**# WAP in Python to add two matrices together in a new matrix.**

**# WAP in Python to multiply two matrices together in a new matrix.**

**# WAP in Python to transpose a matrix.**

# Program to add two matrices using nested loop

X = [[12,7,3],

[4 ,5,6],

[7 ,8,9]]

Y = [[5,8,1],

[6,7,3],

[4,5,9]]

result = [[0,0,0],

[0,0,0],

[0,0,0]]

# iterate through rows

for i in range(len(X)):

# iterate through columns

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

result[i][j] = X[i][j] + Y[i][j]

for r in result:

print(r)

# Program to add two matrices using list comprehension

X = [[12,7,3],

[4 ,5,6],

[7 ,8,9]]

Y = [[5,8,1],

[6,7,3],

[4,5,9]]

result = [[X[i][j] + Y[i][j] for j in range(len(X[0]))] for i in range(len(X))]

for r in result:

print(r)

# Program to multiply two matrices using nested loops

# 3x3 matrix

X = [[12,7,3],

[4 ,5,6],

[7 ,8,9]]

# 3x4 matrix

Y = [[5,8,1,2],

[6,7,3,0],

[4,5,9,1]]

# result is 3x4

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

[0,0,0,0],

[0,0,0,0]]

# iterate through rows of X

for i in range(len(X)):

# iterate through columns of Y

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

# iterate through rows of Y

for k in range(len(Y)):

result[i][j] += X[i][k] \* Y[k][j]

for r in result:

print(r)

# Program to multiply two matrices using list comprehension

# 3x3 matrix

X = [[12,7,3],

[4 ,5,6],

[7 ,8,9]]

# 3x4 matrix

Y = [[5,8,1,2],

[6,7,3,0],

[4,5,9,1]]

# result is 3x4

result = [[sum(a\*b for a,b in zip(X\_row,Y\_col)) for Y\_col in zip(\*Y)] for X\_row in X]

for r in result:

print(r)

# Program to transpose a matrix using a nested loop

X = [[12,7],

[4 ,5],

[3 ,8]]

result = [[0,0,0],

[0,0,0]]

# iterate through rows

for i in range(len(X)):

# iterate through columns

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

result[j][i] = X[i][j]

for r in result:

print(r)

''' Program to transpose a matrix using list comprehension'''

X = [[12,7],

[4 ,5],

[3 ,8]]

result = [[X[j][i] for j in range(len(X))] for i in range(len(X[0]))]

for r in result:

print(r)