K.L.N COLLEGE OF INFORMATION TECHNOLOGY, POTTAPALAYAM .

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Subject Code: HX 8001

Subject Name: Professional Readiness for Innovation, and Entrepreneurship

"PROJECT REPORT"

AI-POWERED NUTRITION ANALYZER AND FINTESS ENTHUSIASTS

TEAM ID: PNT2022TMD52470

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INTRODUCTION

1.1 PROJECT OVERVIEW

Due to the modern lifestyle, carefree attitude and being materialistic, people are taking their health and diet otherwise. Therefore, to facilitate them with a proper diet chart according to their lifestyle and cope up with their busy schedule, 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 this software by registering themselves, entering the basic details and signing in with a username and password. The prime objective of this software 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.This software is beneficial for the young generation who live away from their homes and cannot have a proper diet maintained.

1.2 PURPOSE

The purpose of this software is to provide the customer best service which includes diet plans, feedbacks and many other functionalities that aim towards the satisfaction of the consumer. This software is going to boost up the confidence of the user and make them more physically and mentally fit.

Today, people are becoming aware of the health issues caused by sedentary lifestyles and obesity. Another reason is that they are adopting a healthy lifestyle by counting and tracking their daily calorie intake. All these reasons collectively raise the demand for diet and nutrition applications.

It helps users in to keep track of daily intake, to monitor calories intake and consumed, to provide you with guidance on healthy and nutritious food, to create a personalized meal plan.

CHAPTER-2

LITERATURE SURVEY

Romeshwar Sukla at [1] proposed a DASH diet recommendation system. It uses techniques such as content-based filtering along with machine learningalgorithms to hypertensive patients based on factors such as age, user preferences of food, allergies, smoking level, alcohol level, blood pressure level and dietary intake. Gergely Kov´asnai at [2] discussed developing an expert system for diet recommendation using a casebased approach. Based on this approach, an expert system is to be constructed which is intended to be employed in a health record management system

2.1 EXISTING SYSTEM

In existing system,data recording and calculation methods were tedious and not free from human errors; luckily, disruptive digital technologies stepped in to record data and calculated mission-based statistics effectively. Transformation offers a strong basis to use previous data to better the next generation. Artificial intelligence and machine learning in nutrition use raw data and extract competitive features that are advantageous for predicting better dietary plans.

AI Diet Consultant system, you have to hire a dietitian in order to get advice. Hiring a nutrition doctor will not only waste your time and efforts for calling them, going to them and so on but also cost you very high as their charges per month are very high. The moment will also arives when they will not available for you and you have to search for some other dietician.

2.2 REFERENCES

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

Neutrino- Artificial Intelligence Nutrition App : https://www.nutrinohealth.com/ https://www.fitnessai.com/

Healthifyme-AI Nutrition App: https://www.healthifyme.com/in/

2.3 PROBLEM STATEMENT DEFINITION

Food patterns and diet are important factors to improve the lifestyle by preventing diseases. The food industry comprises complexities, and the journey for innovation in the food industry is long, from idea generation to commercialization. It is reported that diet significantly influences the evolution of CNCD (chronic non-communicable diseases), including, cardiovascular diseases, depression, and obesity.

If this work is performed manually, it brings high possibilities of errors that ultimately lead to time and money wastage with no beneficial outcomes. Here AI in nutrition plays a significant role in offering the extraordinary potential for preventing diseases and better treatment methods.

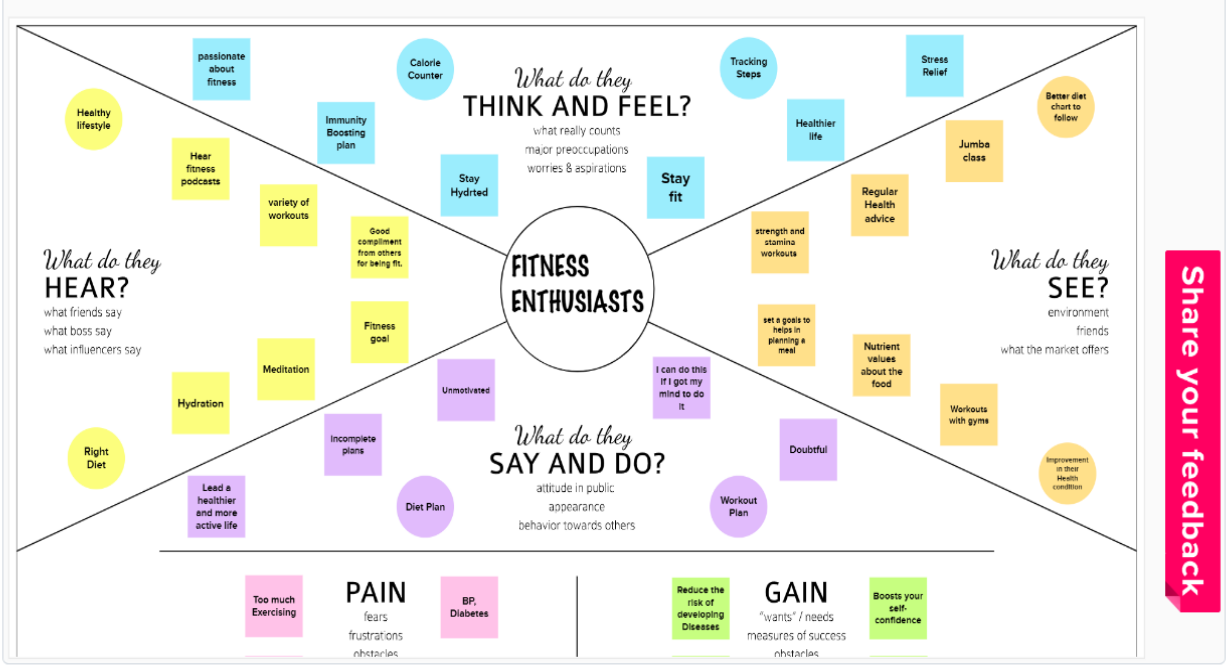
Traditional data recording and calculation methods were tedious and not free from human errors; luckily, disruptive digital technologies stepped in to record data and calculated mission-based statistics effectively. Transformation offers a strong basis to use previous data to better the next generation.

Artificial intelligence and machine learning in nutrition use raw data and extract competitive features that are advantageous for predicting better dietary plans.

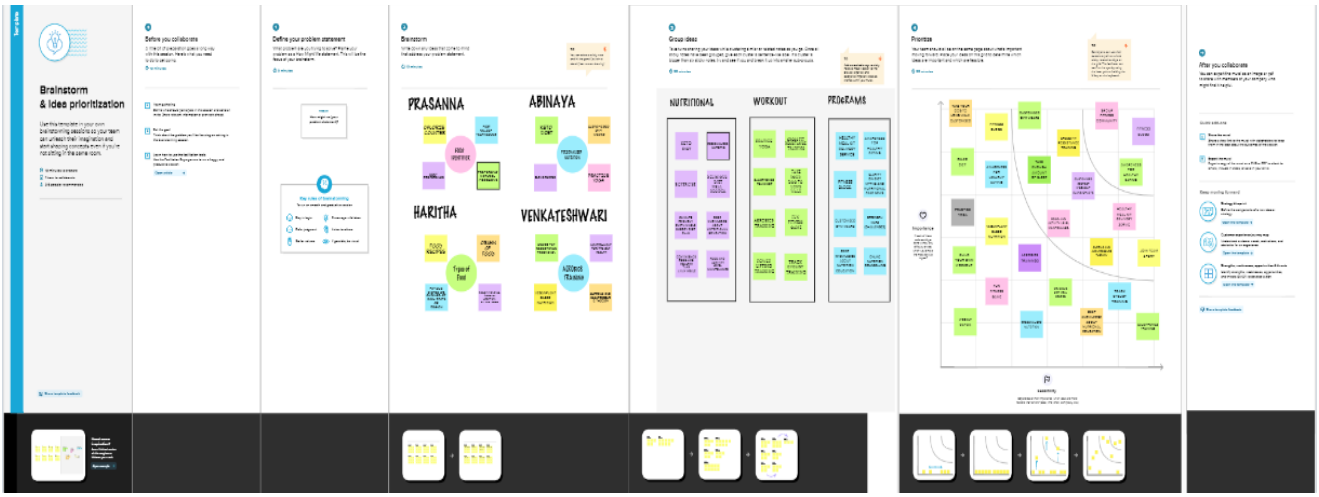
CHAPTER-3

IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS



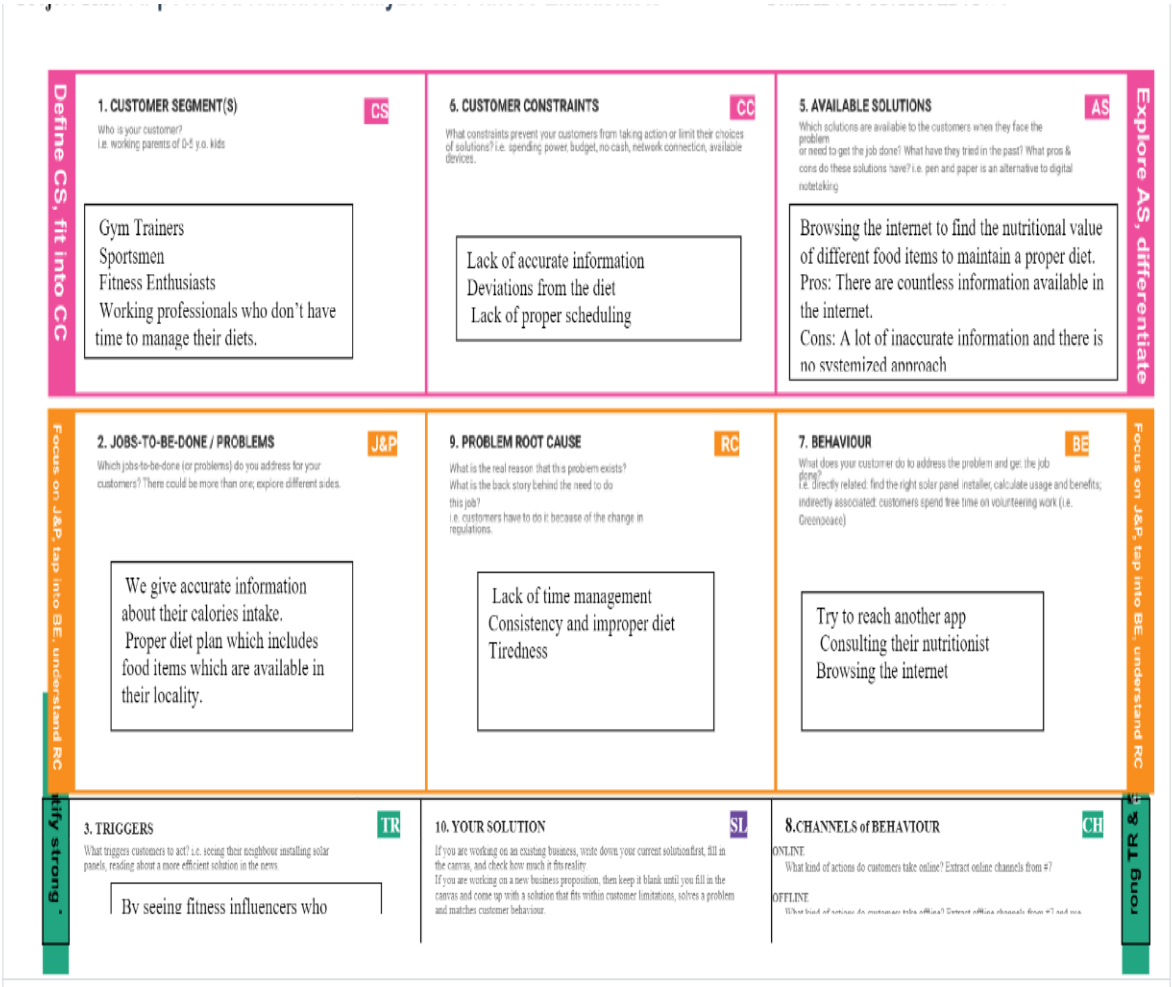
3.2 IDEATION & BRAINSTORMING



3.3 PROPOSED SOLUTION

S.NO	PARAMETER	DESCRIPTION
1.	Problem Statement (Problem to be solved)	Traditional method includes are wherein the trainer speaks about a topic and trainees take notes for future references. Food patterns and diet are important factors to improve the lifestyle by preventing diseases. The proposed method suggests How to intake suitable nutrition with correct guidance and weight level should be manage through tracking our day to day fitness.
2.	Idea / Solution Description	Artificial intelligence and machine learning in nutrition use raw data and extract competitive features that are advantageous for predicting better dietary plans. Notification and reminders from fitness apps keep reminding you about your health goals, thus keeping you motivated.
3.	Novelty/Uniqueness	Giving a individual Food/health Schedule According to their body conditions.
4.	Social impact/Customer Satisfaction	Providing solutions to Fitness problem. Less expenditure. easy to follow without affecting their personal time.
5.	Business model (Revenue Model)	Open platform for all users to access. pay for accessing some specific resources.
6.	Scalability of the Solution	Periodic notification Remainder helps to keeping about yout healthy goals. Notifying motivational quote's to lead a healthy routine

3.4 PROBLEM SOLUTION FIT



Having reached problem-solution fit means that you've understood your customers' needs/ jobs-to-be-done and their desired outcomes. It also means that you've created a solution that addressed these needs in a unique way, as customer feedback suggests so (validation of desirability

CHAPTER-4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

NO	FUNCTIONAL REQUIREMENTS	SUB REQUIREMENT
1	UserRegistration	Registration through website or application.
2	UserConfirmation	Verify via mail,verify via OTP through SMS
3	UserLogin	Login through website or application using their username and password.
4	UserAccess	Allows the application requirements.
5	UserGuide	Guide stepupstep to use The application.
6	UserUpload	Upload their details for solve their problems.
7	UserSolution	Report should be generated to the user.
8	UserDataSync	API interface to invoicesystem.

4.2 NON-FUNCTIONAL REQUIREMENT

S.NO	NONFUNCTIONAL REQUIRMENTS	DESCRIPTION
1	Usability	User can easily learn to use the application and they can send their details through the application. Usability can be accessed from different point of view.

2	Security	The software is protected from unauthorized access to the system and its stored details. Access permission for the particular system information may only be changed by the systems Data administrator.
3	Reliability	The software works without any failure.The user can use the software without any fault. The database update must roll back all related updates when any update fails.
4	Performance	The quality attributes of the system describe the responsiveness to

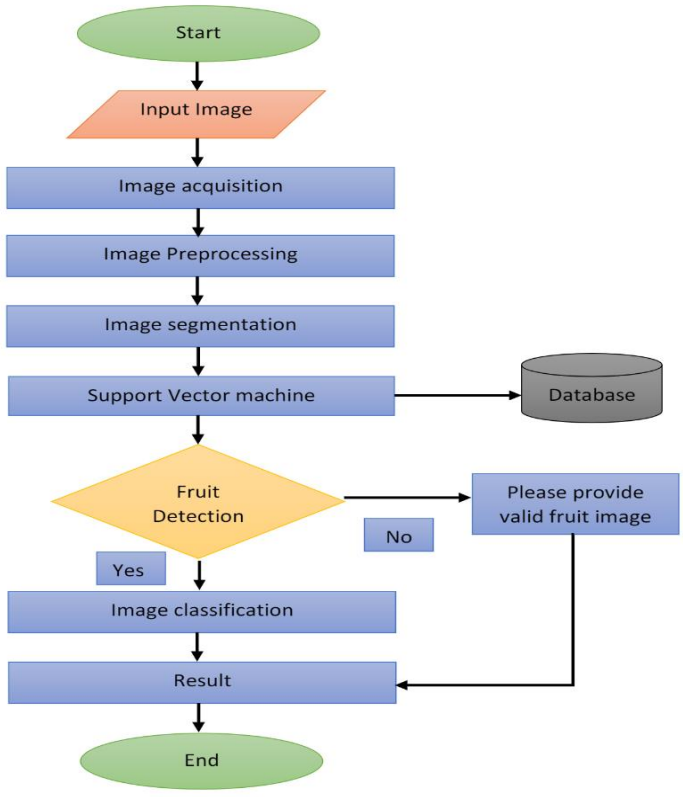
		Various user interaction with it. Good performance is maintained in this application.
5	Availability	The period of time that the system's functionality and services are available for the use with all operations. Pages availability must not take longer time, the rest of the pages that may experience problem must display Notification with a timer.
6	Scalability	The system must grow without any negative influence onits performance.This software is enough support200,000user at a time.

CHAPTER-5

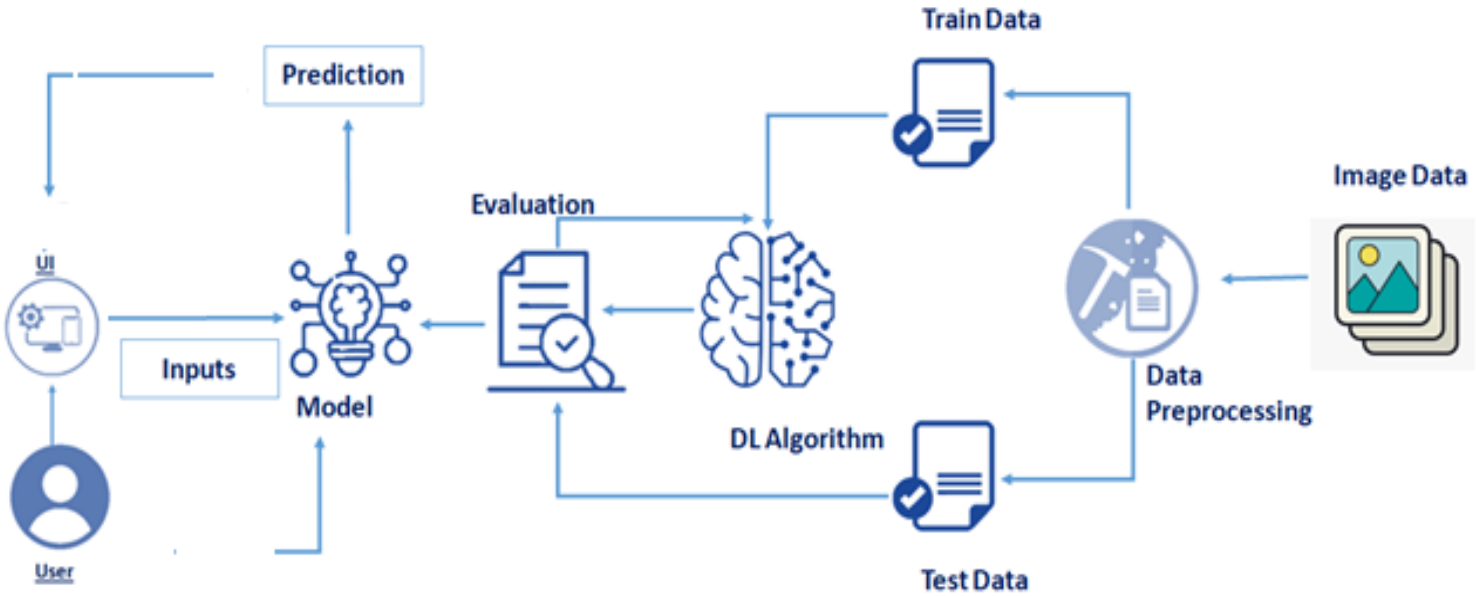
PROJECT DESIGN

5.1DATA FLOW DIAGRAM

Data Flow Diagram:



5.2 SOLUTION & TECHNICAL ARCHITECTURE



5.3 USER STORIES

This describes which type of users do a particular task under the acceptance criteria.

The user stories explain the priority of the task and the task comes under which print of release.

scenario customer,who needs to stay fit at home through virtually	Entice How does someone initially become aware of this process?	Enter what do people experience as they begin the process?	Engage In the core moments, What happens?	Exit What do people typically experience as the process finishes?	Extend what happens after the experience is over?
Steps What does the person (or group) typically experience?					
Interaction What interactions do they have at each step along the way?					
Goals What is a person's primary goal and expectations?					
Customer Feelings					
Opportunities How might we make each step better? What ideas do we have? What have others suggested?					
Positive moments What steps does a typical person find enjoyable, productive, fun, motivating, delightful, or exciting?					
Negative moments What steps does a typical person find frustrating, confusing, angering, costly, or time-consuming?					

CHAPTER-6

PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

The delivery plan of project deliverables is a strategic element for every Project Manager. The goal of every project is, in fact, to produce a result that serves a specific purpose. With the word "purpose ", we can mean the most disparate goals: a software program, a chair, a building, a translation, etc.… In project sprint delivery, planning is one of the processes of completing the project and show casing the time line of the project planning. This delivery plan can help to understand the process and work flow of the project working by the team mates. Every single modules are assigned to the team mates to show case their work and contribution of developing the project.

the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Pre-requisites For model building	USN-0	As a developer I have to collect different type of data possible and other data supporting the mode	2	High	Abinaya R, Prasanna M
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Haritha N, Venkateshwari RMS
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Abinaya R, Prasanna M
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	Haritha N, Venkateshwari RMS
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Mediu m	Abinaya R, Prasanna M
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Haritha N, Venkateshwari RMS
Sprint-2	Model Building	USN-6	Development of the model with the prepared data set	2	High	Abinaya R, Prasanna M
Sprint-2	Main Interface	USN-7	As a user I can view my calorie intake by clicking photo of the food	2	High	Haritha N, Venkateshwari

			I eat			RMS
Sprint-2	Package, Dashboard	USN-8	As a user I can choose variety of packages based on my requirement	2	Mediu m	Abinaya R, Prasanna M
Sprint-3	Diet Plan for free users	USN-9	As a dietitian I provide daily plans for the betterment of the user	2	High	Haritha N, Venkateshwari RMS
Sprint-3	Personalized user food habit -based diet plan for premium users	USN-10	As a Premium User, I can choose to follow diet plan based on my food habits or the generalized on	1	Mediu m	Abinaya R, Prasanna M
Sprint-2	User image Analysis	USN-11	As a user I can track my calorie intake, and know about my food in detail.	2	High	Haritha N, Venkateshwari RMS
Sprint-3	Improve efficiency of AI model	-	As a developer I have to give a better model that will analyse food	-	-	

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			precisely and provide accurate results			
Sprint-2	User Analysis record	USN-12	As a user, I can check the previous records and I can analyse my food habits	1	Mediu m	Abinaya R, Prasanna M
Sprint-4	Fitness tips and basic exercises	USN-13	As a user I can follow some fitness tips and I can maintain weight as required	2	Mediu m	Haritha N, Venkateshwari RMS
Sprint-4	Home remedies	USN-14	As a user I can follow some natural home remedies for common diseases like (cold, cough, fever) and treat myself	2	High	Abinaya R, Prasanna M
Sprint-4	Optimize the user experience with the app	USN-15	As a developer I have to provide clean and smooth interface to my user	2	High	Haritha N, Venkateshwari RMS
Sprint-	Payment Gateway for purchasing package	USN-16	As a developer I have to create an environment which makes user feel ease to complete his/her Payments with various Payment options	1	Mediu m	Abinaya R, Prasanna M

6.2 SPRINT DELIVERY SCHEDULE

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

Project Tracker, Velocity & Burndown Chart: (4 Marks)

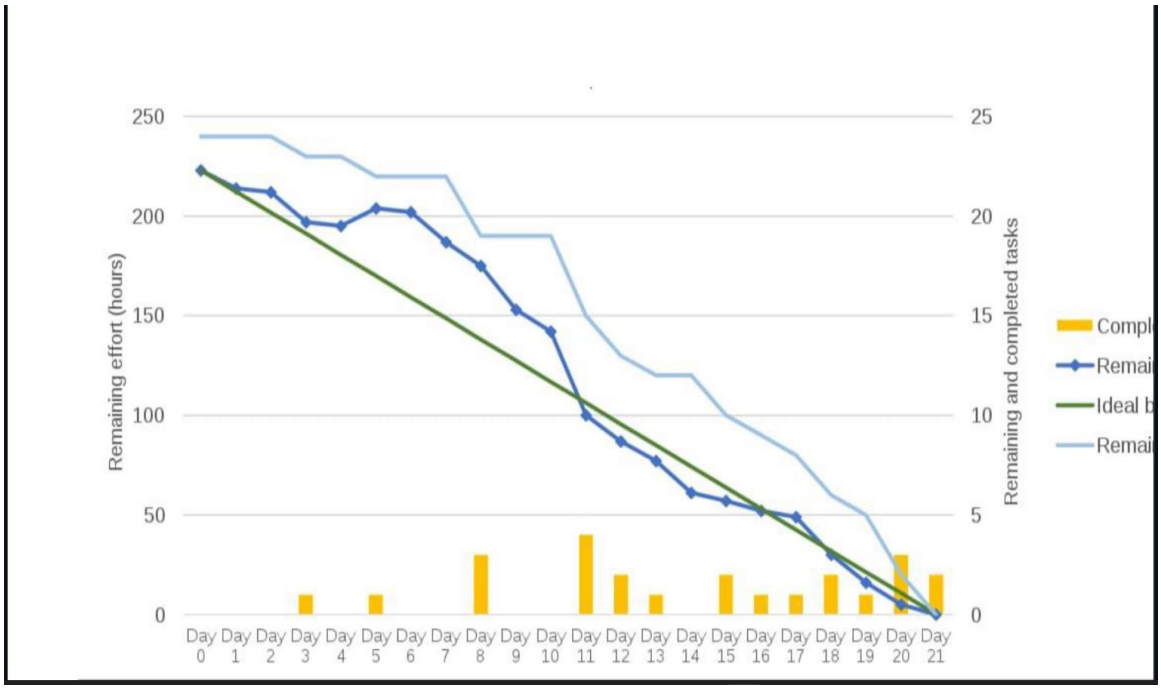
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	28 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	04 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	11 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	17 Nov 2022

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

An approximate work plan in burndown:



6.3 REPORT FROM JIRA

Originally, Jira was designed as a bug and issue tracker. But today, Jira has evolved into a powerful work management tool for all kinds of use cases, from requirements and test case management to agile software development.

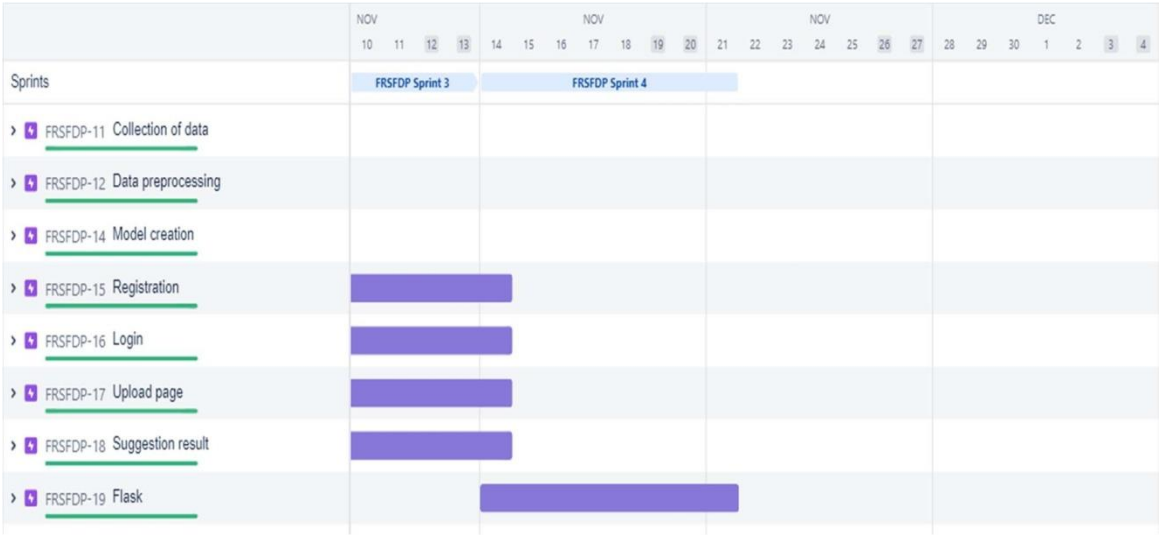
To practice agile methodologies, Jira Software provides scrum and Kanban boards out-of-the-box. Boards are task management hubs, where tasks are mapped to customizable workflows. Boards provide transparency across teamwork and visibility into the status of every work item. Time tracking capabilities and real-time performance reports (burn-up/down charts, sprint reports, velocity charts) enable teams to closely monitor their productivity over time. We have designed our sprint using scrum board.

Scrum Board

Scrum boards are visual project management tools that help Scrum teams visualize backlog items and work progress. Scrums are broken down into time boxed iterations named sprints, lasting between one and four weeks. Most development teams shoot for two-week sprints. Scrum boards are visual project management tools that help Scrum teams visualize backlog items and work progress. Scrum boards track individual sprints and help team members visualize their progress.

Road Map

This is the overall journey of the sprints, which shows the timelines of theprogress.



CHAPTER-7

CODING & SOLUTIONING

7.1 FEATURE 1

Depending on the features given to the 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.).

7.2 FEATURE 2

In this model we are adding Calorie counter option for enchancing the software.It detects the calorie of Intakes based on information provided by the user.It helps the users to Identify and follow the proper Nutrition rich foods.

```
Epoch 1/20
828/828 [==============================] - 2278s 3s/step - loss: 0.6177 - accuracy: 0.7518 - val_loss: 0.3058 - val_accuracy: 0.8922
Epoch 2/20
828/828 [==============================] - 23s 27ms/step - loss: 0.4231 - accuracy: 0.8432 - val_loss: 0.2778 - val_accuracy: 0.8940
Epoch 3/20
828/828 [==============================] - 22s 26ms/step - loss: 0.3777 - accuracy: 0.8579 - val_loss: 0.2511 - val_accuracy: 0.9035
Epoch 4/20
828/828 [==============================] - 21s 25ms/step - loss: 0.3469 - accuracy: 0.8685 - val_loss: 0.2343 - val_accuracy: 0.9136
Epoch 5/20
828/828 [==============================] - 23s 27ms/step - loss: 0.3283 - accuracy: 0.8775 - val_loss: 0.2393 - val_accuracy: 0.9059
Epoch 6/20
828/828 [==============================] - 22s 26ms/step - loss: 0.3087 - accuracy: 0.8840 - val_loss: 0.1993 - val_accuracy: 0.9279
Epoch 7/20
828/828 [==============================] - 22s 26ms/step - loss: 0.2844 - accuracy: 0.8961 - val_loss: 0.2652 - val_accuracy: 0.9124
Epoch 8/20
828/828 [==============================] - 21s 25ms/step - loss: 0.2726 - accuracy: 0.8978 - val_loss: 0.2293 - val_accuracy: 0.9172
Epoch 9/20
828/828 [==============================] - 23s 27ms/step - loss: 0.2535 - accuracy: 0.9031 - val_loss: 0.2323 - val_accuracy: 0.9107
Epoch 10/20
828/828 [==============================] - 22s 26ms/step - loss: 0.2343 - accuracy: 0.9111 - val_loss: 0.2075 - val_accuracy: 0.9256
Epoch 11/20
828/828 [==============================] - 21s 25ms/step - loss: 0.2231 - accuracy: 0.9132 - val_loss: 0.2051 - val_accuracy: 0.9345
Epoch 12/20
828/828 [==============================] - 22s 27ms/step - loss: 0.2075 - accuracy: 0.9251 - val_loss: 0.2178 - val_accuracy: 0.9232
Epoch 13/20
828/828 [==============================] - 21s 26ms/step - loss: 0.1926 - accuracy: 0.9306 - val_loss: 0.1724 - val_accuracy: 0.9327
Epoch 14/20
828/828 [==============================] - 21s 25ms/step - loss: 0.1974 - accuracy: 0.9253 - val_loss: 0.2189 - val_accuracy: 0.9267
Epoch 15/20
828/828 [==============================] - 22s 27ms/step - loss: 0.1700 - accuracy: 0.9372 - val_loss: 0.2350 - val_accuracy: 0.9333
Epoch 16/20
828/828 [==============================] - 22s 26ms/step - loss: 0.1533 - accuracy: 0.9391 - val_loss: 0.2063 - val_accuracy: 0.9422
Epoch 17/20
828/828 [==============================] - 22s 26ms/step - loss: 0.1526 - accuracy: 0.9420 - val_loss: 0.2387 - val_accuracy: 0.9297
Epoch 18/20
828/828 [==============================] - 21s 25ms/step - loss: 0.1243 - accuracy: 0.9548 - val_loss: 0.2254 - val_accuracy: 0.9404
Epoch 19/20
828/828 [==============================] - 21s 25ms/step - loss: 0.1343 - accuracy: 0.9519 - val_loss: 0.2066 - val_accuracy: 0.9351
Epoch 20/20
828/828 [==============================] - 20s 25ms/step - loss: 0.1335 - accuracy: 0.9567 - val_loss: 0.4342 - val_accuracy: 0.9077
<keras.callbacks.History at 0x7f92f7605350>
```

CHAPTER-8

TESTING

8.1 TEST CASES

Testcase	Feature Type	Component	Test Scenario	Expected Result	Actual Result	Status
1	UI	Home Page	Verify UI elements in the Home Page	The Home page must be displayed properly	Working as expected	PASS
2	UI	Home Page	Check if the UI elements are displayed properly in different screen sizes	The Home page must be displayed properly in all sizes	The UI is displayed properly in screen size 2560 x 1801 and 768 x 630	PASS
3	Functional	Home Page	Check if user can upload their file	The input image should be uploaded to the application successfully	Working as expected	PASS
4	Functional	Home Page	Check if user cannot upload unsupported files	The application should not allowuser to select anon image file	User is able to upload any file	FAIL
5	Functional	Home Page	Check if the page redirects to the result page once theinputis given	The page should redirect tother esults page	Working asexpected	PASS

1	Functional	Backend	Check if all the routes are working properly	All the routes should properly work	Working as expected	PASS
1	Functional	Model	Check if the model canhandle various image sizes	The model should rescale the image and predict the results	Working as expected	PASS
2	Functional	Model	Check if the model predicts calorie value	The model should predict the calories.	Working as expected	PASS
3	Functional	Model	Check if the model can handle complex input image	The model should predict the number in the complex image	The model predicts.	PASS
1	UI	Result Page	Verify UI elements in the Result Page	The Result page must be displayed properly	Working as expected	PASS
2	UI	Result Page	Check if the input image is displayed properly	The input image should be displayed properly	The size of theiinput image exceeds the display container	FAIL
3	UI	Result Page	Check if the result is displayed properly	The result shouldbe displayed properly	Working as expected	PASS
4	UI	Result Page	Check if the other predictions are displayed properly	The other predictions should be displayed properly	Working as expected	PASS

8.2 USER ACCEPTANCE TESTING

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the project at the time of the release to User Acceptance Testing (UAT).

2.Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved.

Features -Image	Accuracy
Apple	80%
Banana	95%
Orange	74%
Pineapple	70%
Watermelon	81%

CHAPTER-9

RESULTS

9.1 PREFORMANCE METRICS

9.1.1 Model Summary

The model summary table reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficient, is the linear correlation between the observed and model-predicted values of the dependent variable.

Model: "sequential"

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 62, 62, 32)	896
max_pooling2d (MaxPooling2D)	(None, 31, 31, 32)	0
conv2d_1 (Conv2D)	(None, 29, 29, 32)	9248
max_pooling2d_1 (MaxPooling 2D)	(None, 14, 14, 32)	0
flatten (Flatten)	(None, 6272)	0
dense (Dense)	(None, 128)	802944
dense_1 (Dense)	(None, 5)	645

Total params: 813,733
Trainable params: 813,733
Non-trainable params: 0

9.1.2 Accuracy

It is one of the metrics to describe the accuracy of an algorithm on a classification task. Accuracy is the number of samples that are paired divided by the number of samples.

```
classifier.compile(optimizer='adam', loss='sparse_categorical_crossentropy', metrics=['accuracy'])
generator=x_train,steps_per_epoch = len(x_train),
      epochs=10, validation_data=x_test,validation_steps = len(x_test))
/usr/local/lib/python3.7/dist-packages/ipykernel_launcher.py:3: UserWarning: `Model.fit_generator` is deprecated and will be removed in a future version. Please use `Model.fit`, which supports generators.
  This is separate from the ipykernel package so we can avoid doing imports until
Epoch 1/10
150/150 [==============================] - 82s 533ms/step - loss: 0.0956 - accuracy: 0.9587 - val_loss: 16.1767 - val_accuracy: 0.0000e+00
Epoch 2/10
150/150 [==============================] - 9s 59ms/step - loss: 2.9143e-04 - accuracy: 1.0000 - val_loss: 20.1272 - val_accuracy: 0.0000e+00
Epoch 3/10
150/150 [==============================] - 8s 53ms/step - loss: 3.4629e-04 - accuracy: 1.0000 - val_loss: 24.9630 - val_accuracy: 0.0000e+00
Epoch 4/10
150/150 [==============================] - 8s 53ms/step - loss: 2.9024e-05 - accuracy: 1.0000 - val_loss: 27.0683 - val_accuracy: 0.0000e+00
Epoch 5/10
150/150 [==============================] - 7s 48ms/step - loss: 1.9186e-05 - accuracy: 1.0000 - val_loss: 29.5370 - val_accuracy: 0.0000e+00
Epoch 6/10
150/150 [==============================] - 7s 50ms/step - loss: 9.7612e-06 - accuracy: 1.0000 - val_loss: 32.2098 - val_accuracy: 0.0000e+00
Epoch 7/10
150/150 [==============================] - 10s 67ms/step - loss: 5.6251e-06 - accuracy: 1.0000 - val_loss: 32.4833 - val_accuracy: 0.0000e+00
Epoch 8/10
150/150 [==============================] - 8s 50ms/step - loss: 4.9289e-06 - accuracy: 1.0000 - val_loss: 33.9249 - val_accuracy: 0.0000e+00
Epoch 9/10
150/150 [==============================] - 8s 52ms/step - loss: 2.9105e-06 - accuracy: 1.0000 - val_loss: 35.2041 - val_accuracy: 0.0000e+00
Epoch 10/10
150/150 [==============================] - 8s 54ms/step - loss: 3.3737e-06 - accuracy: 1.0000 - val_loss: 35.8279 - val_accuracy: 0.0000e+00
<keras.callbacks.History at 0x7fe63347b410>
```

CHAPTER-10

ADVANTAGES AND DISADVANTAGES

ADVANTAGES:

Food and food habits are ever-changing and evolving. People and professionals need to quickly adapt to new food products, diets, and changing preferences. The best way to instantly adapt to these changes is to have software that changes and adapts with you.

Using automated nutrition analysis software will allow you to free up more time to innovate or grow your business. If you find a nutrition analysis software that has all the features you need, you can create much more time to focus on improving your business.

Features such as a quick preview of nutrients while adding foods to diets, menus, and recipes give you the ability to save time when new recipes and food products are introduced.

Having quick and easy software to help them plan their meals will save you tons of time.

DISADVANTAGES:

This methodology is still limited by its dependency on time-consuming and error-prone manual video annotations,with many studies resorting to the use of multiple human annotators.

It is extremely expensive due to semantics analysis model andnutritional analysis model.

In order to make recommendations, the system needs tocollect nutritional needs from users. Most of the information is only provided through continuous interactions with users. However, in reality, recording nutritional intake from users cannot avoid faults because users usually forget or give wrong information about the foods they have consumed.

CHAPTER-11

CONCLUSION

In this paper, we aimed to develop a practical deep learning based on Aipowered nutrition analyzer for fitness enthusiasts. Despite the fact that AI technologies are dynamically developing, the problem in nutrients research is not currently obtaining more and more advanced algorithms, but the application of those that have already been developed and are standardly used in other fields of knowledge, and even in other areas of biomedicine. An important challenge for nutrients research is also their integration with research on the use of medical robotics. Perhaps the development and application of AI in nutrients research requires modification of both mentality and professional competences, as is already postulated in relation to the food industry.

CHAPTER-12

FUTURE SCOPE

The future scope of this project is very broad. Few of them are:

1.The model could be trained using vast database in order to increase the accuracy of results

. 2.The Backend framework of the web application can be improved so that the uploaded images can be handled appropriately.

3.A database can also be implemented for the system so that users can save their data and relook into it later.

4.The Web application can be further developed and launched as an Android App so that anyone anywhere with or without internet connection can access it and get benefited from its use cases.

CHAPTER-13

APPENDIX

SOURCE CODE:

HTML FILE :

#Home.html

```
<!DOCTYPE html>
<html><head>
  <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <meta http-equiv="X-UA-Compatible" content="ie=edge">
   <title>Home</title>
   <link href="https://cdn.bootcss.com/bootstrap/4.0.0/css/bootstrap.min.css" rel="stylesheet">
<scriptsrc="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></scrip><script
src="https://cdn.bootcss.com/jquery/3.3.1/jquery.min.js"></script>
 <script src="https://cdn.bootcss.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
<link href="{{ url_for('static', filename='css/main.css') }}" rel="stylesheet">
<style>
body
{ background-image: url("https://www.livingproofnyc.com/wp-
content/themes/livingproof/assets/img/hero-background.jpg");
   background-size: cover; }
.bar
{ margin: 0px;
padding:20px;
background-color:white;
opacity:0.6;
color:black;
font-family:'Roboto',sans-serif;
font-style: italic;
border-radius:20px;
font-size:25px; }
h3
{ margin: 0px;
padding:20px;
background-color:#9ACD32;
width: 800px;
opacity:0.6;
color:#000000;
font-family:'Roboto',sans-serif;
font-style: italic;
```

```
border-radius:20px;
font-size:25px; }
a
{ color:grey;
float:right;
text-decoration:none;
font-style:normal;
padding-right:20px; }
a:hover{
background-color:black;
color:white;
border-radius:15px;
font-size:30px;
padding-left:10px;
}
.div1{
  background-color: lightgrey;
  width: 500px;
  border: 10px solid peach;
  padding: 20px;
  margin: 20px;
  height: 500px; }
.header { position: relative;

top:0;

 margin:0px;
      z-index: 1;
      left: 0px;
      right: 0px;
      position: fixed;
      background-color: #8B008B ;
      color: white;
      box-shadow: 0px 8px 4px grey;
      overflow: hidden;
      padding-left:20px;
      font-family: 'Josefin Sans';
      font-size: 2vw;
      width: 100%;
      height:8%;
      text-align: center;  }
    .topnav {
  overflow: hidden;
  background-color: #FCAD98; }
.topnav-right a {
  float: left;
  color: black;
```

```
  text-align: center;
  padding: 14px 16px;
  text-decoration: none;
  font-size: 22px; }
.topnav-right a:hover {
  background-color: #FF69B4;
  color: black; }
.topnav-right a.active {
  background-color: #DA70D6;
  color: black; }
.topnav-right {
  float: right;
  padding-right:100px; }
</style></head>
<body>
<div class="header">
<div style="width:50%;float:left;font-size:2vw;text-align:left;color:black; padding-top:1%;padding-left:5%;">Nutrtion Image Analysis</div>
  <div class="topnav-right"style="padding-top:0.5%;">
    <a class="active" href="{{ url_for('home')}}">Home</a>
    <a   href="{{ url_for('image1')}}">Classify</a>
    <a href="{{ url_for('calCounter')}}">calcounter</a>
  </div>
</div>
</div>
<br><br><br><br><br><br><br><br><h1><center>
 <h3>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. It ensures compliance with trade and food laws.</h3>
</center>
 </h1></body></html>
```

#Image.html

```
{% extends "imageprediction.html" %} {% block content %}
<div style="float:left"><br><br>
<h5><font color="black" size="3" font-family="sans-serif"><b>Upload image to classify</b></font></h5><br><br>
<div>
```

```
   <form id="upload-file" method="post" enctype="multipart/form-data">
     <label for="imageUpload" class="upload-label">
         Choose...
      </label>
      <input type="file" name="file" id="imageUpload" accept=".png, .jpg, .jpeg">
</form>
  <center> <div class="image-section" style="display:none;">
      <div class="img-preview">
         <div id="imagePreview"></div></center></div><center><div>
                        <button type="button" class="btn btn-primary btn-lg " id="btn-
predict">Classify</button></center></div> </div>
<div class="loader" style="display:none;margin-left: 450px;"></div>
<h3 id="result">
        <span><p style="padding-top: 25px;"><h4>Food Classified is :
<h4><b><u>{{showcase}}{{showcase1}}</p> </span> </h3></div></div>

     {% endblock %}
```

#Imageprediction.html

```
<style>
body
{                                                                                    background-image:
url("https://i.pinimg.com/originals/be/21/1a/be211ad5043a8d05757a3538bdd8f450.jpg");
   background-size: cover; }
.bar
{ margin: 0px;
padding:20px;
background-color:white;
opacity:0.6;
color:black;
font-family:'Roboto',sans-serif;
font-style: italic;
border-radius:20px;
font-size:25px; }
a {
color:grey;
float:right;
text-decoration:none;
font-style:normal;
padding-right:20px; }
a:hover{
background-color:black;
color:white;
border-radius:15px;
font-size:30px;
```

```
padding-left:10px; }
.div1{
  background-color: lightgrey;
  width: 500px;
  border: 10px solid peach;
  padding: 20px;
  margin: 20px;
  height: 500px; }
.header { position: relative;

      top:0;
      margin:0px;
      z-index: 1;
      left: 0px;
      right: 0px;
      position: fixed;
      background-color: #8B008B ;
      color: white;
      box-shadow: 0px 8px 4px grey;
      overflow: hidden;
      padding-left:20px;
      font-family: 'Josefin Sans';
      font-size: 2vw;
      width: 100%;
      height:8%;
      text-align: center; }
    .topnav {
  overflow: hidden;
  background-color: #FCAD98; }
.topnav-right a {
  float: left;
  color: black;
  text-align: center;
  padding: 14px 16px;
  text-decoration: none;
  font-size: 18px; }
.topnav-right a:hover {
  background-color: #FF69B4;
  color: black; }
.topnav-right a.active {
  background-color: #DA70D6;
  color: black; }
.topnav-right {
  float: right;
  padding-right:100px; }</style></head>
<body>
<div class="header">
```

```
<div style="width:50%;float:left;font-size:2vw;text-align:left;color:black; padding-top:1%;padding-left:5%;">Nutrtion Image Analysis</div>
  <div class="topnav-right"style="padding-top:0.5%;">
   <a href="{{ url_for('home')}}">Home</a>
    <a  class="active" href="{{ url_for('image1')}}">Classify</a>
    <a href="{{ url_for('calCounter')}}">calcounter</a></div></div><br></div>
<div class="container">
      <center>
<div id="content" style="margin-top:2em">{% block content %}{% endblock %}</div></center> </div></body>
<footer>
   <script src="{{ url_for('static', filename='js/main.js') }}" type="text/javascript"></script>
</footer>
```

