

Semester	S.E. Semester IV – Electronics Engineering
Subject	Skill Lab: Python Programming
Subject Professor In-charge	Prof. Manoj Suryawanshi
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Laboratory	Online

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Problem Title	Flipping Tiles
Introduction	Flipping tiles game can be played to test our memory. In this, we have a certain even number of tiles, in which each number/figure has a pair. The tiles are facing downwards, and we have to flip them to see them. In a turn, one flips 2 tiles, if the tiles match then they are removed. If not then they are flipped and placed back in the position. We keep on doing this until all the tiles have been matched and removed.
Objective of the Project	It will sharpen the mind.
Google Drive link	

Program: import random

class TicTacToe:

def __init__(self):
 self.board = []

```
def create_board(self):
    for i in range(3):
        row = []
        for j in range(3):
            row.append('-')
        self.board.append(row)
```

def get_random_first_player(self):
 return random.randint(0, 1)

def fix_spot(self, row, col, player):
 self.board[row][col] = player

def is_player_win(self, player):
 win = None

n = len(self.board)

checking rows

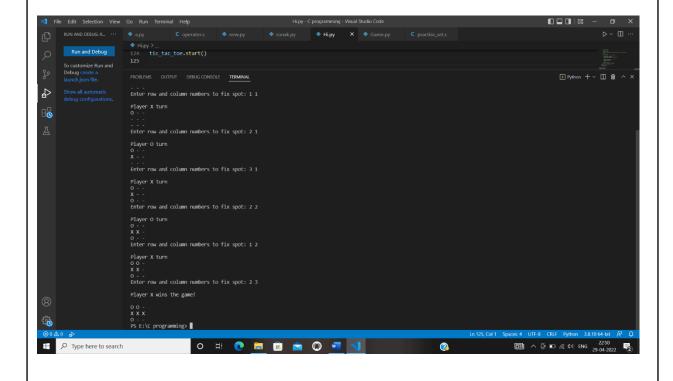
```
for i in range(n):
    win = True
    for j in range(n):
       if self.board[i][j] != player:
         win = False
         break
    if win:
       return win
  # checking columns
  for i in range(n):
    win = True
    for j in range(n):
       if self.board[j][i] != player:
         win = False
         break
    if win:
       return win
  # checking diagonals
  win = True
  for i in range(n):
    if self.board[i][i] != player:
       win = False
       break
  if win:
    return win
  win = True
  for i in range(n):
    if self.board[i][n - 1 - i] != player:
       win = False
       break
  if win:
    return win
  return False
  for row in self.board:
    for item in row:
       if item == '-':
         return False
  return True
def is_board_filled(self):
  for row in self.board:
    for item in row:
       if item == '-':
         return False
  return True
def swap_player_turn(self, player):
  return 'X' if player == 'O' else 'O'
```

def show_board(self):

```
for row in self.board:
       for item in row:
         print(item, end=" ")
       print()
  def start(self):
     self.create_board()
     player = 'X' if self.get_random_first_player() == 1 else 'O'
     while True:
       print(f"Player {player} turn")
       self.show_board()
       # taking user input
       row, col = list(
         map(int, input("Enter row and column numbers to fix spot: ").split()))
       print()
       # fixing the spot
       self.fix_spot(row - 1, col - 1, player)
       # checking whether current player is won or not
       if self.is_player_win(player):
         print(f"Player {player} wins the game!")
       # checking whether the game is draw or not
       if self.is_board_filled():
         print("Match Draw!")
         break
       # swapping the turn
       player = self.swap_player_turn(player)
     # showing the final view of board
     print()
     self.show_board()
# starting the game
tic_tac_toe = TicTacToe()
tic_tac_toe.start()
```



Results: (Attach screen shots of the output results)



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