NUTRITION ASSISTANT APPLICATION

A PROJECT REPORT

submited by

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1. INTRODUCTION

1.1 PROJECT OVERVIEW

The style of life in the modern world is evolving daily, and with it, the requirements of the human body's composition, which includes a variety of consumables or prepared foods, are changing as well. Obesity, or being overweight, is one issue brought on by an abundance of food in our daily life. The body's excessive calorie consumption is the root cause of this issue. In today's world, obesity is becoming a major problem. Therefore, we need a system that can influence people's eating habits and give them guidance leading to healthy lifestyle maintenance. If a system alerts users to the nutritional information of a food item and categorises it as healthy or unhealthy as well as the nutrition content to the user, they can establish their daily intake of calories from their diet. First, we must determine the type of food, and then, after predicting the type of food (fruit or vegetable), our system must determine the type of that image (if the image is in the category of food or vegetable). A combination of deep learning techniques is used to recognise the image and determine the category based on it. Our approach incorporates a wide range of segmentation and picture features.

1.2 PURPOSE

The type of food must be determined first, and then our system must determine the type of that image after predicting the type of food (fruit or vegetable) (if the image is in the category of food or vegetable). The image is recognised, and a category is derived from it using a combination of deep learning algorithms. Our method includes a variety of segmentation and image properties.

2. LITERATURE REVIEW

2.1 EXISTING PROBLEM

1.TITILE : Study for Food Recognition System Using Deep Learning

AUHTOR: Nareen O. M. Salim

The evaluation of weight reduction therapy has been shown in the literature to greatly benefit from accurate dietary assessment. The majority of contemporary nutritional evaluation techniques, however, rely on memory. Current computer-based food identification system development for accurate food evaluation is now possible via rich Cloud services and complete mobile devices. Addressing the issue of food detection and identification in images of various foods. The issue is worsened by the wide range of food products with low inter- and large intra-class differences and the scant information in a single image. By outlining the general application of numerous fusion-trained classifiers, it is possible to improve the identification and recognition of traits gleaned from different deep models. This essay investigated numerous methods for identifying foods. The Food identification is a challenging challenge since food products are presented; Sometimes, they are different within the same group. A sort of issue with categorizing fine-grained pictures as the identification of food pairwise local characteristics that take advantage of eight specific food ingredients' positional relationships. The proposed multi-food image recognition system that detects first food recognizes color, texture, gradient, and SIFT extracted by several detectors using multiple kernels learning regions. The food is divided into 300 blocks, and five classes are further classified, such as staple, main dish, side dish, fruit, and non-food from each block's extract color and DCT coefficients. Food identification and quantity estimation are part of the TADA dietary evaluation system.

2.TITILE : Efficient extraction of deep image features using convolutional neural network for applications in detecting and analysing complex food matrices

AUHTOR: Yao Liu , Hongbin Pu , Da-Wen Sun b

For the food sector, it is important to establish tools and processes for quickly and accurately identifying and analysing food quality and safety goods. traditional methods for machine learning Based on handcrafted traits, they typically perform poorly since they have a limited capacity to describe complex culinary properties. The convolutional neural network (CNN), which is the most widely used architecture of deep learning and has been increasingly used for the detection and analysis of complex food matrices, has recently emerged as an efficient and viable method for feature extraction. Goals and strategy: The current review introduces multi-feature aggregation techniques, 1-D, 2-D, and 3-D CNN models for feature extraction, and the structure of CNN. CNN's uses as a depth feature. With the improvement of the quality of life, people are increasingly conscious of high quality and safe food products in daily life, therefore the development of methods for reliably detecting and analysing food quality and safety is important for the industry. With the unique advantages of strong feature learning and good generalization ability, CNN is potential and attractive for effective and efficient analysis of complex food matrices. CNN can not only automatically locate important features, but can also obtain unparalleled performance under challenging conditions such as complex background, and different resolutions and orientations of the images. Despite the advantages of CNN in the provision of better performance, there still remain numerous challenges to its applications in the food domain.

3.TITILE : The Use of Different Image Recognition Techniques in Food Safety: A Study

AUHTOR: Rijwan Khan, Santosh Kumar

In order to prevent foodborne illness and harm, food must be properly prepared, transported, and stored. Food products may encounter a variety of health risks from farm to factory and factory to fork. Food safety is therefore essential from a financial and moral standpoint. The consequences of not complying with food safety regulations are diverse.)e demand for precise, rapid, and neutral quality assessments of these qualities in food products is increasing as dietary requirements and high-quality standards are demanded more frequently. To accomplish these goals, computer vision offers an automated, non-destructive, and cost-effective method. Its usefulness for fruit and vegetable assessment and classification has been proven by a significant body of research. It highlights the key elements of image processing technology and provides an overview of the most recent developments in the food industry. Public health is consistently and significantly burdened by foodborne illnesses. After more than a century Large-scale changes in food production, distribution, and regulations were pushed and fed into macrosocial pressures like population growth, urbanisation, and globalisation . Compared to other economic sectors, the food industry and distribution network, in particular, have created huge amounts of data in recent years. To increase the safety of the food supply, several types of data were imaginatively examined at various points along the agricultural value chain . For instance, toxic contaminations on farmlands were forecasted in preharvest, field, and weather forecasts; in the retail setting, contactless audits and record-keeping were carried out for 1.4 million months; and observations of Hindawi Journal of Food Quality Volume

2.2 REFERENCES

1. Nareen O. M. Salim, Study for Food Recognition System Using Deep Learning,2021
2. Yao Liu , Hongbin Pu, Efficient extraction of deep image features using convolutional neural network (CNN) for applications in detecting and analysing complex food matrices, 2021
3. Rijwan Khan, Santosh Kumar, The Use of Different Image Recognition Techniques in Food Safety: A Study, 2021
4. Laura Maria König, Barriers to and Facilitators for Using Nutrition Apps: Systematic Review and Conceptual Framework, 2021
5. Dhanamjayulu C, Identification of malnutrition and prediction of BMI from facial images using real-time image processing and machine learning, 2021

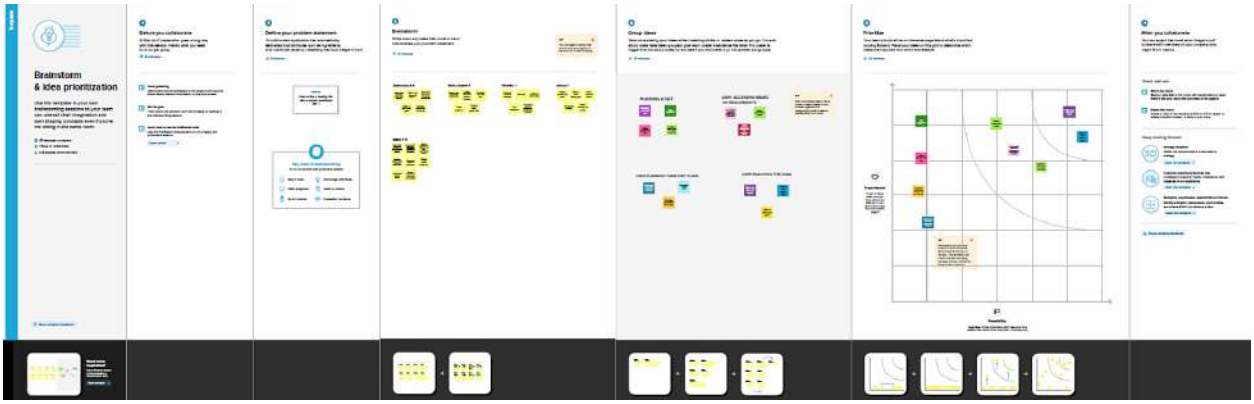
2.3 PROBLEM STATEMENT DEFINITION

In existing system, the way food data is analysed is evolving as a result of recent developments in computer vision and machine learning. Food-related photos, however, are frequently challenging to recognise and slow to detect due to the high quantity of food items and the ineffectiveness of the detection method. A diet plan is also fully manual to obtain. People may occasionally have to wait for many hours before learning about the suggested diet plan after contacting their dietician. For users, this makes getting their diet plan challenging. From the perspective of the customer, this is ineffective.

3. IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

3.2 IDEATION & BRAINSTORMING



3.3 PROPOSED SOLUTION

Sufficient nutrition and energy consumption, which can only be obtained through proper eating habits, are essential for maintaining a healthy existence. In addition to maintaining a good standard of living, a healthy diet helps people prevent chronic conditions including diabetes, high blood pressure, mental illness, asthma, and others. Obesity is one of the conditions brought on by over eating that is most common. When a person is obese, excess body fat accumulates to the point where it endangers their health. For the suggested system to recognise and locate food items from the input images, develop an automated nutrition analysis system. By locating possible locations and classifying them with deep neural networks, develop a three-step procedure specifically for detecting various foods in photographs. In the first stage, the automated system generates numerous regions of proposals using the provided photos. Then, it collects each region of thoughts by locating them in the original pictures, putting them on feature maps, and classifying them according to different food groups. Finally, by analysing the nutritional elements in the images, determine the food's calories, fat, carbs, and protein contents as well as its ingredients to generate a dietary evaluation report. The system's effectiveness and accuracy will also be increased by expanding the dataset to cover a larger variety of food types

S.No	Parameter	Description
1	Problem statement(Problem to be solved)	Rate of obesity are increasing at an high speed due to the ignorance of the proper nutrition foods and this leads to risks in people's health. People need to control their daily caloric intake by eating healthier foods which is the most basic method to avoid obesity. However, some food packaging has an added nutrition and calorie values, but it's not very comfortable to refer.
2	Idea / Solution description	This project aims at building a web App that automatically estimates food attributes such as ingredients and nutritional value by classifying the input image of food. Our method employs Clarifai's AI-Driven Food Detection Model for accurate food identification and Food API's to give the nutritional value of the identified food
3	Novelty / Uniqueness	This solution has the uniqueness that we can realize real time images of meal and can easily analyze its nutritional content. A web app that can automatically estimate food attributes such as ingredients and nutrition value by classifying the input image.
4	Social Impact / Customer Satisfaction	The Obesity rate will get reduced and people will be able to lead a healthy life. It helps to achieve and maintain a healthy weight balancing in their routine life.
5	Business Model (Revenue Model)	Revenue is generated on a subscription basis, with big data processing and targeted in-depth reporting reviews that paid subscriptions the best.
6	Scalability of the Solution	➢ Easy to access. ➢ Different exercise chart based on calorie intake.

