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.

Solution: Once we understand the question, we clearly know that this has to be solved in O(1).

As we can observe, for any value for *n* between 1 to 3, first player will definitely win (because he/she can clear all the stones.)

As mentioned in the problem, if any player is left with 4 stones, he/she will lose for sure. Now, if the first player is left with stones 5 or 6 or 7, he can remove 1 or 2 or 3 stones respectively to make the number of stones left to the second player as 4 (which will definitely