AI-powered Nutrition Analyzer for Fitness Enthusiasts

ABSTRACT:

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:

Building a model that can be used to categories fruits according to their various attributes, such as color, shape, and texture, is the project's major goal. Here, users can take pictures of various fruits, which are subsequently uploaded to a trained algorithm for analysis. The algorithm examines the image and determines the nutritious content of fruits such (Sugar, Fiber, Protein, Calories, etc.).

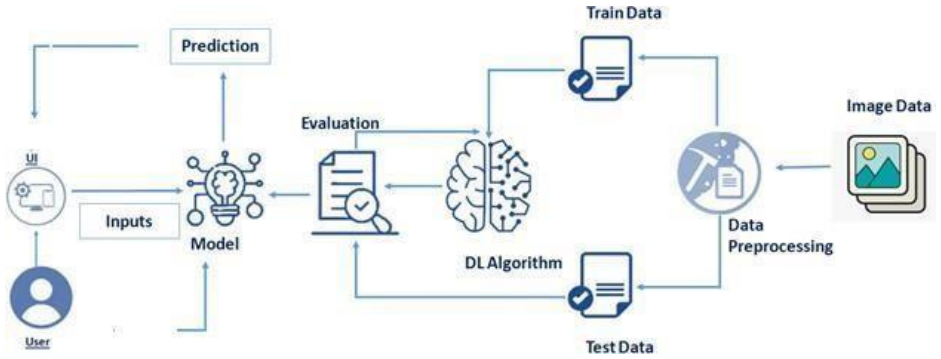
TECHNOLOGIES USED:

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

PROJECT FLOW:

- The user inputs the image and interacts with the user interface.
- After that, our flask application receives the input image.
- Finally, we will classify the result and display it on the UI with the aid of the model that we built.

PROJECT ARCHITECTURE:



LITERATURE SURVEY:

- Nutrition is essential for human body development. Nutritional analysis ensures that the meal satisfies the necessary vitamin and mineral requirements, and the study of nutrition in food helps to understand the ratio of fat to carbohydrates, the amount of proteins and fibre, the amount of sugar, and other factors. Not going above our daily calorie needs is something else to keep in mind. If this threshold is crossed, we might gain weight.
- Using the user's food photos, the "Eatly" app assigns the meal one of three grades: "very healthy," "it's O.K.", or "unhealthy." The Rating is actually completed manually by the app's user base, not automatically by computerized algorithms.
- **DeepFood:** This article describes the development of a brand-new Convolutional Neural Network (CNN)-based food photo identification system to address the problem of computer-assisted nutritional assessment using deep learning. On two sets of real food image data, we used our suggested method (UEC-256 and Food-101).
- **Snap Meal for iPhone:** Magical Meal Logging – In order to calculate the number of calories, this program requires the user to take a picture, enter details such whether they are eating breakfast or lunch, and provide a brief text caption. However, the precision of calorie estimation varies and mostly depends on how effectively people directly input text.

- **Neutrino:** Nutrition App using Artificial Intelligence. The app, which as its name suggests offers nutrition-based analytics and data to its users, is swiftly establishing itself as a leading platform for providing AI fitness services. It uses mathematical and natural language processing (NLP) methods to implement predictive analysis for customized data compilation. In order to enhance its services and product offerings, it also shares nutrition-related data with its partners via SDK and API integration. It is an Israeli company founded in 2011 that enables pregnant women to tailor the nourishment their bodies need. This program worked in conjunction with IBM's natural language capacity to offer round-the-clock support and dietary suggestions.
- **FitnessAI :** The Perfect Home Workout Solution
  These tailored training plans are part of the fitness AI software's design. It was originally "gym exclusive software," but it has now updated its platform to meet "at home fitness" demands. FitnessAI claims that their system "outperforms any human fitness teacher" since it has been trained on more than 5.9 million workouts. Additionally, over a three-year period, it examined nearly 10 million sets, weights, and reps from roughly 30000 experienced gym-goers and weightlifters. To put it another way, it is a superb example of machine learning in action for better exercise planning. The MyFitnessPal app compiles a daily food journal for you by identifying the food in your images. That should be all there is to it. The software estimates the number of calories when you take a picture, enter information like whether you are eating breakfast or lunch, and add a quick text caption. Although its estimate can be a little erratic, it generally performs a good job. It also requires a network connection, so keep that in mind 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 approach, we can determine the precise nutritional value of the food we consume, which is quite 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 the input image.

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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