PROJECT TITLE:

AI-POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS

TEAM NUMBER:580

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1. INTRODUCTION

1.1 Overview

Food is essential to human life and has been the focus of many health conferences. Today, new dietary assessment and food analysis tools offer more opportunities to help people understand their daily diet, discover dietary patterns, and manage their health. Nutrient analysis is the process of determining the content of food. Chapter Importance of chemical analysis providing information on the chemical composition, processing, quality control and contamination of food.

1.2 Purpose

The main goal of the project is to build a model that is used for the classification of fruit foxes on different characteristics like color, shape, texture etc. Here user can capture images from different fruits and then the image will be sent to the trained model. The model analyzes the image and detect fruit-based nutrition such as (sugar, fiber, protein, calories, etc.).

2. LITERATURE SURVEY

2.1 Existing problem

Neutrino provides nutrition-based data services and analytics to its users and wants to turn into a the leading platform resource related to nutrition. The platform uses NLP and mathematics models from optimization theory and predictive analysis enabling individualized data assembly. The app relies on artificial intelligence to generate custom data related to Smart Calories counter powered by AI. Their artificial intelligence learns individual tastes, preferences and character type. It's all wrapped up in comprehensive nutrition and activity tracking.

2.2 Proposed solution

Problem Statement :

- Main objective is to detect the nutrition in a fruit from camera captured image.
- The identification of nutrition and calories from a image is quite an interesting field.
- Since trition monitoring plays an important role in leading healthy lifestyle, this product has the potential to become an essential in our day to day life.

Idea/Solution description :

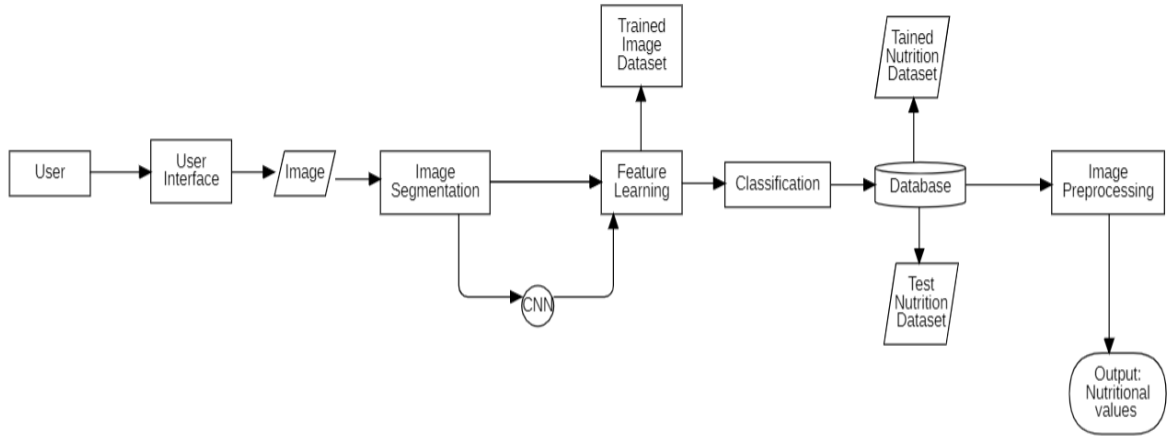
- nutrition analyzer application. By giving the image of the fruit as the input to the application, it will display the nutrition content in it.
- By training the model with various inputs, image processing can be improved as well as the accuracy of the result

Novelty/Uniqueness :

- Personalized nutrition for individuals Providing science based guidance for healthy living.
- Balanced food diet and measured intake.
- 24/7 support. Serving size

3. THEORITICAL ANALYSIS

3.1 Block diagram



3.2 Hardware / Software designing

Component	Description	Technology
User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS
Application Logic	Logic for a process in the application	Python, Flask
Database	Data Type, Configurations etc	IBM cloud
Machine Learning Model	Purpose of Machine Learning Model	Implemented CNN using google colab

4. EXPERIMENTAL INVESTIGATIONS

RELIABILITY:

- It is important that the AI Fitness Nutrition Analyzer should be reliable.
- How can one know it is reliable? It is easy to find out that it can compare nutrition based foods with other nutrition related apps so it can easily correct whether they are reliable or not.