#Calcounter.html

```
   <style>
      body
                        { background-image: url("https://www.livingproofnyc.com/wp-content/themes/livingproof/assets/img/hero-background.jpg");
          background-size: cover;  }
      .bar
      { margin: 0px;
      padding:20px;
      background-color:white;
      opacity:0.6;
      color:black;
      font-family:'Roboto',sans-serif;
      font-style: italic;
      border-radius:20px;
      font-size:25px;  }
      h3 {
      margin: 0px;
      padding:20px;
      background-color:#9ACD32;
      opacity:0.6;
      color:#000000;
      font-family:'Roboto',sans-serif;
      font-style: italic;
      border-radius:20px;
      font-size:25px; }
      a {
      color:grey;
      float:right;
      text-decoration:none;
      font-style:normal;
```

```
padding-right:20px; }
a:hover{
background-color:black;
color:white;
border-radius:15px;
font-size:30px;
padding-left:10px; }
.div1{
  background-color: lightgrey;
  width: 500px;
  border: 10px solid peach;
  padding: 20px;
  margin: 20px;
  height: 500px;  }
 .header {   position: relative;
          top:0;
          margin:0px;
          z-index: 1;
          left: 0px;
          right: 0px;
          position: fixed;
          background-color: #8B008B ;
          color: white;
          box-shadow: 0px 8px 4px grey;
          overflow: hidden;
          padding-left:20px;
          font-family: 'Josefin Sans';
          font-size: 2vw;
          width: 100%;
          height:8%;
          text-align: center;  }
       .topnav {
  overflow: hidden;
  background-color: #FCAD98; }
 .topnav-right a {
  float: left;
  color: black;
  text-align: center;
  padding: 14px 16px;
  text-decoration: none;
  font-size: 22px; }
.topnav-right a:hover {
  background-color: #FF69B4;
  color: black; }
.topnav-right a.active {
  background-color: #DA70D6;
```

```
        color: black;  }
      .topnav-right {
        float: right;
        padding-right:100px ; } </style></head>
<body>
<div class="header">
            <div  style="width:50%;float:left;font-size:2vw;text-align:left;color:black;  padding-top:1%;padding-left:5%;">Nutrtion Image Analysis</div>
        <div class="topnav-right"style="padding-top:0.5%;">
         <a href="{{ url_for('home')}}">Home</a>
          <a href="{{ url_for('image1')}}">Classify</a>
          <a class="active" href="{{ url_for('calCounter')}}">calcounter</a>
</div></div><br>
<main id="mainOne">
   <div id="divPersonalInfo">
      <h2 id="personalGreeting">HI!</h2>
      <p>What are your daily nutritional requirements?</p>
      <h3>Let's find out!</h3>
      <form id="formPersonalInfo">
         <table id="tablePersonalInfo">
            <tr><td class="cellPI">Age:</td>
<td><input  class="inputs"  id="inputAge"  type="number"  name="age"  min="18" max="150"></td></tr>
            <tr><td class="cellPI">Sex:</td>
               <td>
                  <select class="inputs" id="selectSex" onchange="showSelect()">
                     <option value=""></option>
                     <option value="female">female</option>
                     <option value="male">male</option>
                  </select></td></tr>
            <tr>
               <td class="cellPI"><span id="pregnantLactating">PG/LAC:</span></td>
               <td>
                  <select class="inputs" id="selectPregnantLactating">
                     <option value=""></option>
                     <option value="pregnant1">Pregnant (1st trimester)</option>
                     <option value="pregnant2">Pregnant (2nd trimester)</option>
                     <option value="pregnant3">Pregnant (3rd trimester)</option>
                     <option value="lactating1">Lactating (0-6 months postpartum)</option>
                     <option value="lactating2">Lactating (7-12 months postpartum)</option>
                  </select></td></tr>
  <tr>
               <td class="cellPI">Height:</td>
                     <td><input  class="inputs"  id="inputHeight"  type="number"  name="height" min="100" max="250"> cm</td>
            </tr>
```

```
            <tr>
               <td class="cellPI">Weight:</td>
                     <td><input class="inputs" id="inputWeight" type="number" name="weight"
min="20" max="300"> kg</td>
            </tr>
            <tr>
               <td class="cellPI">Lifestyle:</td>
               <td>
                  <select class="inputs" id="selectLifestyle">
                     <option value=""></option>
                     <option value="sedentary">sedentary</option>
                     <option value="littleActive">somewhat active</option>
                     <option value="active">active</option>
                     <option value="veryActive">very active</option>
                  </select>
               </td></tr></table>
                                    <button class="btns" id="btnCalculate" type="button"
onclick="calculate()">Calculate</button>
         <p id="messageFillIn2"></p>
      </form>
   </div>
<div id="divDailyRequirement">
      <h2>DAILY NUTRITIONAL REQUIREMENTS</h2>
      <table id="tableDailyRequirement">
         <tr>
            <td>Calories (kcal)</td>
            <td id="reqCalories"></td>
         </tr>
         <tr>
            <td>Total Carbohydrate (g)</td>
            <td id="reqTotalCarbohydrate"></td>
         </tr>
         <tr>
            <td>Linoleic Acid (g)</td>
            <td id="reqLinoleicAcid"></td>
         </tr>
         <tr>
            <td>Alpha-Linoleic Acid (g)</td>
            <td id="reqAlphaLinoleicAcid"></td>
         </tr>
         <tr>
            <td>Protein (g)</td>
            <td id="reqProtein"></td>
         </tr>
         <tr>
            <td>Dietary Fiber (g)</td>
```

```
    <td id="reqDietaryFiber"></td>
</tr>
<tr>
    <td class="tableHeaders">Vitamins</td>
</tr>
<tr>
    <td>Vitamin A (&#181;g)</td>
    <td id="reqVitA"></td>
</tr>
<tr>
    <td>Vitamin D (&#181;g)</td>
    <td id="reqVitD"></td>
</tr>
<tr>
    <td>Vitamin E (mg)</td>
    <td id="reqVitE"></td>
</tr>
<tr>
    <td>Vitamin K (&#181;g)</td>
    <td id="reqVitK"></td>
</tr>
<tr>
    <td>Vitamin C (mg)</td>
    <td id="reqVitC"></td>
</tr>
<tr>
    <td>Vitamin B1 (mg)</td>
    <td id="reqVitB1"></td>
</tr>
<tr>
    <td>Vitamin B2 (mg)</td>
    <td id="reqVitB2"></td>
</tr>
<tr>
    <td>Vitamin B3 (mg)</td>
    <td id="reqVitB3"></td>
</tr>
<tr>
    <td>Vitamin B5 (mg)</td>
    <td id="reqVitB5"></td>
</tr>
<tr>
    <td>Vitamin B6 (mg)</td>
    <td id="reqVitB6"></td>
</tr>
<tr>
```

```
    <td>Vitamin B9 (&#181;g)</td>
    <td id="reqVitB9"></td>
</tr>
<tr>
    <td>Vitamin B12 (&#181;g)</td>
    <td id="reqVitB12"></td>
</tr>
<tr>
    <td class="tableHeaders">Minerals</td>
</tr>
<tr>
    <td>Calcium (mg)</td>
    <td id="reqCa"></td>
</tr>
<tr>
    <td>Copper (&#181;g)</td>
    <td id="reqCu"></td>
</tr>
<tr>
    <td>Iron (mg)</td>
    <td id="reqFe"></td>
</tr>
<tr>
    <td>Magnesium (mg)</td>
    <td id="reqMg"></td>
</tr>
<tr>
    <td>Manganese (mg)</td>
    <td id="reqMn"></td>
</tr>
<tr>
    <td>Phosphorus (mg)</td>
    <td id="reqP"></td>
</tr>
<tr>
    <td>Selenium (&#181;g)</td>
    <td id="reqSe"></td>
</tr>
<tr>
    <td>Zinc (mg)</td>
    <td id="reqZn"></td>
</tr>
<tr>
    <td>Potassium (g)</td>
    <td id="reqK"></td>
</tr>
```

```
        <tr>
          <td>Sodium (g)</td>
          <td id="reqNa"></td>
        </tr>
      </table>
      <button class="btns" id="btnNext" type="button" onclick="next()">Next</button>
    </div>

    <div id="divQuestion">
      <h2 id="personalQuestion">, WHAT HAVE YOU EATEN TODAY?</h2>
      <p>Have you met your nutritional needs?</p>
      <h3>Let's find out!</h3>
                          <button class="btns" id="btnCheckMyDay" type="button"
onclick="checkMyDay()">Check</button>
    </div>
 <div id="divFoodSelection">

      <h2>CHOOSE YOUR FOOD</h2>
      <form id="formDailyFood">
        <span class="minSpan">Grains:
        <select class="inputsDF" id="selectGrains" onchange="addFood(this)">
          <option value=""></option>
          <option value="Oats, raw">Oats, raw</option>
          <option value="Rice, raw">Rice, raw</option>
          <option value="Quinoa, raw">Quinoa, raw</option>
        </select>
        </span>
        <span class="minSpan">
        Vegetables:
        <select class="inputsDF" id="selectVegetables" onchange="addFood(this)">
          <option value=""></option>
          <option value="Broccoli, raw">Broccoli, raw</option>
          <option value="Carrots, raw">Carrots, raw</option>
          <option value="Potatos, raw, skin">Potatos, raw, skin</option>
        </select>
        </span>
        <span class="minSpan">
        Fruits:
        <select class="inputsDF" id="selectFruits" onchange="addFood(this)">
          <option value=""></option>
          <option value="Apples, raw, with skin">Apples, raw, with skin</option>
          <option value="Bananas, raw">Bananas, raw</option>
          <option value="Oranges, raw, with peel">Oranges, raw, with peel</option>
        </select>
        </span>
      </form>
```

```
      <form id="formMyPlate">
        <table id="tableMyPlate">
          <tr>
            <th class="tableHeadersNT pinkHeadline" id="tableHeaderArticals">Artical</th>
                                                    <th      class="tableHeadersNT      pinkHeadline"
id="tableHeaderQuantity">Quantity</th>
            <th class="tableHeadersNT" id="tableHeaderGrams"></th>
            <th class="tableHeadersNT" id="tableHeaderDelete"></th>
          </tr>
        </table>
        <br>
        <p><small>Show me my daily nutritional profile</small></p>
            <button  class="btns"  id="btnTracking"  type="button"  onclick="tracking()">Show
me</button>
        <p id="messageFillIn3"></p>
      </form>
    </div>

    <div id="divNutritionTracker">
      <h2>DAILY NUTRITIONAL PROFILE</h2>
      <table id="tableNutritionTracker">
        <tr>
          <td class="cellWidth">Calories</td>
          <td id="Calories" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Total Carbohydrate</td>
                                  <td     id="TotalCarbohydrate"     class="cellsProgressBar"><div
class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Linoleic Acid</td>
                                      <td     id="LinoleicAcid"     class="cellsProgressBar"><div
class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Alpha-Linoleic Acid</td>
                                    <td     id="AlphaLinoleicAcid"     class="cellsProgressBar"><div
class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Protein</td>
          <td id="Protein" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Dietary Fiber</td>
```

```
                                    <td id="DietaryFiber" class="cellsProgressBar"><div
class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="tableHeaders">Vitamins</td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin A</td>
          <td id="VitA" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin D</td>
          <td id="VitD" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin E</td>
          <td id="VitE" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin K</td>
          <td id="VitK" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin C</td>
          <td id="VitC" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin B1</td>
          <td id="VitB1" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin B2</td>
          <td id="VitB2" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin B3</td>
          <td id="VitB3" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin B5</td>
          <td id="VitB5" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
        <tr>
          <td class="cellWidth">Vitamin B6</td>
          <td id="VitB6" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
```

```
<tr>
   <td class="cellWidth">Vitamin B9</td>
   <td id="VitB9" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Vitamin B12</td>
   <td id="VitB12" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="tableHeaders">Minerals</td>
</tr>
<tr>
   <td class="cellWidth">Calcium</td>
   <td id="Ca" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Copper</td>
   <td id="Cu" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Iron</td>
   <td id="Fe" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Magnesium</td>
   <td id="Mg" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Manganese</td>
   <td id="Mn" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Phosphorus</td>
   <td id="P" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Selenium</td>
   <td id="Se" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Zinc</td>
   <td id="Zn" class="cellsProgressBar"><div class="divProgressBar"></div></td>
</tr>
<tr>
   <td class="cellWidth">Potassium</td>
   <td id="K" class="cellsProgressBar"><div class="divProgressBar"></div></td>
```

```
        </tr>
        <tr>
          <td class="cellWidth">Sodium</td>
          <td id="Na" class="cellsProgressBar"><div class="divProgressBar"></div></td>
        </tr>
      </table>
        <button class="btns" id="btnAddMore" type="button" onclick="addMoreFood()">Add More Food</button>
   </div>
</main>
</body>
</html>
```

#0.html

```
      <!-- Result -->
      <div class="results">
            <p style="padding-top: 150px; color:blue;"><h4 style="color:blue;">Food Classified is:  <h4><b><h4 style="color:red;"><u>{{showcase1}}<h4><br><h4 style="color:red;"><u>{{showcase}}<h4></p>

      </div>
      <br>
      <br>

   </div>
   </body>
</html>
```

CSS FILE:

#style.css

```
body{
  background-image:url(bg.jpg);
    background-size: 400% auto;
  background-repeat: no-repeat;
  background-position:center;
  color:#555;
  font-family:Arial, Helvetica, sans-serif;
  font-size:16px;
  line-height:1.6em;
  margin:0;
}
```

```
.container{
  width:80%;
  margin:auto;
  overflow:hidden;
}

.justify{
    text-align:justify;
    text-justify: auto;
}

.parallax {
  /* The image used */
     background-image: url("doc.jpg");

  /* Set a specific height */
  min-height: 750px;

  /* Create the parallax scrolling effect */
  background-attachment: fixed;
  background-position: center;
  background-repeat: no-repeat;
  background-size: cover;
}

html {
  scroll-behavior: smooth;
}
#section2 {
  height: 500px;
  /* background: ; */
}
div.background {
  background: url("static/bgg2.jpg");
  min-height: 5px;
 background-attachment: fixed;
  background-position: center;
  background-repeat: no-repeat;
  background-size: cover;
}


#navbar{
  background-color:#fff;
  color:#333;
}
```

```
#navbar ul{
  padding:0;
  list-style: none;
}
#navbar li{
  display:inline;
}
#navbar a{
  color:#fff;
  text-decoration: none;
  font-size:18px;
  padding-right:15px;
}

#showcase{
  min-height:300px;
  margin-bottom:30px;
}


#showcase h1{
    width: 100%;
  color:#333;
  font-size:40px;
  text-align: center;
  line-height: 1em;
  padding-top:10px;
}
#showcase h2{
    width: 100%;
  color:#333;
  font-size:30px;
  text-align: center;
  line-height: 1.6em;
  padding-top:10px;
}

#main{
  float:left;
  color:#fff;
  width:65%;
  padding:0 30px;
  box-sizing: border-box;
}

#sidebar{
  float:right;
```

```
  width:35%;
  background-color: #ffcccc;
  color:#000;
  padding-left:10px;
  padding-right:10px;
  padding-top:1px;
  box-sizing: border-box;
}


.img-preview {
    width: 300px;
    height: 300px;
    position: relative;
    border: 5px solid #F8F8F8;
    box-shadow: 0px 2px 4px 0px rgba(0, 0, 0, 0.1);
    margin-top: 1em;
    margin-bottom: 1em;
}

.img-preview>div {
    width: 100%;
    height: 100%;
    background-size: contain;
    background-repeat: no-repeat;
    background-position: center;
}

input[type="file"] {
    display: none;
}

.upload-label{
    display: inline-block;
    padding: 12px 30px;
    background: #39D2B4;
    color: #fff;
    font-size: 1em;
    transition: all .4s;
    cursor: pointer;
}

.upload-label:hover{
    background: #34495E;
    color: #39D2B4;
}
```

```
.myButton {
  border: none;
  text-align: center;
  cursor: pointer;
  text-transform: uppercase;
  outline: none;
  overflow: hidden;
  position: relative;
  color: #fff;
  font-weight: 700;
  font-size: 12px;
  background-color: #ff0000;
  padding: 10px 15px;
  margin: 0 auto;
  box-shadow: 0 5px 15px rgba(0,0,0,0.20);
}

.myButton span {
  position: relative;
  z-index: 1;
}

.myButton:after {
  content: "";
  position: absolute;
  left: 0;
  top: 0;
  height: 310%;
  width: 150%;
  background: #f2f2f2;
  -webkit-transition: all .5s ease-in-out;
  transition: all .5s ease-in-out;
  -webkit-transform: translateX(-98%) translateY(-25%) rotate(45deg);
  transform: translateX(-98%) translateY(-25%) rotate(45deg);
}

.myButton:hover:after {
  -webkit-transform: translateX(-9%) translateY(-25%) rotate(45deg);
  transform: translateX(-9%) translateY(-25%) rotate(45deg);
}

.loader {
    border: 8px solid #f3f3f3; /* Light grey */
    border-top: 8px solid #ff0000; /* Red */
    border-radius: 50%;
    width: 50px;
```

```
    height: 50px;
    animation: spin 1s linear infinite;
}

@keyframes spin {
    0% { transform: rotate(0deg); }
    100% { transform: rotate(360deg); }
}

#main-footer{
  background: #333;
  color:#fff;
  text-align: center;
  padding:1px;
  margin-top:0px;
}

@media(max-width:600px){
  #main{
    width:100%;
    float:none;
  }

  #sidebar{
    width:100%;
    float:none;
  }
}
```

#main.css

```
.img-preview {
    width: 256px;
    height: 256px;
    position: relative;
    border: 5px solid #F8F8F8;
    box-shadow: 0px 2px 4px 0px rgba(0, 0, 0, 0.1);
    margin-top: 1em;
    margin-bottom: 1em;
}

.img-preview>div {
    width: 100%;
    height: 100%;
    background-size: 256px 256px;
    background-repeat: no-repeat;
```

```
    background-position: center;
}

input[type="file"] {
    display: none;
}

.upload-label{
    display: inline-block;
    padding: 12px 30px;
    background: #39D2B4;
    color: #fff;
    font-size: 1em;
    transition: all .4s;
    cursor: pointer;
}

.upload-label:hover{
    background: #34495E;
    color: #39D2B4;
}

.loader {
    border: 8px solid #f3f3f3; /* Light grey */
    border-top: 8px solid #3498db; /* Blue */
    border-radius: 50%;
    width: 50px;
    height: 50px;
    animation: spin 1s linear infinite;
}

@keyframes spin {
    0% { transform: rotate(0deg); }
    100% { transform: rotate(360deg); }
}
#counterstyle.css

body {
    background-color: white;
    margin: 0px;
    padding: 0px;
}

#mainOne {
    min-height: 65vh;
  background-color: white;
```

```
}

#headerOne, #divLogo, #navUl {
    background-color: white;
    display: flex;
    flex-direction: row;
    flex-wrap: wrap;
    justify-content: space-between;
    align-items: center;
    max-height: 42px;
}

#headlineLogo {
    font-family: 'Abril Fatface', cursive;
    font-size: 25px;
    color: #8aff75;
    margin-left: 25px;
}

#paragLogo {
    font-family: Arial, Helvetica, sans-serif;
    font-size: 18px;
    color: #4f4d4b;
    margin-left: 18px;
}

#ulNav {
    margin-right: 25px;
}

.liNav {
    display: inline;
}

.aNav {
    color: #4f4d4b;
    text-decoration: none;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 13px;
    font-weight: bold;
    margin-left: 18px;
}

.aNav:hover {
    color: #ff758a;
}
```

```
#footerOne {
    display: flex;
    flex-direction: row;
    flex-wrap: wrap;
    justify-content: center;
    align-items: center;
    margin-top: 50px;
    margin-bottom: 10px;
    background-color: white;
    text-align: left;
    font-weight: bold;
    font-size: 11px;
    font-family: Arial, Helvetica, sans-serif;
    color: #4f4d4b;
}

#spanFooter {
    font-family: Arial, Helvetica, sans-serif;
    color: #8aff75;
    font-size: 12px;
}

#portfolioLink {
    font-size: 11px;
    text-decoration: none;
    font-family: Arial, Helvetica, sans-serif;
    color: #4f4d4b;
}

#portfolioLink:hover {
    color: #ff758a;
}

#divLogIn, #divPersonalInfo, #divDailyRequirement, #divQuestion, #divFoodSelection,
#divNutritionTracker {
    box-shadow: 0px 8px 15px rgba(0, 0, 0, 0.3);
    background-color: #f7f5f3;
    color: #4f4d4b;
    text-align: center;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 25px !important;
    border-radius: 50px;
    width: 700px;
    margin-top: 50px;
    padding: 25px 50px 25px 50px;
```

```
    margin-left: auto;
    margin-right: auto;
}

/* #divPersonalInfo, */
 #divDailyRequirement, #divQuestion, #container, #divFoodSelection, #divNutritionTracker {
    display: none;
}

#container {
    display: flex;
    flex-direction: row;
    flex-wrap: wrap;
    justify-content: center;
    align-items: center;
    margin-bottom: 25px;

}

#divFoodSelection {
    width: 80%;
}

#formLogIn, #formPersonalInfo, #formDailyFood, #formMyPlate {
    margin-left: auto;
    margin-right: auto;
    font-weight: bold;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 18px;
}

#formMyPlate {
    margin-top: 20px;
}

.inputs, .inputsDF, .inputsMyPlate {
    margin: 8px;
    color: #4f4d4b;
    text-align: center;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 14px;
    padding: 10px;
    width: 175px;
    border: none;
    border-radius: 5px;
}
```

```
.inputsDF {
    margin: 15px;
}

.inputsMyPlate {
    width: 50px;
    margin: 0px;
}

#selectPregnantLactating, #pregnantLactating {
    display: none;
}

.btns {
    background-color: #ff758a;
    box-shadow: 0px 8px 15px rgba(0, 0, 0, 0.3);
    color: white;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 14px;
    font-weight: bold;
    margin-top: 22px;
    padding: 15px;
    border: none;
    border-radius: 15px;
    text-decoration: none;
}

.btns:hover {
    background-color: #e06374;
    box-shadow: 0px 8px 15px rgba(0, 0, 0, 0.5);
}

#btnTracking {
    margin-top: 5px;
}

#btnCheckMyDay, #btnNext, #btnAddMore {
    margin-bottom: 15px;
}

#messageFillIn, #messageFillIn2, #messageFillIn3 {
    font-style: italic;
}

#tableDailyRequirement, #tableMyPlate, #tableNutritionTracker, #tablePersonalInfo {
```

```
    width: 95%;
    margin-right: auto;
    margin-left: auto;
    text-align: left;
}

#tableMyPlate {
    width: 40%;
    table-layout: fixed;
    display: none;
    padding-top: 0px;
    padding-bottom: 0px;
}

#tableNutritionTracker {
    width: 75%;
    border-collapse: separate;
    border-spacing: 0px 10px;
}

.tableHeaders, .tableHeadersNT {
    font-size: 14px;
    font-weight: bold;
    text-align: left;
    padding: 10px 0px 10px 0px;
}

.tableHeaders {
    text-align: center;
    column-span: 2;
}

#tableHeaderArticals {
    width: 60%;
}

#tableHeaderQuantity {
    width: 10%;
}

#tableHeaderDelete {
    width: 20%;
}

.btnDelete {
    background-color: transparent;
```

```
    border: none;
    color: #4f4d4b;
    font-weight: bold;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 14px;
}

.btnDelete:hover {
    color: #ff758a;
}

.cellPI {
    text-align: right;
    width: 15%;
}

.cellWidth {
    width: 55%;
    padding: 0px;
}


.cellsProgressBar {
    background-color: white;
    padding: 0px;
    position: relative;
}

.divProgressBar {
    background-color: white;
    color: #4f4d4b;
    font-weight: bold;
    text-align: center;
    position: absolute;
    top: 0;
    bottom: 0;
    left: 0;
    width: 0%;
}

.pinkHeadline {
    color: #ff758a;
}

@media only screen and (max-width: 600px) {
    body {
      background-color: white;
```

```
  }

    #headlineLogo {
        font-size: 18px;
        margin-left: 15px;
    }

    #paragLogo {
        display: none;
    }

    #ulNav {
        margin-right: 10px;
    }

    .aNav {
        font-size: 10px;
        margin-left: 8px;
    }

      #divLogIn, #divPersonalInfo, #divDailyRequirement, #divQuestion, #divFoodSelection,
#divNutritionTracker {
        width: 85%;
        padding: 20px;
    }

    #formLogIn, #formPersonalInfo, #formDailyFood, #formMyPlate {
        font-size: 14px;
    }

    #tableDailyRequirement, #tableMyPlate, #tableNutritionTracker, #tablePersonalInfo {
        width: 100%;
    }

    .inputs {
        font-size: 14px;
        width: 165px;
    }

  .inputsDF {
    width: 140px;
  }

  .inputsMyPlate {
    width: 40px;
  }
```

```
    #footerOne {
        font-size: 9px;
        flex-direction: column;
    }

    #portfolioLink {
        font-size: 9px;
    }
    #container {
      flex-direction: column;
   }

   .minSpan {
       display: block;
       text-align: right;
       margin-right: 20px;
   }

}

#btnLogIn{
   border: none;
   margin-top: 20px;
}
```

JAVASCRIPT FILE :

#main.js

```
$(document).ready(function () {
   // Init
   $('.image-section').hide();
   $('.loader').hide();
   $('#result').hide();

   // Upload Preview
   function readURL(input) {
       if (input.files && input.files[0]) {
           var reader = new FileReader();
           reader.onload = function (e) {
               $('#imagePreview').css('background-image', 'url(' + e.target.result + ')');
               $('#imagePreview').hide();
               $('#imagePreview').fadeIn(650);
           }
           reader.readAsDataURL(input.files[0]);
```

```
        }
    }
    $("#imageUpload").change(function () {
        $('.image-section').show();
        $('#btn-predict').show();
        $('#result').text('');
        $('#result').hide();
        readURL(this);
    });

    // Predict
    $('#btn-predict').click(function () {
        var form_data = new FormData($('#upload-file')[0]);

        // Show loading animation
        $(this).hide();
        $('.loader').show();

        // Make prediction by calling api /predict
        $.ajax({
            type: 'POST',
            url: '/predict',
            data: form_data,
            contentType: false,
            cache: false,
            processData: false,
            async: true,
            success: function (data) {
                // Get and display the result
                $('.loader').hide();
                $('#result').fadeIn(600);
                $('#result').html(data);
                console.log('Success!');
            },
        });
    });

});
```

JS FILE :

#script.js

```
//Food's nutritional value

//Daily required macro and micronutrients, depending on age, sex, if pregnant or lactating
```

```
const USERS_NUTRIENT_REQUIRMENTS = {
}


//Creating empty object for user's personal nutrient requirements
let userNutReq = {};

//Checking if the required field are filled and moving to the next div
function logIn() {
   let name = document.getElementById("inputName").value;
   let email = document.getElementById("inputEmail").value;
   let question = document.getElementById("personalQuestion").innerHTML;

   if (name === "" || email === "") {
         document.getElementById("messageFillIn").innerHTML = "Please fill in the required
fields.";
   }

   else {
      scrollTo(0,0);
      document.getElementById("divLogIn").style.display = "none";
      document.getElementById("divPersonalInfo").style.display = "block";
                  document.getElementById("personalGreeting").innerHTML = "HI, " +
name.toUpperCase() + "!";
          document.getElementById("personalQuestion").innerHTML = name.toUpperCase() +
question;
   }
}

//If the user is female, show select box, so she can choose if she is pregnant or lactating
function showSelect() {
   let sexValue = document.getElementById("selectSex").value;

   if (sexValue === "female") {
      document.getElementById("selectPregnantLactating").style.display = "inline-block";
      document.getElementById("pregnantLactating").style.display = "inline-block";
   }

   else {
      document.getElementById("selectPregnantLactating").style.display = "none";
      document.getElementById("pregnantLactating").style.display = "none";
      document.getElementById("selectPregnantLactating").value = "";
   }
}

//Calculate and present energy requirements and personalized daily nutrient requirements
```

```
function calculate() {
   let age = document.getElementById("inputAge").value;
   let sex = document.getElementById("selectSex").value;
   let pregnantOrLactating = document.getElementById("selectPregnantLactating").value;
   let height = document.getElementById("inputHeight").value;
   let weight = document.getElementById("inputWeight").value;
   let lifestyle = document.getElementById("selectLifestyle").value;

    //Inicializing activity coeficient (which depend of user's sex) and required calories (which depends of user's age, height, weight, sex, pregnant or lactating and activity)
   let activity = 0;
   let reqCalories = 0;

   //Checking if the form is filled
   if (age === "" || sex === "") {
        document.getElementById("messageFillIn2").innerHTML = "Please fill in the required fields.";
   }

   else if ((height === "" || weight === "") || lifestyle === "") {
        document.getElementById("messageFillIn2").innerHTML = "Please fill in the required fields.";
   }

   else if (age < 18) {
        document.getElementById("messageFillIn2").innerHTML = "This app is not for users under 18 years";
   }

   //If the form is filled, calculate
   else {
      scrollTo(0,0);
      document.getElementById("divPersonalInfo").style.display = "none";
      document.getElementById("divDailyRequirement").style.display = "block";

      //Calculating calories and daily nutrient requirements
      if (sex === "male") {
         //Calculating activity coeficient and required daily calories
         switch (lifestyle) {
            case "sedentary":
               activity = 1;
               break;
            case "littleActive":
               activity = 1.11;
               break;
            case "active":
```

```
            activity = 1.25;
            break;
        case "veryActive":
            activity = 1.48;
            break;
    }

    reqCalories = 662 - (9.53 * age) + activity * ( (15.91 * weight) + (539.6 * height / 100) );

    //Asigning age specific nutrient requirements for male users
    if (18 <= age <= 30) {
        userNutReq = USERS_NUTRIENT_REQUIRMENTS["maleReq18"];
    }
    else if (31 <= age <= 50) {
        userNutReq = USERS_NUTRIENT_REQUIRMENTS["maleReq31"];
    }
    else if (51 <= age <= 70) {
        userNutReq = USERS_NUTRIENT_REQUIRMENTS["maleReq51"];
    }
    else if (age >= 71) {
        userNutReq = USERS_NUTRIENT_REQUIRMENTS["maleReq71"];
    }
}

else if (sex === "female") {
    //Calculating activity coeficient and required daily calories
    switch (lifestyle) {
        case "sedentary":
            activity = 1;
            break;
        case "littleActive":
            activity = 1.12;
            break;
        case "active":
            activity = 1.27;
            break;
        case "veryActive":
            activity = 1.45;
            break;
    }

    reqCalories = 354 - (6.91 * age) + activity * ( (9.36 * weight) + (726 * height / 100) );

    //Calculating calories & nutrient requirements when the user is pregnant or lactating
    if (pregnantOrLactating !== "") {
        switch (pregnantOrLactating) {
```

```
            case "pregnant2":
                reqCalories += 340;
                break;
            case "pregnant3":
                reqCalories += 452;
                break;
            case "lactating1":
                reqCalories += 330;
                break;
            case "lactating2":
                reqCalories += 400;
                break;
        }

        switch (pregnantOrLactating) {
            case "pregnant1":
            case "pregnant2":
            case "pregnant3":
                userNutReq = USERS_NUTRIENT_REQUIRMENTS["femalePregnant"];
                break;
            case "lactating1":
            case "lactating2":
                userNutReq = USERS_NUTRIENT_REQUIRMENTS["femaleLactating"];
                break;
        }
    }
    else {
        //Asigning age specific nutrient requirements for female users
        if (18 <= age <= 30) {
            userNutReq = USERS_NUTRIENT_REQUIRMENTS["femaleReq18"];
        }
        else if (31 <= age <= 50) {
            userNutReq = USERS_NUTRIENT_REQUIRMENTS["femaleReq31"];
        }
        else if (51 <= age <= 70) {
            userNutReq = USERS_NUTRIENT_REQUIRMENTS["femaleReq51"];
        }
        else if (age >= 71) {
            userNutReq = USERS_NUTRIENT_REQUIRMENTS["femaleReq71"];
        }
    }
}

//Adding calories property to user's object with nutrient requrements
userNutReq["reqCalories"] = reqCalories.toFixed(0);
```

```
        //Filling the table "Daily Requirement"
        let tableReq = document.getElementById("tableDailyRequirement");
        let cellReqId = "";

        for (let rowIndex = 0; rowIndex < tableReq.rows.length; rowIndex++) {
            if (rowIndex == 6 || rowIndex == 19) {
            }
            else {
                cellReqId = tableReq.rows.item(rowIndex).cells[1].id;
                tableReq.rows.item(rowIndex).cells[1].innerHTML = userNutReq[cellReqId];
            }
        }
    }

}

//Moving to divQuestion from
function next() {
    scrollTo(0,0);
    document.getElementById("divDailyRequirement").style.display = "none";
    document.getElementById("divQuestion").style.display = "block";
}

//Moving to divFoodSelection
function checkMyDay() {
    scrollTo(0,0);
    document.getElementById("divQuestion").style.display = "none";
    document.getElementById("divFoodSelection").style.display = "block";
}

//Storing row index of tableMyPlate
let rowIndexMyPlate = 0;

//Adding food artical and number input for entering food's quantity in tableMyPlate, if food is chosen in drop down menu
function addFood(foodCategory) {
    let foodCategoryID = foodCategory.id;
    let foodCategoryValue = document.getElementById(foodCategoryID).value;

    if (foodCategoryValue !== "") {
        document.getElementById("tableMyPlate").style.display = "block";

        rowIndexMyPlate++;

        let tableFood = document.getElementById("tableMyPlate");
        let rowFood = tableFood.insertRow(rowIndexMyPlate);
```

```
        let cellFood1 = rowFood.insertCell(0);
        let cellFood2 = rowFood.insertCell(1);
        let cellFood3 = rowFood.insertCell(2);
        let cellFood4 = rowFood.insertCell(3);

        cellFood1.innerHTML = foodCategoryValue;

        let inputCell2 = document.createElement("INPUT");
        inputCell2.className = "inputsMyPlate";
        inputCell2.type = "number";
        inputCell2.name = "quantity";
        inputCell2.value = 100;
        cellFood2.appendChild(inputCell2);

        cellFood3.innerHTML = "g ";

        let btnCell4 = document.createElement("BUTTON");
        btnCell4.className = "btnDelete";
        btnCell4.type = "button";
        btnCell4.addEventListener("click", deleteRow);
        let textBtn = document.createTextNode("Delete");
        btnCell4.appendChild(textBtn);
        cellFood4.appendChild(btnCell4);
    }
}

//Calculating the sum of nutrients of all food and calling other function for calculating percents of fullfiled daily requirements
function tracking() {
    //Initiazilizing daily consumed nutrients
    let totalNutrients = {
        "Calories": 0,
        "TotalCarbohydrate": 0,
        "LinoleicAcid": 0,
        "AlphaLinoleicAcid": 0,
        "Protein": 0,
        "DietaryFiber": 0,
        "VitA": 0,
        "VitD": 0,
        "VitE": 0,
        "VitK": 0,
        "VitC": 0,
        "VitB1": 0,
        "VitB2": 0,
        "VitB3": 0,
        "VitB5": 0,
```

```
    "VitB6": 0,
    "VitB9": 0,
    "VitB12": 0,
    "Ca": 0,
    "Cu": 0,
    "Fe": 0,
    "Mg": 0,
    "Mn": 0,
    "P": 0,
    "Se": 0,
    "Zn": 0,
    "K": 0,
    "Na": 0
};
let tableList = document.getElementById("tableMyPlate");
let foodValue = "";
let foodQuantityCell = "";
let foodQuantity = 0;
let foodCtg = {};

if (tableList.rows.length === 1) {
    document.getElementById("messageFillIn3").innerHTML = "Please choose your food.";
}

else {
    scrollTo(0,0);
    document.getElementById("divFoodSelection").style.display = "none";
    document.getElementById("divNutritionTracker").style.display = "block";

    //Checking the food category
    for (let indexRows = 1; indexRows < tableList.rows.length; indexRows++) {
        foodValue = tableList.rows.item(indexRows).cells[0].innerHTML;
        foodQuantityCell = tableList.rows.item(indexRows).cells[1];
        foodQuantity = foodQuantityCell.children[0].value;

        if (GRAINS.hasOwnProperty(foodValue)) {
            foodCtg = GRAINS;
        }
        else if (VEGETABLES.hasOwnProperty(foodValue)) {
            foodCtg = VEGETABLES;
        }
        else if (FRUITS.hasOwnProperty(foodValue)) {
            foodCtg = FRUITS;
        }

        totalNutrients["Calories"] += foodCtg[foodValue]["Calories"] * foodQuantity / 100;
```

```
            totalNutrients["TotalCarbohydrate"] += foodCtg[foodValue]["TotalCarbohydrate"] *
foodQuantity / 100;
          totalNutrients["LinoleicAcid"] += foodCtg[foodValue]["LinoleicAcid"] * foodQuantity /
100;
            totalNutrients["AlphaLinoleicAcid"] += foodCtg[foodValue]["AlphaLinoleicAcid"] *
foodQuantity / 100;
          totalNutrients["Protein"] += foodCtg[foodValue]["Protein"] * foodQuantity / 100;
          totalNutrients["DietaryFiber"] += foodCtg[foodValue]["DietaryFiber"] * foodQuantity /
100;
          totalNutrients["VitA"] += foodCtg[foodValue]["VitA"] * foodQuantity / 100;
          totalNutrients["VitD"] += foodCtg[foodValue]["VitD"] * foodQuantity / 100;
          totalNutrients["VitE"] += foodCtg[foodValue]["VitE"] * foodQuantity / 100;
          totalNutrients["VitK"] += foodCtg[foodValue]["VitK"] * foodQuantity / 100;
          totalNutrients["VitC"] += foodCtg[foodValue]["VitC"] * foodQuantity / 100;
          totalNutrients["VitB1"] += foodCtg[foodValue]["VitB1"] * foodQuantity / 100;
          totalNutrients["VitB2"] += foodCtg[foodValue]["VitB2"] * foodQuantity / 100;
          totalNutrients["VitB3"] += foodCtg[foodValue]["VitB3"] * foodQuantity / 100;
          totalNutrients["VitB5"] += foodCtg[foodValue]["VitB5"] * foodQuantity / 100;
          totalNutrients["VitB6"] += foodCtg[foodValue]["VitB6"] * foodQuantity / 100;
          totalNutrients["VitB9"] += foodCtg[foodValue]["VitB9"] * foodQuantity / 100;
          totalNutrients["VitB12"] += foodCtg[foodValue]["VitB12"] * foodQuantity / 100;
          totalNutrients["Ca"] += foodCtg[foodValue]["Ca"] * foodQuantity / 100;
          totalNutrients["Cu"] += foodCtg[foodValue]["Cu"] * foodQuantity / 100;
          totalNutrients["Fe"] += foodCtg[foodValue]["Fe"] * foodQuantity / 100;
          totalNutrients["Mg"] += foodCtg[foodValue]["Mg"] * foodQuantity / 100;
          totalNutrients["Mn"] += foodCtg[foodValue]["Mn"] * foodQuantity / 100;
          totalNutrients["P"] += foodCtg[foodValue]["P"] * foodQuantity / 100;
          totalNutrients["Se"] += foodCtg[foodValue]["Se"] * foodQuantity / 100;
          totalNutrients["Zn"] += foodCtg[foodValue]["Zn"] * foodQuantity / 100;
          totalNutrients["K"] += foodCtg[foodValue]["K"] * foodQuantity / 100;
          totalNutrients["Na"] += foodCtg[foodValue]["Na"] * foodQuantity / 100;
      }

      //calculating percenting of daily nutrients fullfilment and filling the tables cells
      //Filling the table "Daily Requirement"
          let tableResult = document.getElementById("tableNutritionTracker");
          let cellResultId = "";
          let percents = 0;
          let str = "req";
          let prop = "";

          for (let rowIndex = 0; rowIndex < tableResult.rows.length; rowIndex++) {
              if (rowIndex == 6 || rowIndex == 19) {
              }
              else {
                  cellResultId = tableResult.rows.item(rowIndex).cells[1].id;
```

```
                prop = str.concat(cellResultId);
                percents = totalNutrients[cellResultId] / userNutReq[prop] * 100;
                                tableResult.rows.item(rowIndex).cells[1].children[0].innerHTML =
percents.toFixed(0) + "%";

                if (percents >= 100) {
                   tableResult.rows.item(rowIndex).cells[1].children[0].style.width = "100%";
                       tableResult.rows.item(rowIndex).cells[1].children[0].style.backgroundColor =
"#8aff75";
                }
                else {
                                  tableResult.rows.item(rowIndex).cells[1].children[0].style.width =
percents.toFixed(0) + "%";
                       tableResult.rows.item(rowIndex).cells[1].children[0].style.backgroundColor =
"#ff758a";
                }
             }
          }
   }
}

//Returning to add more foods on daily food list
function addMoreFood() {
   scrollTo(0,0);
   document.getElementById("divFoodSelection").style.display = "block";
   document.getElementById("divNutritionTracker").style.display = "none";
}

//Delete the row with the artical that the user doesn't need
function deleteRow() {
   this.closest("tr").remove();

   rowIndexMyPlate--;
}
```

App.py:

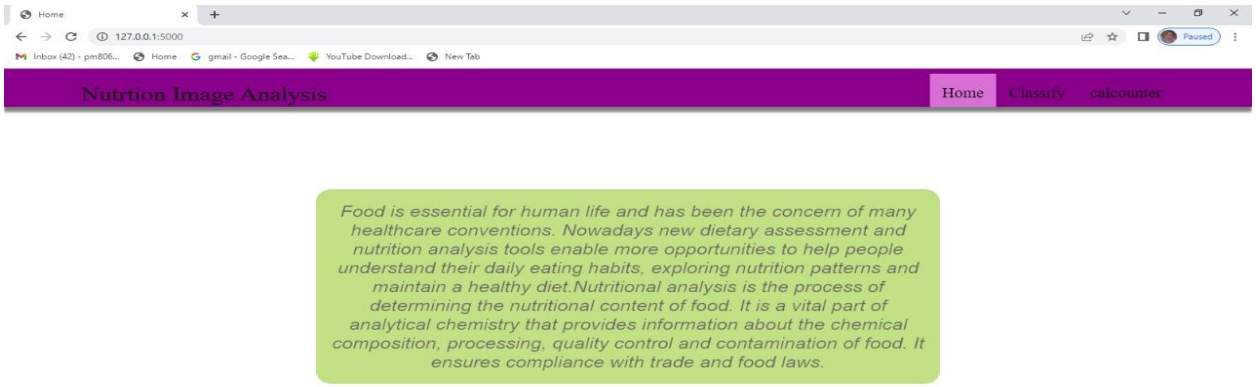
```
from flask import Flask,render_template,request
# Flask-It is our framework which we are going to use to run/serve our application.
#request-for accessing file which was uploaded by the user on our application.
import os
import numpy as np #used for numerical analysis
from tensorflow.keras.models import load_model#to load our trained model
from tensorflow.keras.preprocessing import image
import requests
```

```
app = Flask(__name__,template_folder="templates") # initializing a flask app
# Loading the model
model=load_model('nutrition.h5')
print("Loaded model from disk")


@app.route('/')# route to display the home page
def home():
    return render_template('home.html')#rendering the home page

@app.route('/calCounter')# routes to the index html
def calCounter():
    return render_template("calCounter.html")

@app.route('/image1',methods=['GET','POST'])# routes to the index html
def image1():
    return render_template("image.html")



@app.route('/predict',methods=['GET', 'POST'])# route to show the predictions in a web UI
def launch():
    if request.method=='POST':
        f=request.files['file'] #requesting the file
        basepath=os.path.dirname('__file__')#storing the file directory
        filepath=os.path.join(basepath,"uploads",f.filename)#storing the file in uploads folder
        f.save(filepath)#saving the file

        img=image.load_img(filepath,target_size=(64,64)) #load and reshaping the image
        x=image.img_to_array(img)#converting image to an array
        x=np.expand_dims(x,axis=0)#changing the dimensions of the image

        pred=np.argmax(model.predict(x), axis=1)
        print("prediction",pred)#printing the prediction
        index=['APPLES','BANANA','ORANGE','PINEAPPLE','WATERMELON']

        result=str(index[pred[0]])

        x=result
        print(x)
        result=nutrition(result)
        print(result)

        return render_template("0.html",showcase=(result),showcase1=(x))
def nutrition(index):
```

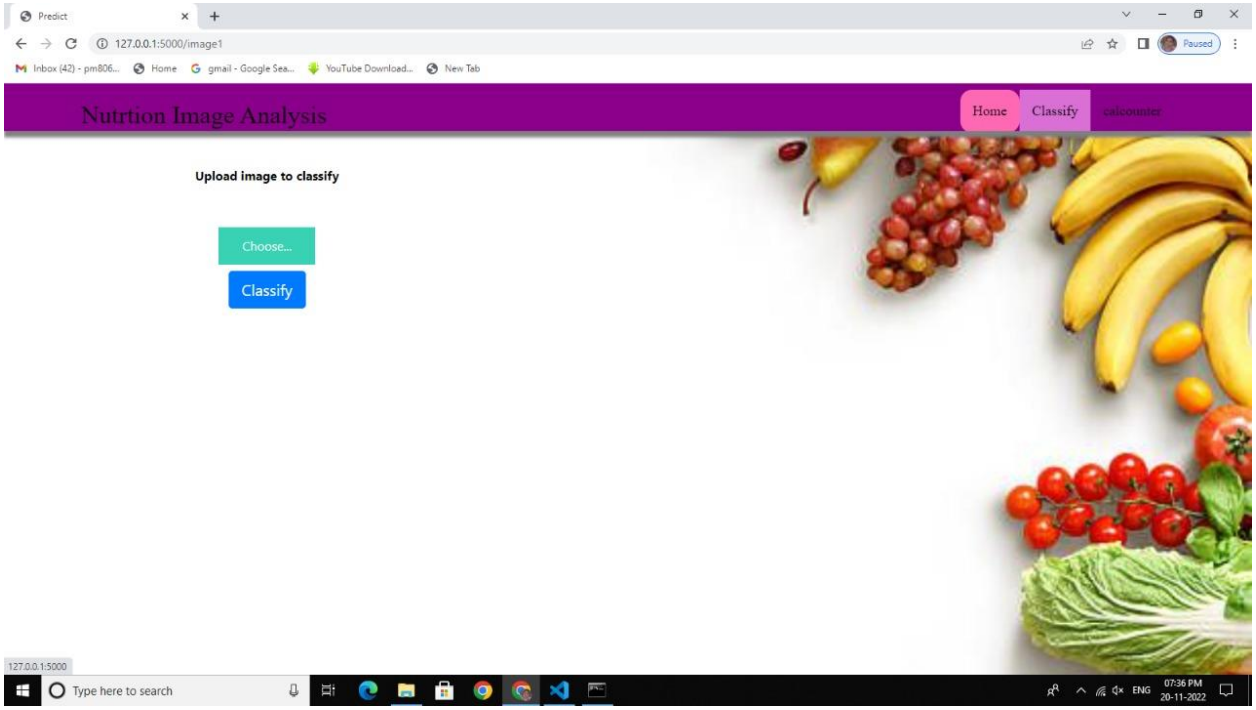
```
    url = "https://calorieninjas.p.rapidapi.com/v1/nutrition"

    querystring = {"query":index}

    headers = {
        'x-rapidapi-key': "5d797ab107mshe668f26bd044e64p1ffd34jsnf47bfa9a8ee4",
        'x-rapidapi-host': "calorieninjas.p.rapidapi.com"
        }

    response = requests.request("GET", url, headers=headers, params=querystring)

    print(response.text)
    return response.json()['items']
if __name__ == "__main__":
   # running the app
    app.run(debug=False)
```

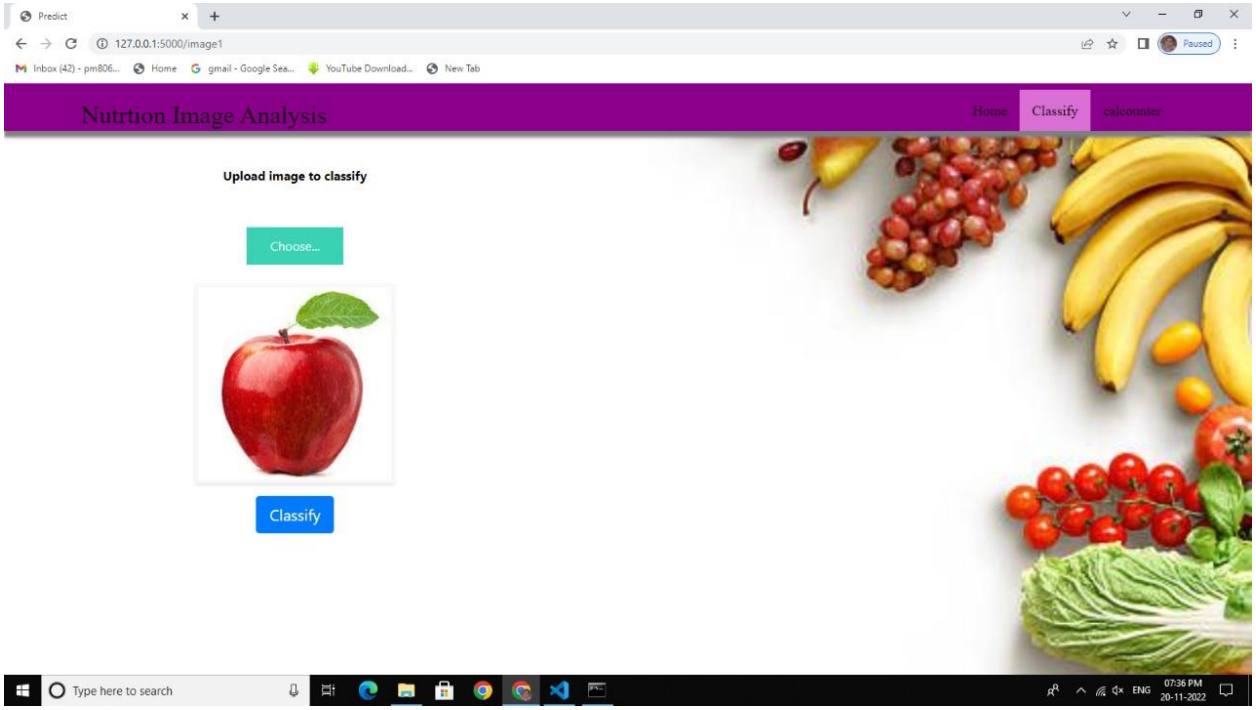
OUTPUT SCREENSHOTS :