3.4 PROBLEM SOLUTION FIT

There is no organised way to quickly collect dietary data. Waiting times for diet appointments might be hours long. Calculate the calories, fat, carbohydrates, and protein content after examining the nutritional components in the images to produce a report on the dietary quality. The system's effectiveness and accuracy will be increased by broadening the information to include a wider variety of food types.

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4. REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

Upload Image

In this module, the nutrition datasets should be uploaded as CSV files. Additionally, the information is kept in a database for later use. The dataset includes information on the calories, protein, fat, and food ingredient values of fruits and vegetables. These numbers are preserved as integer values and acquired from the Kaggle website.

Filtering Noise

Ability to determine the nutritional content of diverse fruits and vegetables is made possible by the use of filter techniques that reduce noise in photos. The filter's goal is to get rid of noise, which makes photographs look bad. Statistics back up this statement. A filter's typical frequency response is constructed. Filtering is a nonlinear technique widely used in image processing to get rid of "salt and pepper" noise. When edge preservation and noise reduction are top concerns, a median filter is preferable to convolution. Practice photo binarization in a similar way. In the pre-processing stage of document analysis, document picture binarization is used to separate the text in the foreground from the backdrop of the document. The succeeding document image processing tasks require a quick and precise binarization approach.

Classification

Classification is the process of dividing data into various categories. The method starts by determining the class of the given data points. Classification is achievable for both structured and unstructured data. The terms target, label, and classes are occasionally used to describe the classes. The user-uploaded food image will be compared to the food items in the system database

for the features obtained in the feature extraction stage in the classification process. The specific food item will be recognised once the ideal match is discovered based on the qualities matched. The detected food item's name with ingredients will be displayed over the food. Here, a convolution neural network approach is employed to classify data.

Nutrition Detection

The food nutrition API receives the image after the model has identified the food category or food type and extracts the food's nutritional data before sending it to the system. The system contrasts the nutritional information with the suggested dietary allowances. If the amount of a specific nutrient, let's say calories, exceeds the recommended dietary allowance, the user will receive a warning message to reduce nutrition intake. In that case, the user will see the food's nutritional value.

4.2 NON FUNCTIONAL REQUIREMENTS

Usability

The system shall allow the users to access the system with pc using web application. The system uses a web application as an interface. The system is user friendly which makes the system easy

Availability

The system is available 100% for the user and is used 24 hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week

Scalability

Scalability is the measure of a system's ability to increase or decrease in performance and cost in response to changes in application and system processing demands.

Security

A security requirement is a statement of needed security functionality that ensures one of many different security properties of software is being satisfied.

Performance

The information is refreshed depending upon whether some updates have occurred or not in the application. The system shall respond to the member in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time when doing large processing jobs. Responses to view information shall take no longer than 5 seconds to appear on the screen.

Reliability

The system has to be 100% reliable due to the importance of data and the damages that can be caused by incorrect or incomplete data. The system will run 7 days a week. 24 hours a day.

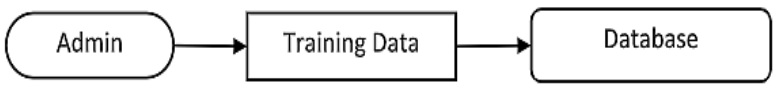
5. PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS

A two-dimensional diagram explains how data is processed and transferred in a system. The graphical depiction identifies each source of data and how it interacts with other data sources to reach a common output. Individuals seeking to draft a data flow diagram must identify external inputs and outputs, determine how the inputs and outputs relate to each other, and explain with graphics how these connections relate and what they result in. This type of diagram helps business development and design teams visualize how data is processed and identify or improve certain aspects.

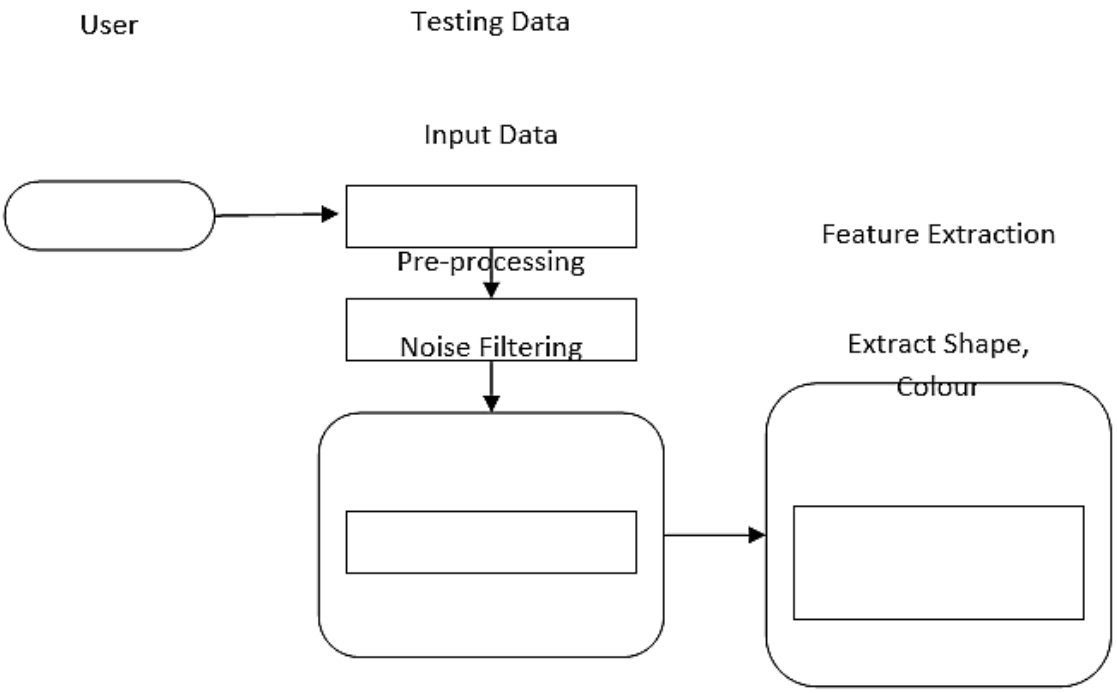
LEVEL 0

The Level 0 DFD shows how the system is divided into 'sub-systems' (processes), each of which deals with one or more of the data flows to or from an external agent, and which together provide all of the functionality of the system as a whole. It also identifies internal data stores that must be present in order for the system to do its job, and shows the flow of data between the various parts of the system.



LEVEL 1

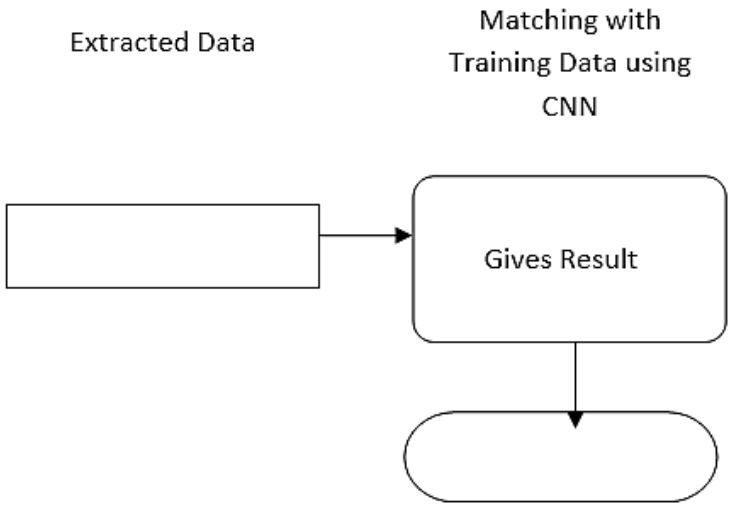
The next stage is to create the Level 1 Data Flow Diagram. This highlights the main functions carried out by the system. As a rule, to describe the system was using between two and seven functions - two being a simple system and seven being a complicated system. This enables us to keep the model manageable on screen or paper.