SCALABILITY:

Fitness nutrition analyzer architecture with artificial intelligence provides a clear progression of daily food consumption and helps the user to maintain a healthy diet.

PERFORMANCE:

It should provide more number of users to consume anytime anywhere. □ It should provide reliability, scalability, security and usability.

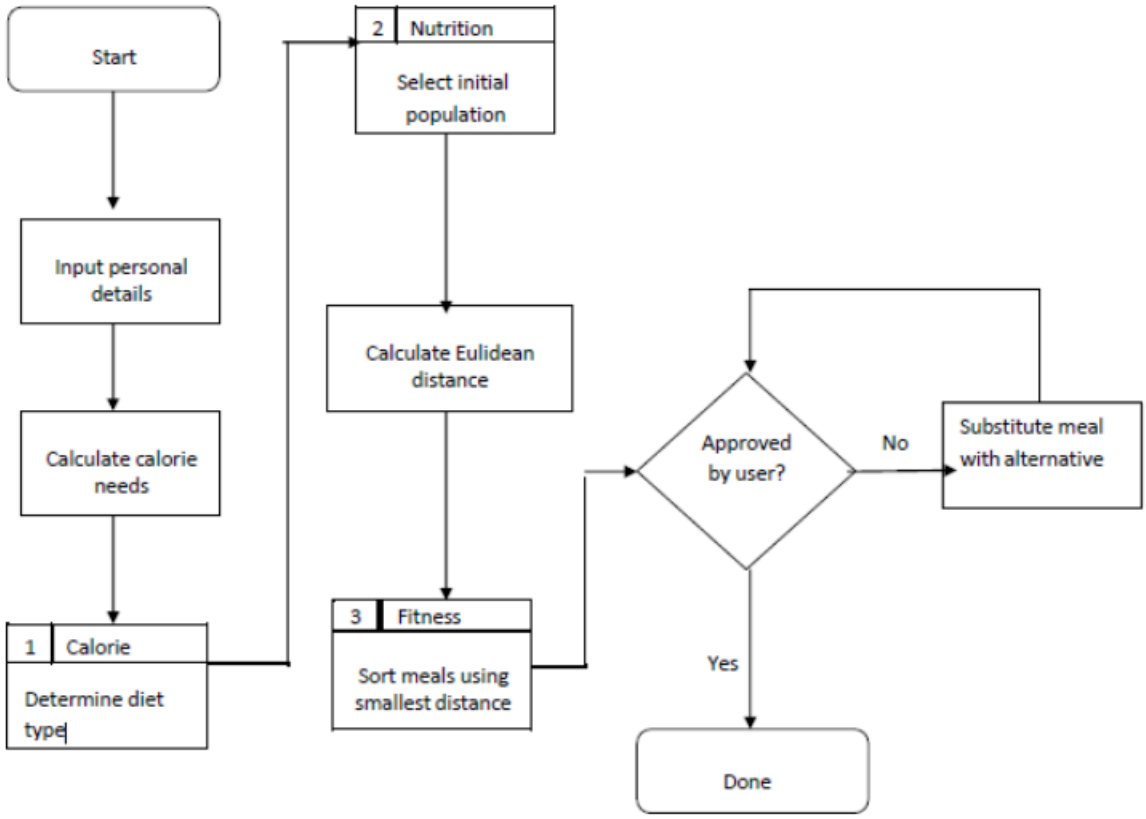
SECURITY:

AI powered fitness nutrition analyzer should include more security while our data we enter or store should be more secure.

