# *IMPORTANT LIBRARIES IN PYTHON FOR MACHINE LEARNING:*

1. ***Scikit Learn:*** It is one of the most important libraries that is used in machine learning. It contains a number of learning algorithms as part of it. It is also an open source project which means we can easily obtain the code of these algorithms.
    More details of theses algorithms and a comprehensive documentation of each algorithm can be found on their page: https://scikit-learn.org/stable/index.html

2. ***NumPy***: It is a fundamental package for scientific computations in Python. It adds support for large, multi-dimensional arrays and matrices. It also has a collection of functions to operate on these arrays. It also contains functionality for linear algebra and the Fourier transform and a pseudorandom-number generators. **All the data entries should be of the same data type.**

    ***Example:*** x = np.array([[1, 2, 3], [4, 5, 6]])

3. ***SciPy:*** It is another important library that is a free and an open-source which is used for scientific computing in Python. Some of the functionalities it provides are advanced linear algebra routines, mathematical function optimization, signal processing, special mathematical functions, and statistical distributions.

4. ***Matplotlib:*** It is one of the most frequently used libraries in Python. It is used for plotting visualizations like line charts, histograms, scatter plots etc.

5. ***Pandas:*** Pandas is a Python library which is used for data wrangling and analysis. The library is used to create and define the data structure DataFrame. DataFrame is used to put the data in a more tabular way then use Pandas methods to modify and operate on this data. **Unlike numpy we can have data of various different data types.**

6. ***Tensorflow:*** It is an open source library developed by Google primarily used for machine learning and neural networks. In a broader sense it is used for dataflow and differentiable programming.

7. ***Keras:*** It is another open source neural network library which is capable of running on top of Tensorflow enabling faster experimentation with deep neural networks. According to its creators Keras was designed to provide an interface to high end libraries like tensorflow rather than being a standalone library.

8. ***PyTorch:*** It is a library that is used for applications based on Computer Vision and Natural Language Processing. It was developed b y Facebook's AI research lab. Some of the famous projects that use this library are Tesla Autopilot, Uber's Pyro etc.

9. ***NLTK (Natural Language Toolkit):*** It is a suite of libraries and programs for symbolic and statistical natural language processing (NLP) for English written in the Python programming language. NLTK includes graphical demonstrations and sample data. NLTK is intended to support research and teaching in NLP or closely related areas, including empirical linguistics, cognitive science, artificial intelligence, information retrieval, and machine learning.