**Tic Tac Toe**

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**AIM:**

Tic tac toe is a very popular multiplayer game which is usually played between a player and a bot. In this project we have implemented the game in python in order to understand and implement the **Minimax** algorithm.

**DETAILS:**

Tic tac toe is a game in which two players seek in alternate turns to complete a row, a column, or a diagonal with either three O's or three X's drawn in the spaces of a grid of nine squares; noughts and crosses.

Minimax is a kind of [backtracking](https://www.geeksforgeeks.org/tag/backtracking/) algorithm that is used in decision making and game theory to find the optimal move for a player, assuming that your opponent also plays optimally. It is widely used in two player turn-based games such as Tic-Tac-Toe, Backgammon, Mancala, Chess, etc.

In Minimax the two players are called maximizer and minimizer. The **maximizer** tries to get the highest score possible while the **minimizer** tries to do the opposite and get the lowest score possible.

Every board state has a value associated with it. In a given state if the maximizer has the upper hand then, the score of the board will tend to be some positive value. If the minimizer has the upper hand in that board state then it will tend to be some negative value. The values of the board are calculated by some heuristics which are unique for every type of game.