LEVEL 2

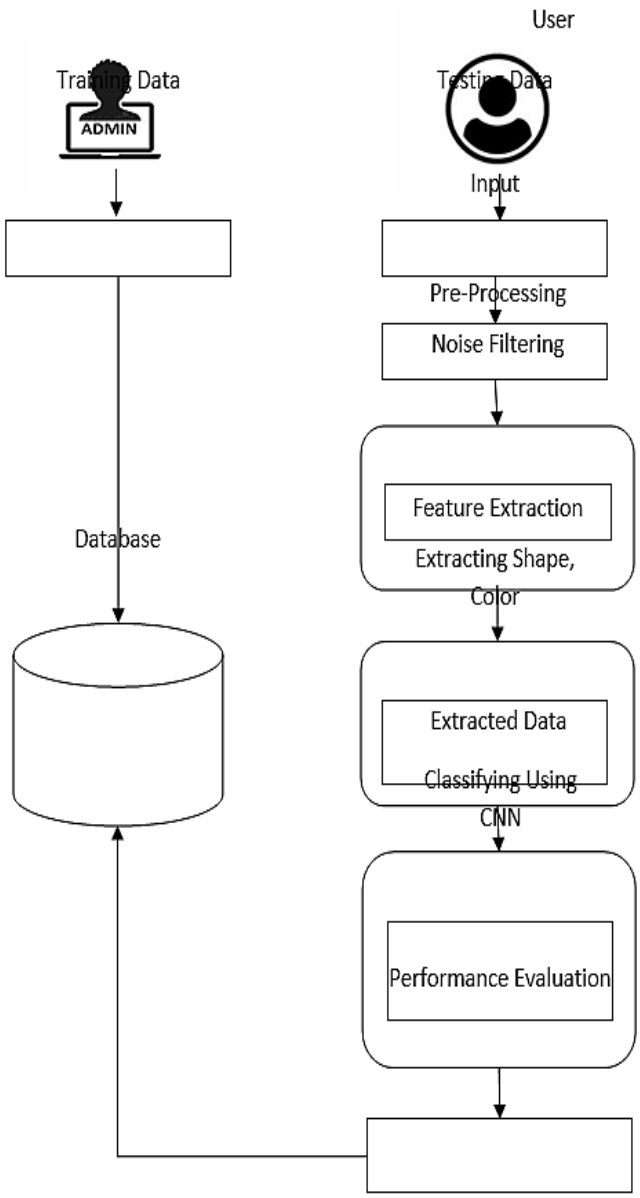
A Data Flow Diagram (DFD) tracks processes and their data paths within the business or system boundary under investigation. A DFD defines each domain boundary and illustrates the logical movement and transformation of data within the defined boundary. The diagram shows

'what' input data enters the domain, 'what' logical processes the domain applies to that data, and 'what' output data leaves the domain. Essentially, a DFD is a tool for process modelling and one of the oldest.



5.2 SOLUTION & TECHNICAL ARCHITECTURE

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. System architecture can comprise system components, the externally visible properties of those components, the relationships (e.g. the behavior) between them. It can provide a plan from which products can be procured, and systems developed, that will work together to implement the overall system. There have been efforts to formalize languages to describe system architecture, collectively these are called architecture description languages (ADLs).


User
Training Data
ADMIN
Input
Pre-Processing
Noise Filtering
Feature Extraction
Extracting Shape, Color
Database
Extracted Data
Classifying Using CNN
Performance Evaluation

5.3 USER STORIES

USER TYPE	FUNCTIONAL REQUIREMENT (EPIC)	USER STORY NUMBER	USER STORY/TASK	ACCEPTANCE CRITERIA	PRIORITY	RELEASE
CUSTOMER(MOBILE USER)	REGISTERATION	USN-1	Request a username and password pair from the user (along with other personal information you may need).	I CAN ABLE TO GIVE THE DETAILS	HIGH	SPRINT-1
		USN-2	A NEW USER PUT THE NEW USER IN AN APPROPRIATE GROUP SO THEY CAN ACCESS THE DATA THEY NEED TO SEE. OPTIONALLY PASS THE NEW USER'S ID TO YOUR CUSTOM SERVER.	I CAN REGISTER MY DETAILS.	HIGH	SPRINT-1
		USN-3	AS A USER I CAN ABLE TO REGISTER FOR APPLICATION THROUGH FACEBOOK	I CAN ABLE TO ACCESS THE APPLICATION THROUGH FACEBOOK	LOW	SPRINT-2
		USN-4	AS A USER I CAN ABLE TO LOG INTO THE APPLICATION BY GMAIL	I CAN ABLE TO ACCESS MY GMAIL ACCOUNT	HIGH	SPRINT-1
	LOGIN	USN-5	AS A USER I CAN ABLE TO LOG INTO THE APPLICATION BY ENTERING MY EMAIL,PASSWORD,AND CONFIRMING MY PASSWORD	I CAN ABLE TO ACCESS MY ACCOUNT WITH GMAIL LOGIN	MEDIUM	SPRINT-1
	DASHBOARD	USN-6	AS A USER, I CAN ACCESS THE DASHBOARD BY LOGGING INTO THE APPLICATION	I CAN ACCESS THE DASHBOARD BY LOGGING INTO APPLICATION	HIGH	SPRINT-1
CUSTOMER (WEB USER)	REGISTERATION	USN-1	AS A USER, I CAN REGISTER FOR THE WEB-PAG BY ENTERING BY MY EMAIL, PASSWORD, AND CONFIRMING MY PASSWORD.	I CAN ABLE TO ACCESS MY ACCOUNT	HIGH	SPRINT-1

		USN-2	AS A USER I CAN ABLE TO LOG INTO THE APPLICATION BY GMAIL	I CAN LOGIN INTO THE APPLICATION WITH GMAIL LOGIN	HIGH	SPRINT-1
	LOGIN	USN-3	AS A USER I CAN ABLE TO LOG INTO THE APPLICATION BY ENTERING MY EMAIL,PASSWORD,AND CONFIRMING MY PASSWORD	I CAN ABLE TO ACCESS MY ACCOUNT	HIGH	SPRINT-1
		USN-4	AS A USER, I WILL RECEIVE COMFORMATION EMAIL ONCE I HAVE REGISTERED FOR THE WEB-PAGE	I WILL RECEIVE CONFORMATIO N EMAIL & CLICK CONFIRM	HIGH	SPRINT-1
	DASHBOARD	USN-5	AS A USER, I CAN ACCESS THE DASHBOARD BY LOGGING INTO THE WEB PAGE	I CAN ACCESS THE DASHBOARD BY LOGGING INTO WEB-PAGE	HIGH	SPRINT-1
CUSTOMER CARE EXECUTIVE	LOGIN	USN-1	AS A CUSTOMER CARE EXECUTIVE,I CAN LOG INTO THE APPLICATION BY ENTERING MY EXECUTIVE USER NAME AND PASSWORD	I CAN ABLE TO ACCESS MY ACCOUNT USING GMAIL LOGIN	HIGH	SPRINT-1
	DASHBOARD	USN-2	AS A CUSTOMER CARE EXECUTIVE,I CAN LOG INTO THE DASHBOARD BY ENTERING MY EXECUTIVE USER NAME AND PASSWORD	I CAN ACCESS THE DASHBOARD BY LOGGING INTO WEB-PAGE	HIGH	SPRINT-1
ADMINISTRATOR	LOGIN	USN-1	AS A ADMINISTRATOR,I CAN LOG INTO THE APPLICATION BY ENTERING MY ADMINISTRATOR USER NAME AND PASSWORD	I CAN ABLE TO ACCESS MY ACCOUNT USING GMAIL	HIGH	SPRINT-1
	DASHBOARD	USN-2	AS A ADMINISTRATOR,I CAN LOG INTO THE DASHBOARD BY ENTERING MY ADMIN USER NAME AND PASSWORD	I CAN ACCESS THE DASHBOARD BY LOGGING INTO WEB-PAGE WITH GMAIL LOGIN	HIGH	SPRINT-1

6. PROJECT PLANNING & SCHEDULING

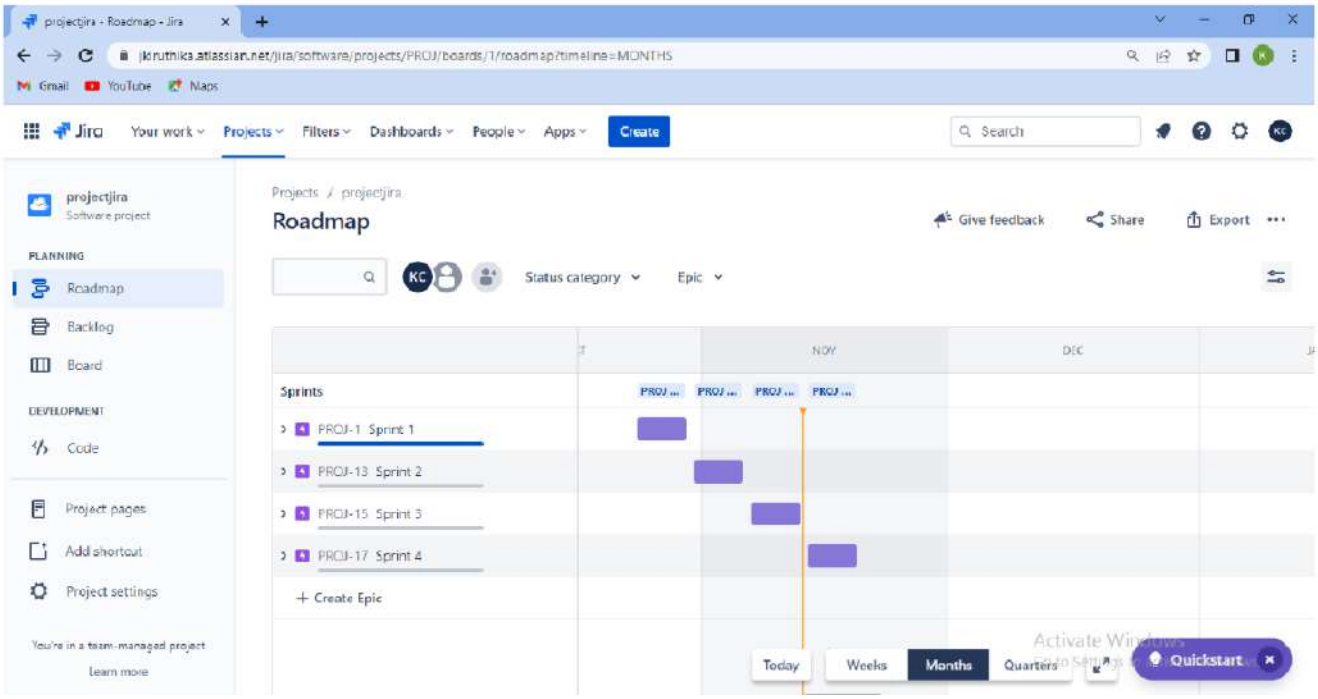
6.1 SPRINT PLANNING & ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Panel	USN-1	The user will login into the website and go through the products availableon the website.	2	High	Aishvariyaa B B Maha Lakshmi P Kiruthika J Almaas T Gokul K V
Sprint-2	Admin Panel	USN-2	The role of the admin is to check out the database about the stock and have a truck of all the things that the users are purchasing.	2	High	Aishvariyaa B B Maha Lakshmi P Kiruthika J Almaas T Gokul K V
Sprint-3	Chat Bot	USN-3	The user can directly talk to Chatbot regarding the products. Get the recommendations based on information provided by the user.	2	High	Aishvariyaa B B Maha Lakshmi P Kiruthika J Almaas T Gokul K V
Sprint-4	Final Delivery	USN-4	Container of applications using docker Kubernetes and development the application. Create the documentation and final submit the application.	2	High	Aishvariyaa B B Maha Lakshmi P Kiruthika J Almaas T Gokul K V

