Practical No. 03 (Group A)

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Problem Statement :

Write a Python program to compute following computation on matrix:

a) Addition of two matrices

b) Subtraction of two matrices

c) Multiplication of two matrices

d) Transpose of a matrix

Code :

```
A = []
B = []
Res = []
row = int(input("Enter no. of rows : "))
cols = int(input("Enter no. of cols : "))
def CreateMatrix(X):
    for i in range(0,row):
        temp = []
```

```
        for j in range(0,cols):
            num = int(input("Enter a no. : "))
            temp.append(num)
        X.append(temp)
    print(X)


def Addition():
    for i in range(0, row):
        temp = []
        for j in range(0, cols):
            num = 0
            temp.append(num)
        Res.append(temp)


    for i in range(0,row):
        for j in range(0,cols):
            Res[i][j] = A[i][j] + B[i][j]
    print(Res)


def Substraction():
    for i in range(0,row):
        for j in range(0,cols):
            Res[i][j] = A[i][j] - B[i][j]
    print(Res)
```

```
def Multiplication():
    for i in range(0,row):
        for j in range(0,cols):
            for k in range(0,cols):
                Res[i][j] = Res[i][j] + (A[i][k] * B[j][k])
    print(Res)


def Transpose():
    for i in range(0,row):
        for j in range(0,cols):
            Res[j][i] = A[i][j]
    print(Res)


CreateMatrix(A)
CreateMatrix(B)
print("Addition of matrix is : ")
Addition()
print("Substraction of matrix is : ")
Substraction()
print("Transpose of matrix is : ")
Transpose()
print("Multipication of matrix is : ")
Multiplication()
```

```
print("Length of matrix A is : ",(len(A)))
```

Output :

```
/usr/bin/python3.8 /home/dcomp-proj/S211045_Atharva/Group A : Practical 3.py
Enter no. of rows : 2
Enter no. of cols : 2
Enter a no. : 1
Enter a no. : 2
Enter a no. : 3
Enter a no. : 4
[[1, 2], [3, 4]]
Enter a no. : 5
Enter a no. : 6
Enter a no. : 7
Enter a no. : 8
[[5, 6], [7, 8]]
Addition of matrix is :
[[6, 8], [10, 12]]
Substraction of matrix is :
[[-4, -4], [-4, -4]]
Transpose of matrix is :
[[1, 3], [2, 4]]
Multipication of matrix is :
[[18, 26], [41, 57]]
Length of matrix A is :  2

Process finished with exit code 0
```