Team ID: PNT2022TMID43392

Project Name: AI-powered Nutrition Analyzer for Fitness Enthusiasts

Maximum marks: 4 marks

ABSTRACT:

Nutrition is very essential for every human and is one of the biggest concern these days. New diet monitoring and recommending systems are growing in widespread which ensures that the perfect vitamins, minerals, protein, fibre, carbohydrates and fats are included in the diet. It also figures out the nutrition content in fruits after an analysis.

PROJECT DESCRIPTION:

Convolutional neural network with the max pooling function has been used for food classification by analysing the amount of food, visible in the image with characteristics like colour and texture. This method identifies the food type and calculates the calorie value. Transfer learning works reasonably well with these models since the earlier pre-trained layers have already learned many of the features required for food image recognition.

TECHNOLOGIES USED:

Python, CNN

IBM Cloud

IBM Watson

IBM Cloudant DB

Anaconda Navigator

Pycharm IDE

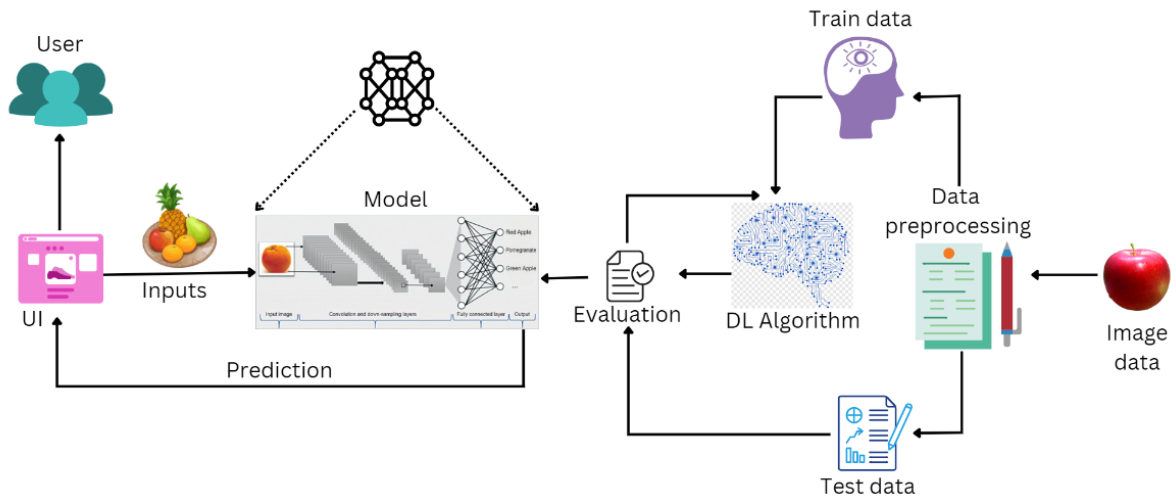
Deep Learning

Python – Flask

PROJECT FLOW:

With image as input, user interacts with UI (User Interface). Initially, images are read and pre-processed by resizing and normalizing the image after comparing with reference images. Further trained data file used while testing data to predict the fruit class and at last fruits will be predicted Thus, we can classify the result and display on UI.

PROJECT ARCHITECTURE:



LITERATURE SURVEY:

Nutrition is analysed with artificial intelligence and some dataset is fed into the system. The analysis is done based on some classification methods. A novel CNN model-based food classification system is implemented. With this as reference, we can figure out the desired nutrition content of the specific fruit. Computer vision has its wide applications in the area automatic object recognition and classification, detection of a particular fruit type from the image of the same is the objective of the computer vision systems today. After getting the input of images, we pre-process and segment it, further leading to classification. The recognition and classification of the fruits have several benefits that include agriculture, industrial inspection, automated fruit segregation systems, nutrition prediction based on the images of fruits. But we throw light on nutrition analysis only. After recognizing the fruit, we predict the nutrition content present in it. Daily calorie requirement is also monitored and checks if there is any surpass. Most of the surveys are devised using geometrical, statistical, and colour features. These techniques are computationally expensive along the comprising

level of reliability and throughput and are not ideal for classification of very large-scale image category classification as its focused only on particular type of fruit and its various types, for instance, red apple and green apple. Thus, it is very significant to develop a system that can perform fruit classification over varied types and also predict the nutrition supplements associated with the detected fruit type.

HEALTHIFY ME:

This App is an Indian digital health and wellness company, used for calorie tracking and provide advice on nutrition and fitness. This is available on Android and iOS platforms and has dynamic technologies such as activity tracker.

RESULT AND DISCUSSION:

This model will be of great use for everyone irrespective of age and gender. The results are expected to be more efficient as compared to the existing methods of fruit recognition and nutrition analysis. (CNN) is better than using features like colour as well texture.

CITATIONS:

- https://www.atlantis-press.com/article/25880982.pdf
- https://www.irjmets.com/uploadedfiles/paper/volume3/issue_7_july_2021/14017/1628083545.pdf
- https://ieeexplore.ieee.org/document/9259881
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- https://www.researchgate.net/publication/331082001_Fruit_Detection_from_Images_and_Displaying_Its_Nutrition_Value_Using_Deep_Alex_Network_Proceedings_of_ICSCSP_2018_Volume_2
- https://www.irjet.net/archives/V9/i3/IRJET-V9I3368.pdf