m1 = []

r1 = int(input("Enter the number of rows for the first matrix: "))

c1 = int(input("Enter the number of columns for the first matrix: "))

for i in range(0, r1):

a = []

for j in range(0, c1):

v = int(input(f"Enter element [{i}][{j}]: "))

a.append(v)

m1.append(a)

print("First Matrix:", m1)

m2 = []

r2 = int(input("Enter the number of rows for the second matrix: "))

c2 = int(input("Enter the number of columns for the second matrix: "))

for i in range(0, r2):

a = []

for j in range(0, c2):

v = int(input(f"Enter element [{i}][{j}]: "))

a.append(v)

m2.append(a)

print("Second Matrix:", m2)

m3 = [[0 for j in range(c1)] for i in range(r1)]

for i in range(len(m1)):

for j in range(len(m1[0])):

m3[i][j] = m1[i][j] + m2[i][j]

print("Addition:")

for r in m3:

print(r)

m3 = [[0 for j in range(c1)] for i in range(r1)]

for i in range(len(m1)):

for j in range(len(m1[0])):

m3[i][j] = m1[i][j] - m2[i][j]

print("substraction:")

for r in m3:

print(r)

m3 = [[0 for j in range(c1)] for i in range(r1)]

for i in range(len(m1)):

for j in range(len(m1[0])):

m3[i][j] = m1[j][i]

print("transpose of m1:")

for r in m3:

print(r)

m3 = [[0 for j in range(c1)] for i in range(r1)]

for i in range(len(m1)):

for j in range(len(m2[0])):

for k in range(len(m2)):

m3[i][j] += m1[i][k] \* m2[k][j]

print("multiplication:")

for r in m3:

print(r)