**What is a Python Library?**

Python library is a collection of modules that contain functions and classes that can be used by other programs to perform various tasks.

**Top 26 Python Libraries List**

**1. Scikit- learn**

It is a free software [machine learning](https://www.mygreatlearning.com/blog/what-is-machine-learning/) library for the Python programming language. It can be effectively used for a variety of applications which include classification, regression, clustering, model selection, naive Bayes’, grade boosting, K-means, and preprocessing.  
Scikit-learn requires:

* Python (>= 2.7 or >= 3.3),
* NumPy (>= 1.8.2),
* SciPy (>= 0.13.3).

Spotify uses Scikit-learn for its music recommendations and Evernote for building its classifiers. If you already have a working installation of NumPy and scipy, the easiest way to install scikit-learn is by using [pip](http://scikit-learn.org/stable/install.html).

**2. NuPIC**

The Numenta Platform for Intelligent Computing (NuPIC) is a platform that aims to implement an HTM learning algorithm and make them a public source as well. It is the foundation for future machine learning algorithms based on the biology of the neocortex. Click [here](https://github.com/numenta) to check their code on GitHub.

**3. Ramp**

It is a Python library that is used for the rapid prototyping of machine learning models. [Ramp](https://pypi.org/project/ramp/) provides a simple, declarative syntax for exploring features, algorithms, and transformations. It is a lightweight pandas-based machine learning framework and can be used seamlessly with existing python machine learning and statistics tools.

**4. NumPy**

When it comes to scientific computing, [NumPy](http://www.numpy.org/" \t "_blank) is one of the fundamental packages for Python, providing support for large multidimensional arrays and matrices along with a collection of high-level mathematical functions to execute these functions swiftly. NumPy relies on [BLAS](https://en.wikipedia.org/wiki/Basic_Linear_Algebra_Subprograms) and [LAPACK](https://en.wikipedia.org/wiki/LAPACK) for efficient linear algebra computations. NumPy can also be used as an efficient multi-dimensional container of generic data.

**5. Pipenv**

The *officially recommended tool for Python in 2017* – Pipenv is a production-ready tool that aims to bring the best of all packaging worlds to the Python world. The cardinal purpose is to provide users with a working environment that is easy to set up. Pipenv, the “Python Development Workflow for Humans,” was created by Kenneth Reitz for managing package discrepancies.

**6. TensorFlow**

TensorFlow’s most popular deep learning framework is an open-source software library for high-performance numerical computation. It is an iconic math library and is also used for Python in machine learning and deep learning algorithms. Tensorflow was developed by the researchers at the Google Brain team within the Google AI organization. Today, it is being used by researchers for machine learning algorithms and by physicists for complex mathematical computations. The following operating systems support TensorFlow: macOS 10.12.6 (Sierra) or later; Ubuntu 16.04 or later; Windows 7 or above; Raspbian 9.0 or later.

**7. Bob**

Developed at Idiap Research Institute in Switzerland, [Bob](https://pypi.org/project/bob/) is a free signal processing and machine learning toolbox. The toolbox is written in a mix of Python and C++. From image recognition to image and video processing using machine learning algorithms, a large number of packages are available in Bob to make all of this happen with great efficiency in a short time.

**8. PyTorch**

Introduced by Facebook in 2017, [PyTorch](https://pytorch.org/) is a Python package that gives the user a blend of 2 high-level features – Tensor computation (like NumPy) with strong GPU acceleration and the development of Deep Neural Networks on a tape-based auto diff system. PyTorch provides a great platform to execute Deep Learning models with increased flexibility and speed built to be integrated deeply with Python.

Looking to get started with PyTorch?

**9. PyBrain**

[PyBrain](http://pybrain.org/) contains algorithms for *neural networks* that can be used by entry-level students yet can be used for state-of-the-art research. The goal is to offer simple, flexible yet sophisticated, and powerful algorithms for machine learning with many pre-determined environments to test and compare your algorithms. Researchers, students, developers, lecturers, you, and I can use PyBrain.

**10. MILK**

This machine learning toolkit in Python focuses on supervised classification with a gamut of classifiers available: SVM, k-NN, random forests, and decision trees. A range of combinations of these classifiers gives different classification systems. For unsupervised learning, one can use k-means clustering and affinity propagation. There is a strong emphasis on speed and low memory usage. Therefore, most of the performance-sensitive code is in C

**11. Keras**

It is an open-source neural network library written in Python designed to enable fast experimentation with deep neural networks. With deep learning becoming ubiquitous, [Keras](https://keras.io/) becomes the ideal choice as it is API designed for humans and not machines, according to the creators. With over 200,000 users as of November 2017, Keras has stronger adoption in both the industry and the research community, even over TensorFlow or Theano. Before installing Keras, it is advised to install the TensorFlow backend engine.

**12. Dash**

From exploring data to monitoring your experiments, Dash is like the front end to the analytical Python backend. This productive Python framework is ideal for data visualization apps particularly suited for every Python user. The ease we experience is a result of extensive and exhaustive effort.

**13. Pandas**

It is an open-source, BSD-licensed library. Pandas enable the provision of easy data structure and quicker data analysis for Python. For operations like data analysis and modeling, Pandas makes it possible to carry these out without needing to switch to more domain-specific language like R. The best way to install Pandas is by [Conda installation.](http://pandas.pydata.org/pandas-docs/stable/install.html" \l "installing-pandas-with-anaconda" \t "_blank)

**14. Scipy**

This is yet another open-source software used for scientific computing in Python. Apart from that, Scipy is also used for Data Computation, productivity, high-performance computing, and quality assurance. The core [Scipy](https://www.mygreatlearning.com/scipy/free-courses) packages are Numpy, SciPy library, Matplotlib, IPython, Sympy, and Pandas.

