Experiment 9

Implementation of uncertain methods for an application

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Aim- To study Implementation of uncertain methods for an application.

Code:-

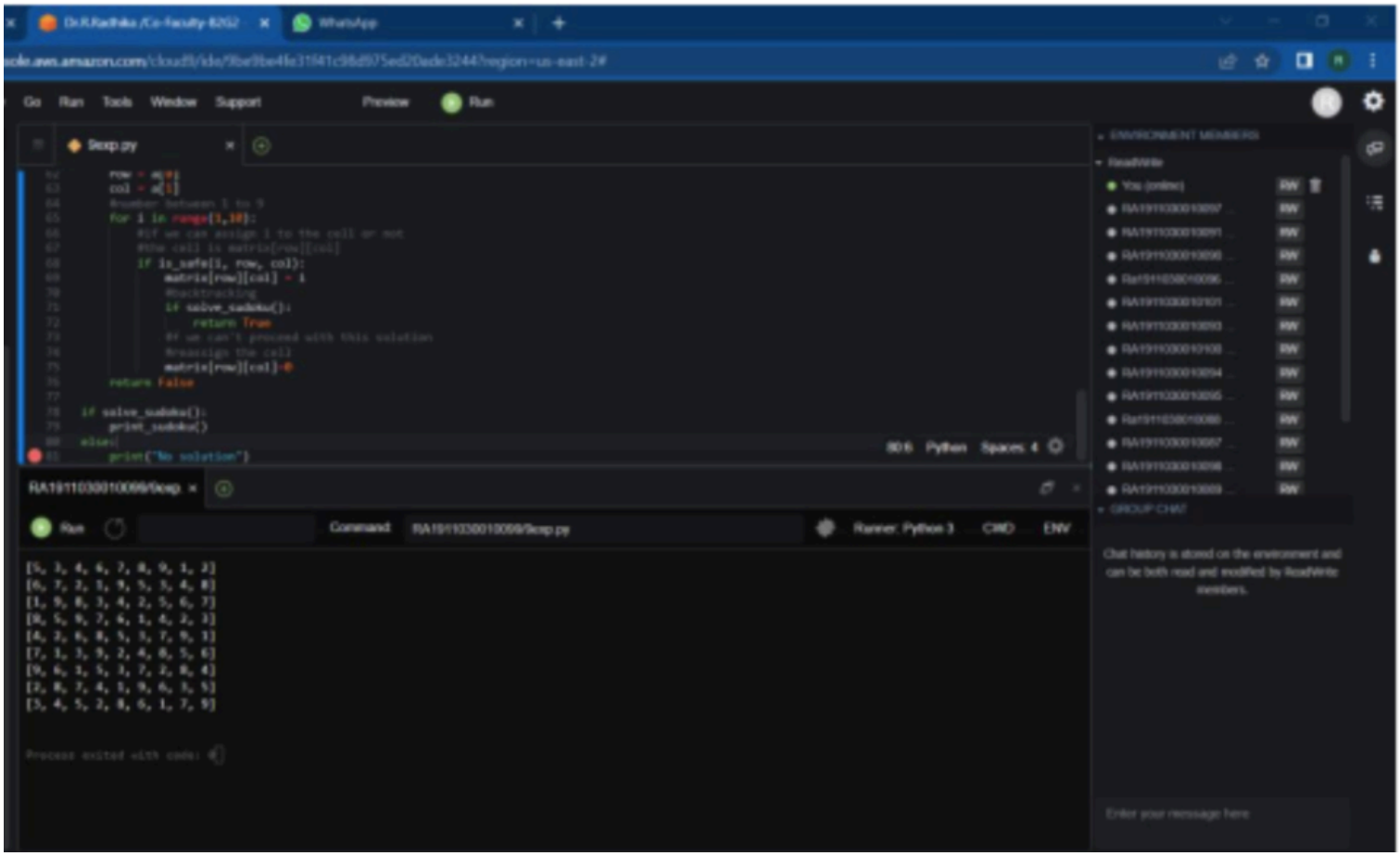
```
size = 9
#empty cells have value zero
matrix = [
[5,3,0,0,7,0,0,0,0],
[6,0,0,1,9,5,0,0,0],
[0,9,8,0,0,0,0,6,0],
[8,0,0,0,6,0,0,0,3],
[4,0,0,8,0,3,0,0,1],
[7,0,0,0,2,0,0,0,6],
[0,6,0,0,0,0,2,8,0],
[0,0,0,4,1,9,0,0,5],
[0,0,0,0,8,0,0,7,9]]
#print sudoku
def print_sudoku():
for i in matrix:
print (i)
#assign cells and check
def number_unassigned(row, col):
```

```
num_unassign = 0
for i in range(0,size):
for j in range (0,size):

#cell is unassigned
if matrix[i][j] == 0:
row = i
col = j
num_unassign = 1
a = [row, col, num_unassign]
return a
a = [-1, -1, num_unassign]
return a
#check validity of number
def is_safe(n, r, c):
#checking in row
for i in range(0,size):
#there is a cell with same value
if matrix[r][i] == n:
return False
#checking in column
for i in range(0,size):
#there is a cell with same value
if matrix[i][c] == n:
return False
row_start = (r//3)*3
col_start = (c//3)*3;

#checking submatrix
for i in range(row_start,row_start+3):
for j in range(col_start,col_start+3):
```

```
if matrix[i][j]==n:
return False
return True

#check validity of number
def solve_sudoku():
row = 0
col = 0
#if all cells are assigned then the sudoku is already
solved
#pass by reference because number_unassigned will
change the values of row and col
a = number_unassigned(row, col)
if a[2] == 0:
return True
row = a[0]
col = a[1]
#number between 1 to 9
for i in range(1,10):
#if we can assign i to the cell or not
#the cell is matrix[row][col]
if is_safe(i, row, col):
matrix[row][col] = i
#backtracking
if solve_sudoku():
return True
#f we can't proceed with this solution
#reassign the cell
matrix[row][col]=0
return False
if solve_sudoku():
```

```
print_sudoku()
else:
print("No solution”)
```

Output:-



RESULT:-

Implementation of uncertain methods for an application was studied and
implemented.