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 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.

PROBLEM STATEMENT:

Food is a necessity for human life and has been addressed in numerous medical conventions. Modern dietary evaluation and nutrition analysis technologies give consumers more possibilities to explore nutrition patterns, comprehend their daily eating habits, and keep up a balanced diet. Finding out a food's nutritional value is done through nutritional analysis. Information about the chemical make-up, processing, quality assurance, and contamination of food is a crucial component of analytical chemistry

PROJECT DESCRIPTION:

The main aim of the project is to building 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.).
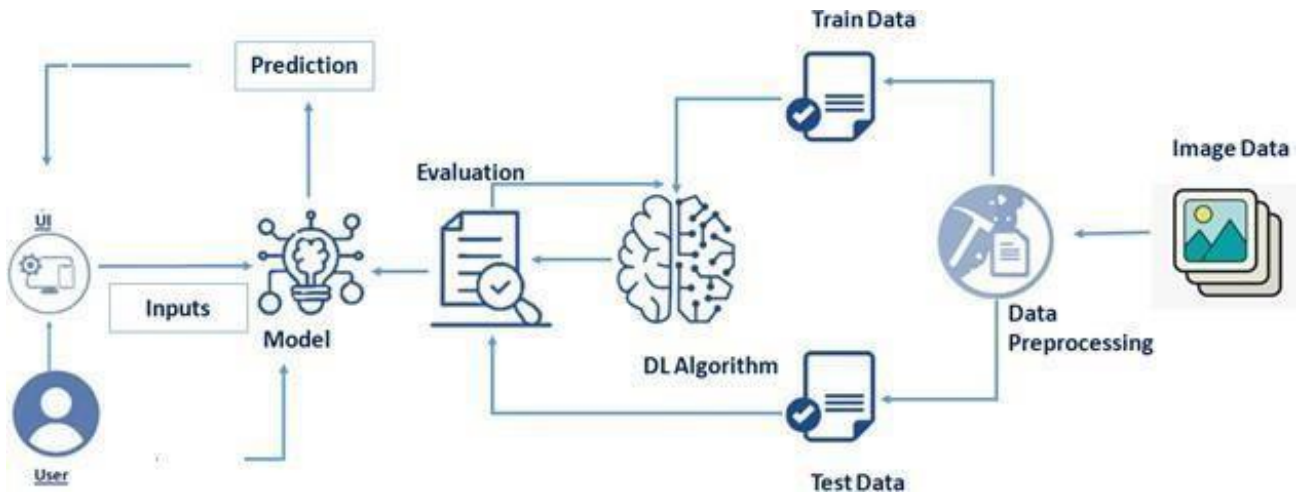
TECHNOLOGIES USED:

Python, CNN, IBM Cloud, IBM Watson, IBM Cloudant DB, Deep Learning, Python-Flask

PROJECT FLOW:

- ❖ The user interacts with the UI (User Interface) and give 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

ARCHITECTURE

LITERATURE SURVEY:

- ❖ Nutrition is vital to the growth of the human body. Nutritional analysis guarantees that the meal meets the appropriate vitamin and mineral requirements, and the examination of nutrition in food aid in understanding the fat proportion, carbohydrate dilution, proteins, fiber, sugar, and so on. Another thing to keep in mind is not to exceed our daily calorie requirements. If this limit is surpassed, we may become fat.

- ❖ An app called "**Eatly**" uses the user's food photograph to grade the meal into one of three categories: "very healthy," "it's O.K.", and "unhealthy." However, rather than being done automatically by automated systems, the Rating is really done manually by the app's user base.

- ❖ **DeepFood:** Computer-Assisted Nutritional Assessment Using Deep Learning to Recognize Food Images – In order to solve this issue, a brand-new Convolutional Neural Network (CNN)-based food picture identification system was created, as described in this study. We utilized our suggested strategy on two sets of actual food picture data (UEC-256 and Food-101).

- ❖ **Snap Meal for iPhone:** Magical Meal Logging – This program asks the user to snap a picture, provide information such whether they are having breakfast or lunch, and add a brief text caption in order to estimate the number of calories. The accuracy of calorie prediction is inconsistent, though, and is mostly reliant on how well individuals directly input text.

- ❖ **Neutrino:** Artificial Intelligence Nutrition App. As the name implies, the app provides nutrition-based analytics and data to its customers and is quickly becoming a prominent platform for offering AI fitness services. It deploys predictive analysis for personalized data compilation using mathematical and natural language processing (NLP) models. Furthermore, it shares nutrition-related data with its partners via SDK and API integration to improve its services and product offerings. It Is an Israel-based firm created in 2011 that allows pregnant women to customize their body's nutritional requirements. This software collaborated with IBM's natural language capability to provide 24-hour assistance and dietary recommendations.
- ❖ **FitnessAI :** The Ultimate Workout at Home Solution
  This fitness AI software is designed with personalized training regimens for each individual. It began as "gym only software," but has now improved its system to satisfy "at home fitness" expectations. FitnessAI says that their algorithm has been trained on over 5.9 million exercises, allowing it to "outperform any human fitness teacher." Furthermore, it analyzed almost 10 million sets, weights, and reps from about 30000 expert gym-goers and weightlifters during a three-year period. In other words, it is an outstanding illustration of machine learning in action for superior exercise planning.
- ❖ **MyFitnessPal** app creates a daily food diary for you by recognizing the food from photos you shoot. It is supposed to be as simple as that. You take a picture, dial in data such as whether you are eating breakfast or lunch and add a quick text label, and the app estimates the calorie content. It does a pretty good job, although its estimate can be a bit unpredictable. It also needs a network connection, which is something to think about when eating out.

RESULT AND DISCUSSION:

- ❖ This model will be useful for every category people irrespective of age and gender.
- ❖ Using this model we'll know the exact amount of nutritional content in the food we have which is very useful as it is very important to take care of one's health.

❖ It takes input as image and uses machine learning and deep learning algorithms to analyze the nutritional content in the food and calories in it.

REFERENCE:

❖ Snap Meal App iPhone: Magical Meal Logging:
https://apps.apple.com/us/app/mealsnap-photo-food-diary/id1431522193

❖ AI-Powered Nutrition Apps That Help Fitness Enthusiasts With Their Calorie Intake : https://analyticsindiamag.com/5-ai-powered-nutrition-apps-that-help-fitness-enthusiasts-with-their-calorie-intake/

❖ Watch what you eat, using your phone:
https://www.deccanherald.com/content/384169/watch-you-eat-using-your.html

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