6.2 SPRINT DELIVERY SCHEDULE

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	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.3 REPORTS FROM JIRA

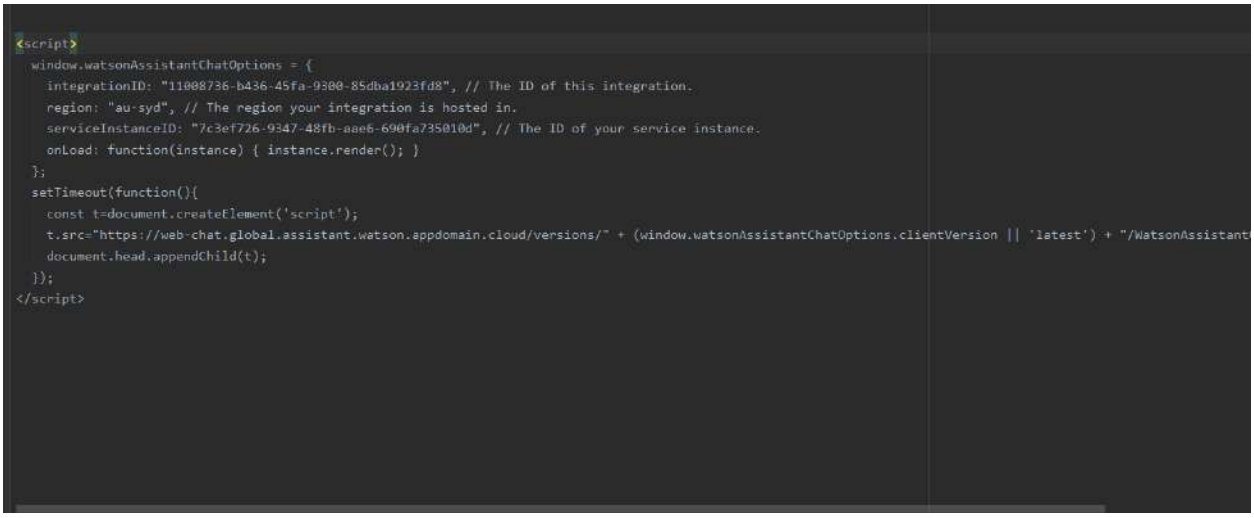


7. CODING & SOLUTIONING

7.1 FEATURE 1 :

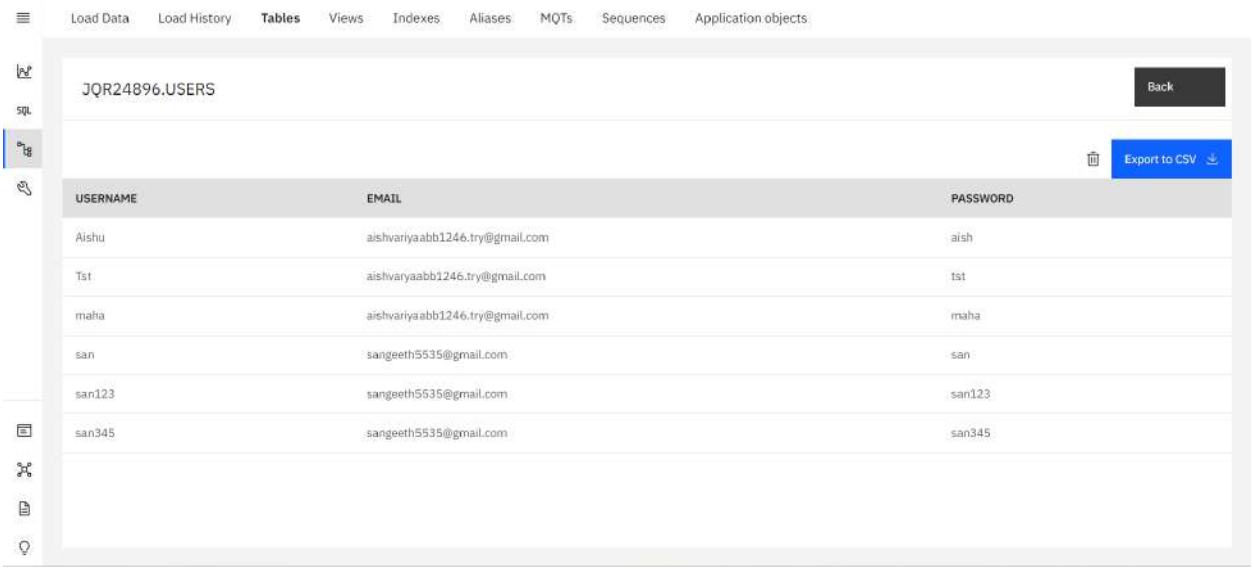
- It can aid users in maintaining their dietry intake
- The characteristics of good nutritional status are alert,good natured personality,with normal weight for height and excellent general health
- It may help the digestive system function

7.2 FEATURE 2



```
<script>
  window.watsonAssistantChatOptions = {
    integrationID: "11008736-b436-45fa-9300-85dba1923fd8", // The ID of this integration.
    region: "au-syd", // The region your integration is hosted in.
    serviceInstanceID: "7c3ef726-9347-48fb-aae6-690fa735010d", // The ID of your service instance.
    onLoad: function(instance) { instance.render(); }
  };
  setTimeout(function(){
    const t=document.createElement('script');
    t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" + (window.watsonAssistantChatOptions.clientVersion || 'latest') + "/WatsonAssistant
    document.head.appendChild(t);
  });
</script>
```

7.3 DATABASE SCHEMA :



8. TESTING

8.1 TEST CASES

A test case has components that describe input, action and an expected response, in order to determine if a feature of an application is working correctly. A test case is a set of instructions on “HOW” to validate a particular test objective/target, which when followed will tell us if the expected behavior of the system is satisfied or not.

Characteristics of a good test case:

- Accurate: Exacts the purpose.
- Economical: No unnecessary steps or words.
- Traceable: Capable of being traced to requirements.
- Repeatable: Can be used to perform the test over and over.
- Reusable: Can be reused if necessary.

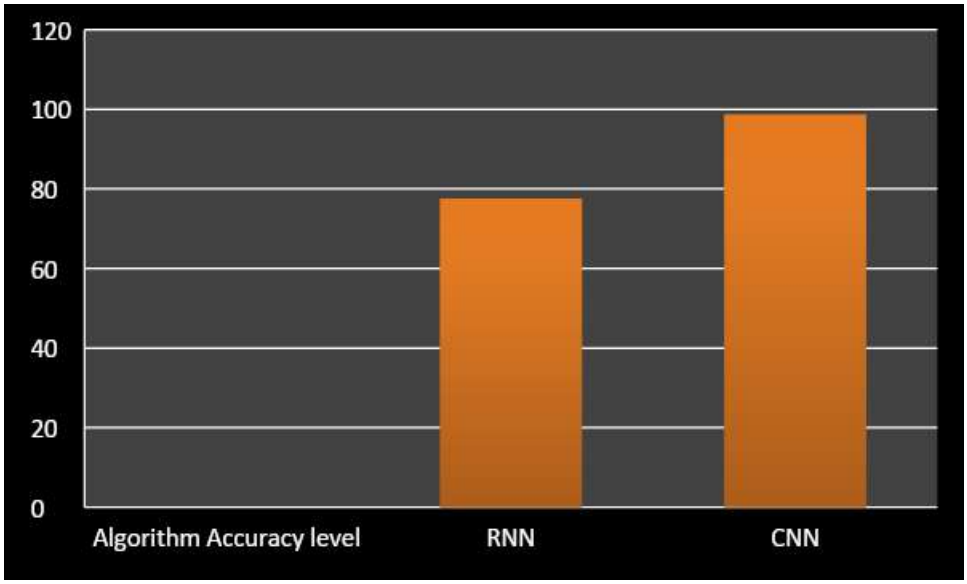
S.NO	**Scenario**	**Input**	**Excepted output**	**Actual output**
1	User login	User name and password	Login	Login success.
2	Upload Image	Upload input image (fruits and vegetables)	Predicting calorie, fat and ingredients of given food image	Details are stored in a database.

