Write the python program for Tic Tac Toe game

AIM

To implement a two-player Tic Tac Toe game in Python using a 3×3 board.

Algorithm

1. Initialize a 3×3 board with empty spaces.
2. Define a function to display the board.
3. Define a function to check if a player has won by verifying:
    a. Any row has the same symbol.
    b. Any column has the same symbol.
    c. Either diagonal has the same symbol.
4. Alternate turns between Player X and Player O.
5. Ask the current player to enter row and column (0–2).
6. If the chosen cell is empty, place the symbol; otherwise, re-enter.
7. After each move, check for a winner.
    a. If a winner is found, display the board and announce the winner.
    b. If no winner after 9 moves, declare a draw.

map colouring.py - C:/Users/gayathri/map colouring.py (3.8.2)

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def print_board(board):
    for row in board:
        print(" | ".join(row))
        print("-" * 5)
def check_winner(board, player):
    for row in board:
        if all(s == player for s in row):
            return True
    for col in range(3):
        if all(row[col] == player for row in board):
            return True
    if all(board[i][i] == player for i in range(3)) or all(board[i][2-i] == player for i in range(3)):
        return True
    return False
def tic_tac_toe():
    board = [[" "]*3 for _ in range(3)]
    players = ["X", "O"]
    turn = 0
    for _ in range(9):
        print_board(board)
        player = players[turn % 2]
        row, col = map(int, input(f"Player {player}, enter row and col (0-2): ").split())
        if board[row][col] == " ":
            board[row][col] = player
            if check_winner(board, player):
                print_board(board)
                print(f"Player {player} wins!")
                return
            turn += 1
        else:
            print("Cell already taken, try again.")
    print_board(board)
    print("It's a draw!")
tic_tac_toe()
```

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Player X, enter row and col (0-2):
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Result

The program successfully simulates a two-player Tic Tac Toe game, allowing moves, checking winning conditions, and announcing the winner or a draw.