Project Objective

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Team ID	PNT2022TMID39906
Project Name	AI-Powered Nutrition Analyzer for Fitness Enthusiasts

Objective:

Food is essential for human life and has been the concern of many healthcare conventions. Nowadays new dietary assessment and nutrition analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. Nutritional analysis is the process of determining the nutritional content of food. It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food.

The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc. Here the user can capture the images of different fruits and then the image will be sent the trained model. The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.).

Fundamental concepts and techniques of Convolutional Neural Network:

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. Convolutional neural network (or CNN) is a special type of

multilayer neural network or deep learning architecture inspired by the visual system of living beings. The CNN is very much suitable for different fields of computer vision and natural language processing.

Layers in a Convolutional Neural Network :

A convolution neural network has multiple hidden layers that help in extracting information from an image. The four important layers in CNN are:

1. Convolution layer
2. ReLU layer
3. Pooling layer
4. Fully connected layer

Pre-process/clean the data using different data preprocessing techniques.

Data Preprocessing is the most important step when we are building our model. In Data Preprocessing step, the data is transformed into a form where it becomes suitable for model ingestion.

DATA CLEANING

The first step of **Data Preprocessing** is **Data Cleaning** Some have missing values and some have junk data in it. If these missing values and inconsistencies are not handled properly then our model wouldn't give accurate result.