8.2 USER ACCEPTANCE TESTING

This sort of testing is carried out by users, clients, or other authorised bodies to identify the requirements and operational procedures of an application or piece of software. The most crucial stage of testing is acceptance testing since it determines whether or not the customer will accept the application or programme. It could entail the application's U.I., performance, usability, and usefulness. It is also referred to as end-user testing, operational acceptance testing, and user acceptance testing (UAT).

9. RESULTS

9.1 PERFORMANCE METRICS



10. ADVANTAGES & DISADVANTAGES

ADVANTAGE

- Provide the nutrition content and ingredients of Multifoods
- Helps for fitness people to maintain and know the proteins and calories of the food
- Gives accurate results in real-time application

DISADVANTAGE

- Hard to know the details of nutrition and calories of food
- Doesn’t ask to provide the users health condition
- Required more time to know the Multifoods

11. CONCLUSION

This project study suggests a technique for an automated food nutrition detection system that can estimate the quantity of nutrients in food. As of now, the machine can classify the meal into one of the numerous categories provided in the dataset. The categorization made use of the popular food dataset. Using a deep learning approach, the food photographs were categorised into the proper categories. It may be possible to improve the classification process by removing noise from the dataset. The same study can be conducted using a larger dataset, more classes, and more images in each class because doing so improves accuracy by teaching the algorithm new features and reduces loss rates. The weights of the model can be stored and used to develop designs for calorie extraction, food categorization, and image classification.

12. FUTURE SCOPE

Using a deep learning approach, the research study's food images are categorised into the relevant groupings. The classification task might be improved in the future by removing noise from the dataset. The same study may be conducted using a larger dataset, more classes, and more images in each class because doing so improves accuracy by teaching the algorithm new characteristics and reduces loss rates. A web or mobile application that categorises images and also extracts the calories from the food that has been identified may be created using the model's weights, which can be saved and used later.

13. APPENDIX

SOURCE CODE

```
import Flask, render_template, request, redirect, url_for, session

import requests, json, os
import ibm_db
import re

import cv2

app = Flask(__name__)

app.secret_key = 'a'


conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=6667d8e9-9d4d-4ccb-ba32-
21da3bb5aafc.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud;PORT=30376;SECURI
TY=SSL;SSLServerCertificate=DigiCertGlobalRootCA.crt;UID=jqr24896;PWD=XEJT
mHY5JprWZngW","","")



@app.route('/')
def home():
```

```
    return render_template('home.html')

@app.route('/pythonlogin/', methods=['GET', 'POST'])
def login():
    global userid
    msg=''

    if request.method =='POST':
        username = request.form['username']
        password =request.form['password']
        sql ="SELECT * FROM users WHERE username =? AND password=?"
        stmt = ibm_db.prepare(conn, sql)
        ibm_db.bind_param(stmt,1,username)
        ibm_db.bind_param(stmt,2,password)
        ibm_db.execute(stmt)
        account = ibm_db.fetch_assoc(stmt)
        print (account)
        if account:
            session['loggedin']=True
            session['id'] = account ['USERNAME']
            userid = account['USERNAME']
            session['username'] = account['USERNAME']
            msg = 'logged in successfully !'

            return render_template('submission.html',msg = msg)
```

```
        else:
            msg ='Incorrect username / password !'
    return render_template('login.html',msg=msg)

@app.route('/pythonlogin/register', methods=['GET', 'POST'])
def register():
    msg = ''
    if request.method == 'POST':
        username = request.form['username']
        email = request.form['email']
        password = request.form['password']
        sql = "SELECT * FROM users WHERE username = ?"
        stmt = ibm_db.prepare(conn,sql)
        ibm_db.bind_param(stmt,1,username)
        ibm_db.execute(stmt)
        account = ibm_db.fetch_assoc(stmt)
        print(account)
        if account:
            msg ='Account already exists !'
        elif not re.match(r'[^@]+@[^@]+\.[^@]+',email):
            msg ='Invaild email address !'
        elif not re.match(r'[A-Za-z0-9]+',username):
            msg = 'Name must contain only characters and numbers!'
        else:
            insert_sql = "INSERT INTO users VALUES (?,?,?)"
```

```
            prep_stmt= ibm_db.prepare(conn, insert_sql)
            ibm_db.bind_param(prep_stmt, 1 , username)
            ibm_db.bind_param(prep_stmt, 2, email)
            ibm_db.bind_param(prep_stmt, 3, password)
            ibm_db.execute(prep_stmt)

            sendmsg(email,' you have successfully registered !')
            msg = ' you have successfully registered !'
    elif request.method == 'POST':
        # Form is empty... (no POST data)
        msg = 'Please fill out the form!'
    # Show registration form with message (if any)
    return render_template('register.html', msg=msg)
@app.route('/submission')
def submission():

    return render_template('submission.html')

@app.route('/pythonlogin/submission/display', methods = ["POST", "GET"])
def display():
    if request.method == "POST":



        image = request.files["food"]
        image.save('static/Out/Test.jpg')
```

```
import tensorflow as tf
classifierLoad = tf.keras.models.load_model('model.h5')

import numpy as np
from keras.preprocessing import image

test_image = image.load_img('static/Out/Test.jpg', target_size=(200, 200))
img1 = cv2.imread('static/Out/Test.jpg')
# test_image = image.img_to_array(test_image)
test_image = np.expand_dims(test_image, axis=0)
result = classifierLoad.predict(test_image)

print(result)

out = ''
fer = ''
if result[0][0] == 1:
    out = "APPLES"
elif result[0][1] == 1:
    out = "Badam"
elif result[0][2] == 1:
    out = "Badam Drink"
elif result[0][3] == 1:
    out = "Banana"
elif result[0][4] == 1:
    out = "Beef Steak"
```

```
elif result[0][5] == 1:
    out = "BeetrootFry"

elif result[0][6] == 1:
    out = "Biriyani"
elif result[0][7] == 1:
    out = "Biscuits"
elif result[0][8] == 1:
    out = "BitterGuardFry"
elif result[0][9] == 1:
    out = "Boiledegg"
elif result[0][10] == 1:
    out = "Bread with Peanutbutter"

elif result[0][11] == 1:
    out = "BreadandJam"
elif result[0][12] == 1:
    out = "Badam"
elif result[0][13] == 1:
    out = "Burger"
elif result[0][14] == 1:
    out = "CapsicumCurry"
elif result[0][15] == 1:
    out = "Cashew"
elif result[0][16] == 1:
```

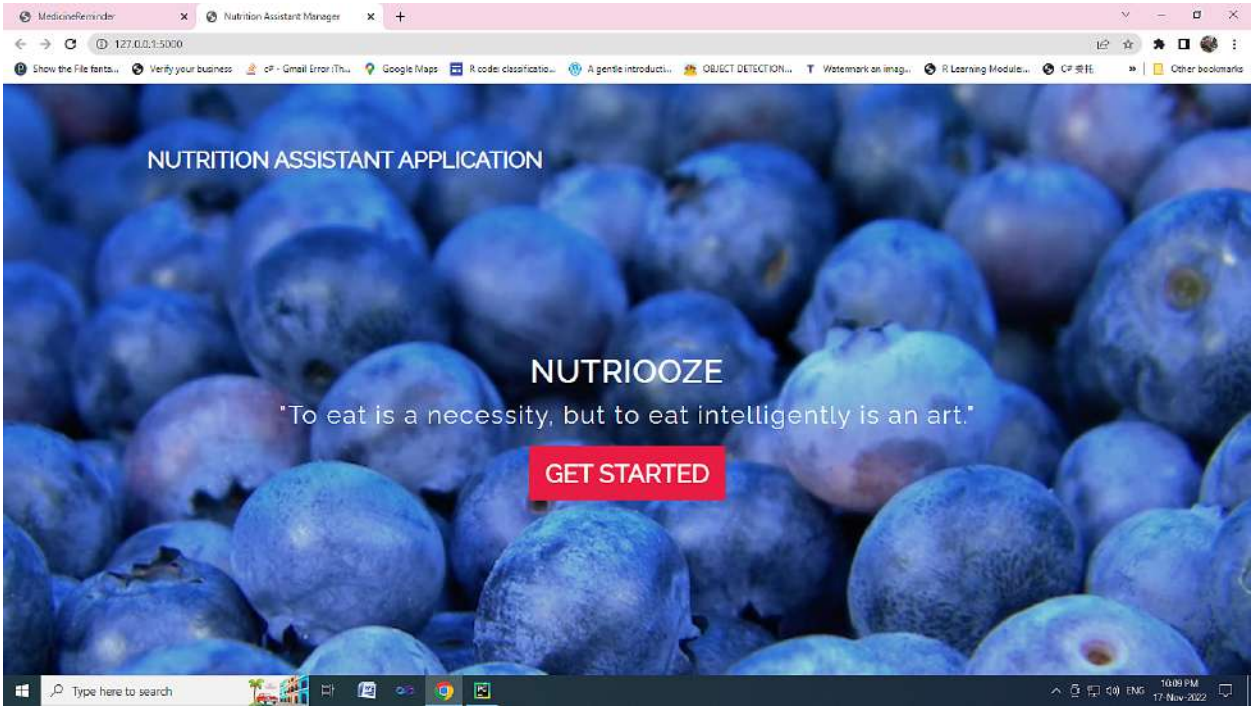
```
    out = "Chappathi"

elif result[0][17] == 1:
    out = "Cheeseballs"
elif result[0][18] == 1:
    out = "ChilliBeef"
elif result[0][19] == 1:
    out = "Chocolate"
elif result[0][20] == 1:
    out = "ChocolateIcecream"
elif result[0][21] == 1:
    out = "ChoolapooriwithChanna"
elif result[0][22] == 1:
    out = "CoffeeorLatte"

elif result[0][23] == 1:
    out = "CrabMasala"
elif result[0][24] == 1:
    out = "Cucumber"
elif result[0][25] == 1:
    out = "Curdrice"
elif result[0][26] == 1:
    out = "Dosa"


foodName= out
```

