AI-powered Nutrition Analyzer for Fitness Enthusiasts

ABSTRACT:

- 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 analysisis the process of determining the nutritional content of food. It is avital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food.

PROJECT DESCRIPTION:

- The main aim of the project is to build a model which is used for classifying the fruit depends on the different characteristics like color, 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, Fiber, Protein, Calories,etc.).

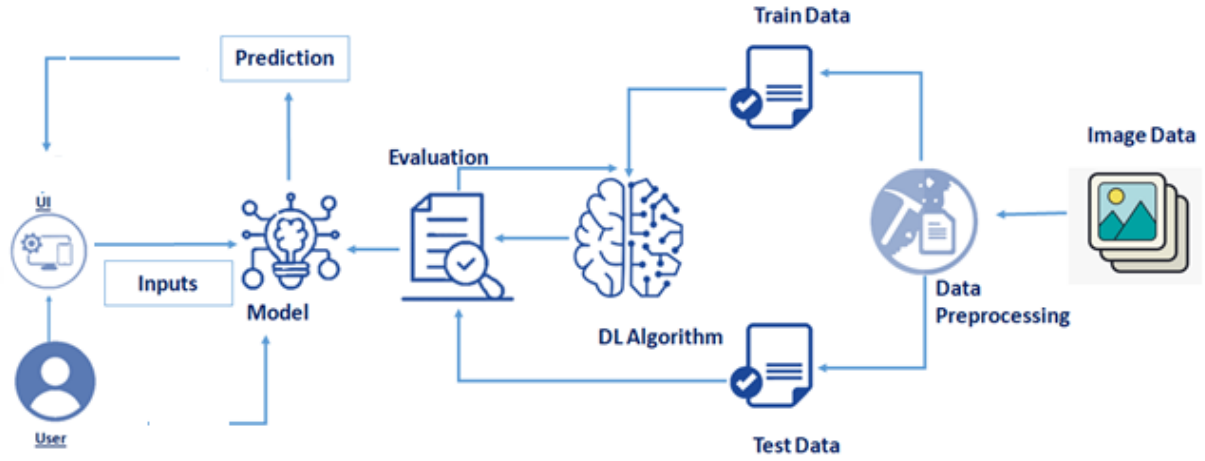
TECHNOLOGIES USED:

- Python, CNN, IBM Cloud, IBM Watson, IBM Cloudant DB, Deep Learning, PythonFlask.

PROJECT FLOW:

- The user interacts with the UI (User Interface) and give theimage 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 willclassify the result and showcase it on the UI.

PROJECT ARCHITECTURE:



Literature survey:

- The development of the human organism depends on nutrition. Nutritional analysis ensures the dish contains the necessary vitamins and minerals requirements, as well as an analysis of the nutrition in food, assist in knowing the ratio of fat to carbohydrates, the amount of proteins and fibre, such things like sugar. A further consideration is to not go beyond our daily calories needed. If this threshold is crossed, we might gain weight.
- The "Eatly" app rates the meal based on the user's food photo.either "extremely healthy," "it's OK," or "unhealthy" into one of three categories.However, instead of being carried out by automated systems, theThe app's user base really rates the content manually.
- **DeepFood**: Deep Learning for Computer-Assisted Nutritional Assessment to Identify Food in Images - In order to address this problem, a new Food image recognition using a convolutional neural network (CNN) system was developed, as this report describes. We made use of our recommended technique applied to two sets of real food image data (UEC-256 and Food-101).
- **iPhone app Snap Meal:** Magical Meal Logging This application prompts the user If you want to take a picture, tell the photographer things like whether they have breakfast or lunch, and include a little text caption to gauge the amount of calories. Calorie prediction accuracy varies widely,nonetheless, and depends mainly on how successfully users directly input text.
- **Neutrino:** Neutrino is a nutrition app using artificial intelligence. As implied by the name, the app supplies its clients with nutrition-based analytics and data, and is swiftly become a well-known venue for offering AI services for fitness. It launches using mathematics, predictive analysis for individualised data collection and models for natural language processing (NLP). Additionally, it includes sharing its partners' nutrition-related data via SDK and API integration enlarge the range of products and services it offers. It was founded by an Israeli company enabling pregnant women to personalise their body's dietary needs was released in 2011 requirements. Together, this programme and IBM's natural language processing the ability to offer dietary advice and help around-the-clock.
- **FitnessAI:** The Perfect Home Workout SolutionThis fitness AI programme is made with individualised training schedules for each unique person. It was formerly "gym only software," but now it has enhanced its method to meet the demands of "at-home fitness." According to FitnessAI, their an algorithm that has been trained on more than 5.9 million exercises enabling it to superior to any human exercise instructor. Additionally, it examined nearly 10 million sets, weights, and reps from about 30000 knowledgeable gym patrons and during a three-year span, weightlifters. To put it another way, it is an excellent an example of machine learning being used for better exercise planning.
- **MyFitnessPal :**The MyFitnessPal app helps you keep track of your daily food intake by identifying the items from pictures you take. That should be all there is to it. You ingest a snap a photo, provide information like whether you're eating breakfast or lunch, and The software calculates the number of calories after adding a brief text descriptor. It makes although its estimate can be a little erratic, it does a pretty good job. As we needs to be connected to a network, which is a factor to consider when dining out.

RESULT AND DISCUSSION:

- This model will be helpful for all types of people, regardless of their age or gender.
- By using this model, we can determine the precise nutritional value of the food we consume, which is very helpful given how crucial it is to maintain good health.
- It employs machine learning and deep learning techniques to analyse the calorie and nutritional content of an input image.