Title: AI POWERED NUTRITION ANALYZER

TEAM ID: PNT2022TMID28902

Batch: B2-2M4E

Type: Web-Application

1. Introduction

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.).

Image classification is done by using Support Vector Machine(SVM) and Convolution Neural Network(CNN). The scalability of the solution is determined by the image of the food classified accurately, Social impact and customer satisfaction is maintained by friendly UI design and easy to operate.Mainly this business model increases the life span of the users. It provide healthy life.

2. Tools & Libraries

In this topic we are going to see about tools and libraries that I am using to develop theproject.

No	Tools&LibraryName	Usage
1	Keras	We are using for deep learning tasks like creatingmodel, predicting the object etc.
2	Tensorflow	TensorFlow can be used across a range of tasks but has a particular focus on training and inference of deep neural networks
3	Flask	It is classified as a microframework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions
4	scikitlearn	Simple and efficient tools for predictive data analysis · Accessible to everybody, and reusable in various contexts · Built on NumPy, SciPy, and matplotlib ·
5	Numpy	We are using it for the Image matrix handling.
6	Pandas	Pandas is an open-source library that is made mainly for working with relational or labeled data both easily and intuitively.

### 3. Architecture, Dataset & Workflow

Architecture: -

Solution architecture is the process of developing solutions based on predefined processes, guidelines and best practices with the objective that the developed solution fits within the enterprise architecture in terms of information architecture, system portfolios, integration requirements and many more.

Solution architecture includes five main processes:

1.Identification of business goals and objectives;

2.Identification of system requirements;

3.Definition of information models and processes;

4.Selection and integration of technologies, tools, and platforms;

5.Development of project plans.

Dataset:-In this project, we have collected images of 5 types of food items apples, 'banana', 'orange', 'pineapple' and 'watermelon', they are saved in the respective subdirectories with their respective names.

For more accurate results we can collect images of high resolution and feedthe model with more images.

Figure1.TECHNICAL ARCHITECTURE
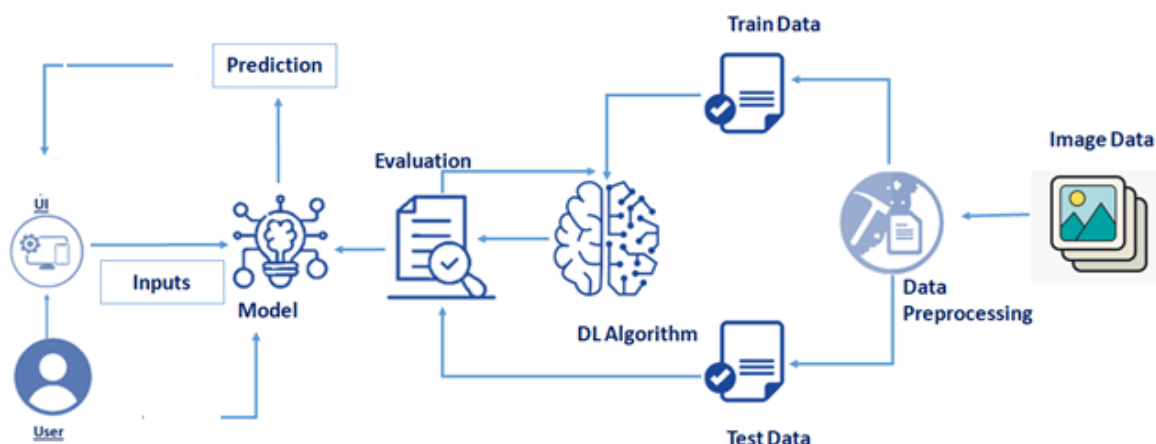
❖ **Workflow: -** The user interacts with UI and gives the image as input**.**

Then the input image is then pass to our flask application, And finally with the help of the model which we build we will classify the result and showcase it on the UI.

To accomplish this, we have to complete all the activities below.

➔Data Collection
➔Data Preprocessing.
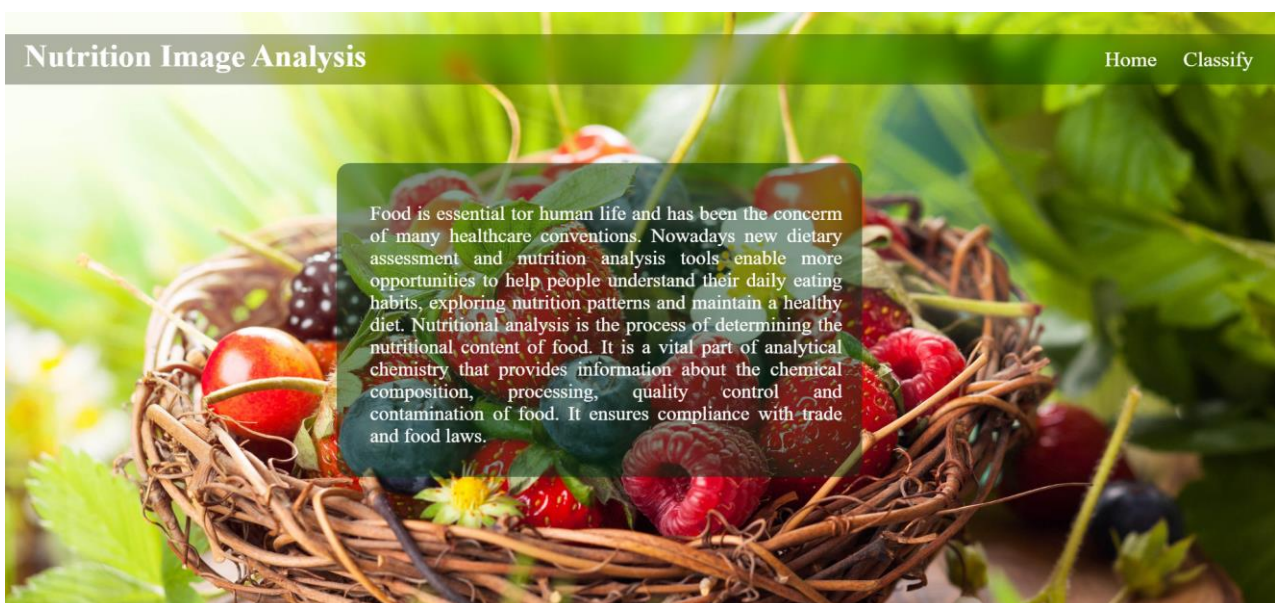➔Model Building
➔Application Building
➔Deployment

4. Code

Code is open source and published into GitHub with read-me file.

https://github.com/IBM-EPBL/IBM-Project-5345-1658759382

5. Output

Some screenshots of our working application.

Conclusion – We developed a project which can identify the fruit images uploaded to the web application . The web application is built using deeplearning ,machine learning and using other technologies such as numpy,flask packages in python.