Prerequisites

The following software's, concepts and packages are used in this project:

Anaconda Navigator

Anaconda Navigator is a free and open-source distribution of the Python and R programming languages for data science and machine learning related applications. It can be installed on Windows, Linux, and macOS. Conda is an open-source, cross-platform, package management system. Anaconda comes with very nice tools like JupyterLab, Jupyter Notebook, QtConsole, Spyder, Glueviz, Orange, Rstudio, Visual Studio Code. For this project, we will be using Jupyter notebook and Spy.

To build Machine learning models the following packages are used:

Numpy:

- It is an open-source numerical Python library. It contains a multidimensional array and matrix data structures and can be used to perform mathematical operations

Scikit-learn:

- It is a free machine learning library for Python. It features various algorithms like support vector machine, random forests, and k-neighbors, and it also supports Python numerical and scientific libraries like NumPy and SciPy

OpenCV

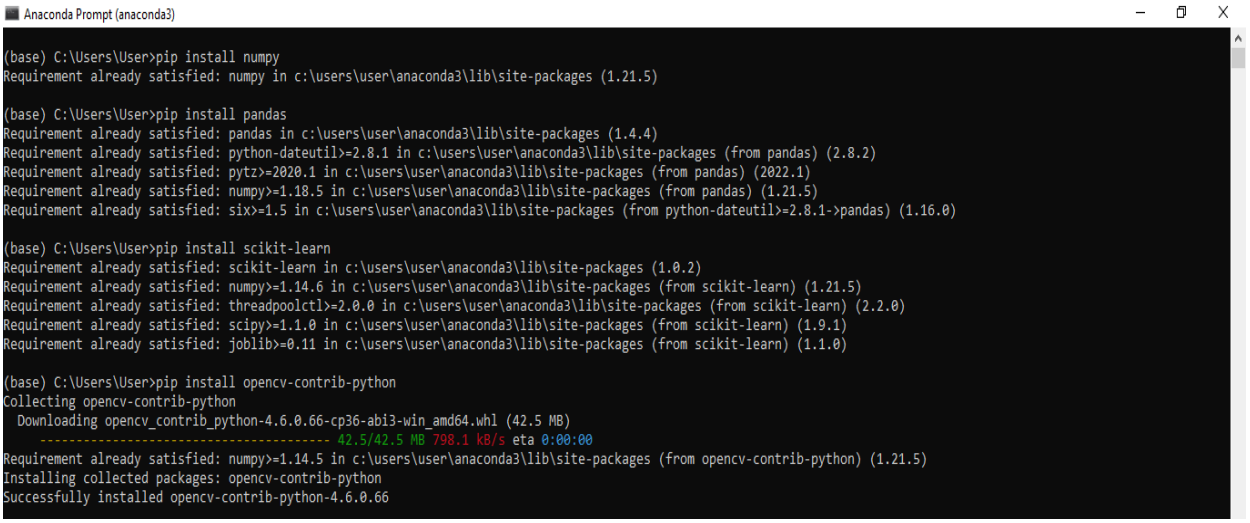
- OpenCV is a library of programming functions mainly aimed at real-time computer vision. Here, OpenCV is used to capture frames by accessing the webcam in real-time.
- Open anaconda prompt and type command
  "pip install opencv-contrib-python"

