

## Problem – Junior web designer

In the first day of internship at a web design company, your task is to transform partial images. The partial images have many blank areas bounded by different colors. Your job is to fill the areas bounded by a single color with that color. After processing the image you will have a picture with many color stains separated by blank areas.

The image is represented using a  $N \times M$  matrix with positive integers. Number representations are: 0 for blank area and 1,2...C for colors.

### **\*Input data**

The input file image.in is structured as follows:

- on the first line an integer C representing the number of colors
- on the second line M and N separated by a blank space, representing the number of lines and columns respectively.
- the next M lines will each contain N numbers separated by a blank space, representing the image itself.

### **\*Output data**

The output file image.out should contain M lines, each with N numbers separated by a blank space, representing the transformed image.

### **\*Restrictions**

**$0 < C < 1000$**

**$1 < N \leq 10000$**

**$1 < M \leq 10000$**

### **\*Example**

image.in	image.out
1	1 1
2 2	1 1
0 1	
1 0	
5	0 0 0 2 2 2 2 0 1 1
7 10	3 3 3 2 2 2 2 2 1 1
0 0 0 2 0 0 2 0 1 0	3 3 3 0 2 2 2 0 1 1
3 3 3 2 0 0 0 2 1 0	3 3 3 4 4 4 0 0 1 1
0 0 3 0 2 2 2 0 1 0	3 3 0 4 4 4 4 0 0 0
0 0 3 4 4 4 0 0 1 1	3 0 4 4 4 4 4 0 0 5
0 3 0 4 0 0 4 0 0 0	0 0 0 4 4 4 0 0 5 5
3 0 4 0 0 0 4 0 0 5	
0 0 0 4 4 4 0 0 5 0	

The solutions should have a Readme file that should contain:

1. a short description of the algorithms you used,
2. the complexity of the algorithms (you must compute it).

Send the solutions in a .zip archive with the name HW\_<number>\_<name>\_<group>.zip (e.g. HW\_1\_PopescuAndrei\_1231E.zip) by email to: [andavintila@gmail.com](mailto:andavintila@gmail.com) .

**The deadline for receiving the homework is 19th of December, at 23:59.**

**Rules for assignments: <http://adcfiles.wordpress.com/assignments/>**