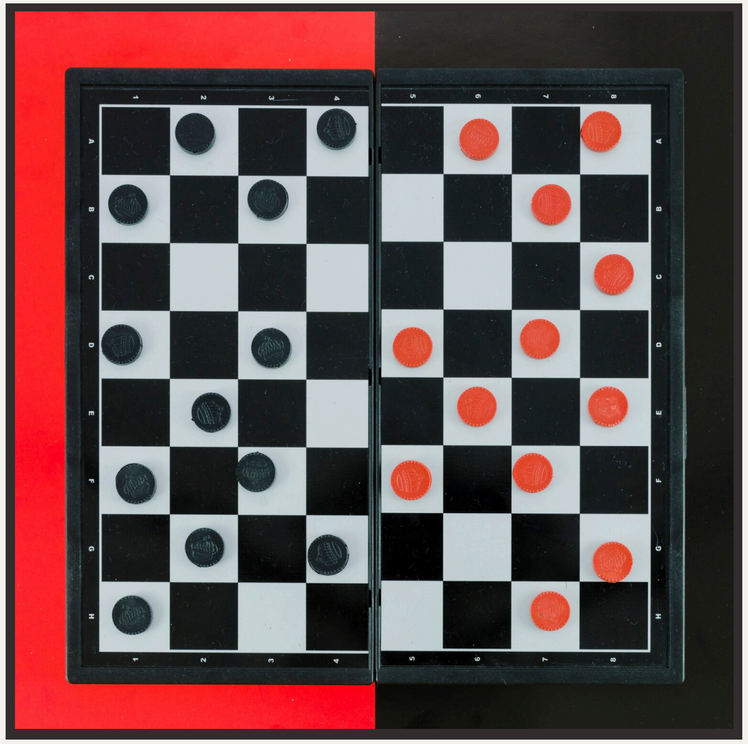
TASK - 2

TIC TAC TOE AI

Implement an AI agent that plays the classic game of Tic-Tac-Toe against a human player.You can use algorithms like Minmax with or without Alpha-Beta Pruning to make the AI player unbeatable.

Tic-Tac-Toe: The Classic Game



Tic-Tac-Toe is a simple yet captivating game that has been played for generations. Its simplicity belies the depth of strategy and complexity that can be unlocked through the application of advanced techniques.

The Power of AI in Tic-Tac-Toe

Artificial Intelligence (AI) has revolutionized the way we approach **Tic-Tac-Toe**. By leveraging algorithms like **Minimax** and **Alpha-Beta Pruning**, AI can analyze the game tree and make optimal decisions to outplay human opponents.

The **Minimax** algorithm is a fundamental AI technique used in Tic-Tac-Toe. It evaluates all possible moves and chooses the one that *maximizes* the player's chances of winning or *minimizes* the opponent's chances of winning.

Alpha-Beta Pruning: Optimizing the Search

Alpha-Beta Pruning is an optimization technique that can be applied to the Minimax algorithm. It reduces the number of nodes that need to be evaluated, making the algorithm more efficient and allowing it to explore deeper game trees.

Combining Minimax and Alpha-Beta Pruning

By combining the **Minimax** algorithm and **Alpha-Beta Pruning**, AI systems can achieve a high level of performance in Tic-Tac-Toe. This synergistic approach allows for faster decision-making and more accurate evaluations of game states.

Mastering Tic-Tac-Toe with AI

The integration of **Minimax** and **Alpha-Beta Pruning** algorithms in Tic-Tac-Toe AI systems has paved the way for unparalleled mastery of the game. This powerful combination enables AI to consistently outperform human players and provide new insights into the game's strategic depth.

Thanks!