Program to find row, column and diagonal sum in Matrix

a = [[1, 2, 3],

[4, 5, 6],

[7, 8, 9]]

o/p:

Sum of 1 row: 6

Sum of 2 row: 15

Sum of 3 row: 24

Sum of 1 column: 12

Sum of 2 column: 15

Sum of 3 column: 18

Diagonal sum 15

CODE:

def calculate\_sum(matrix):

rows = len(matrix)

cols = len(matrix[0])

# Initialize lists to store row, column, and diagonal sums

row\_sums = [0] \* rows

col\_sums = [0] \* cols

diag\_sum1 = 0

diag\_sum2 = 0

# Calculate row sums, column sums, and diagonal sums

for i in range(rows):

for j in range(cols):

row\_sums[i] += matrix[i][j]

col\_sums[j] += matrix[i][j]

if i == j:

diag\_sum1 += matrix[i][j]

if i + j == rows - 1:

diag\_sum2 += matrix[i][j]

return row\_sums, col\_sums, diag\_sum1, diag\_sum2

# Get dimensions of the matrix from the user

rows = int(input("Enter the number of rows in the matrix: "))

cols = int(input("Enter the number of columns in the matrix: "))

# Get the matrix from the user

matrix = []

print("Enter the elements of the matrix:")

for i in range(rows):

row = []

for j in range(cols):

element = int(input(f"Enter element at position ({i + 1}, {j + 1}): "))

row.append(element)

matrix.append(row)

# Calculate sums

row\_sums, col\_sums, diag\_sum1, diag\_sum2 = calculate\_sum(matrix)

# Display the results

print("\nRow Sums:")

for i, row\_sum in enumerate(row\_sums):

print(f"Row {i + 1}: {row\_sum}")

print("\nColumn Sums:")

for j, col\_sum in enumerate(col\_sums):

print(f"Column {j + 1}: {col\_sum}")

print("\nDiagonal Sums:")

print(f"Main Diagonal: {diag\_sum1}")

print(f"Secondary Diagonal: {diag\_sum2}")

OUTPUT:

Enter the number of rows in the matrix: 3

Enter the number of columns in the matrix: 3

Enter the elements of the matrix:

Enter element at position (1, 1): 1

Enter element at position (1, 2): 2

Enter element at position (1, 3): 3

Enter element at position (2, 1): 4

Enter element at position (2, 2): 5

Enter element at position (2, 3): 6

Enter element at position (3, 1): 7

Enter element at position (3, 2): 8

Enter element at position (3, 3): 9

Row Sums:

Row 1: 6

Row 2: 15

Row 3: 24

Column Sums:

Column 1: 12

Column 2: 15

Column 3: 18

Diagonal Sums:

Main Diagonal: 15

Secondary Diagonal: 15

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