13/11/2020 AI Lab Test 1

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# Tic-Tac-Toe using 2 agent algorithm
## (Computer Vs Computer)

## Algorithm

~~board Display ()~~

~~winningPosition = [[0,1,8], [2,4,6], [0,3,6], [1,4,7],~~

1. While loop
2. Algorithm 1 starts playing
   algoPlay ()
2. If Algorithm 1 wins exit from the loop
   Else Algorithm 2 starts playing.
3. If Algorithm 2 wins exit from loop.
   Else the loop continues.
4. If all positions are filled and no algorithms wins
   print ("Draw Match")
   Exit from the loop.

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~~Pseudo Code~~ ~~Algo~~ Pseudocode

```
board = [" "] * 9
winningPosition = [[0,4,8], [2,4,6], [0,3,6], [1,4,7], [0,1,2],
                   [3,4,5], [6,7,8], [2,5,8]]

boardDisplay(), // function to display board

checkIfAvailable(pos): // to check if the entered position is vacant.
    if (board[pos] == " "):
        return 1
    else
        return 0

checkWin(player): // to check the winner
    for x in WinningPosition:
        if board[x[0]] = board[x[1]] and board[x[1]] = board[x[2]]
            and board[x[0]] != " ":
            print(player + "Won")
            return 0
    for i in board:
        if i == " ":
            return 1
    print("Draw Match")
```

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algoWin (player)

// To check if the player has put 2 places in winning position and then select 3rd position to win.

StopPlayer (player):

// This function would check if the opponent has chosen 2 winning positions & then try to stop them from choosing the 3rd winning Position.

AlgoTryWin (player)

// This function would check the positions which may win in the next chance.

randomPos():

// To select a random position from 0 to 8 which ever is empty

algoPlay():

// Call the algoWin (x), to check the winning possibilities.

If no winning possibilities then,

// Call the StopPlayer (y), to check if the other player is winning & stop them.

// Call algoTryWin (x)

// Call randomPos() to select a random place to insert the value.

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```
def Play()
// Call boardDisplay()
// Set flag=1
// while(flag):
    Algorithm 1 playing (X)
    autoPlay("X", "O")
    boardDisplay()
    checkWin() // Check if algorithm 1 has won
// If Algo 1 didn't win, then

    Algorithm 2 playing (O)
    autoPlay("O", "X")
    boardDisplay()
    if checkWin() // Check if algorithm 2 has won.
        flag=0 // If Algo 2 won, set flag=0.
    else
        flag=0.
```