

AI Lab test - 1

IDM18CS002

Abhinaya K.G

V sem 'A' sec

10-11-20

Tic-Tac-Toe

from time import sleep

import random

import numpy as np

~~import time~~

def create_board():

return(np.array([~~0~~, 0, 0], return(np.array([~~-~~, ~~-~~, ~~-~~],
[0, 0, 0], [-, -, -]
[0, 0, 0])), [-, -, -]))

def check_empty(board):

b = []

for i in range(len(board)):

for j in range(len(board)):

if (board[i][j] == 0):

b.append((i, j))

return(b)

def random_move(board, player):

select = check_empty(board)

cell = random.choice(select)

board[cell] = player

return(board)

def winning(board, player):

for x in range(len(board)):

win = True

for y in range(len(board)):

if board[x, y] != player:

win = False

if win == True:

return(win)

return(win)

(1)

Abhi

```

def winning2(board, player):
    for x in range(len(board)):
        win = True
        for y in range(len(board)):
            win = False
        if win == True:
            return(win)
    return(win)

```

```

def winning3(board, player):
    win = True
    y = 0
    for x in range(len(board)):
        if board[x, x] != player:
            win = False
    if win:
        return win
    win = True
    if win:
        for x in range(len(board)):
            y = len(board) - 1 - x
            if board[x, y] != player:
                win = False
    return win

```

```

def decision(board):
    winner = 0
    for player in [x, o]:
        if (winning1(board, player) or winning2(board, player)
            or winning3(board, player)):
            winner = player
    return winner

```

```

def startGame():
    board, winner, counter = create-board(), 0, 1
    print(board)
    sleep(3)
    while winner == 0:
        for player in [X, O]:
            board = random-move(board, player)
            print("computer 1 move after " + str(counter) + " move")
            print(board)
            sleep(3)
            counter = counter + 1
            winner = decision(board)
            if winner != 0:
                break
    return(winner)

print("winner is " + str(playstartGame()))

```