Problem 2579: Count Total Number of Colored Cells

Problem Information

Difficulty: Medium
Acceptance Rate: 66.14%
Paid Only: No
Tags: Math

Problem Description

There exists an infinitely large two-dimensional grid of uncolored unit cells. You are given a positive integer `n`, indicating that you must do the following routine for `n` minutes:

* At the first minute, color **any** arbitrary unit cell blue. * Every minute thereafter, color blue **every** uncolored cell that touches a blue cell.

Below is a pictorial representation of the state of the grid after minutes 1, 2, and 3.

Return _the number of**colored cells** at the end of _`n` _minutes_.

Example 1:

Input: n = 1 **Output:** 1 **Explanation:** After 1 minute, there is only 1 blue cell, so we return 1.

Example 2:

Input: n = 2 **Output:** 5 **Explanation:** After 2 minutes, there are 4 colored cells on the boundary and 1 in the center, so we return 5.

Constraints:

* `1 <= n <= 105`

Code Snippets

C++:

```
class Solution {
public:
long long coloredCells(int n) {

}
};
```

Java:

```
class Solution {
public long coloredCells(int n) {

}
}
```

Python3:

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