

EXP2 POSTLAB

1. What is the relationship between tic-tac-toe and magic square?

The relationship between Tic-Tac-Toe and magic squares lies in the use of a specific magic square known as the Lo Shu Square in some strategies. The Lo Shu Square is a 3x3 magic square, and its numbers are associated with specific movements on the Tic-Tac-Toe board. In the provided code, the **get_best_move** function utilizes a magic square (Lo Shu Square) to determine the optimal move for the computer player ('O'). The values in the magic square influence the computer's decision-making process to maximize its chances of winning or blocking the opponent.

2. What is a magic square of order n?

A magic square of order n is an arrangement of n^2 numbers in a square grid, typically an $n \times n$ grid, such that the sum of the numbers in each row, column, and both main diagonals is the same. In other words, the sum of numbers along any row, column, or diagonal is constant and referred to as the magic constant.

For Example:

8 | 1 | 6

3 | 5 | 7

4 | 9 | 2

In this square, the sum of any row, column, or diagonal is always 15. Magic squares of higher orders (4x4, 5x5, etc.) follow the same principle, with the magic constant adjusting accordingly. Magic squares have intrigued mathematicians for centuries due to their fascinating properties and patterns.