2061. Painting a Grid With Three Different Colors
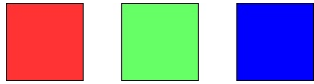
Difficulty : Hard

https://leetcode.com/problems/painting-a-grid-with-three-different-colors

You are given two integers `m` and `n`. Consider an `m x n` grid where each cell is initially white. You can paint each cell **red**, **green**, or **blue**. All cells **must** be painted.

Return *the number of ways to color the grid with* **no two adjacent cells having the same color**. Since the answer can be very large, return it **modulo** $10^9 + 7$.
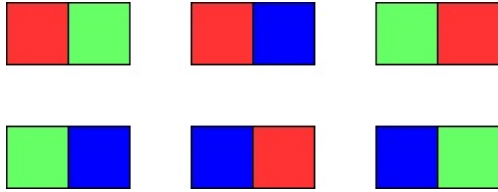
Example 1:

Input: m = 1, n = 1
Output: 3
Explanation: The three possible colorings are shown in the image above.

Example 2:

Input: m = 1, n = 2
Output: 6
Explanation: The six possible colorings are shown in the image above.

Example 3:

Input: m = 5, n = 5
Output: 580986

Constraints:

- `1 <= m <= 5`
- `1 <= n <= 1000`