PROGRAM-6

Aim: Write a program in python to implement tic-tac-toe.

Logic:

1. It is a two-player game
2. There are two characters ‘X’ and ‘O’
3. The game board consists of a 3x3 grid
4. Players who succeed in placing 3 same chars in horizontal, vertical, diagonal row will win the game

Algorithm:

1. Create a design of tic-tac-toe
2. Store information using data structure
3. Handle player input
4. Update the cell occupied according to current player
5. Check win or draw
6. Switch current player
7. Enter player name
8. Store information
9. Design a scorecard
10. Handle and assign player choice
11. Update scoreboard

Implementation:

```
import os
import time

board = ['#',' ',' ',' ',' ',' ',' ',' ',' ',' ']

def displayBoard(board):
    print(f"       |       |       ")
    print(f"   {board[7]}   |   {board[8]}   |   {board[9]}   ")
    print(f"_______|_______|_______")
    print(f"       |       |       ")
    print(f"   {board[4]}   |   {board[5]}   |   {board[6]}   ")
    print(f"_______|_______|_______")
    print(f"       |       |       ")
    print(f"   {board[1]}   |   {board[2]}   |   {board[3]}   ")
    print(f"       |       |       ")

def isWinner(board,mark):
    if(board[1] == mark and board[2] == mark and board[3] == mark) or \
      (board[4] == mark and board[5] == mark and board[6] == mark) or \
      (board[7] == mark and board[8] == mark and board[9] == mark) or \
      (board[1] == mark and board[4] == mark and board[7] == mark) or \
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```
      (board[2] == mark and board[5] == mark and board[8] == mark) or \
      (board[3] == mark and board[6] == mark and board[9] == mark) or \
      (board[1] == mark and board[5] == mark and board[9] == mark) or \
      (board[3] == mark and board[5] == mark and board[7] == mark):
      return True
    return False

def isBoardFull(board):
    if ' ' in board:
        return False
    return True

def validInput(board,player,mark):
    while True:
        choice = int(input(f"{player} enter choice : "))
        if board[choice] == ' ':
            board[choice] = mark
            return
        print("Wrong Choice!!")

def playerInput(board,player,mark,gameOver):
    validInput(board,player,mark)

    if isWinner(board,mark):
        os.system("cls")
        displayBoard(board)
        print(f"{player} won the game!!")
        gameOver[0] = True


playerX = input("Player X Enter your name : ")
playerO = input("Player O Enter your name : ")
playerXChance = True
gameOver = [False]

while not gameOver[0]:
    os.system("cls")
    displayBoard(board)
    if playerXChance:
        playerInput(board,playerX,'X',gameOver)
        playerXChance = not playerXChance
    else:
        playerInput(board,playerO,'O',gameOver)
        playerXChance = not playerXChance

    if isBoardFull(board) and not gameOver[0]:
        os.system("cls")
        displayBoard(board)
```

```
        print("Draw!!")
        gameOver[0] = True
```

Input:

Ravi

Rahul

Ravi: 1 9 3 6

Rahul: 5 7 2

Output: