**Python Libraries and their Functionalities**

1. **Numpy**

Numpy is considered as one of the most popular machine learning library in Python.TensorFlow and other libraries uses Numpy internally for performing multiple operations on Tensors. Array interface is the best and the most important feature of Numpy.

**Uses-**

This interface can be utilized for expressing images, sound waves, and other binary raw streams as an array of real numbers in N-dimensional.For implementing this library for machine learning having knowledge of Numpy is important for full stack developers.

**Installation-**

pip install numpy

1. **Pandas**

Pandas is a machine learning library in Python that provides data structures of high-level and a wide variety of tools for analysis. One of the great feature of this library is the ability to translate complex operations with data using one or two commands. Pandas have so many inbuilt methods for grouping, combining data, and filtering, as well as time-series functionality.

**Uses-**

Pandas make sure that the entire process of manipulating data will be easier. Support for operations such as Re-indexing, Iteration, Sorting, Aggregations, Concatenations and Visualizations are among the feature highlights of Pandas.

**Installation-**

pip install pandas

1. **Matplotlib**

Matplotlib is a Python library that uses Python Script to write 2-dimensional graphs and plots. Often [mathematical](https://ubuntupit.com/top-20-best-computer-algebra-systems-for-linux/) or scientific applications require more than single axes in a representation. This library helps us to build multiple plots at a time

**Uses-**

Matplotlib can create such quality figures that are really good for publication. Figures you create with Matplotlib are available in hardcopy formats across different interactive platforms. A number of third-party libraries can be integrated with Matplotlib applications. Such as [seaborn](https://seaborn.github.io/), [ggplot](https://ggplot.yhathq.com/" \t "_blank), and other projection and mapping toolkits such as [basemap](https://matplotlib.org/basemap" \t "_blank).

**Installation-**

pip install matplotlib

1. **OpenCV**

OpenCV, a.k.a Open Source Computer Vision is a python package for image processing. It monitors overall functions that are focused on instant computer vision. Although OpenCV has no proper documentation, according to many developers, it is one of the hardest libraries to learn. However, it does provide many inbuilt functions through which you learn Computer vision easily.

**Uses-**

OpenCV is an ideal image processing package that allows you to both read and write images at the same time. Computer Vision allows you to rebuild, interrupt, and comprehend a 3D environment from its respective 2D environment.

**Installation-**

pip install opencv-python

1. **Keras**

Keras is an open-source deep neural network library. It is written in Python. Keras provides an effective inspection policy over detailed networks. Developers who work with Keras are impressed with its user-friendly and modular structure.

**Uses-**

Keras is a powerful python library. It is capable of running on Microsoft Cognitive Toolkit, PaidML, TensorFlow, and other platforms as well.

This python library features a variety of implementations from neural network forming blocks – functions, layers, optimizers, objectives, and others.

Keras depends on the following python libraries.

Numpy , Pandas, Scikit-learn, Matplotlib, Scipy , Seaborn

1. **TensorFlow**

TensorFlow is a free, open-source python [machine learning library](https://ubuntupit.com/best-ai-and-machine-learning-software-and-frameworks/). It is very easy to learn and has a handful collection of useful tools. However, it is not limited to machine learning only; you can also use it for dataflow and programs that are differentiable.

**Uses-**

TensorFlow uses automatic high-performance APIs such as – Keras. It offers an immediate iteration of machine learning models. This library features eager execution, which allows you to create, manipulate machine learning models, and make the debugging way easier.