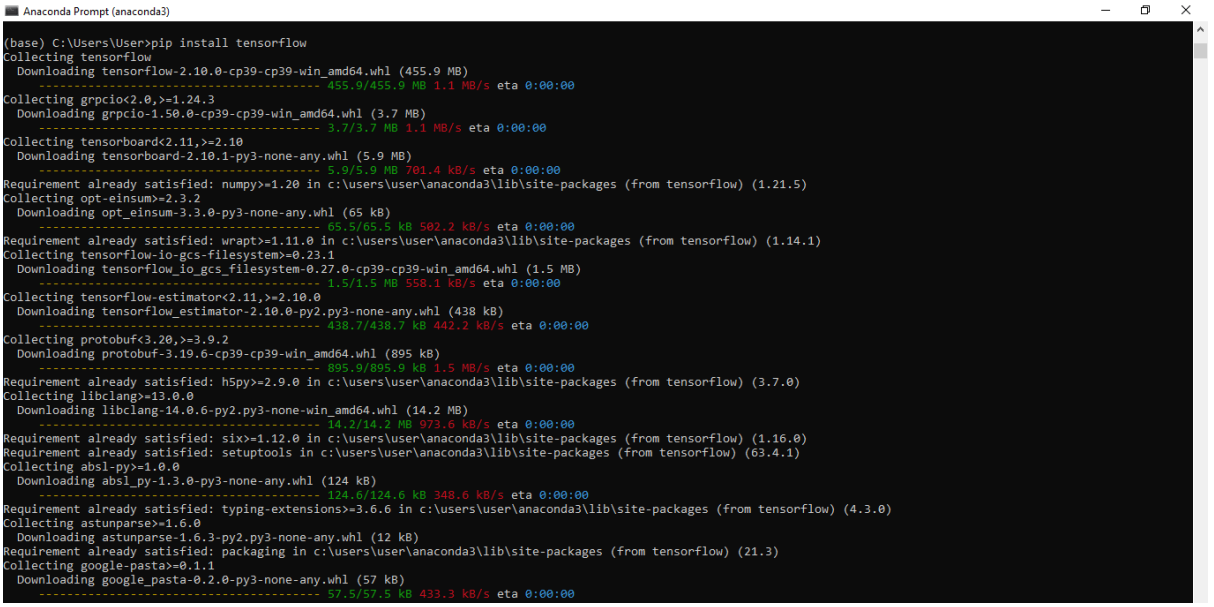
- **Flask:**

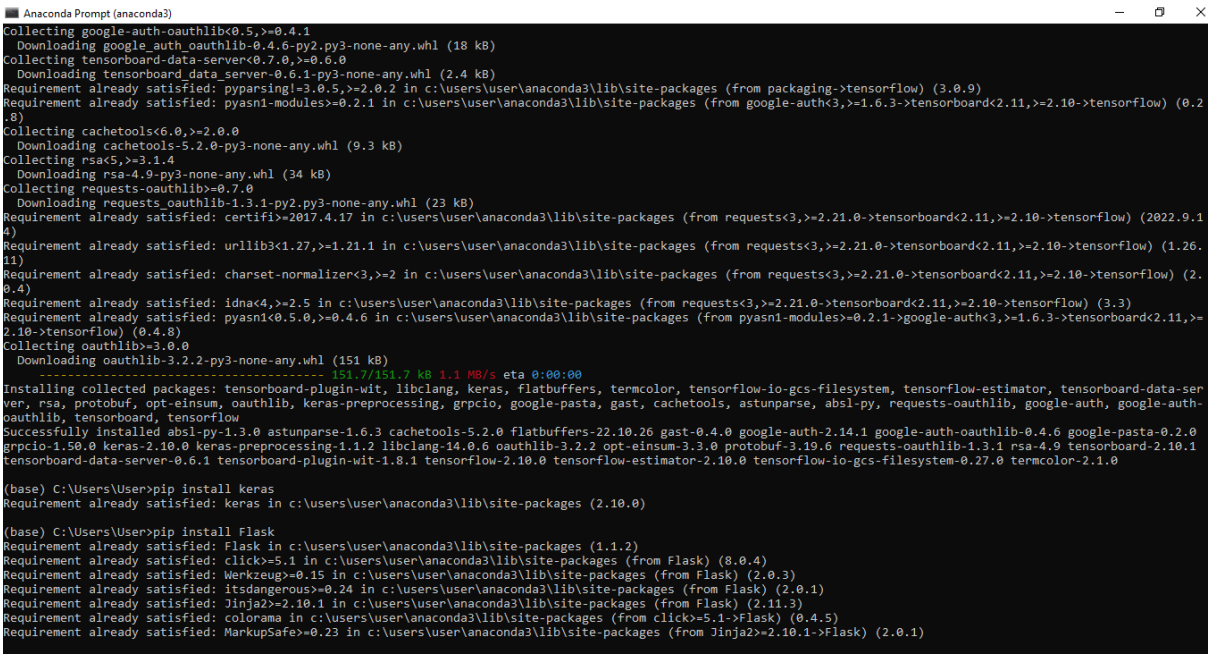
Web framework used for building Web applications

- **Python packages:**
  - open anaconda prompt as administrator
  - Type "pip install numpy" and click enter.
  - Type "pip install pandas" and click enter.
  - Type "pip install scikit-learn" and click enter.
  - Type "pip install opencv-contrib-python" and click enter.

