Problem 276: Paint Fence

Problem Information

Difficulty: Medium
Acceptance Rate: 48.06%
Paid Only: Yes
Tags: Dynamic Programming

Problem Description

You are painting a fence of `n` posts with `k` different colors. You must paint the posts following these rules:

* Every post must be painted **exactly one** color. * There **cannot** be three or more **consecutive** posts with the same color.

Given the two integers `n` and `k`, return _the**number of ways** you can paint the fence_.

Example 1:

Input: n = 3, k = 2 **Output:** 6 **Explanation:** All the possibilities are shown. Note that painting all the posts red or all the posts green is invalid because there cannot be three posts in a row with the same color.

Example 2:

Input: n = 1, k = 1 **Output:** 1

Example 3:

Input: n = 7, k = 2 **Output:** 42

Constraints:

* `1 <= n <= 50` * `1 <= k <= 105` * The testcases are generated such that the answer is in the range `[0, 231 - 1]` for the given `n` and `k`.

Code Snippets

C++:

```
class Solution {
public:
int numWays(int n, int k) {

}
};
```

Java:

```
class Solution {
public int numWays(int n, int k) {

}
}
```

Python3:

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