This lecture is aimed at beginners who want to be expert in Python Programming. To be good programmer, it is not necessary to know all the libraries there are in any language. However, there are some libraries that every programmer should know well. Every language has its own libraries. Because of the huge number of libraries, Python is becoming very popular among machine learning professionals too.

A basic knowledge of these Python libraries will help you kickstart the mastering of the libraries available in Python.

If you are working on Machine Learning project in Python, then you might have heard about this famous open source library as Tensorflow.
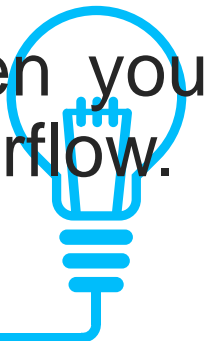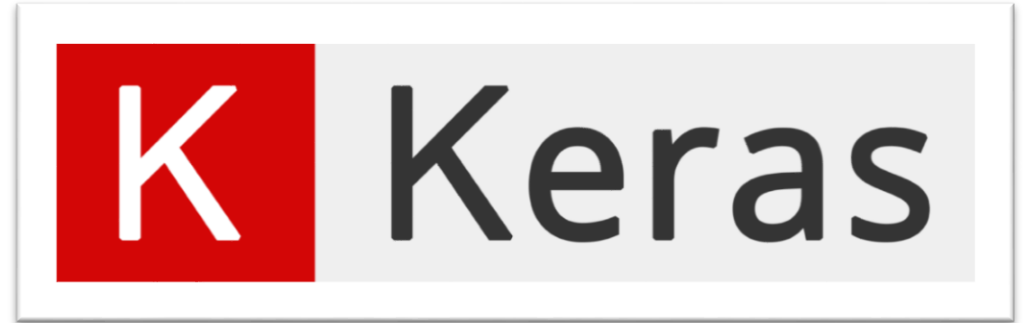
The core open source library to help you develop and train ML models. It was originally developed by Google in partnership with Brain Team. Tensorflow is used in every Google Application for Machine Learning.
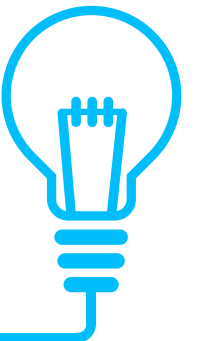
URL: https://www.tensorflow.org
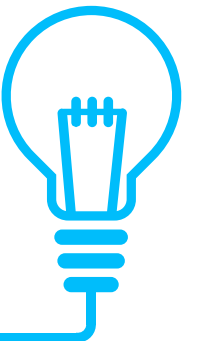
Keras is considered as one of the coolest machine learning libraries in Python. It provides an easier mechanism to express neural networks. Keras also provides some of the best utilities for compiling models, processing data-sets, visualization of graphs, and much more.
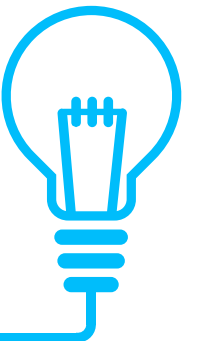
URL: https://keras.io

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.

URL: https://numpy.org

It is a Python library is associated with NumPy and SciPy. It is considered as one of the best libraries for working with complex data.

URL: https://scikit-learn.org

PyTorch is the largest machine learning library that allow developers to perform tensor computations with an acceleration of GPU, creates dynamic computational graphs, and calculate gradients automatically. Other than this, PyTorch offers rich APIs for solving application issues related to neural networks.

This machine learning library is based on Torch, which is an open source machine library implemented in C with a wrapper in Lua.

URL: https://pytorch.org
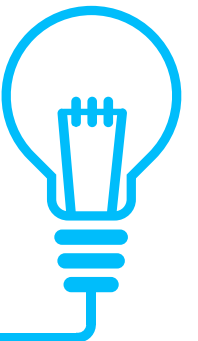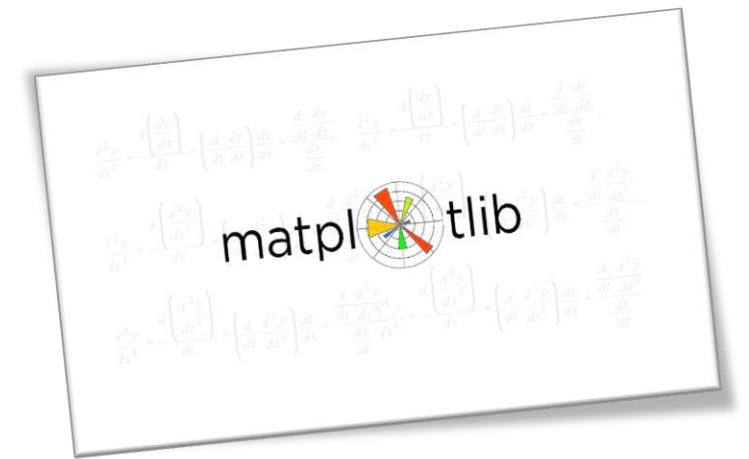
Matplotlib is a plotting library used for 2D graphics in python programming language. It can be used in python scripts, shell, web application servers and other graphical user interface toolkits. It gives an object-oriented API for embedding plots into applications using general purpose GUI toolkits like tkinter, wxPython, Qt or GTK+.
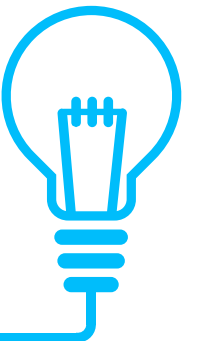
URL: https://matplotlib.org
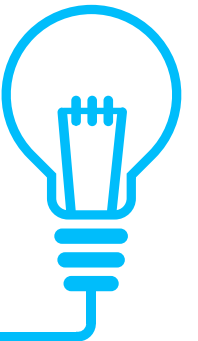
Pandas is a machine learning library in Python that provides data structures of high-level and a wide variety of tools for analysis. Pandas have so many inbuilt methods for grouping, combining data, and filtering, as well as time-series functionality.
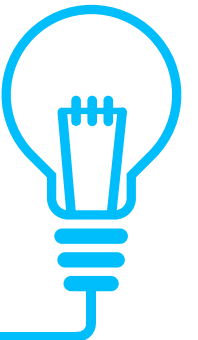
URL: https://pandas.pydata.org