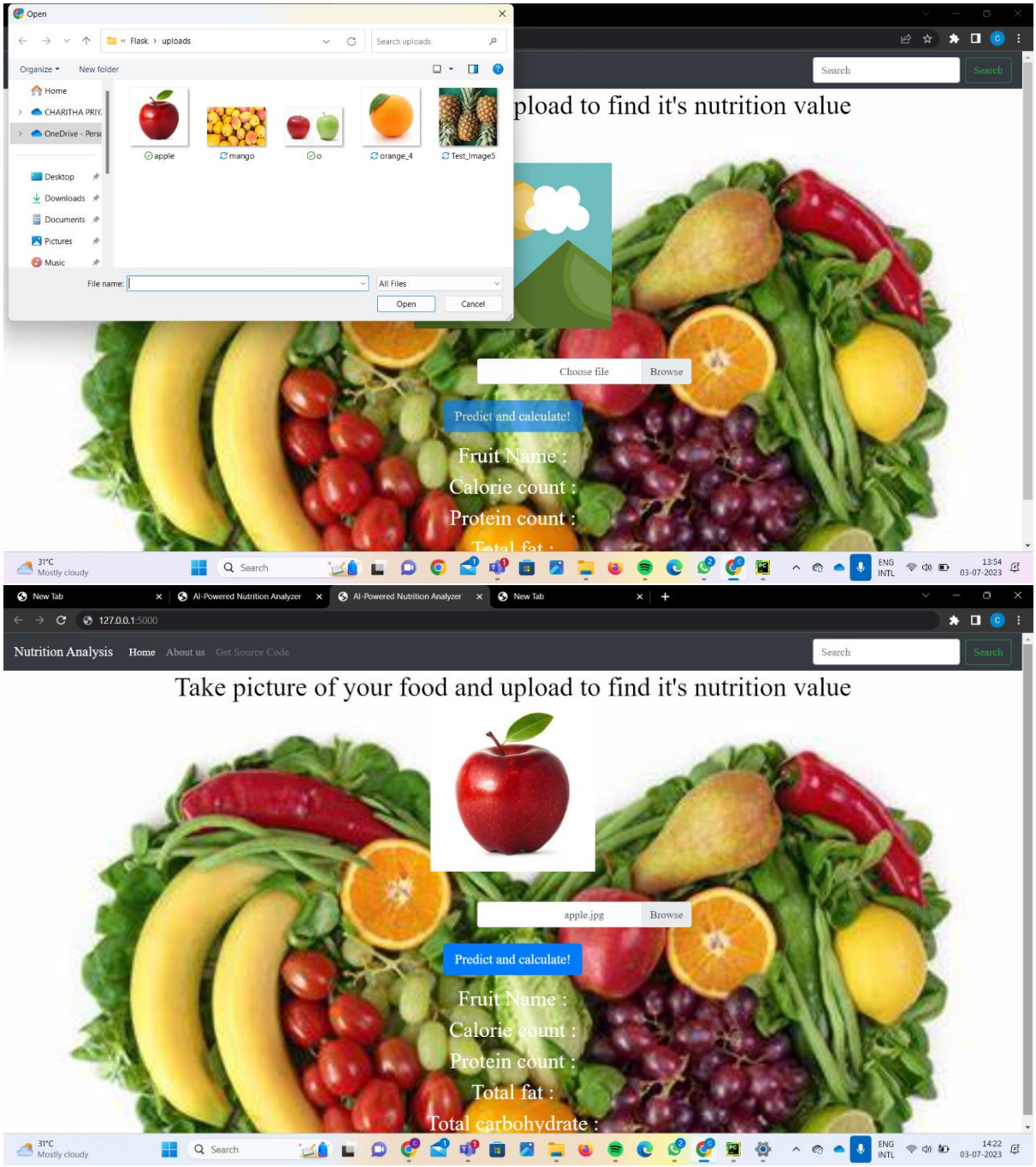
USABILITY:

- Access to the Nutrition Analyzer requires no training.
- Results should be loaded within 30 seconds.
- It should be user-friendly and convenient.
- It should be simple and easy to use.
- The results should be self-explanatory so that even ordinary people can understand them.

5. FLOWCHART



6. RESULT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Flask › uploads
Search uploads
Organize
New folder
Home
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OneDrive - Perso
Desktop
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All Files
Open
Cancel
Search
Search
pload to find it's nutrition value
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Browse
Predict and calculate!
Fruit Name :
Calorie count :
Protein count :
Total fat :
31°C
Mostly cloudy
Search
ENG
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13:54
03-07-2023

New Tab
AI-Powered Nutrition Analyzer
AI-Powered Nutrition Analyzer
New Tab
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Nutrition Analysis
Home
About us
Get Source Code
Search
Search
Take picture of your food and upload to find it's nutrition value
apple.jpg
Browse
Predict and calculate!
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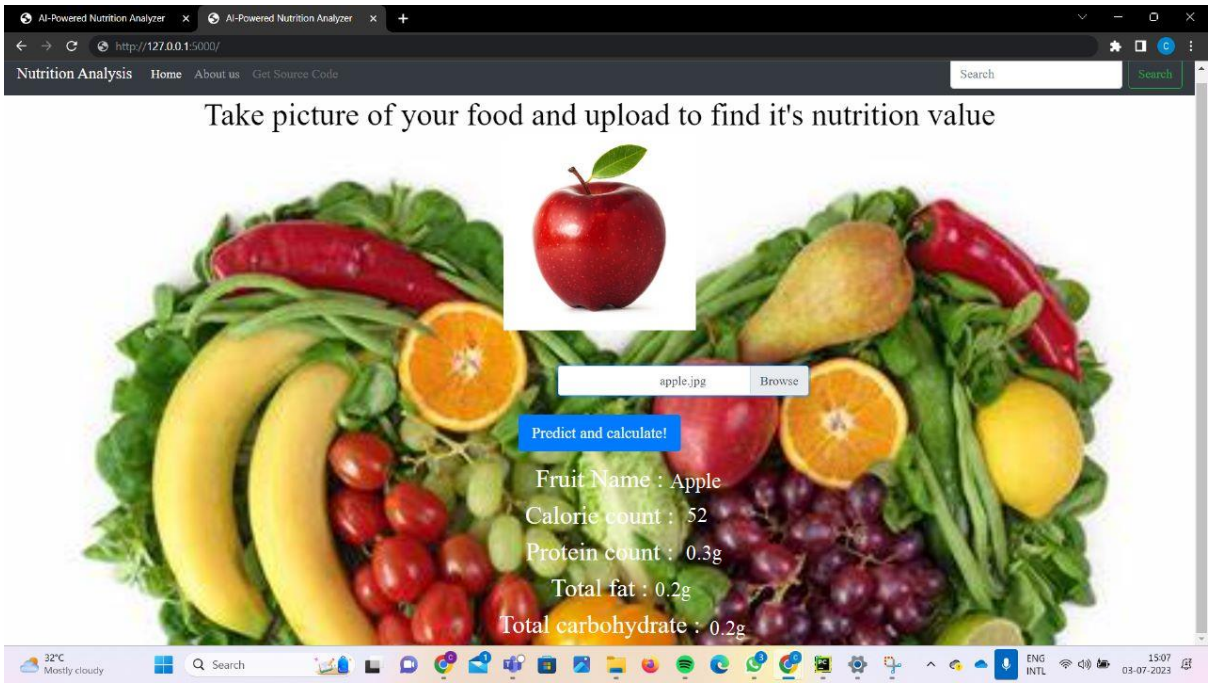
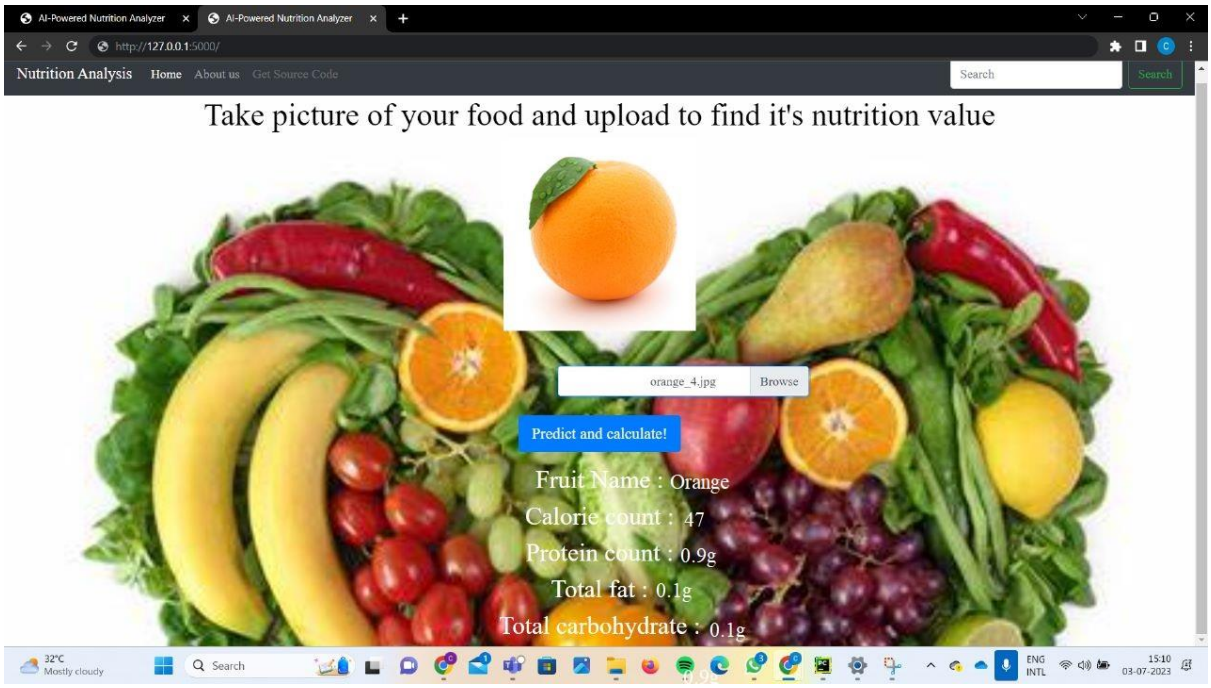
OUTPUT RESULTS:





7. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

Easy-to-use web interface.

- Provides image-based food information retrieval.
- Evidence-based design.
- Basic details and instructions based on user profile.
- Creating a user-friendly interface and ensuring compatibility across all platforms.

DISADVANTAGES:

- It is web based, offline use is complex.
- They need to train more models to make it future ready.

8. APPLICATIONS

- Diet tracking and analysis: Fitness enthusiasts can use AI-powered nutrition analyzers to track their daily food intake and analyze the nutritional content of their meals.
- Meal planning and optimization: AI nutrition analyzers can help create personalized meal plans based on an individual's specific dietary requirements and fitness goals.
- Nutritional advice and recommendations: AI-powered nutrition analyzers can provide personalized recommendations and guidance based on individual fitness goals, body composition and dietary preferences.
- Managing Allergens and Dietary Restrictions: For fitness enthusiasts with specific dietary restrictions or food allergies, AI nutrition analyzers can be especially helpful.
- Performance monitoring and optimization: AI nutrition analyzers can be integrated with fitness tracking devices and apps to provide a comprehensive view of an individual's nutrition and exercise data.

9. CONCLUSION

To summarize, we have developed an online solution that predicts a food and returns the nutritional data of the predicted food. Currently, only five fruits are predicted: orange, pineapple, apple, banana, and watermelon, but we can train the model to predict any food from natural to processed by training it with the relevant data set and future-proofing it. We can add primarily many of them user login modules that can unlock ways to store user profiles, consumption data, and user suggestions. The primary goal of the project is to help health conscious people monitor their nutritional intake and help them increase it health.

10. FUTURE SCOPE

- Creating a user-friendly interface and ensuring compatibility across all platforms.
- Providing rewards for using and sharing the app.
- Using client data and feedback to improvise.
- Collaboration with other parties for larger scale use
- Subscription based plan for users to unlock all features.
- Providing online resources for customers.

11. BIBILOGRAPH

https://drive.google.com/drive/folders/1PHOaXCmMW7GIiCcZ-uggKN1T3nRuSETO?usp=sharing