoting the number of regions. The next **n** lines start with an integer **x**, followed by **x** space separated integers, giving all the regions the **i**th region borders.
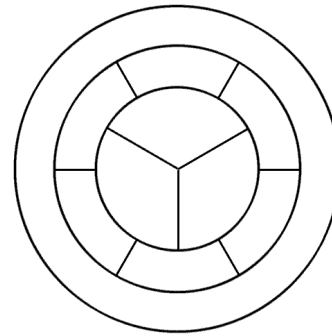
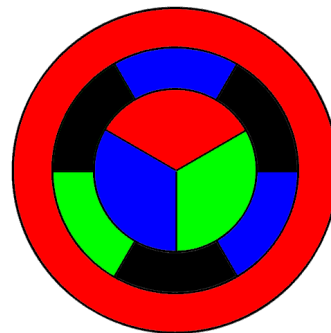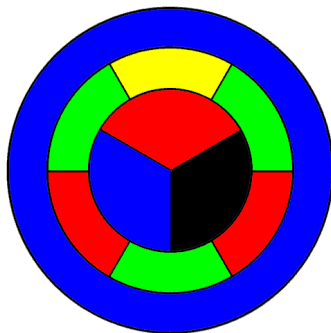The regions are numbered from 0 to **n**-1 and all maps can be displayed on a flat page within the Atlas.

$1 \leq n \leq 10{,}000$

OUTPUT   Output **n** integers (each between 0 and 4 inclusive) on separate lines. The **i**th integer should be the felt-tip pen used to colour the **i**th region, so that no two bordering regions are the same colour (using no more than 5 different colours).

SAMPLE   For example, consider the map shown above. Two possible ways of colouring in the regions are shown below.

```
INPUT                          OUTPUT

4                              0
3 1 2 3                        1
3 0 2 3                        4
3 0 1 3                        3
3 0 1 2

6                              0
2 1 2                          1
4 0 2 4 3                      2
4 0 3 1 5                      0
4 5 1 2 4                      2
3 1 3 5                        1
3 2 3 4

7                              4
4 4 3 2 6                      4
2 2 3                          1
4 0 1 3 6                      2
6 0 1 2 4 5 6                  1
2 3 0                          0
1 3                            3
3 2 3 0
```