**Practical 1**

**Aim:** Write a python program to perform 2x2 Matrix multiplication  
**Code:**

x = [[1,2],[3,4]]

y = [[1,2],[3,4]]

result = [[0,0],[0,0]]

for i in range(len(x)):

for j in range(len(y[0])):

for k in range(len(y)):

result[i][j] += x[i][k] \* y[k][j]

for r in result:

print(r)

**OR**

def Matrix():

matrix = [[int(input(f"Enter value for [{i}][{j}] index: "))for

j in range(2)]for i in range(2)]

MatOutput(matrix)

return matrix

def MatOutput(mat):

for i in mat:

print(i)

def Multiplication(x,y):

result = [[0,0],[0,0]]

for i in range(len(x)):

for j in range(len(y[0])):

for k in range(len(y)):

result[i][j] += x[i][k] \* y[k][j]

MatOutput(result)

print("Matrix multiplication (2x2)")

print("For 1st matrix:")

a = Matrix() #taking input and printing the mat at the same time

print("\nFor 2nd matrix:")

b = Matrix()

print("\nResultant Matrix: ")

result = Multiplication(a,b)

**1st code output:**

[7, 10]

[15, 22]

**AND**

**2nd code output:**

Matrix multiplication (2x2)

For 1st matrix:

Enter value for [0][0] index: 1

Enter value for [0][1] index: 2

Enter value for [1][0] index: 3

Enter value for [1][1] index: 4

[1, 2]

[3, 4]

For 2nd matrix:

Enter value for [0][0] index: 1

Enter value for [0][1] index: 2

Enter value for [1][0] index: 3

Enter value for [1][1] index: 4

[1, 2]

[3, 4]

Resultant Matrix:

[7, 10]

[15, 22]