PRE-REQUISITE

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| Team Id | PNT2022TMID34124 |
| Project Name | AI-powered Nutrition Analyzer for Fitness Enthusiasts |

To develop this project we need to install the following software

➢ 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 great tools like JupyterLab, Jupyter Notebook, Spyder, Orange, Rstudio, Visual Studio Code.

➢ Flask ;

Web framework used for building Web applications. For anaconda navigator, follow the below steps to download the required packages:

Open anaconda prompt as administrator.

If you are using Pycharm IDE, you can install the packages through the command prompt and follow the same syntax as above.

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==2.3.0” and click enter.
* Type “pip install keras==2.4.0” and click enter. ○
* Type “pip install Flask” and click enter.

➢ Deep Learning Concepts.

**Deep learning (DL)** is a machine learning method that allows computers to mimic the human brain, usually to complete classification tasks on images or non-visual data sets. Deep learning has recently become an industry-defining tool for its to advances in GPU technology.

Deep learning is now used in self-driving cars, fraud detection, artificial intelligence programs, and beyond. These technologies are in high demand, so deep learning data scientists and ML engineers being hired every day.

➢ Artificial Neural Networks

**Artificial neural networks** (**ANNs**), are computing systems inspired by the biological neural network that constitute animal brains.

An ANN is based on a collection of connected units or nodes called artificial network, which loosely model the neuron in a biological brain. Each connection, An artificial neuron receives signals then processes them and can signal neurons connected to it. The "signal" at a connection is a real number , and the output of each neuron is computed by some non-linear function of the sum of its inputs. The connections are called *edges*. Neurons and edges typically have a *weight* that adjusts as learning proceeds. The weight increases or decreases the strength of the signal at a connection. Neurons may have a threshold such that a signal is sent only if the aggregate signal crosses that threshold.

➢ Convolution Neural Networks:

A convolutional neural network is a feed-forward neural network that is generally used to analyze visual images by processing data with grid-like topology. It’s also known as a ConvNet. A convolutional neural network is used to detect and classify objects in an image.