Artificial Intelligence LAB-4

N-QUEEN PROBLEM

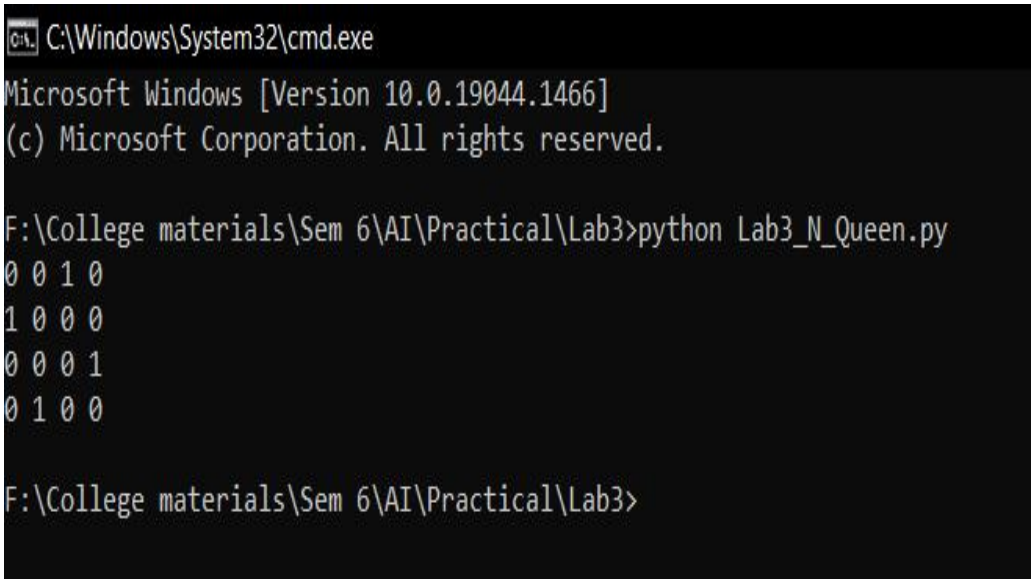
Date:8-2-22

-Source Code:

```
global N
N = 4

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, 0, 0, 0],
              [0, 0, 0, 0],
              [0, 0, 0, 0],
              [0, 0, 0, 0] ]

    if solveNQUtil(board, 0) == False:
        print ("Solution does not exist")
        return False

    printSolution(board)
    return True

solveNQ()
```

Output


C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19044.1466]
(c) Microsoft Corporation. All rights reserved.
F:\College materials\Sem 6\AI\Practical\Lab3>python Lab3_N_Queen.py
0 0 1 0
1 0 0 0
0 0 0 1
0 1 0 0
F:\College materials\Sem 6\AI\Practical\Lab3>