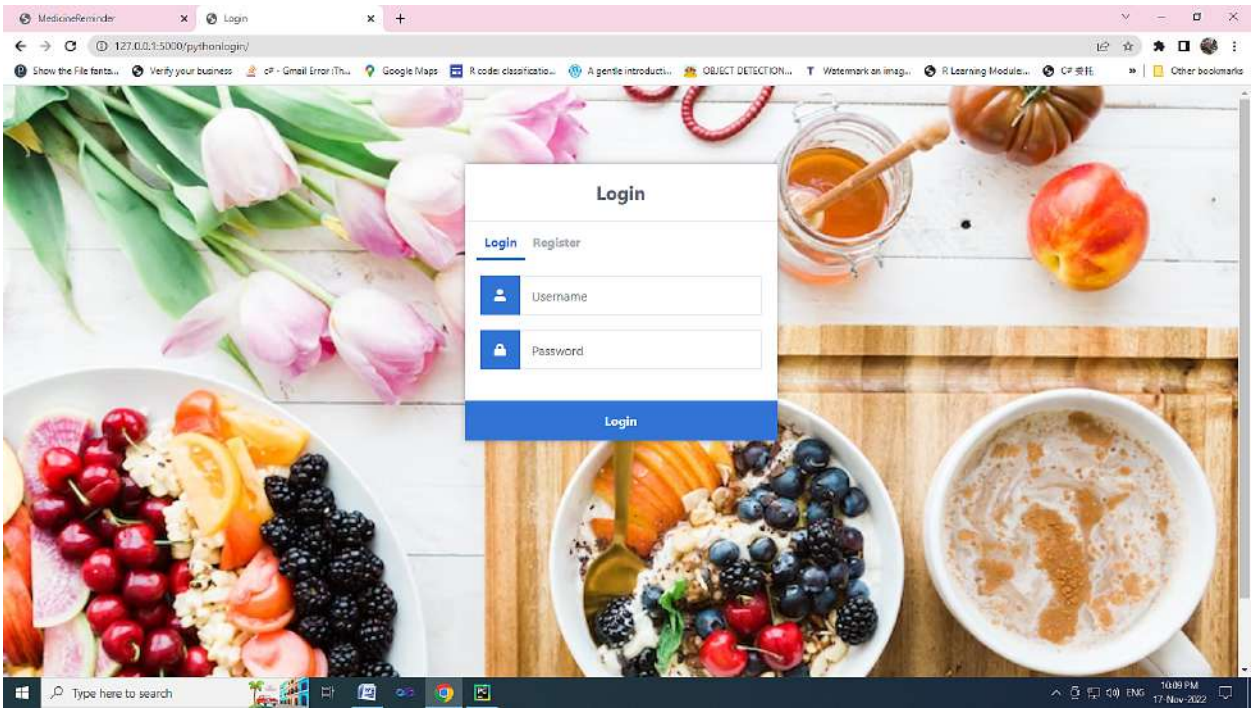
```
        session["out"]=foodName

        return render_template('Result.html', data=session["out"])

    else:
        return render_template('submission.html')

@app.route("/pythonlogin/submission/out", methods=['GET', 'POST'])
def out():
    if request.method == "POST":
        nutrients = {}
        USDAapiKey = 'flYmBbhNL4RXqkJ7M80adL5dNKvn3THtM0eQ48Er'

        foodName = session["out"]
        response = requests.get(

'https://api.nal.usda.gov/fdc/v1/foods/search?api_key={}&query={}&requireAllWords={
}'.format(USDAapiKey,
                                                                foodName,
                                                                True))

        data = json.loads(response.text)
        concepts = data['foods'][0]['foodNutrients']
        arr = ["Sugars", "Energy", "Vitamin A", "Vitamin D", "Vitamin B", "Vitamin C",
"Protein", "Fiber", "Iron",
```

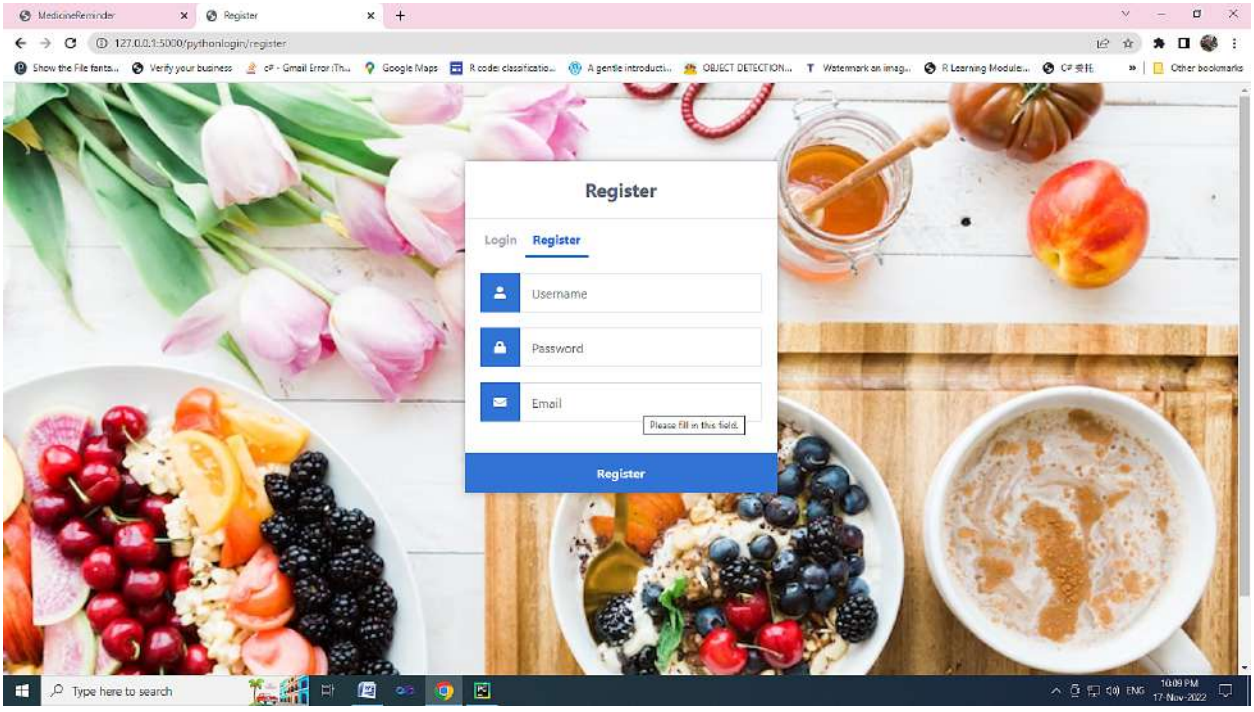
```
            "Magnesium",
            "Phosphorus", "Cholestrol", "Carbohydrate", "Total lipid (fat)", "Sodium",
"Calcium", ]
        for x in concepts:
            if x['nutrientName'].split(',')[0] in arr:
                if (x['nutrientName'].split(',')[0] == "Total lipid (fat)"):
                    nutrients['Fat'] = str(x['value']) + " " + x['unitName']
                else:
                    nutrients[x['nutrientName'].split(',')[0]] = str(x['value']) + " " + x['unitName']

        return render_template('display.html', x=foodName, data=nutrients,
account=session['username'])


def sendmsg(Mailid,message):
    import smtplib
    from email.mime.multipart import MIMEMultipart
    from email.mime.text import MIMEText
    from email.mime.base import MIMEBase
    from email import encoders

    fromaddr = "sampletest685@gmail.com"
    toaddr = Mailid

    # instance of MIMEMultipart
    msg = MIMEMultipart()
```

