TITLE: Write the python program to solve 8-Queen problem

CODE:

```
def is_safe(board, row, col):
    # Check this row on left side
    for i in range(col):
        if board[row][i] == 1:
            return False

    # Check upper diagonal on left side
    for i, j in zip(range(row, -1, -1), range(col, -1, -1)):
        if board[i][j] == 1:
            return False

    # Check lower diagonal on left side
    for i, j in zip(range(row, len(board)), range(col, -1, -1)):
        if board[i][j] == 1:
            return False

    return True

def solve_queens(board, col):
    if col >= len(board):
```

```
            return True

    for i in range(len(board)):
        if is_safe(board, i, col):
            board[i][col] = 1

            if solve_queens(board, col + 1):
                return True

            board[i][col] = 0

    return False

def print_solution(board):
    for row in board:
        print(" ".join(map(str, row)))

def solve_8queens():
    # Create an 8x8 chessboard initialized with zeros
    board = [[0] * 8 for _ in range(8)]

    if not solve_queens(board, 0):
```

```
        print("No solution exists")
        return

    print_solution(board)

if __name__ == "__main__":
    solve_8queens()
```

output:

```
>>>
========== RESTART: D:\python\queens.py ==========
1 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0
0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 1
0 1 0 0 0 0 0 0
0 0 0 1 0 0 0 0
0 0 0 0 0 1 0 0
0 0 1 0 0 0 0 0
>>>
```