**15. Matplotlib**

All the libraries that we have discussed are capable of a gamut of numeric operations, but when it comes to dimensional plotting, Matplotlib steals the show. This open-source library in Python is widely used for publishing quality figures in various hard copy formats and interactive environments across platforms. You can design charts, graphs, pie charts, scatterplots, histograms, error charts, etc., with just a few lines of code.

**16. Theano**

This open-source library enables you to efficiently define, optimize, and evaluate mathematical expressions involving multi-dimensional arrays. For a humongous volume of data, handcrafted C codes become slower. Theano enables swift implementations of code. Theano can recognize unstable expressions and yet compute them with stable algorithms, giving it an upper hand over NumPy. The closest Python package to Theano is Sympy. *So let us talk about it.*

**17. SymPy**

For all the symbolic mathematics, SymPy is the answer. This Python library for symbolic mathematics is an effective aid for computer algebra systems (CAS) while keeping the code as simple as possible to be comprehensible and easily extensible. SimPy is written in Python only and can be embedded in other applications and extended with custom functions.

**18. Caffe2**

The new boy in town – Caffe2, is a Lightweight, Modular, and Scalable Deep Learning Framework. It aims to provide an easy and straightforward way for you to experiment with deep learning. Thanks to Python and C++ APIs in Caffe2, we can create our prototype now and optimize it later

**19. Seaborn**

When it comes to the visualization of statistical models like heat maps, Seaborn is among the reliable sources. This Python library is derived from Matplotlib and is closely integrated with Pandas data structures.

**20. Hebel**

This Python library is a tool for deep learning with neural networks using GPU acceleration with CUDA through pyCUDA. Right now, Hebel implements feed-forward neural networks for classification and regression on one or multiple tasks. Other models such as Autoencoder, Convolutional neural nets, and Restricted Boltzman machines are planned for the future.

**21. Chainer**

A competitor to Hebel, this Python package aims at increasing the flexibility of deep learning models. The three key focus areas of Chainer include:   
**a. Transportation system:** The makers of Chainer have consistently shown an inclination toward automatic driving cars, and they have been in talks with Toyota Motors about the same.  
  
**b. Manufacturing industry: Chainer has been used effectively for robotics and several machine learning tools,** from object recognition to optimization.

**c. Bio-health care:** To deal with the severity of cancer, the makers of Chainer have invested in research of various medical images for the early diagnosis of cancer cells.  
The installation, projects and other details can be found here.  
So here is a list of the common Python Libraries which are worth taking a peek at and, if possible, familiarizing yourself with..

**22. OpenCV Python**

Open Source Computer Vision or [OpenCV](https://www.mygreatlearning.com/blog/opencv-tutorial-in-python/) is used for image processing. It is a Python package that monitors overall functions focused on instant computer vision. OpenCV provides several inbuilt functions; with the help of this, you can learn Computer Vision. It allows both to read and write images at the same time. Objects such as faces, trees, etc., can be diagnosed in any video or image. It is compatible with Windows, OS-X, and other operating systems.

**23. Theano**

Along with being a Python Library, Theano is also an optimizing compiler. It is used for analyzing, describing, and optimizing different mathematical declarations at the same time. It makes use of multi-dimensional arrays, ensuring that we don’t have to worry about the perfection of our projects. Theano works well with GPUs and has an interface quite similar to Numpy. The library makes computation 140x faster and can be used to detect and analyze any harmful bugs. You can get it [here](https://github.com/Theano/Theano).

**24. NLTK**

The Natural Language Toolkit, NLTK, is one of the popular Python NLP Libraries. It contains a set of processing libraries that provide processing solutions for numerical and symbolic language processing in English only. The toolkit comes with a dynamic discussion forum that allows you to discuss and bring up any issues relating to NLTK.

**25. SQLAlchemy**

SQLAcademy is a Database abstraction library for Python that comes with astounding support for a range of databases and layouts. It provides consistent patterns, is easy to understand, and can be used by beginners too. It improves the speed of communication between Python language and databases and supports most platforms such as Python 2.5, Jython, and Pypy. Using SQLAcademy, you can develop database schemes from scratch.

**26. Bokeh**

A Data visualization library for Python, Bokeh allows interactive visualization. It makes use of HTML and Javascript to provide graphics, making it reliable for contributing web-based applications. It is highly flexible and allows you to convert visualization written in other libraries such as ggplot or matplot lib. Bokeh makes use of straightforward commands to create composite statistical scenarios.

**27. Requests**

Requests enables you to send HTTP/1.1 requests and include headers, form data, multipart files, and parameters using basic Python dictionaries.  
Similarly, it also enables you to retrieve the answer data.

**28. Pyglet**

Pyglet is designed for creating visually appealing games and other applications. Windowing, processing user interface events, joysticks, OpenGL graphics, loading pictures and movies, and playing sounds and music are all supported. Linux, OS X, and Windows all support Pyglet.

**29. LightGBM**

One of the best and most well-known machine learning libraries, gradient boosting, aids programmers in creating new algorithms by using decision trees and other reformulated basic models. As a result, specialized libraries can be used to implement this method quickly and effectively.

**30. Eli5**

The Python-built Eli5 machine learning library aids in addressing the problem of machine learning model predictions that are frequently inaccurate. It combines visualization, debugging all machine learning models, and tracking all algorithmic working processe