**Aim:**

To implement the **MIN MAX Algorithm** in Python.

**CODE:**

**import math**

**def check\_winner(board):**

**for row in range(3):**

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

**return board[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 minimax(board, is\_maximizing):**

**winner = check\_winner(board)**

**if winner == 'X': return 1**

**if winner == 'O': return -1**

**if all(board[row][col] != ' ' for row in range(3) for col in range(3)): return 0**

**best = -math.inf if is\_maximizing else math.inf**

**for row in range(3):**

**for col in range(3):**

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

**board[row][col] = 'X' if is\_maximizing else 'O'**

**score = minimax(board, not is\_maximizing)**

**best = max(best, score) if is\_maximizing else min(best, score)**

**board[row][col] = ' '**

**return best**

**def best\_move(board):**

**best\_val = -math.inf**

**move = (-1, -1)**

**for row in range(3):**

**for col in range(3):**

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

**board[row][col] = 'X'**

**move\_val = minimax(board, False)**

**board[row][col] = ' '**

**if move\_val > best\_val:**

**move = (row, col)**

**best\_val = move\_val**

**return move**

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

**while True:**

**row, col = best\_move(board)**

**board[row][col] = 'X'**

**if check\_winner(board):**

**print("Player X wins!")**

**break**

**print(board)**

**RESULT:**

**The Min Max program was successfully implemented.**