Theano is a computational framework machine learning library in Python for computing multidimensional arrays. Theano works similar to TensorFlow, but it not as efficient as TensorFlow. Because of its inability to fit into production environments.
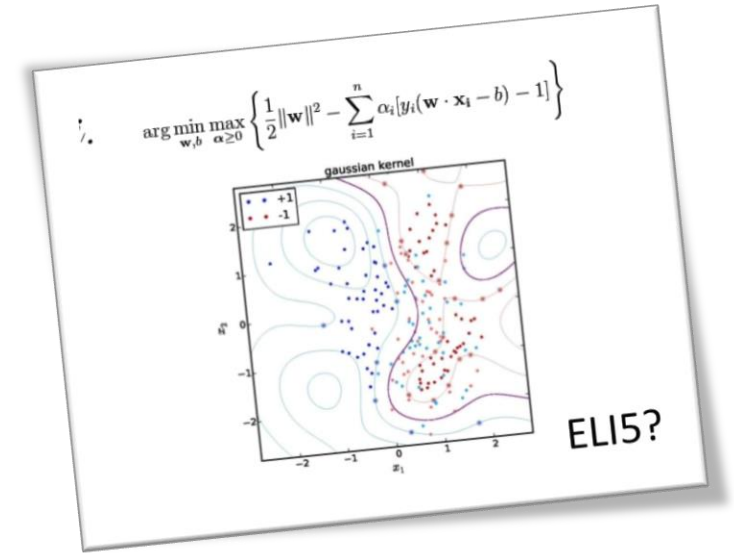
URL: https://pypi.org/project/Theano

The SciPy is a machine learning library for application developers and engineers. SciPy library contains modules for optimization, linear algebra, integration, and statistics.

The essential component of the SciPy library is that it is produced using NumPy.

URL: https://www.scipy.org

Most often the results of machine learning model predictions are not accurate, and Eli5 machine learning library built in Python helps in overcoming this challenge. It is a combination of visualization and debug all the machine learning models and track all working steps of an algorithm.

URL: https://eli5.readthedocs.io/en/latest/

The LightGBM is a gradient boosting framework that uses tree based learning algorithms.

It is designed to be distributed and efficient with the following advantages:

- Faster training speed and higher efficiency.

- Lower memory usage.

- Better accuracy.

- Support of parallel and GPU learning.
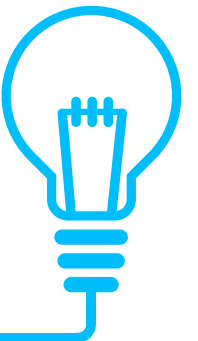
- Capable of handling large-scale data.

URL: https://lightgbm.readthedocs.io/en/latest/
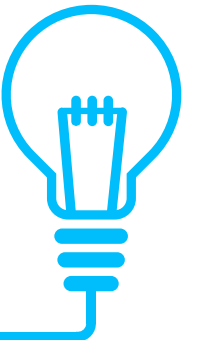
The Requests is a Python Library that lets you send HTTP/1.1 requests, add headers, form data, multipart files, and parameters with simple Python dictionaries. It also lets you access the response data in the same way.

URL: https://requests.readthedocs.io/en/master

The SQLAlchemy is a library with well-known enterprise-level patterns. It was designed for efficient and high-performing database-access.

URL: https://www.sqlalchemy.org

This is a Python package for viewing HTML and XML documents. It makes a parse tree for parsed pages that can be used to extract data from HTML, which is effective for web scrapping.

It may be a bit slow but BeautifulSoup has an excellent XML- and HTML- parsing library for beginners.

URL: https://pypi.org/project/beautifulsoup4