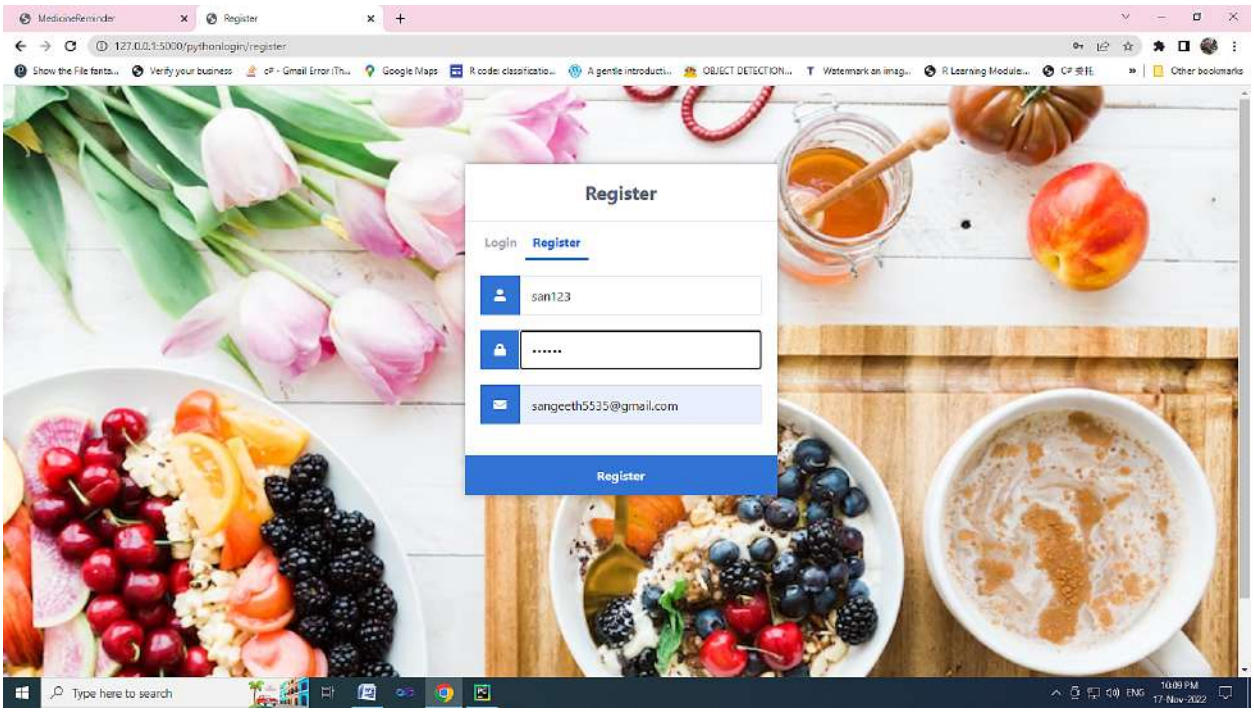
```
# storing the senders email address
msg['From'] = fromaddr

# storing the receivers email address
msg['To'] = toaddr

# storing the subject
msg['Subject'] = "Alert"

# string to store the body of the mail
body = message

# attach the body with the msg instance
msg.attach(MIMEText(body, 'plain'))

# creates SMTP session
s = smtplib.SMTP('smtp.gmail.com', 587)

# start TLS for security
s.starttls()

# Authentication
s.login(fromaddr, "hneucvnontsuwgpj")

# Converts the Multipart msg into a string
text = msg.as_string()
```

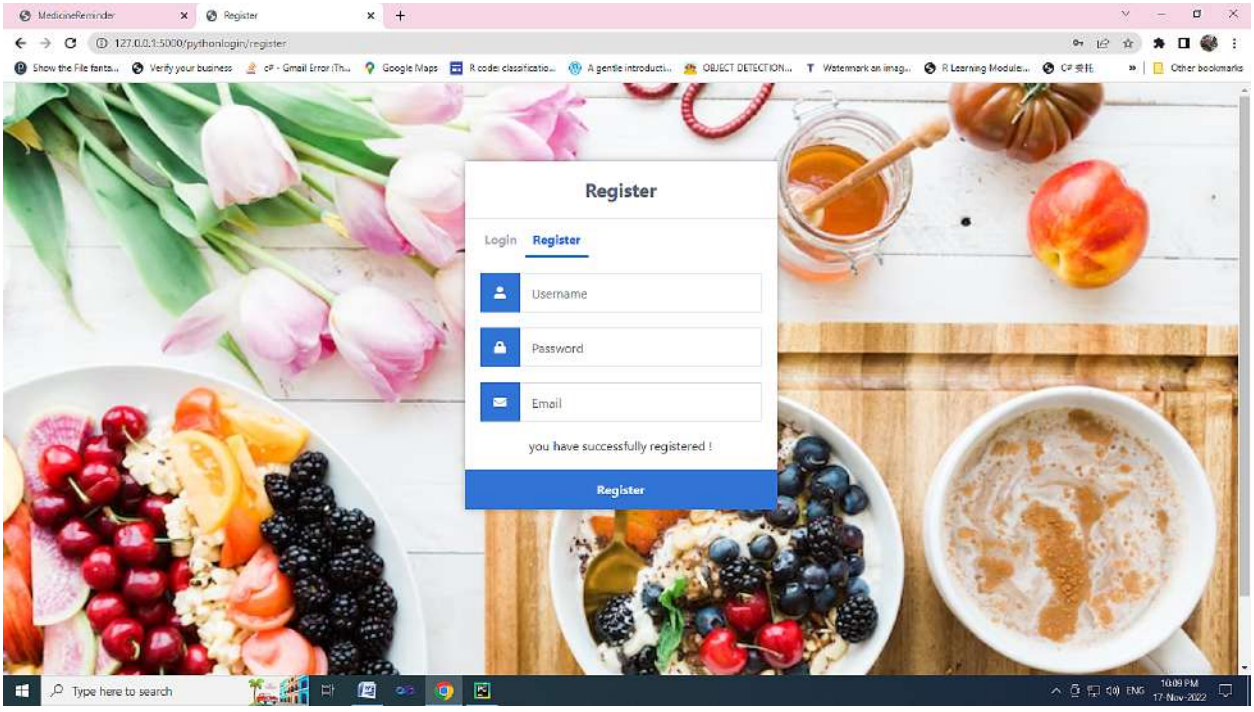
```
        # sending the mail
        s.sendmail(fromaddr, toaddr, text)

        # terminating the session
    if __name__=='__main__':
app.run(host='0.0.0.0',debug = True, port = 5000)
```