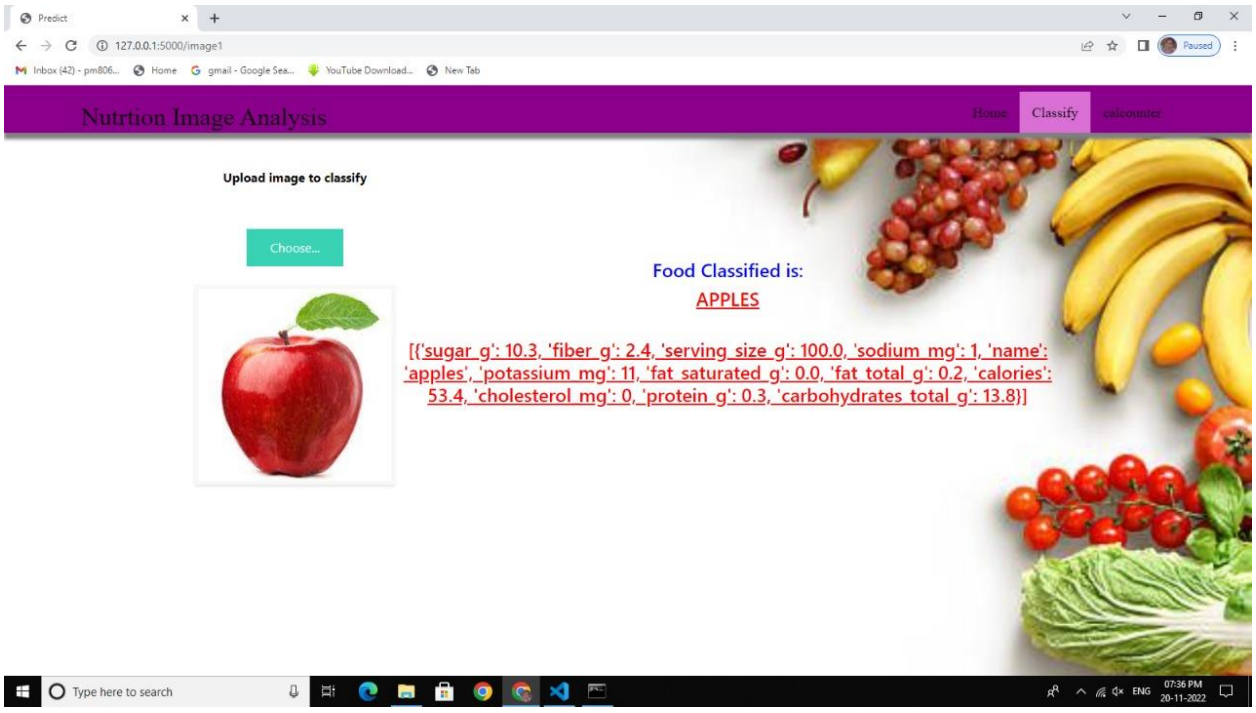
HOME PAGE

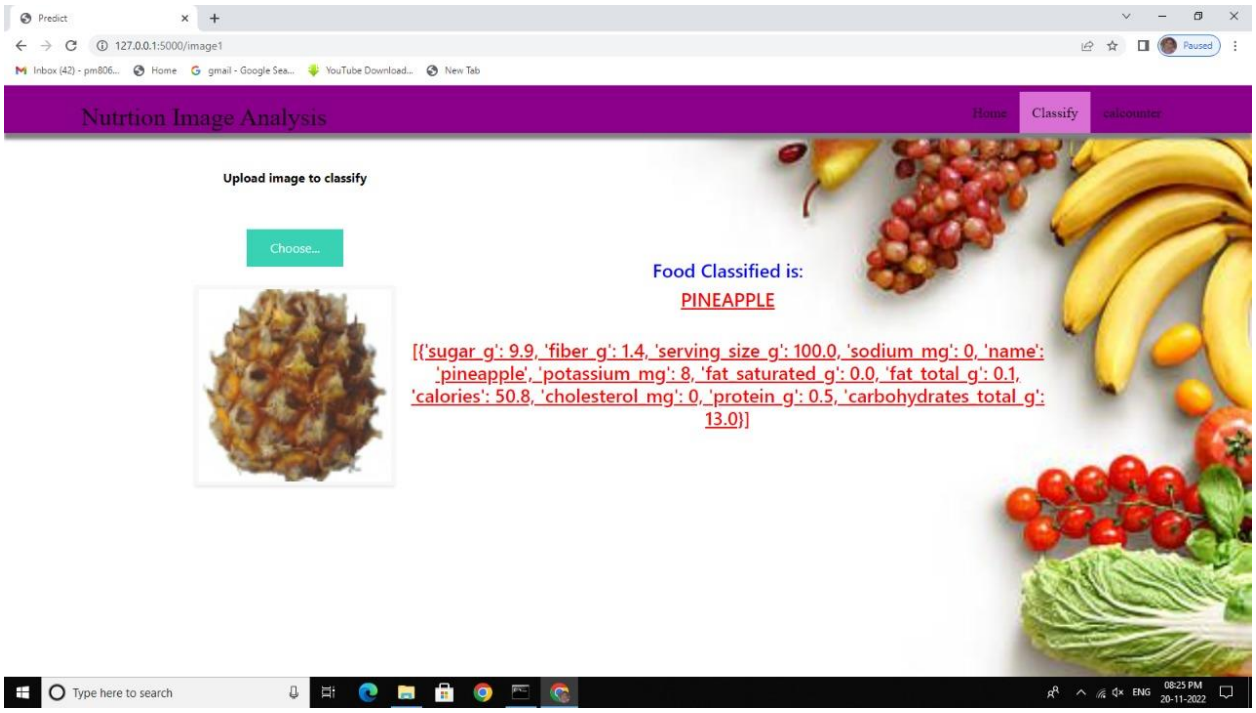


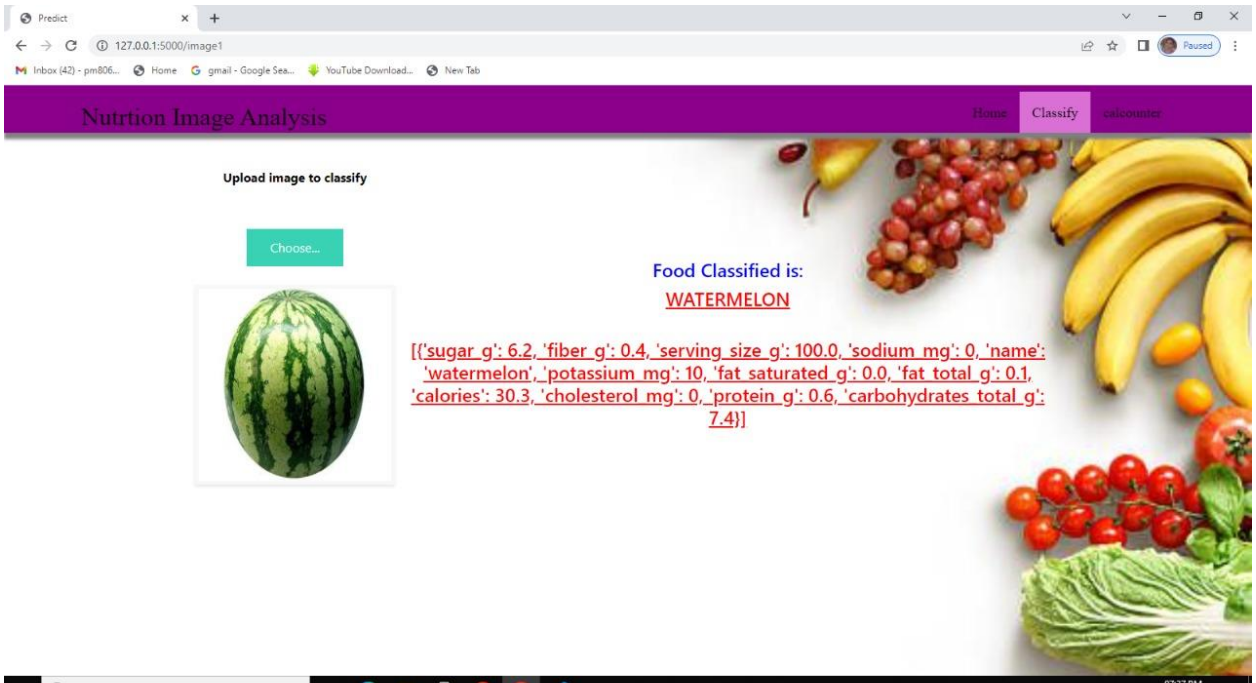
CLASSIFY **PAGE**

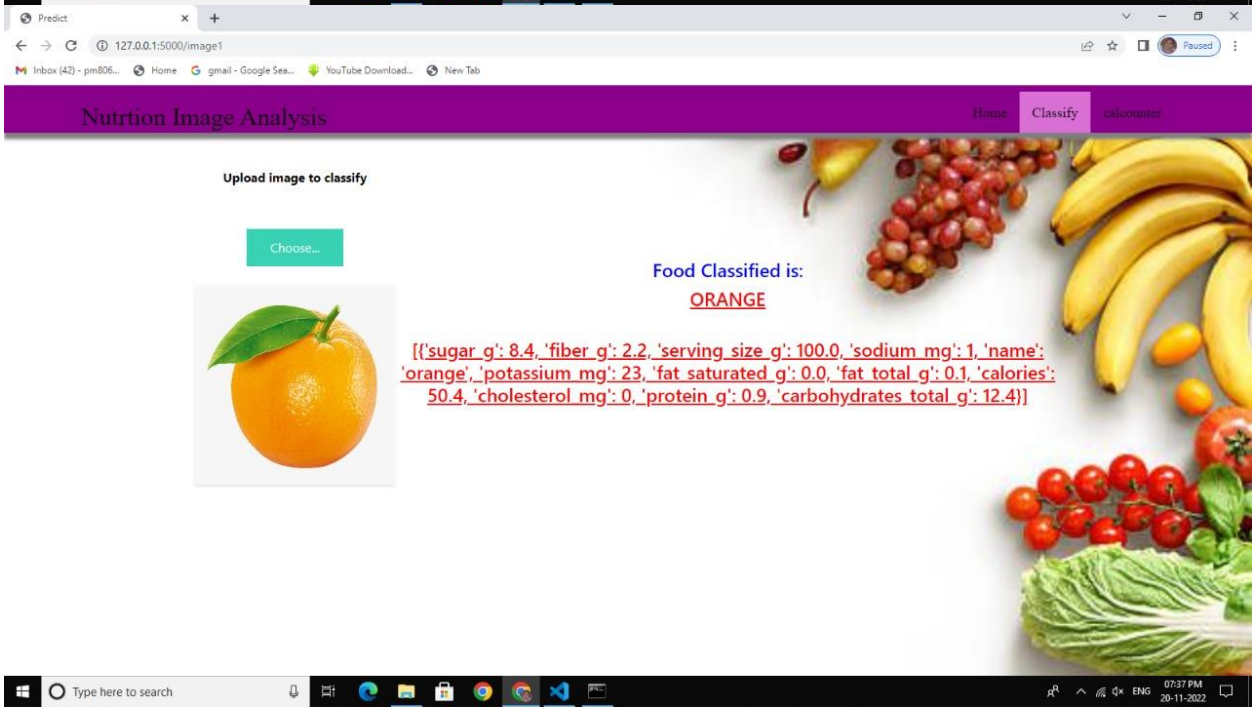


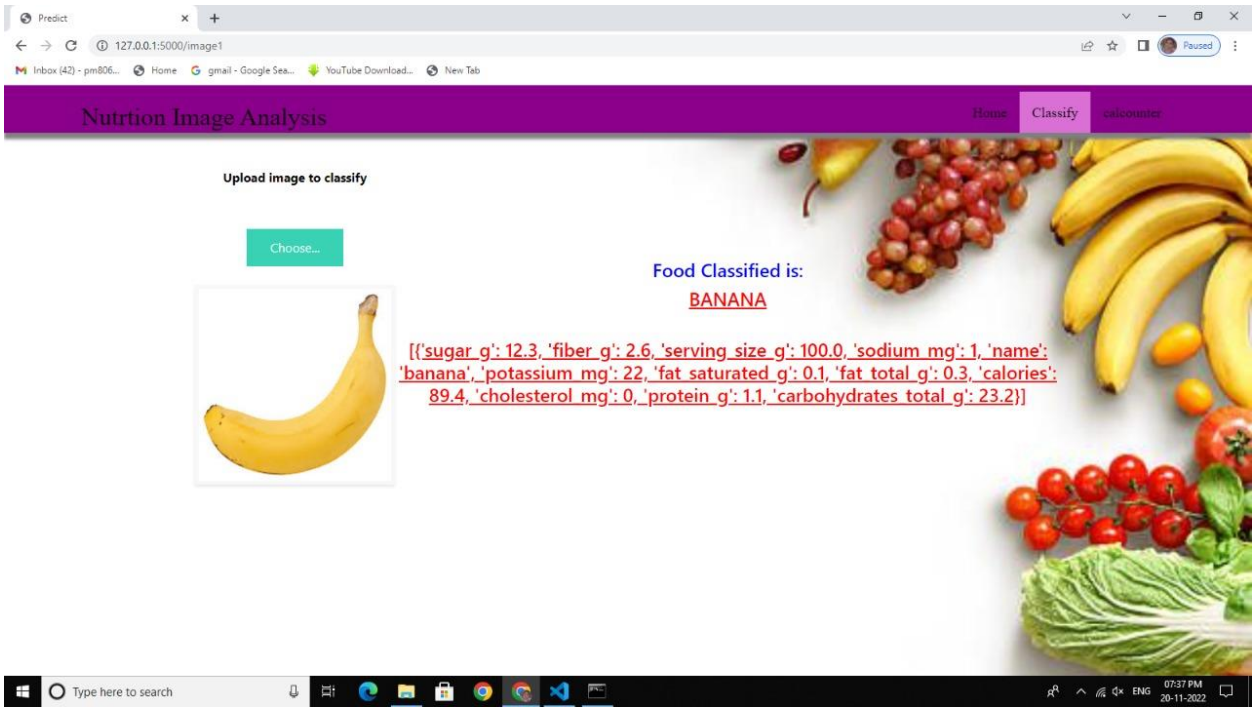



Predict
127.0.0.1:5000/image1
Nutrtion Image Analysis
Home
Classify
calcounter
Upload image to classify
Choose...
Food Classified is:
APPLES
[{'sugar_g': 10.3, 'fiber_g': 2.4, 'serving_size_g': 100.0, 'sodium_mg': 1, 'name': 'apples', 'potassium_mg': 11, 'fat_saturated_g': 0.0, 'fat_total_g': 0.2, 'calories': 53.4, 'cholesterol_mg': 0, 'protein_g': 0.3, 'carbohydrates_total_g': 13.8}]
Type here to search
07:36 PM
20-11-2022

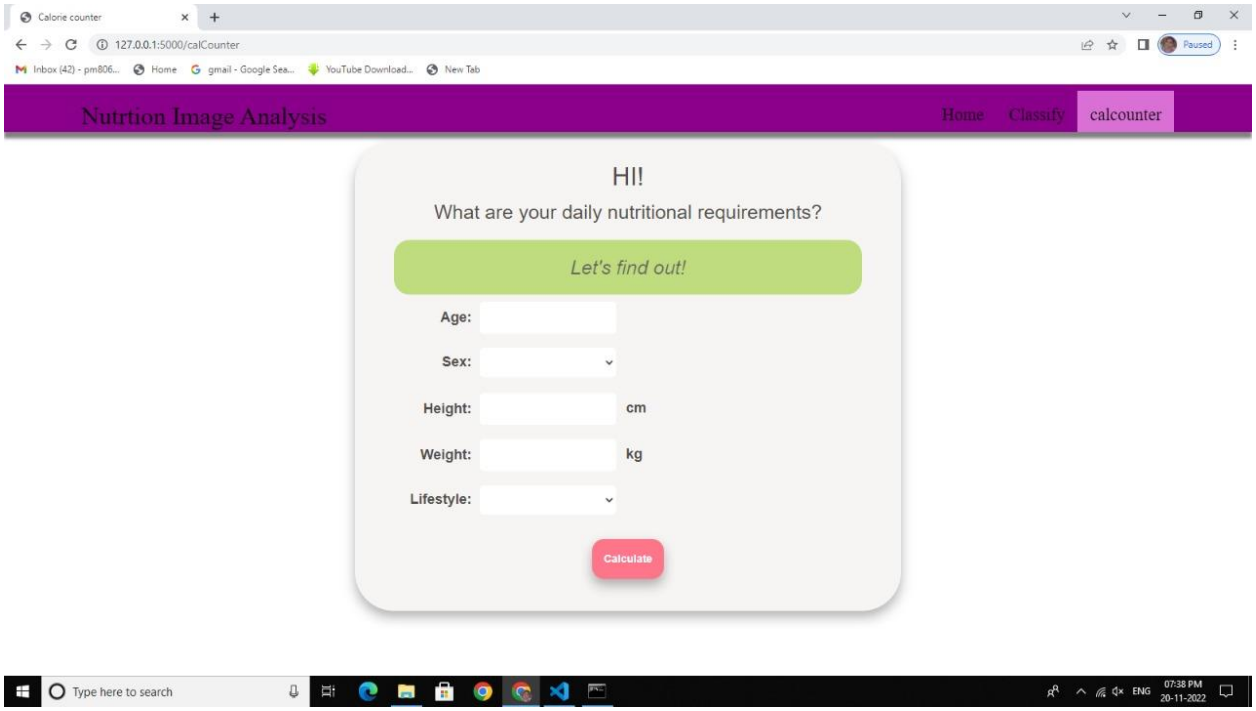

Predict
127.0.0.1:5000/image1
Nutrtion Image Analysis
Home
Classify
calcounter
Upload image to classify
Choose...
Food Classified is:
PINEAPPLE
[{'sugar_g': 9.9, 'fiber_g': 1.4, 'serving_size_g': 100.0, 'sodium_mg': 0, 'name': 'pineapple', 'potassium_mg': 8, 'fat_saturated_g': 0.0, 'fat_total_g': 0.1, 'calories': 50.8, 'cholesterol_mg': 0, 'protein_g': 0.5, 'carbohydrates_total_g': 13.0}]
Type here to search
08:25 PM
20-11-2022

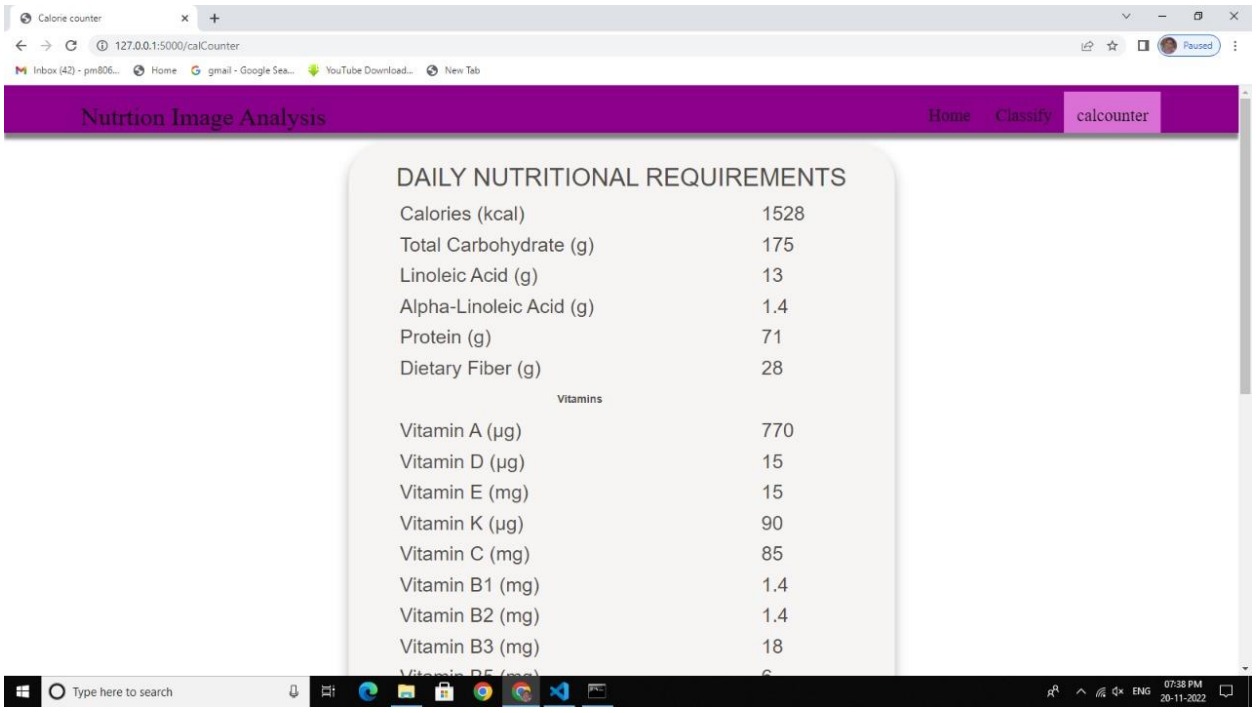

Predict
127.0.0.1:5000/image1
Nutrtion Image Analysis
Home
Classify
calcounter
Upload image to classify
Choose...
Food Classified is:
WATERMELON
[{'sugar_g': 6.2, 'fiber_g': 0.4, 'serving_size_g': 100.0, 'sodium_mg': 0, 'name': 'watermelon', 'potassium_mg': 10, 'fat_saturated_g': 0.0, 'fat_total_g': 0.1, 'calories': 30.3, 'cholesterol_mg': 0, 'protein_g': 0.6, 'carbohydrates_total_g': 7.4}]
Type here to search
07:37 PM
20-11-2022

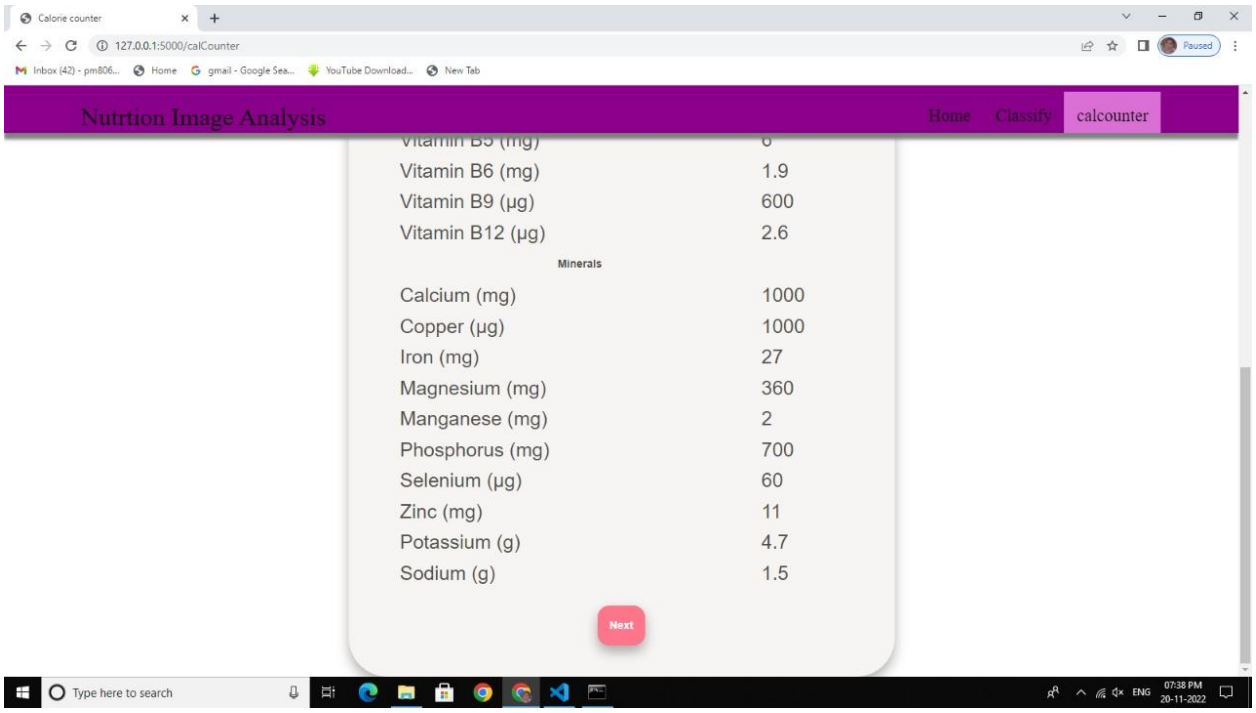

Predict
127.0.0.1:5000/image1
Nutrtion Image Analysis
Home
Classify
calcounter
Upload image to classify
Choose...
Food Classified is:
ORANGE
[{'sugar_g': 8.4, 'fiber_g': 2.2, 'serving_size_g': 100.0, 'sodium_mg': 1, 'name': 'orange', 'potassium_mg': 23, 'fat_saturated_g': 0.0, 'fat_total_g': 0.1, 'calories': 50.4, 'cholesterol_mg': 0, 'protein_g': 0.9, 'carbohydrates_total_g': 12.4}]
Type here to search
07:37 PM
20-11-2022

