**AIM: Perform all metrix functions using python**

**Program**

```
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)
print ("Dot of two matrix")
print(numpy.dot(x,y))
```

**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]]
Dot of two matrix
[[25 28]
 [73 82]]
```