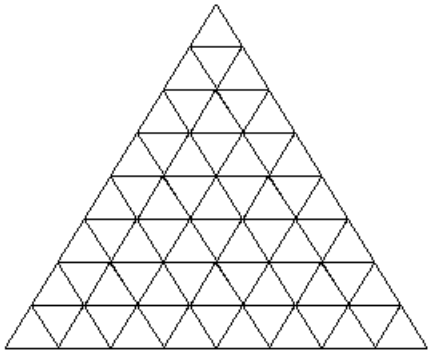
Project Euler #189: Tri-colouring a triangular grid

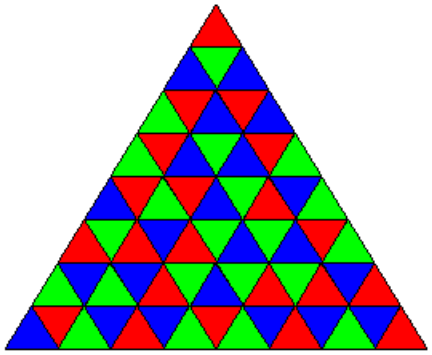
This problem is a programming version of Problem 189 from projecteuler.net

Consider the following configuration of 64 triangles:



We wish to colour the interior of each triangle with one of three colours: red, green or blue, so that no two neighbouring triangles have the same colour. Such a colouring shall be called valid. Here, two triangles are said to be neighbouring if they share an edge.
Note: if they only share a vertex, then they are not neighbours.

For example, here is a valid colouring of the above grid:



A colouring C' which is obtained from a colouring C by rotation or reflection is considered $\textit{distinct}$ from C unless the two are identical.

Let's assume we have c colours and n^2 triangles formed into above configuration. How many distinct valid colourings are there for such configuration?

Input Format

The only line of the test contains two integers: n and c.

Constraints

- $1 \leq n, c$
- $n + c \leq 14$

Output Format

Print exactly one integer which is the answer to the problem. Since that number could be very large, output it modulo $10^9 + 7$.

Sample Input 0

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1 3
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Sample Output 0

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3
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Explanation 0

We can colour the only triangle in each of the three given colours.