Experiment 7 N-Queens

Code:

```python
global N

N = int(input("Enter the number of queens: "))

def printSolution(board):
    for i in range(N):
        for j in range(N):
            print(board[i][j], end=" ")
        print()

def isSafe(board, row, col):
    for i in range(col):
        if board[row][i] == 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, N, 1), range(col, -1, -1)):
        if board[i][j] == 1:
            return False
    return True

def solveNQUtil(board, col):
    if col >= N:
        return True
    for i in range(N):
        if isSafe(board, i, col):
            board[i][col] = 1
            if solveNQUtil(board, col + 1) == True:
                return True
            board[i][col] = 0
    return False

def solveNQ():
    board = [[0 for i in range(N)] for i in range(N)]
    if solveNQUtil(board, 0) == False:
        print("Solution does not exist")
        return False
    printSolution(board)
    return True
solveNQ()
```

Outputs:

```
C:\Users\student\PycharmProjects\pythonProject1
Enter the number of queens: 5
1 0 0 0 0
0 0 0 1 0
0 1 0 0 0
0 0 0 0 1
0 0 1 0 0


Process finished with exit code 0
```