8-QUEENS PROBLEM

## PROGRAM:

print("Enter the number of queens")  
N = int(input())  
# here we create a chessboard  
# NxN matrix with all elements set to 0  
board = [[0]\*N for \_ in range(N)]  
  
def attack(i, j):  
    # checking vertically and horizontally  
    for k in range(0, N):  
        if board[i][k] == 1 or board[k][j] == 1:  
            return True  
    # checking diagonally  
    for k in range(0, N):  
        for l in range(0, N):  
            if (k + l == i + j) or (k - l == i - j):  
                if board[k][l] == 1:  
                    return True  
    return False  
  
def N\_queens(n):  
    if n == 0:  
        return True  
    for i in range(0, N):  
        for j in range(0, N):  
            if (not attack(i, j)) and (board[i][j] != 1):  
                board[i][j] = 1  
                if N\_queens(n - 1) == True:  
                    return True  
                board[i][j] = 0  
    return False  
  
N\_queens(N)  
for i in board:  
    print(i)

OUTPUT:

Enter the number of queens  
8  
[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]  
=== Code Execution Successful ===