Problem 1411: Number of Ways to Paint N × 3 Grid

Problem Information

Difficulty: Hard
Acceptance Rate: 65.52%
Paid Only: No
Tags: Dynamic Programming

Problem Description

You have a `grid` of size `n x 3` and you want to paint each cell of the grid with exactly one of the three colors: **Red** , **Yellow,** or **Green** while making sure that no two adjacent cells have the same color (i.e., no two cells that share vertical or horizontal sides have the same color).

Given `n` the number of rows of the grid, return _the number of ways_ you can paint this `grid`. As the answer may grow large, the answer **must be** computed modulo `109 + 7`.

Example 1:

Input: n = 1 **Output:** 12 **Explanation:** There are 12 possible way to paint the grid as shown.

Example 2:

Input: n = 5000 **Output:** 30228214

Constraints:

* `n == grid.length` * `1 <= n <= 5000`

Code Snippets

C++:

```
class Solution {
public:
int numOfWays(int n) {

}
};
```

Java:

```
class Solution {
public int numOfWays(int n) {

}
}
```

Python3:

```
class Solution:
def numOfWays(self, n: int) -> int:
```