#Matrix Manupulation

print("\*\*\*\*Matrix Manupulation\*\*\*\*")

r1=int(input("Enter the no of rows:"))

c1=int(input("Enter the no of columns:"))

def m1():

    global m11

    m11=[]

    print("Enter the values in rowwise:")

    for i in range(r1):

        a=[]

        for j in range(c1):

            a.append(int(input()))

        m11.append(a)

    for i in range(r1):

        for j in range(c1):

            print(m11[i][j],end=" ")

        print()

m1()

print("Enter the values for 2nd matrix:")

r2=int(input("Enter the no of rows:"))

c2=int(input("Enter the no of columns:"))

def m2():

    global m22

    m22=[]

    print("Enter the values in rowwise:")

    for i in range(r2):

        b=[]

        for j in range(c2):

            b.append(int(input()))

        m22.append(b)

    for i in range(r2):

        for j in range(c2):

            print(m22[i][j],end=" ")

        print()

m2()

if (r1==r2) and (c1==c2):

    print("Addition of given matrix is:")

    output=[[0 for i in range (c2)] for j in range(r1)]

    for i in range(r1):

        for j in range(c2):

            output[i][j]=m11[i][j]+m22[i][j]

    for i in range(r1):

        for j in range(c2):

            print(output[i][j]," ", end=" ")

        print()

    print()

    print("Subtraction of given matrix is:")

    output=[[0 for i in range(c2)]for j in range(r1)]

    for i in range(r1):

        for j in range(c2):

            output[i][j]=m11[i][j]-m22[i][j]

    for i in range(r1):

        for j in range(c2):

            print(output[i][j]," ",end=" ")

        print()

    print()

else:

    print("Matrix cant be added or subtracted")

if (c1==r2):

    print("Multiplication of matrix")

    result=[[0 for i in range(c2)]for j in range(r1)]

    for i in range(len(m11)):

        for j in range(len(m22[0])):

            for k in range(len(m22)):

                result[i][j]+=m11[i][k]\*m22[k][j]

    for r in result:

        print(r)

else:

    print("Matrix can't be multiplied")

print("Transpose of Matrix ONE-")

ans=[[0 for j in range(r1)]for i in range(c1)]

for i in range(c1):

    for j in range(r1):

        ans[i][j] = m11[j][i]

        print(ans[i][j]," ",end=" ")

    print()

print()

OUTPUT:-

\*\*\*\*Matrix Manupulation\*\*\*\*

Enter the no of rows:3

Enter the no of columns:3

Enter the values in rowwise:

1

2

3

5

4

6

7

8

9

1 2 3

5 4 6

7 8 9

Enter the values for 2nd matrix:

Enter the no of rows:3

Enter the no of columns:3

Enter the values in rowwise:

9

8

7

6

5

4

3

2

1

9 8 7

6 5 4

3 2 1

Addition of given matrix is:

10 10 10

11 9 10

10 10 10

Subtraction of given matrix is:

-8 -6 -4

-1 -1 2

4 6 8

Multiplication of matrix

[30, 24, 18]

[87, 72, 57]

[138, 114, 90]

Transpose of Matrix ONE-

1 5 7

2 4 8

3 6 9