Prerequisites

To complete this project, we must require the following software, concepts, and packages:

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 so very nice tools like JupyterLab, Jupyter Notebook, QtConsole, Spyder, Glueviz, Orange, Rstudio, Visual Studio Code. For this project, we will be using a Jupyter notebook and Spyder.

1. To build Machine learning models you must require the following packages

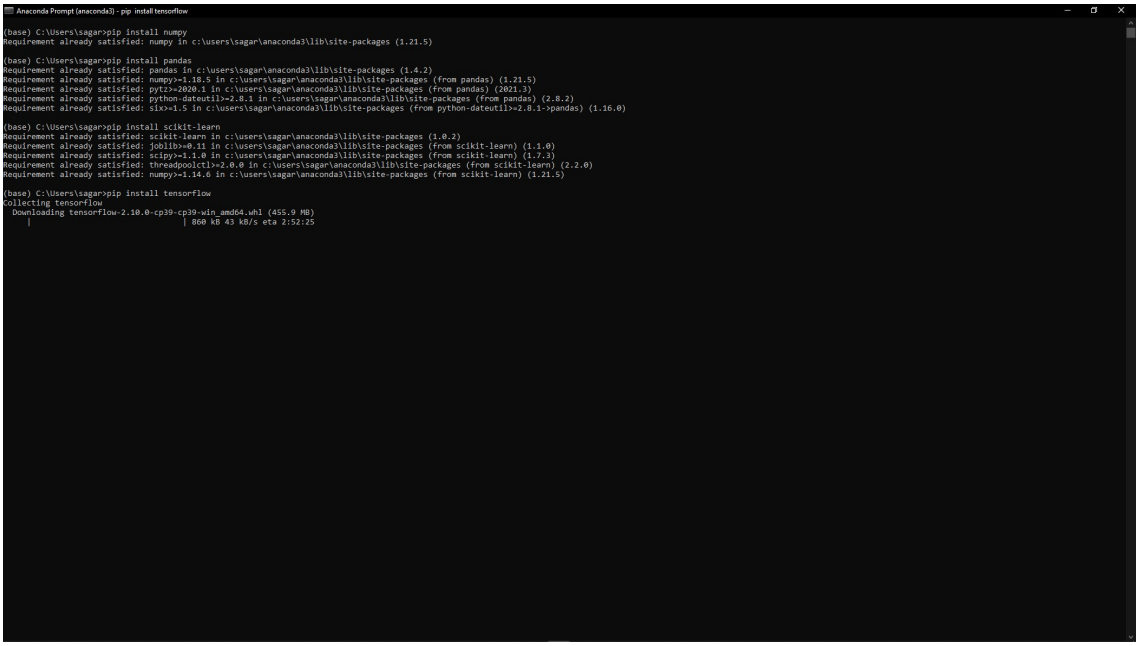
- Numpy:
  - It is an open-source numerical Python library. It contains a multidimensional array and matrix data structures and can be used to perform mathematical operations
- Scikit-learn:
  - It is a free machine learning library for Python. It features various algorithms like support vector machine, random forests, and k-neighbors, and it also supports Python numerical and scientific libraries like NumPy and SciPy
- 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 tensorflow==2.3.2” and click enter.
  - Type “pip install keras==2.3.1” and click enter.
  - Type “pip install Flask” and click enter.

- Deep Learning Concepts
  - VGG16: VGG16 is a transfer learning method. A pre-trained model trained on 1000 classes of images.
    VGG basic
  - Flask: Flask is a popular Python web framework, meaning it is a third-party Python library used for developing web applications.
    Flask Basics

In Pycharm IDE we can install the packages through the command prompt.


Anaconda Prompt (anaconda3) - pip install tensorflow
(base) C:\Users\sagar>pip install numpy
Requirement already satisfied: numpy in c:\users\sagar\anaconda3\lib\site-packages (1.21.5)
(base) C:\Users\sagar>pip install pandas
Requirement already satisfied: pandas in c:\users\sagar\anaconda3\lib\site-packages (1.4.2)
Requirement already satisfied: numpy>=1.18.5 in c:\users\sagar\anaconda3\lib\site-packages (from pandas) (1.21.5)
Requirement already satisfied: pytz>=2020.1 in c:\users\sagar\anaconda3\lib\site-packages (from pandas) (2021.3)
Requirement already satisfied: python-dateutil>=2.8.1 in c:\users\sagar\anaconda3\lib\site-packages (from pandas) (2.8.2)
Requirement already satisfied: six>=1.5 in c:\users\sagar\anaconda3\lib\site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
(base) C:\Users\sagar>pip install scikit-learn
Requirement already satisfied: scikit-learn in c:\users\sagar\anaconda3\lib\site-packages (1.0.2)
Requirement already satisfied: joblib>=0.11 in c:\users\sagar\anaconda3\lib\site-packages (from scikit-learn) (1.1.0)
Requirement already satisfied: scipy>=1.1.0 in c:\users\sagar\anaconda3\lib\site-packages (from scikit-learn) (1.7.3)
Requirement already satisfied: threadpoolctl>=2.0.0 in c:\users\sagar\anaconda3\lib\site-packages (from scikit-learn) (2.2.0)
Requirement already satisfied: numpy>=1.14.6 in c:\users\sagar\anaconda3\lib\site-packages (from scikit-learn) (1.21.5)
(base) C:\Users\sagar>pip install tensorflow
Collecting tensorflow
Downloading tensorflow-2.10.0-cp39-cp39-win_amd64.whl (455.9 MB)
| 860 kB 43 kB/s eta 2:52:25