**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 \

      (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:**

