PROGRAM TITLE 12

TIC TOC TOE GAME

AIM:

To write a python program for Tic Toc Toe game

PROCEDURE:

- **Initialize the Board:** Initialize the Tic Tac Toe board with empty cells.
- **Print the Board:** Write a function to print the current state of the board.
- **Check for Winner:** Write a function to check if there is a winner by examining rows, columns, and diagonals.
- **Check for Tie:** Write a function to check if the board is full, indicating a tie.
- **Game Loop**: Write a loop to handle player turns and moves. In each iteration, prompt the current player for their move, check for a winner or tie, and switch to the next player if the game continues. If there is a winner or tie, end the game and display the result.

CODING:

```
def print_board(board):
for row in board:
print(" | ".join(row))
print("-" * 5)



def check_winner(board):


   for row in board:        if row[0] ==
row[1] == row[2] != ' ':
          return row[0]
```

```
    for col in range(3):         if board[0][col] == board[1][col]
== board[2][col] != ' ':
            return board[0][col]




    if board[0][0] == board[1][1] == board[2][2] != ' ':

        return board[0][0]      if board[0][2] ==
board[1][1] == board[2][0] != ' ':
        return board[0][2]


    return None



def is_board_full(board):
for row in board:
for cell in row:              if
cell == ' ':
return False      return
True



def play_game():

    board = [[' '] * 3 for _ in range(3)]
current_player = 'X'


    while True:
        print_board(board)          row = int(input(f"Player {current_player}, enter row
number (0, 1, or 2): "))          col = int(input(f"Player {current_player}, enter column
number (0, 1, or 2): "))


        if board[row][col] != ' ':

            print("That cell is already occupied. Try again.")
continue


        board[row][col] = current_player


        winner = check_winner(board)
```

```
        if winner:
            print_board(board)
print(f"Player {winner} wins!")
break        elif is_board_full(board):
print_board(board)            print("It's a
tie!")            break

        current_player = 'O' if current_player == 'X' else 'X'



if __name__ == "__main__":
play_game()
```

OUTPUT:

```
-----
Player O, enter row number (0, 1, or 2): 2
Player O, enter column number (0, 1, or 2): 2
  | X | O
-----
  | O | X
-----
  | X | O
-----
Player X, enter row number (0, 1, or 2): 0
Player X, enter column number (0, 1, or 2): 0
X | X | O
-----
  | O | X
-----
  | X | O
-----
Player O, enter row number (0, 1, or 2): 2
Player O, enter column number (0, 1, or 2): 0
X | X | O
-----
  | O | X
-----
O | X | O
-----
Player O wins!
```

RESULT:

Hence the program been successfully executed and verified.