

292 Nim Game

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Question:

You are playing the following Nim Game with your friend: There is a heap of stones on the table, each time one of you take turns to remove 1 to 3 stones. The one who removes the last stone will be the winner. You will take the first turn to remove the stones.

Both of you are very clever and have optimal strategies for the game. Write a function to determine whether you can win the game given the number of stones in the heap.

For example, if there are 4 stones in the heap, then you will never win the game: no matter 1, 2, or 3 stones you remove, the last stone will always be removed by your friend.

来自 <<https://leetcode.com/problems/nim-game/description/>>

您和您的朋友，两个人一起玩 [Nim游戏](#)：桌子上有一堆石头，每次你们轮流拿掉 1 到 3 块石头。 拿掉最后一块石头的人就是胜利者。由您来开局。

你们两个都是聪明人，相信都有最佳的游戏策略。 请编写一个函数，来判断您是否可以在给定的石头数量的情况下赢得游戏。

比方说，如果堆中有4块石头，那么你永远不会赢得比赛：无论你拿走的是 1块，2块 还是 3块 石头，最后一块石头总是会被你的朋友拿走。

Solution for Python3:

```
1 class Solution1:
2     def canWinNim(self, n):
3         """
4         :type n: int
5         :rtype: bool
6         """
7         return n % 4 != 0
8
9 class Solution2:
10     def canWinNim(self, n):
11         """
12         :type n: int
13         :rtype: bool
14         """
15         return bool(n & 3)
```

Solution for C++:

```
1 class Solution {
2 public:
3     bool canWinNim(int n) {
4         return n&3;
5     }
6 };
```