موضوع: پیاده سازی nوزیر

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كد:

```
Import copy

Def take_input:()

"""Accepts the size of the chess board"""

While True:

Try:

Size = int(input('What is the size of the

Chessboard? N = \n(('

If size == 1:

Print("Trivial solution, choose a board size

Of atleast 4("

If size <= 3:

Print("Enter a value such that size>=4")

Continue
```

```
Return size

Except ValueError:

Print("Invalid value entered. Enter again")

Def get_board(size):

"""Returns an n by n board"""

Board = [0]*size

For ix in range(size):

Board[ix] = [0]*size

Return board

Def print_solutions(solutions, size):

"""Prints all the solutions in user friendly way"""

For sol in solutions:

For row in sol:
```

```
Print(row)

Print()

Def is_safe(board, row, col, size):

"""Check if it's safe to place a queen at board[x][y]"""

#check row on left side
For iy in range(col):

If board[row][iy] == 1:

Return False

Ix, iy = row, col

While ix >= 0 and iy >= 0:

If board[ix][iy] == 1:

Return False

ix-=1
```

```
iy-=1

jx, jy = row,col

while jx < size and jy >= 0:

if board[jx][jy] == 1:

return False

jx+=1

jy-=1

return True

def solve(board, col, size):

“””Use backtracking to find all solutions”””

#base case

If col >= size:

Return
```

For i in range(size):

If is_safe(board, i, col, size):

Board[i][col] = 1

If col == size-1:

Add_solution(board)

Board[i][col] = 0

Return

Solve(board, col+1, size)

#backtrack

Board[i][col] = 0

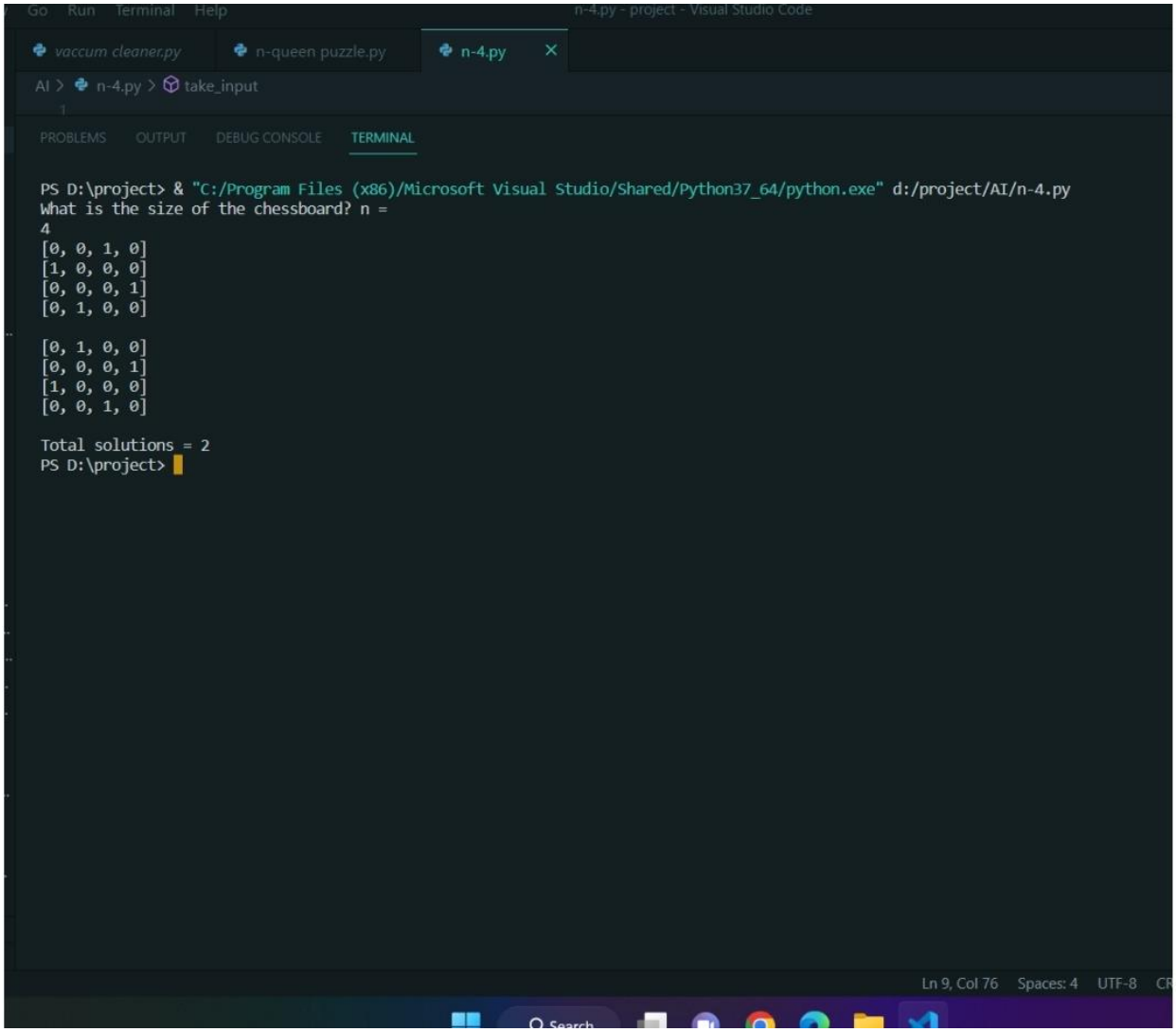
Def add_solution(board):

“””Saves the board state to the global variable

‘solutions’”””

Global solutions

```
Saved_board = copy.deepcopy(board)

Solutions.append(saved_board)

Size = take_input()

Board = get_board(size)

Solutions = []

Solve(board, 0, size)

Print_solutions(solutions, size)

Print(“Total solutions = {}”.format(len(solutions)))
```


Go Run Terminal Help
n-4.py - project - Visual Studio Code
vaccum cleaner.py
n-queen puzzle.py
n-4.py
AI > n-4.py > take_input
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
PS D:\project> & "C:/Program Files (x86)/Microsoft Visual Studio/Shared/Python37_64/python.exe" d:/project/AI/n-4.py
What is the size of the chessboard? n =
4
[0, 0, 1, 0]
[1, 0, 0, 0]
[0, 0, 0, 1]
[0, 1, 0, 0]
[0, 1, 0, 0]
[0, 0, 0, 1]
[1, 0, 0, 0]
[0, 0, 1, 0]
Total solutions = 2
PS D:\project>
Ln 9, Col 76 Spaces: 4 UTF-8