- Type “pip install tensorflow==2.3.0” and click enter.
- Type “pip install keras==2.4.0” and click enter.
- Type “pip install Flask” and click enter.






Anaconda Prompt (anaconda3)
Collecting google-auth-oauthlib<0.5,>=0.4.1
Downloading google_auth_oauthlib-0.4.6-py2.py3-none-any.whl (18 kB)
Collecting tensorboard-data-server<0.7.0,>=0.6.0
Downloading tensorboard_data_server-0.6.1-py3-none-any.whl (2.4 kB)
Requirement already satisfied: pyparsing!=3.0.5,>=2.0.2 in c:\users\user\anaconda3\lib\site-packages (from packaging->tensorflow) (3.0.9)
Requirement already satisfied: pyasn1-modules>=0.2.1 in c:\users\user\anaconda3\lib\site-packages (from google-auth<3,>=1.6.3->tensorboard<2.11,>=2.10->tensorflow) (0.2.8)
Collecting cachetools<6.0,>=2.0.0
Downloading cachetools-5.2.0-py3-none-any.whl (9.3 kB)
Collecting rsa<5,>=3.1.4
Downloading rsa-4.9-py3-none-any.whl (34 kB)
Collecting requests-oauthlib>=0.7.0
Downloading requests_oauthlib-1.3.1-py2.py3-none-any.whl (23 kB)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\user\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (2022.9.14)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\user\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (1.26.11)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\user\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in c:\users\user\anaconda3\lib\site-packages (from requests<3,>=2.21.0->tensorboard<2.11,>=2.10->tensorflow) (3.3)
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Collecting oauthlib>=3.0.0
Downloading oauthlib-3.2.2-py3-none-any.whl (151 kB)
151.7/151.7 kB 1.1 MB/s eta 0:00:00
Installing collected packages: tensorboard-plugin-wit, libclang, keras, flatbuffers, termcolor, tensorflow-io-gcs-filesystem, tensorflow-estimator, tensorboard-data-server, rsa, protobuf, opt-einsum, oauthlib, keras-preprocessing, grpcio, google-pasta, gast, cachetools, astunparse, absl-py, requests-oauthlib, google-auth, google-auth-oauthlib, tensorboard, tensorflow
Successfully installed absl-py-1.3.0 astunparse-1.6.3 cachetools-5.2.0 flatbuffers-22.10.26 gast-0.4.0 google-auth-2.14.1 google-auth-oauthlib-0.4.6 google-pasta-0.2.0 grpcio-1.50.0 keras-2.10.0 keras-preprocessing-1.1.2 libclang-14.0.6 oauthlib-3.2.2 opt-einsum-3.3.0 protobuf-3.19.6 requests-oauthlib-1.3.1 rsa-4.9 tensorboard-2.10.1 tensorboard-data-server-0.6.1 tensorboard-plugin-wit-1.8.1 tensorflow-2.10.0 tensorflow-estimator-2.10.0 tensorflow-io-gcs-filesystem-0.27.0 termcolor-2.1.0
(base) C:\Users\User>pip install keras
Requirement already satisfied: keras in c:\users\user\anaconda3\lib\site-packages (2.10.0)
(base) C:\Users\User>pip install Flask
Requirement already satisfied: Flask in c:\users\user\anaconda3\lib\site-packages (1.1.2)
Requirement already satisfied: click>=5.1 in c:\users\user\anaconda3\lib\site-packages (from Flask) (8.0.4)
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Requirement already satisfied: colorama in c:\users\user\anaconda3\lib\site-packages (from click>=5.1->Flask) (0.4.5)
Requirement already satisfied: MarkupSafe>=0.23 in c:\users\user\anaconda3\lib\site-packages (from Jinja2>=2.10.1->Flask) (2.0.1)