

Basic ML Library:

Numpy

Scipy

Pandas

Matplotlib

Advance ML Library:

Scikit-learn

Theano

TensorFlow

Keras

PyTorch

Numpy: NumPy is a very popular python library for large multi-dimensional array and matrix processing, with the help of a large collection of high-level mathematical functions.

```
# Python program using NumPy
# for some basic mathematical
# operations

import numpy as np

# Creating two arrays of rank 2
x = np.array([[1, 2], [3, 4]])
y = np.array([[5, 6], [7, 8]])

# Creating two arrays of rank 1
v = np.array([9, 10])
w = np.array([11, 12])

# Inner product of vectors
print(np.dot(v, w), "\n")

# Matrix and Vector product
print(np.dot(x, v), "\n")
```

```
# Matrix and matrix product
print(np.dot(x, y))
```

SciPy: SciPy is a very popular library among Machine Learning enthusiasts as it contains different modules for optimization, linear algebra, integration and statistics.

```
# Python script using Scipy
# for image manipulation

from scipy.misc import imread, imsave, imresize

# Read a JPEG image into a numpy array
img = imread('D:/Programs / cat.jpg') # path of the image
print(img.dtype, img.shape)

# Tinting the image
img_tint = img * [1, 0.45, 0.3]

# Saving the tinted image
imsave('D:/Programs / cat_tinted.jpg', img_tint)

# Resizing the tinted image to be 300 x 300 pixels
img_tint_resize = imresize(img_tint, (300, 300))

# Saving the resized tinted image
imsave('D:/Programs / cat_tinted_resized.jpg', img_tint_resize)
```