

#Aim: To write Python program for 8 queens Problem

```
def is_safe(board, row, col):
    for i in range(row):
        if board[i][col] == 1:
            return False
    for i, j in zip(range(row, -1, -1), range(col, -1, -1)):
        if board[i][j] == 1:
            return False
    for i, j in zip(range(row, -1, -1), range(col, len(board))):
        if board[i][j] == 1:
            return False
    return True

def solve_queens(board, row):
    n = len(board)
    if row == n:
        return True
    for col in range(n):
        if is_safe(board, row, col):
            board[row][col] = 1
            if solve_queens(board, row + 1):
                return True
            board[row][col] = 0
    return False

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

def solve_8_queens():
    board = [[0 for _ in range(8)] for _ in range(8)]
    if solve_queens(board, 0):
        print("Solution found:")
        print_solution(board)
    else:
        print("No solution exists")
solve_8_queens()
```

Solution found:

```
1 0 0 0 0 0 0 0
0 0 0 0 1 0 0 0
0 0 0 0 0 0 0 1
0 0 0 0 0 1 0 0
0 0 1 0 0 0 0 0
0 0 0 0 0 0 1 0
0 1 0 0 0 0 0 0
0 0 0 1 0 0 0 0
```

Process finished with exit code 0