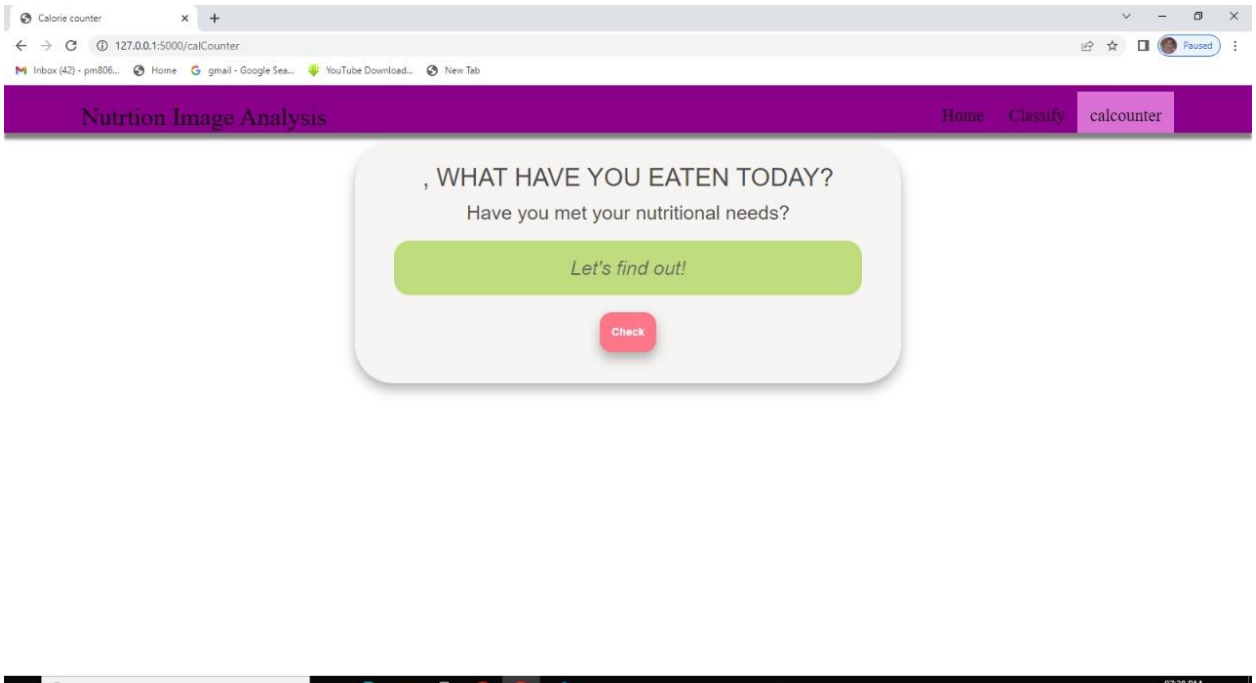


CALCOUNTER PAGE

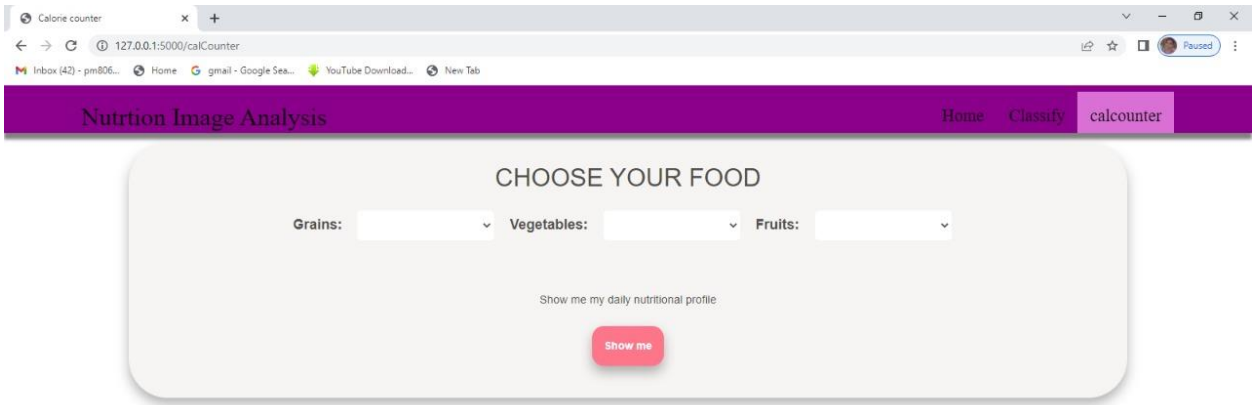



Calorie counter
127.0.0.1:5000/calCounter
Nutrtion Image Analysis
Home
Classify
calcounter
DAILY NUTRITIONAL REQUIREMENTS
Calories (kcal) 1528
Total Carbohydrate (g) 175
Linoleic Acid (g) 13
Alpha-Linoleic Acid (g) 1.4
Protein (g) 71
Dietary Fiber (g) 28
Vitamins
Vitamin A (µg) 770
Vitamin D (µg) 15
Vitamin E (mg) 15
Vitamin K (µg) 90
Vitamin C (mg) 85
Vitamin B1 (mg) 1.4
Vitamin B2 (mg) 1.4
Vitamin B3 (mg) 18
Type here to search
ENG
07:38 PM
20-11-2022

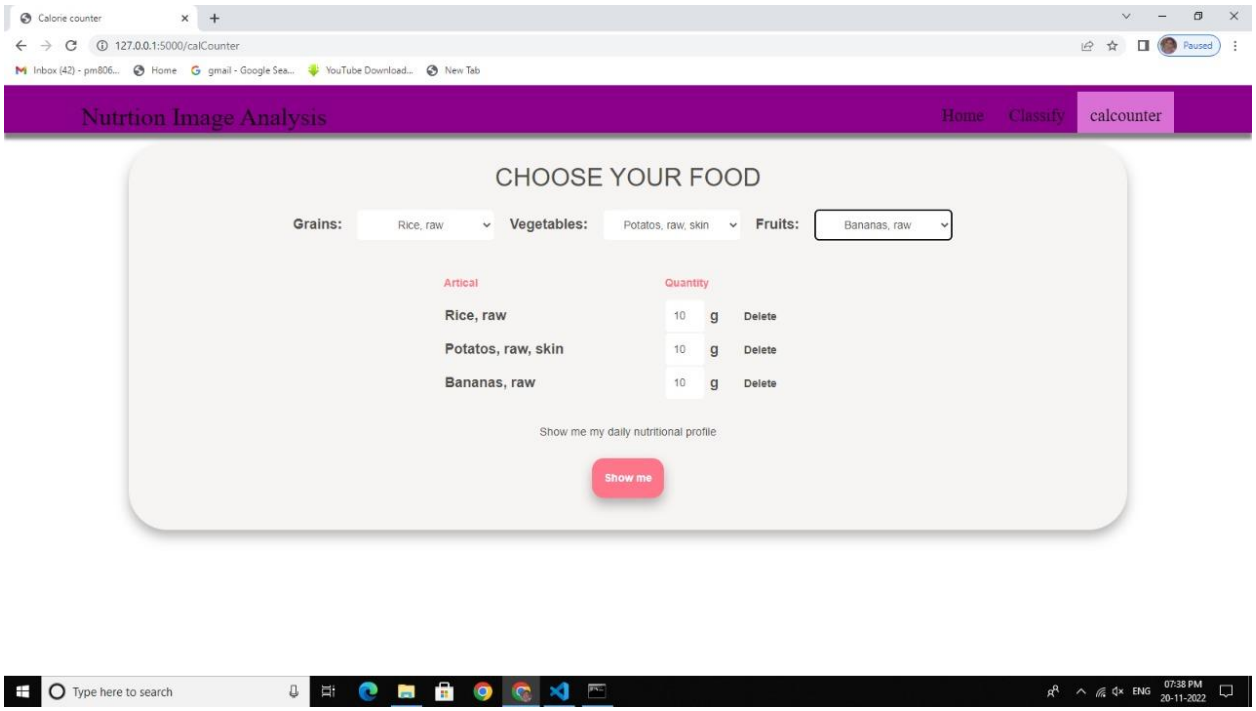

Calorie counter
127.0.0.1:5000/calCounter
Nutrtion Image Analysis
Home
Classify
calcounter
Vitamin B6 (mg) 1.9
Vitamin B9 (µg) 600
Vitamin B12 (µg) 2.6
Minerals
Calcium (mg) 1000
Copper (µg) 1000
Iron (mg) 27
Magnesium (mg) 360
Manganese (mg) 2
Phosphorus (mg) 700
Selenium (µg) 60
Zinc (mg) 11
Potassium (g) 4.7
Sodium (g) 1.5
Next
Type here to search
ENG
07:38 PM
20-11-2022

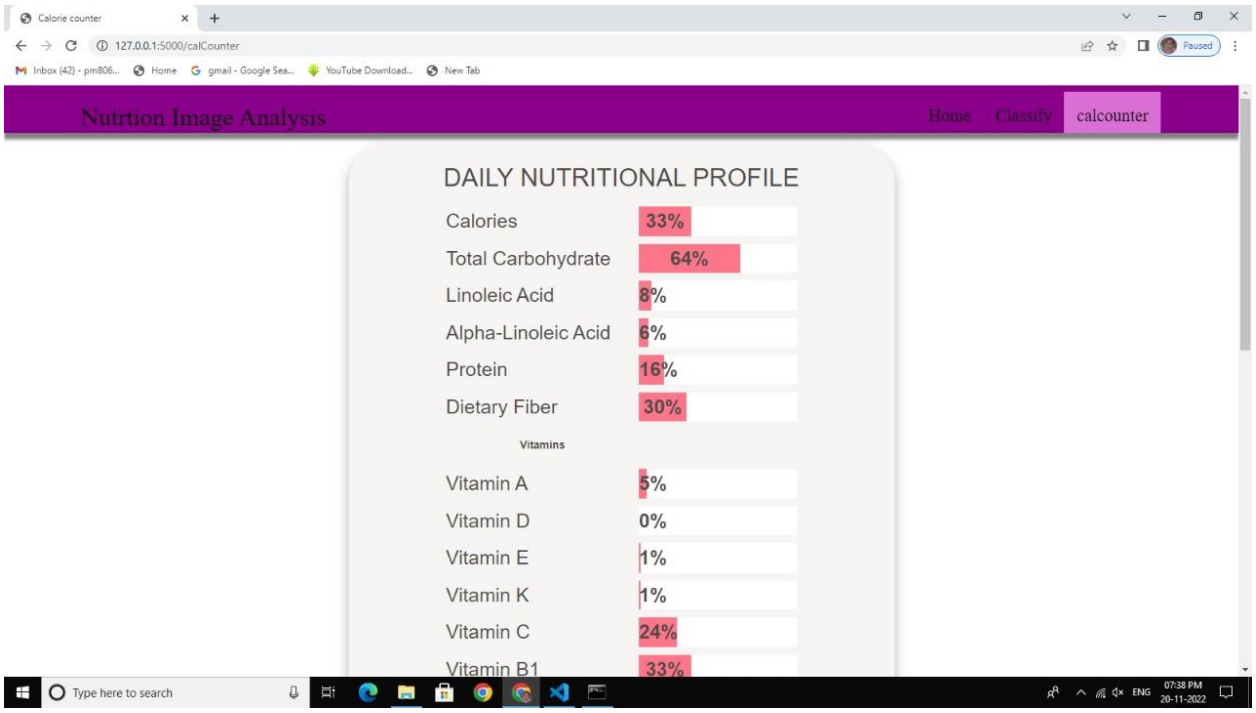

Calorie counter
127.0.0.1:5000/calCounter
Nutrtion Image Analysis
Home
Classify
calcounter
, WHAT HAVE YOU EATEN TODAY?
Have you met your nutritional needs?
Let's find out!
Check

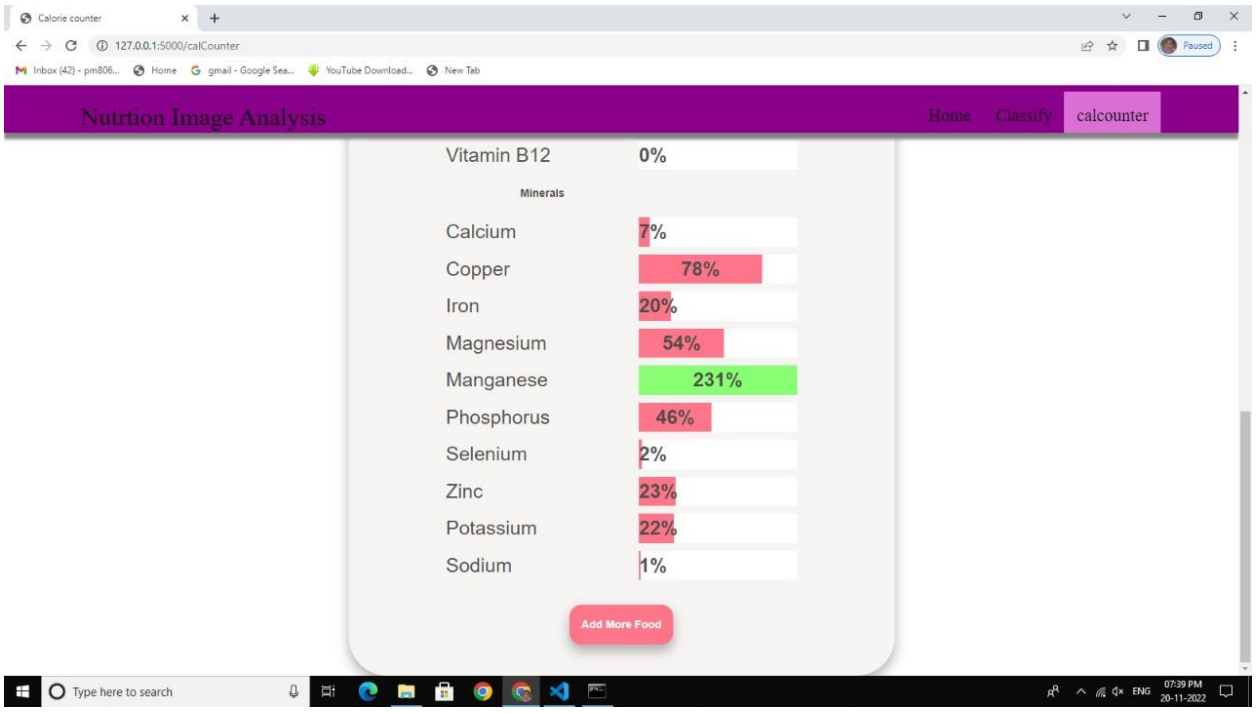

Type here to search
ENG
07:38 PM
20-11-2022


Calorie counter
127.0.0.1:5000/calCounter
Nutrtion Image Analysis
Home
Classify
calcounter
CHOOSE YOUR FOOD
Grains:
Vegetables:
Fruits:
Show me my daily nutritional profile
Show me


Type here to search
ENG
07:38 PM
20-11-2022


Calorie counter
127.0.0.1:5000/calCounter
Nutrtion Image Analysis
Home
Classify
calcounter
CHOOSE YOUR FOOD
Grains:
Rice, raw
Vegetables:
Potatos, raw, skin
Fruits:
Bananas, raw
Artical
Quantity
Rice, raw
10
g
Delete
Potatos, raw, skin
10
g
Delete
Bananas, raw
10
g
Delete
Show me my daily nutritional profile
Show me
Type here to search
ENG
07:38 PM
20-11-2022


Calorie counter
127.0.0.1:5000/calCounter
Nutrtion Image Analysis
Home
Classify
calcounter
DAILY NUTRITIONAL PROFILE
Calories
33%
Total Carbohydrate
64%
Linoleic Acid
8%
Alpha-Linoleic Acid
6%
Protein
16%
Dietary Fiber
30%
Vitamins
Vitamin A
5%
Vitamin D
0%
Vitamin E
1%
Vitamin K
1%
Vitamin C
24%
Vitamin B1
33%
Type here to search
ENG
07:38 PM
20-11-2022



GITHUB :

https://github.com/IBM-EPBL/IBM-Project-15268-1659596085

PROJECT DEMO LINK :

https://www.awesomescreenshot.com/video/12795450?key=70fd7bec5e562df1844a1792d97f8ed3