In Python we can solve the different matrix manipulations and operations. Numpy Module provides different methods for matrix operations.

**add()** − add elements of two matrices.

**subtract()** − subtract elements of two matrices.

**divide()** − divide elements of two matrices.

**multiply()** − multiply elements of two matrices.

**dot()** − It performs matrix multiplication, does not element wise multiplication.

**sqrt()** − square root of each element of matrix.

**sum(x, axis)** − add to all the elements in matrix. Second argument is optional, it is used when we want to compute the column sum if axis is 0 and row sum if axis is 1.

**“T”** − It performs transpose of the specified matrix.

**Examples:**

import numpy

# Two matrices are initialized by value

x = numpy.array([[1, 2], [4, 5]])

y = numpy.array([[7, 8], [9, 10]])

# add()is used to add matrices

print ("Addition of two matrices: ")

print (numpy.add(x,y))

# subtract()is used to subtract matrices

print ("Subtraction of two matrices : ")

print (numpy.subtract(x,y))

# divide()is used to divide matrices

print ("Matrix Division : ")

print (numpy.divide(x,y))

print ("Multiplication of two matrices: ")

print (numpy.multiply(x,y))

print ("The product of two matrices : ")

print (numpy.dot(x,y))

print ("square root is : ")

print (numpy.sqrt(x))

print ("The summation of elements : ")

print (numpy.sum(y))

print ("The column wise summation : ")

print (numpy.sum(y,axis=0))

print ("The row wise summation: ")

print (numpy.sum(y,axis=1))

# using "T" to transpose the matrix

print ("Matrix transposition : ")

print (x.T)

**Output**

Addition of two matrices:

[[ 8 10]

[13 15]]

Subtraction of two matrices :

[[-6 -6]

[-5 -5]]

Matrix Division :

[[0.14285714 0.25 ]

[0.44444444 0.5 ]]

Multiplication of two matrices:

[[ 7 16]

[36 50]]

The product of two matrices :

[[25 28]

[73 82]]

square root is :

[[1. 1.41421356]

[2. 2.23606798]]

The summation of elements :

34

The column wise summation :

[16 18]

The row wise summation:

[15 19]

Matrix transposition :

[[1 4]

[2 5]]