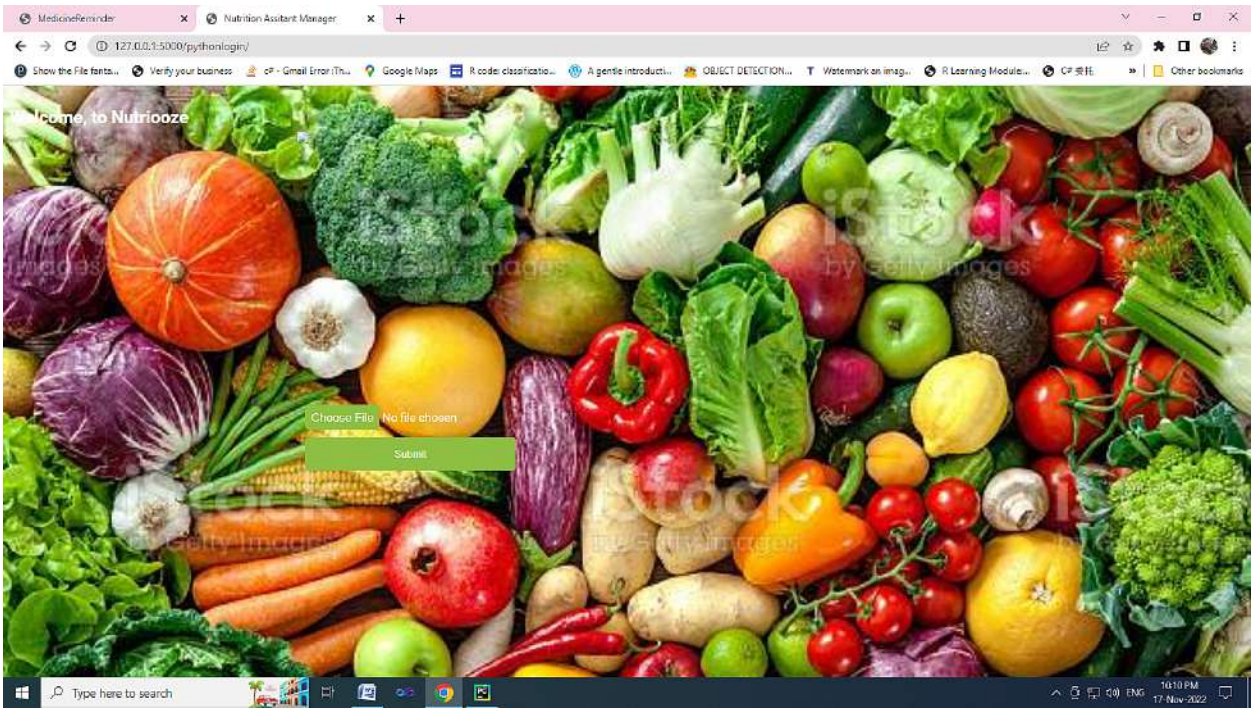


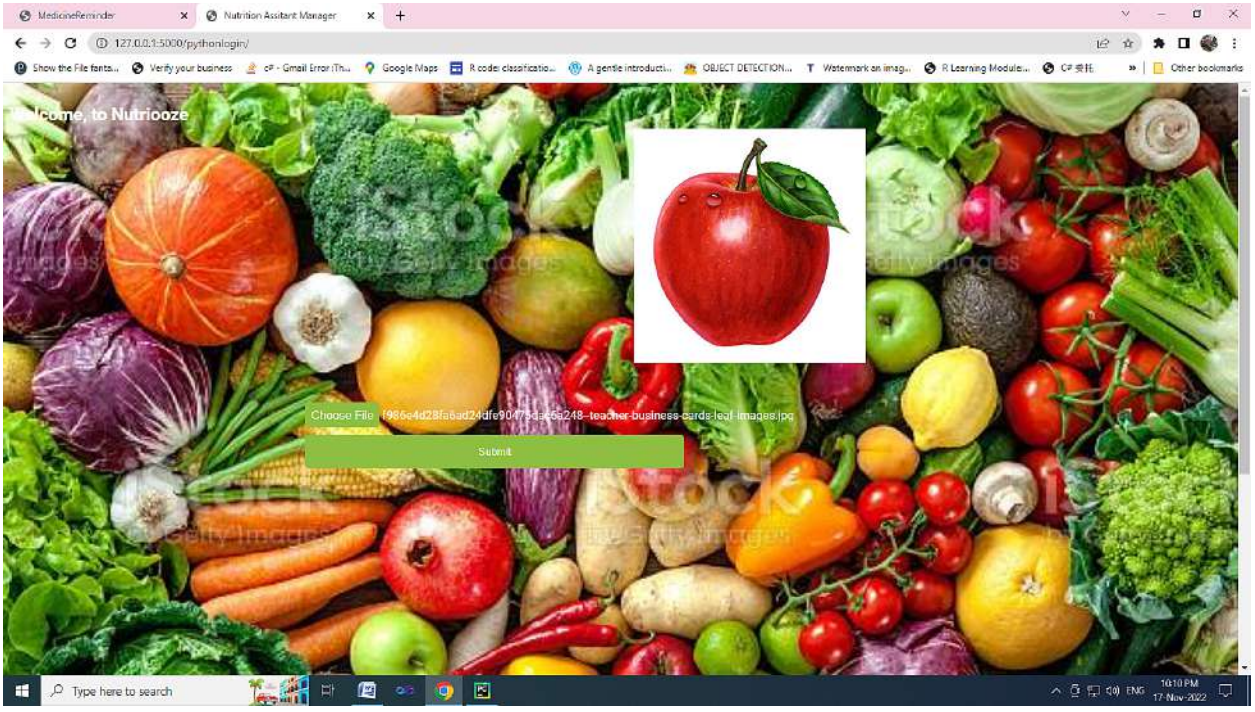

MedicineReminder
Login
127.0.0.1:5000/pythonlogin/
Login
Login
Register
Username
Password
Login
Type here to search
ENG
10:09 PM
17-Nov-2022

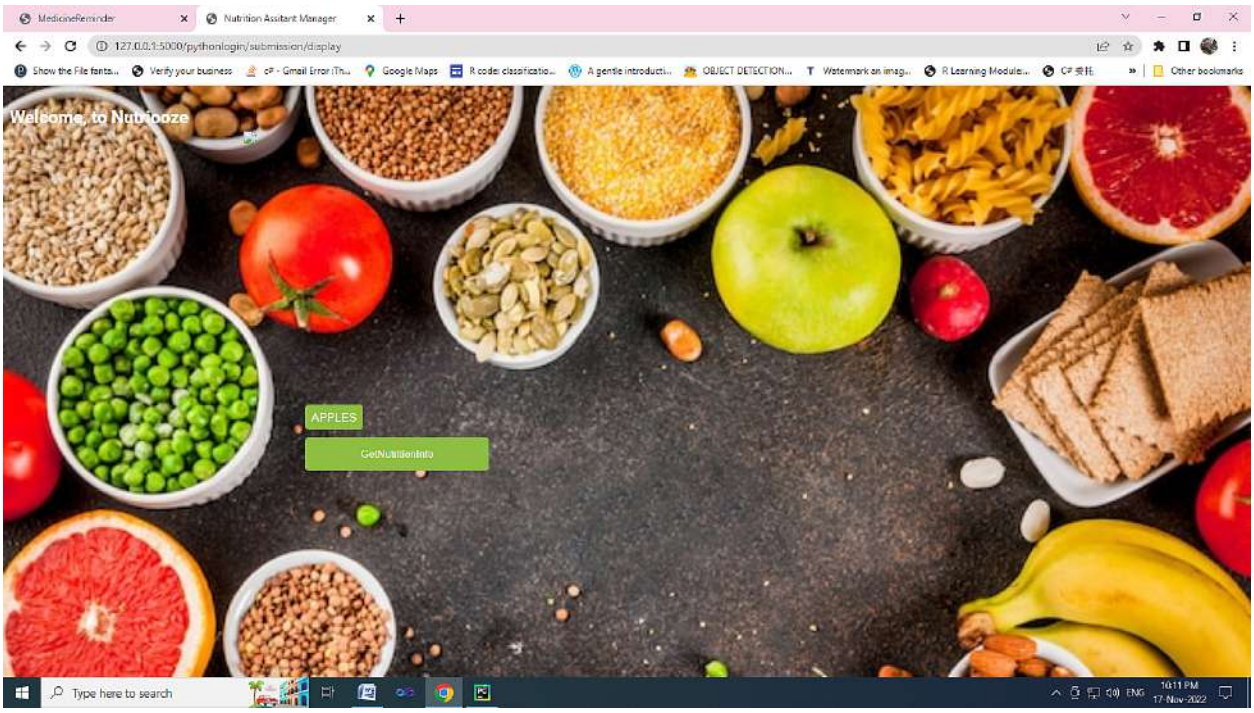

MedicineReminder
Register
127.0.0.1:5000/pythonlogin/register
Register
Login
Register
Username
Password
Email
Please fill in this field.
Register
Type here to search
ENG
10:09 PM
17-Nov-2022

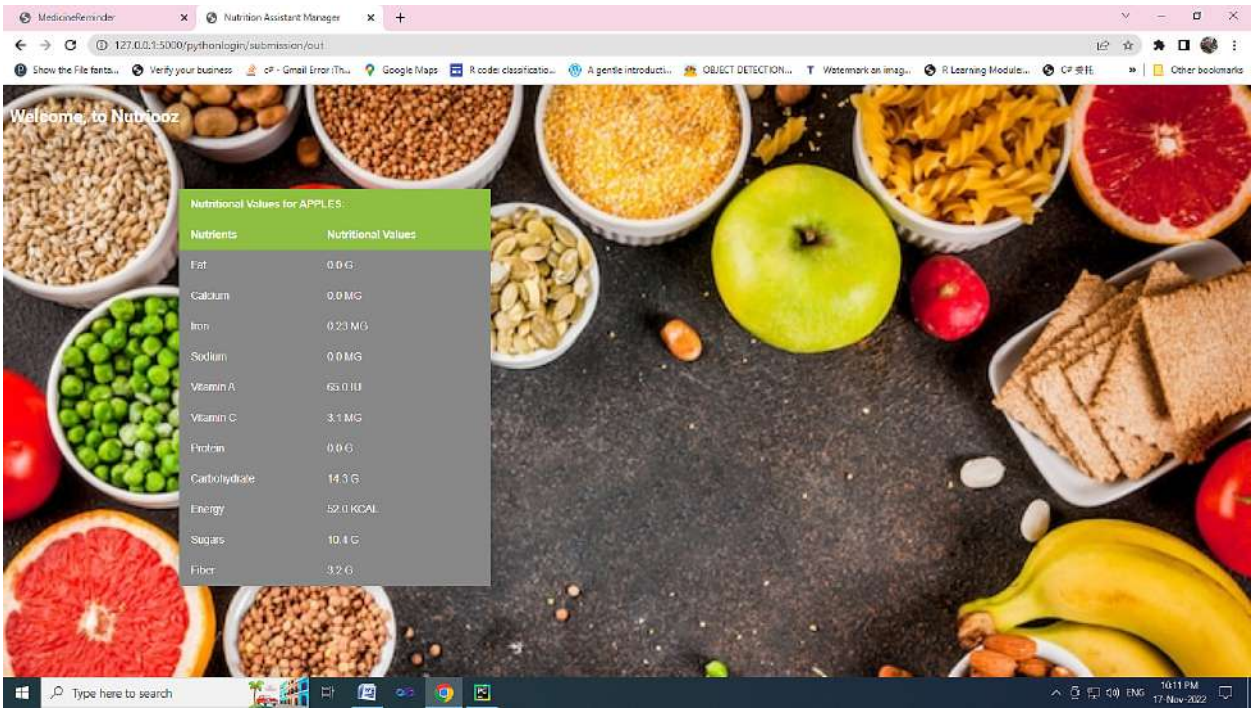

MedicineReminder
Register
127.0.0.1:5000/pythonlogin/register
Register
Login
Register
san123
sangeeth5535@gmail.com
Register
Type here to search
ENG
10:09 PM
17-Nov-2022


MedicineReminder
Register
127.0.0.1:5000/pythonlogin/register
Register
Login
Register
Username
Password
Email
you have successfully registered !
Register
Type here to search
ENG
10:09 PM
17-Nov-2022


MedicineReminder
Nutrition Assitant Manager
127.0.0.1:5000/pythonlogin/
Welcome, to Nutriooze
Choose File
No file chosen
Submit
Type here to search
ENG
10:10 PM
17-Nov-2022


MedicineReminder
Nutrition Assitant Manager
127.0.0.1:5000/pythonlogin/
Welcome, to Nutriooze
Choose File
f986e4d28fa8ad24dfe90475da66a248--teacher-business-cards-leaf-images.jpg
Submit
Type here to search
ENG
10:10 PM
17-Nov-2022


MedicineReminder
Nutrition Assitant Manager
127.0.0.1:5000/pythonlogin/submission/display
Welcome, to Nutriooze
APPLES
GetNutritionInfo
Type here to search
ENG
10:11 PM
17-Nov-2022


MedicineReminder
Nutrition Assitant Manager
127.0.0.1:5000/pythonlogin/submission/out
Welcome, to Nutriooz
Nutritional Values for APPLES:
Nutrients
Nutritional Values
Fat
0.0 G
Calcium
0.0 MG
Iron
0.23 MG
Sodium
0.0 MG
Vitamin A
65.0 IU
Vitamin C
3.1 MG
Protein
0.0 G
Carbohydrate
14.3 G
Energy
52.0 KCAL
Sugars
10.4 G
Fiber
3.2 G
Type here to search
ENG
10:11 PM
17-Nov-2022

GITHUB LINK :

https://github.com/IBM-EPBL/IBM-Project-18412-1659684833

PROJECT DEMO LINK:

https://www.kapwing.com/videos/6378d62b2a7845016ebce6a0