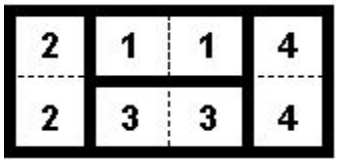
Assignment 2: Brickwork

The builders must cover a rectangular area of size *M* × *N* (*M* and *N* are even numbers) with two layers of bricks that are rectangles of size 1 × 2. The first layer of the bricks has already been completed. The second layer (in an effort to make the brickwork really strong) must be created in a way that no brick in it lies exactly on a brick from the first layer. However, it is allowed **half** of the same brick to lie on the same brick on the second layer.

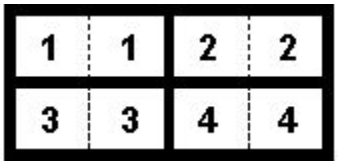
Create a console app that accepts input parameters for the given layout of the bricks for the first layer, determine the possible layout of the **second** one, or prove that it is impossible to create the **second** layer and print it in the console.

Example. The two pictures show the layout of the two layers, respectively. The size of the area is 2 × 4. Each brick is marked with its number on both halves.

Layer 2 (output)



Layer 1 (input)



Input

1. *N*, *M* — dimensions of the area (both layers' dimension a.k.a wall thickness/width and length).
2. Then, add a single value separated by a space for each line *N* and following column *M* describing the bricks layout in the first layer.

   NOTE: Each brick is marked with two equal numbers written in the squares of the area that are covered by this brick. All bricks are marked with whole numbers

ranging from 1 to the total number of the bricks. *M* and *N* are even numbers not exceeding 100.

Output

Write *N* lines with *M* numbers each that describe the layout of the second layer in the way shown above

Assessment

1. If the solution exists, write *N* lines with *M* numbers each that describe the layout of the second layer in the way shown above.
2. Print output `-1` with a message that no solution exists.
3. Validations - N and M should define a valid area of less than 100 lines/ columns. Validate input has exactly that number of rows and columns. Validate there are no bricks spanning 3 rows/ columns.
4. Add comments on each class, method, and instantiated variable.
5. Surround each brick of the second layer with asterisk and/ or dash symbols - `*` and/ or `-`. There should be a single line of symbols between two bricks.

Sample

input	output
2 4 1 1 2 2 3 3 4 4	2 1 1 4 2 3 3 4

Example 2

Layer 2 (output)

2 1 1 4 5 5 6 6

2 3 3 4 7 7 8 8

Layer 1 (input)

2 8

1 1 2 2 6 5 5 8

3 3 4 4 6 7 7 8