AI based Nutrition Analyzer for Fitness Enthusiasts

Lokesh
Saketh chowdary
Nitish Gopala krishna
Mahendra
Vishnu Deepak

People can follow a healthy lifestyle through eating healthy food. The food we eat must contain nutrients which are essential for proper nourishment, growth and immunity for the human body. In today's world, most of the people are living under uncertainty to decide on which foods are healthy and if healthy how much of it can be consumed. The nutritional facts label is printed on food products all over the world and they are represented using a similar structure but these labelling of nutritional information is difficult to understand by the common people. Another issue is that these labels are only for processed and manufactured foods which can be bought in the stores. A need for an app emerges that can provide diet consultancies to the people at their preferred time and mobile phones without having to visit a dietician. The users can take advantage of the app by registering themselves, entering the basic details and signing in with a username and password. The prime objective of the app is to list all the possible diet plans along with the nutrient value of the food items for the user in accordance with his/her lifestyle by taking their height, weight, working hours, and eating hours and practices as inputs. The app is beneficial for the young generation who live away from their homes and cannot have a proper diet maintained. This app provides them with alternatives to manage the balance.

The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like Sugar, Fibre, Protein, Calories 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

REQUIREMENTS

There are four forms of nutritional assessment: surveys, surveillance, screening, and interventions.

Nutrition surveys – cross-sectional evaluations of selected population groups; conducted to generate baseline nutritional data, to learn overall nutrition status, and to identify subgroups at nutritional risk

Nutrition surveillance – continuous monitoring of the nutritional status of selected population groups (e.g., at-risk groups) for an extended period of time; conducted to identify possible causes of malnutrition

Nutrition screening – comparison of individuals' parameters of nutritional status with predetermined standards; conducted to identify malnourished individuals requiring nutritional intervention.

Neutrino: The platform provides nutrition-based data services, analytics, and technologies to its consumers and wants to turn itself into a leading source of nutrition-related insight platform. To enable individualised compilation of data, the platform uses NLP and mathematical models from the optimisation theory and predictive analysis.

Further, using API and SDK integrations, it enables its partners can purchase data regarding food, nutrition so as to help improve their product offering and services.

Fitness: The app heavily relies on AI to produce customised data regarding calorie intake and make food suggestions accordingly. Their advanced diet analysis and combines tools of calorie counter with to make dynamic and adaptive macronutrient adjustments thus providing high-quality nutrient plan each week for its users which is generated from its 1+ million foods.

Calorie: The app uses AI and image classification technology to identify the food correctly and accurately and also calculated the amount the calories just from the picture. Their proprietary API, called Food AI API has been trained to identify cuisines from across the world, thus making it the most culturally diverse food identification system in the world. Further, by connecting the API with diverse data sets, the food which is automatically recognised by the platform is paired with detailed nutrition information**.**

AI in Nutrition: Is yet another online platform which uses deep learning and image recognition to analyse what the users eat and determine what is trending in terms of each popular dish that the user eats and consumption time. The machine learning facilitates provisions like recognition of past meals, make hierarchical predictions that is detect high-level categories like beverages and soup as well as specific dishes and ingredients. It also integrates with their Food Knowledge Graph that contains a large set of commonly eaten foods, with nutrition facts, and hierarchical structure. The platform also further breaks down the nutrition information calories, macro and micronutrients as well as ingredients.

Methods of Nutritional Assessment

Dietary assessment – estimation of nutrient intakes from evaluations of diets, food availability, and food habits (using such instruments as food frequency questionnaires, food recall procedures, diet histories, food records)

Anthropometric assessment – estimation of nutritional status on the basis of measurements of the physical dimensions and gross composition of an individual's body

Clinical assessment – estimation of nutritional status on the basis of recording a medical history and conducting a physical examination to detect signs (observations made by a

qualified observer) and symptoms (manifestations reported by the patient) associated with malnutrition

Biochemical assessment – estimation of nutritional status on the basis of measurements of nutrient stores, functional forms, excreted forms, and/or metabolic functions

Sociologic assessment – collection of information on non-nutrient-related variables known to affect or be related to nutritional status (e.g., socioeconomic status, food habits and beliefs, food prices and availability, food storage and cooking practices, drinking water quality, immunization records, incidence of low birth-weight infants, breastfeeding and weaning practices, age- and cause-specific mortality rates, birth order, family structure).

FUTURE SCOPES:

- This application can be further improved by feedback suggestions from the users.
- This application can be improved with the help of an expert nutritionist who can help us creating different types of programs for different classification of users.
- The project is easily extensible and can be improved by further incremental releases of the same.
- We plan to focus on improving the overall performance of the system.
- Some more ways to achieve dietitian will be focused.

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