Pre-Requisites:

Jupyter Lab:

Jupyter Lab is the latest web-based interactive development environment for notebooks, code, and data. Its flexible interface allows users to configure and arrange workflows in data science, scientific computing, computational journalism, and machine learning. A modular design invites extensions to expand and enrich functionality.

Numpy:

Python NumPy is a general-purpose array processing package which provides tools for handling the n-dimensional arrays. It provides various computing tools such as comprehensive mathematical functions, linear algebra routines.

NumPy provides both the flexibility of Python and the speed of well-optimized compiled C code. It's easy to use syntax makes it highly accessible and productive for programmers from any background.

NumPy is a general-purpose array-processing package. It provides a high-performance multidimensional array object, and tools for working with these arrays. It is the fundamental package for scientific computing with Python. It is open-source software.

Keras :

Keras is an open-source software library that provides a Python interface for artificial neural networks. Keras acts as an interface for the TensorFlow library. Keras contains numerous implementations of commonly used neural-network building blocks such as layers, objectives, activation functions, optimizers, and a host of tools to make working with image and text data easier to simplify the coding necessary for writing deep neural network code. The code is hosted on GitHub, and community support forums include the GitHub issues page, and a Slack channel.

Tensorflow :

TensorFlow is a free and open-source software library for machine learning and artificial intelligence. It can be used across a range of tasks but has a particular focus on training and inference of deep neural networks.

TensorFlow was developed by the Google Brain team for internal Google use in research and production. The initial version was released under the Apache License 2.0 in 2015. Google released the updated version of TensorFlow, named TensorFlow 2.0, in September 2019.

TensorFlow can be used in a wide variety of programming languages, including Python, JavaScript, C++, and Java. This flexibility lends itself to a range of applications in many different sectors.

If you are using anaconda navigator, follow below steps to download required packages:

1. Open anaconda prompt.
2. Type **“pip install numpy”** and click enter.
3. Type **“pip install cv2”** and click enter.
4. Type **“pip install keras”** and click enter.
5. Type **“pip install tensorflow”** and click enter.
6. Type **“pip install Flask”** and click enter.

Flask: Web framework used for building Web applications.

There are many modules or frameworks which allow building your webpage using python like a bottle, Django, Flask, etc. But the real popular ones are Flask and Django. Django is easy to use as compared to Flask but Flask provides you with To understand whatFlask is you have to understand a few general terms.

1. **WSGI :** Web Server Gateway Interface (WSGI) has been adopted as a standard for Python web application development. WSGI is a specification for a universal interface between the web server and the web applications.
2. **Westernize :** It is a WSGI toolkit, which implements requests, response objects, and other utility functions. This enables building a web framework on top of it. The Flask framework uses Westernize as one of its bases.
3. **Jinja2 :** jinja2 is a popular templating engine for Python. A web templating system combines a template with a certain data source to render dynamic webPages.