Problem 1025: Divisor Game

Problem Information

Difficulty: Easy
Acceptance Rate: 71.14%
Paid Only: No
Tags: Math, Dynamic Programming, Brainteaser, Game Theory

Problem Description

Alice and Bob take turns playing a game, with Alice starting first.

Initially, there is a number `n` on the chalkboard. On each player's turn, that player makes a move consisting of:

* Choosing any integer `x` with `0 < x < n` and `n % x == 0`. * Replacing the number `n` on the chalkboard with `n - x`.

Also, if a player cannot make a move, they lose the game.

Return `true` _if and only if Alice wins the game, assuming both players play optimally_.

Example 1:

Input: n = 2 **Output:** true **Explanation:** Alice chooses 1, and Bob has no more moves.

Example 2:

Input: n = 3 **Output:** false **Explanation:** Alice chooses 1, Bob chooses 1, and Alice has no more moves.

Constraints:

* `1 <= n <= 1000`

Code Snippets

C++:

```
class Solution {
public:
bool divisorGame(int n) {

}
};
```

Java:

```
class Solution {
public boolean divisorGame(int n) {

}
}
```

Python3:

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