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SOFTWARE ENGINEERING

ULTIMATE

OX TicTacToe

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INTRODUCTION OF THE PROJECT:

You probably know the original Tic Tac Toe game. If not: it's a simple game where one player is the *X* and the other player is the *O*, playing on a field of 3x3 squares. The players take turns picking one of the squares that is not occupied. When one of the players gets three squares in a row, horizontal, vertical, or diagonal, that player wins.

Ultimate tic-tac-toe also known as super Tic Tac Toe or meta Tic Tac Toe is a board game composed of nine Tic Tac Toe boards arranged in a 3-by-3 grid. Now Ultimate Tic Tac Toe is quite similar, except each square in the field is actually small game of Tic Tac Toe. Only if you win the small game, you get the square of the big game. The goal again is to get three (big) squares in a row. Further rules will be explained below. This game requires quite a bit of strategy because you can influence which of the big squares your opponent has to play in.

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CLEAR STATEMENT OF THE PROBLEM:

The Tic Tac Toe is already available but our goal is in the project is to convert the simple Tic Tac Toe to ultimate Tic Tac Toe. Our vision is to make an Efficient Artificial Intelligence Bot that compete with other players.

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○ PROJECT DESCRIPTION:

Above was explained how to get three of the big squares in a row, but there is a catch. The most important rule of Ultimate Tic Tac Toe is the following: whichever small square your opponent picks, is the next big square you must play in. So if your opponent moves first and picks the middle small square in the top-right big square, you *must* pick a small square of the middle big square. This might be a bit confusing so an example is shown to the right as well, where your color is red and the opponent has just placed the blue X.
So what happens if your opponent sends you to a big square that is already won (or a draw)? Then you are in luck! You may place your next move on any empty square that is not in a big square that is already won. So always keep this in mind when doing your own moves. The final rule for this game is what happens when one of the small games ends in a draw. If this is the case, the big square is not owned by any of the players.

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○ AIM AND OBJECTIVES:

The aim of this project is to develop a Tic-Tac-Toe game for a WEB platform. The game is supposed to consist of two parts, one a single player game (a player against a system), and the other a multi-player game. In order to accomplish these, the following objectives were defined.

- ## Single player game:

The player shall play Tic-Tac-Toe game on his computer.

The player shall have option to edit his name.

The player shall start the game of choosing his symbol as X or O.

If player 1 selected X then O has to be automatically allotted to the mobile device as a second player, and vice versa.

The player has an option to choose the small game grid out of 4 small tic-tac-toe games.

If player X marked horizontally or vertically or diagonally of his symbol "X " in a row, then player X won that small match.

Finally, which player won the maximum small games will be declared as winner of the tic-tac-toe game.

- ## Multi-player game:

Players should have options to edit his name.

Once both players connected together, then first player will start the game of choosing his symbol as X or O.

If player 1 selected X then O has to be automatically allotted to player 2.

If player X marked horizontally or vertically or diagonally of his symbol "X " in a row, then player X won that small match.

That small grid is marked with X and Player1 awarded 1 point, screen should zoom out and have to display whole main game grid and now player who won the previous game will have the choice to choose on which grid have to be select to play remaining game.

This process will be repeated until the whole Four (4) small games grids marked with X, or O, or T.

Finally which player won the maximum small games will be declared as winner of the tic-tac-toe game. Then game ends.

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○ MOTIVATION:

The motivation for the development of this project is to learn the python language as well as the concepts of AI that includes the techniques of machine and deep learning. Throughout the game development, the hunger of seeking knowledge in above mentioned techniques shall not vanish.

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○ RELATED WORK:

A lot of related work have been done in past such as:

- **A simple tic tac toe.**
- **A multiplayer tic tac toe.**
- **Ultimate Tic Tac Toe bot (not Efficient).**
- **Platforms: Desktop, Mobile and Web.**

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○ PROJECT PLAN:

The project plan shall be designed with the collaborations of our team members as well as the Schedule/Estimated time will be manage side by side before the final execution of the project.

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○ REQUIREMENTS:

- **A WEB editor such as Brackets.**
- **Django WEB framework**
- **Python 3 Version.**
- **JQuery and Bootstrap (HTML5 & CSS3).**
- **SQLite 3.**
- **DB Browser for SQLite.**

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THE END