Design Tic-Tac-Toe

Try to solve the Design Tic-Tac-Toe problem.

We'll cover the following

Statement

Suppose that two players are playing a tic-tac-toe game on an $n \times n$ board. They're following specific rules to play and win the game:

- A move is guaranteed to be valid if a mark is placed on an empty block.
- No more moves are allowed once a winning condition is reached.
- A player who succeeds in placing n of their marks in a horizontal, vertical, or diagonal row wins the game.

Implement a **TicTacToe** class, which will be used by two players to play the game and win fairly.

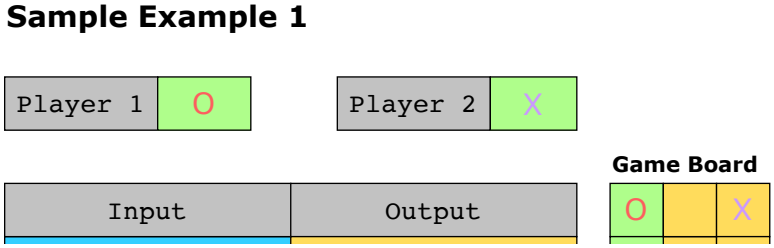
Keep in mind the following functionalities that need to be implemented:

- **Constructor**, the constructor, which initializes an object of `TicTacToe`, allowing the players to play on a board of size $n \times n$.
- **move(row, col, player)** indicates that the player with the ID, `player`, places their mark on the cell (`row`, `col`). The move is guaranteed to be a valid move. At each move, this function returns the player ID if the current player wins and returns 0 if no one wins.

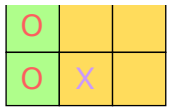
Constraints:

- $3 \leq n \leq 9$
- `player` should be either `1` or `2`.
- $0 \leq$ `row`, `col` $< n$
- Every call to `move()` will be with a unique `row`, `col` combination.
- The `move()` function will be called at most n^2 times.

Examples



move(0,0,1)	No one wins
move(0,2,2)	No one wins
move(1,0,1)	No one wins
move(2,1,2)	No one wins
move(2,0,1)	Player 1 wins!



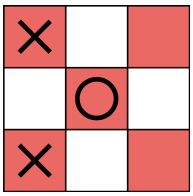
Understanding the problem

Let's take a moment to make sure you've correctly understood the problem. The quiz below helps us to check if you're solving the correct problem:

Design Tic-Tac-Toe

1

We are given the current state of a game on a 3×3 board, showing the moves made so far, where Player 1's moves are denoted by a cross, and Player 2's moves are denoted by a circle.



The following moves are now made by the players:

```
move(0, 2, 2)
move(1, 0, 1)
```

What would the result be?

A) Player 1 wins the game.

B) Player 2 wins the game.

C) No one wins the game.

Submit Answer

Question 1 of 3
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

> **Note:** This puzzle relates only to the function, `move()`. The data structures that are set up in `Constructor` have been mentioned in the first card.

Drag and drop the cards to rearrange them in the correct sequence.

`Constructor`: Create two lists to keep track of the number of moves made in each row and column, along with two counters to store the count of moves made along either of the diagonals. Initialize all of them to 0.

If the move was made by Player 1, increment the count in the relevant lists. If the mark has been placed along a diagonal, increment the relevant counter.

If the move was made by Player 2, decrement the count in the relevant lists. If the mark has been placed along a diagonal, decrement the relevant counter.

If the count of any element of a list is equal to n or if either of the two diagonal counters is equal to n, return the current player as the winner.

If neither count is equal to n, return 0.

Reset | Show Solution | Submit

Try it yourself

Implement your solution in the following coding playground.

Java

usercode > TicTacToe.java

```
1  import java.util.*;
2  class TicTacToe {
3
7      }
8
9      // move will be used to play a move by a specific player and identify who
10     // wins at each move
11     public int move(int row, int col, int player) {
12
13         // Write you code here
14
15         return -1;
16     }
17
18
19 }
```

Powered by AI

Submit

Test Cases | Results

Case 1 | Case 2 | Case 3

Input #1

["TicTacToe","move","move","move","move","move","move","move"]

Input #2

[[3],[0,0,1],[0,2,2],[2,2,1],[1,1,2],[2,0,1],[1,0,2],[2,1,1]]

Design Tic-Tac-Toe

Back

Solution: Palindrome ...

Next

Solution: Design Tic-T...

Mark as Completed