What is Keras?

Keras is a freeware deep learning framework of Python. It is developed by an artificial intelligence researcher whose name is “Francois Chollet”.

It is a top-level neural network API developed in python.

It supports both recurrent and convolutional networks and the amalgamation of both.

Many Top companies, like Netflix, Google, Square, are presently using Keras tools. It is used to develop Deep Learning Models.

It uses libraries of different programming languages like Python, C++, C, etc.

Keras Features

The features of Keras are as follows:

- Simple, extensible, and constant API.
- It supports backends and different platforms.
- Due to its Customizable framework, it can work on both GPU and CPU.
- Calculations are extremely scalable.

Advantages of Keras

The Advantages of Keras are as follows:

- It is tested easily.
- The neural networks of Keras are developed in Python, which is easy to understand.
- It endorses both recurrent and convolutional networks.
- It has great community support.

- As the models of deep learning are discrete components, they can be merged.

Modules in Keras

The Existing Models of Keras are as follows:

- **Constraints:** This module is used to set various functions to limit the layer. Some constraint Functions are: 1) NonVeg 2) UnitNorm 3) MaxNorm.
- **Callback**: It gives a callback function list. It is used at the time of the training process to print the intermediate data, according to the given condition.
- **Utilities**: In deep learning, it is helpful in providing many utility functions.
- **Text Processing:** It gives functions for converting text into Numpy arrays, and this is useful for machine learning.
- **Image Processing:** It works the same as how Text Processing. Text Processing Function is used in the Machine Learning's Preparation Phase.
- **Sequence Processing:** It is used to create time-based data from the input data.
- **Initialiser:** To assign the initial weight to the given data, we use the initializer model.
- **Regularizer:** Regularizer Module is helpful in the phase of optimization. The main job of a Regularizer is to fix the penalties on the layer.

Keras Architecture

The API of Keras is distributed into three primary categories:

- Model
- Layer
- Core Modules

Models

Keras Models are of two types, they are:

- Sequential Model
  - It is a sequential arrangement of Keras Layers. The sequential model can depict all the existing neural networks.
- Functional API
  - It helps to create complex models.

Layers

Each Keras layer present in the Keras model depicts the respective layer present in the real neural network model. The essential Keras Layers are as follows:

- Pooling layers
- Convolution Layers
- Core Layers
- Recurrent Layers.

Core Modules

Keras Provides some neural network functions; they are as follows:

Activations Module: It gives many activation functions like relu, softmax, etc.

- **Optimizer Module:** It gives optimizer functions like sgd, adm, etc.
- **Regularizers:** L 1 Regularizer and L 2 Regularizer functions are provided by Regularizers.
- **Loss Module**: It gives loss functions like Poisson, mean_absolute_error, etc.

Conclusion

Keras is considered as a framework used in deep learning to analyze the given input and develop the Deep Learning Models. It is built on libraries like Theano, Caffe, TensorFlow, Caffe, etc. It is more helpful in the image and video recognition process. As the requirement of machine learning is increasing, the demand for Keras framework and Deep Learning is also increasing. So, the professionals who are working with Machine learning must have knowledge of the Keras framework.