Project Report

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APPLICATION DONE BY

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1. INTRODUCTION

The objective of this study is to identify dietary self-monitoring implementation strategies on a mobile application. Nutritional knowledge is essential for promoting good eating habits since it ensures that necessary nutrient requirements are met to avoid malnutrition.

Wellness and healthy lifestyles have become mainstream. Interest in fitness applications and revenue from them grow as fast as the number of people striving to be fit.

2. PROJECT OVERVIEW

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- DrivenFood Detection Model for** accurate food identification and Food API's to give the nutritional value of the identified food.

3. PURPOSE

You can automatically calculate the nutritional information for any recipe, analyze recipe costs, visualize ingredient lists, find recipes for what's in your fridge, find recipes based on special diets, nutritional requirements, or favorite ingredients, classify recipes into types and cuisines, convert ingredient amounts, or even compute an entire meal plan.

LITERATURE SURVEY

1) Existing problem

Due to the ignorance of healthy food habits, obesity rates are increasing at an alarming speed, and this is reflective of the risks to people's health. People need to control their daily calorie intake by eating healthier foods, which is the most basic method to avoid obesity.

2) References

Flask : https://www.youtube.com/embed/uxZuFm5tmhM

Send-Grid : https://sendgrid.com/

Rapid API : https://rapidapi.com/hub

Docker :https://www.youtube.com/embed/pTFZFxd4hOI

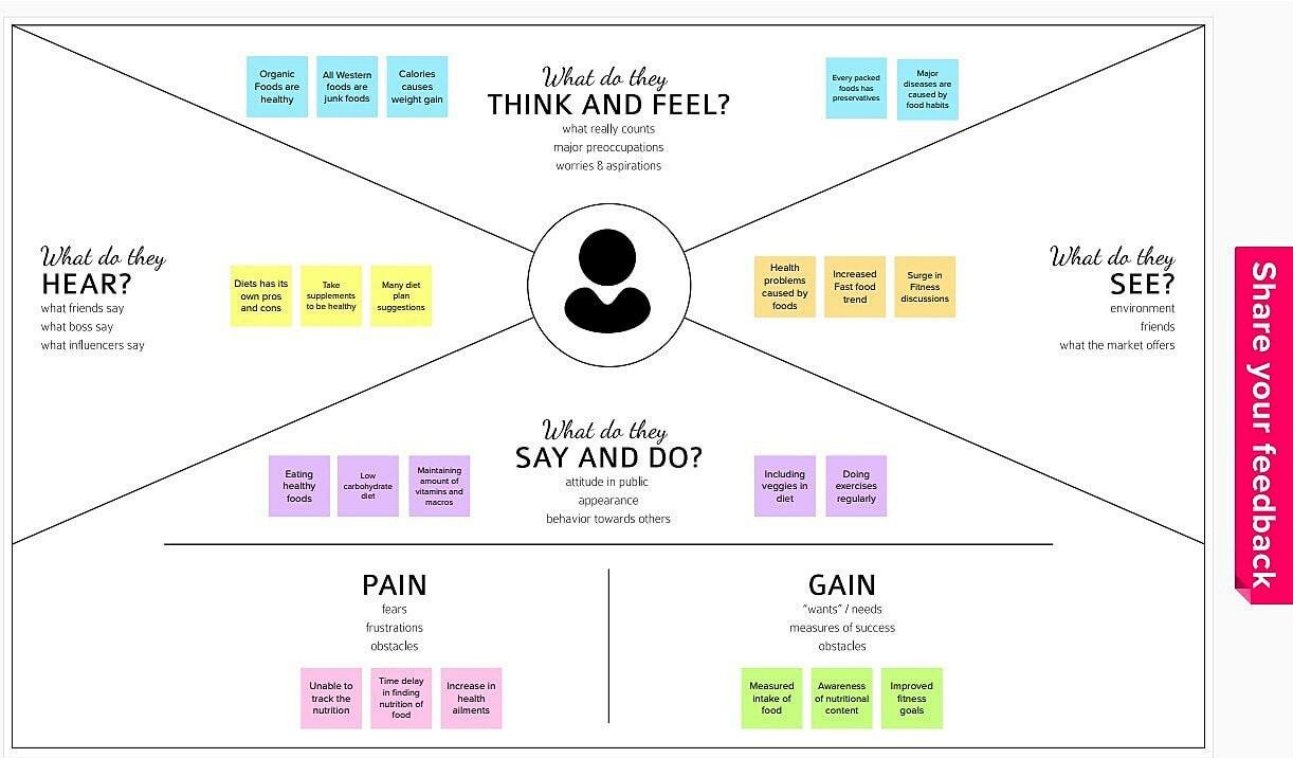
Kubernetes : https://www.youtube.com/embed/d6WC5n9G_sM

3) Problem Statement Definition

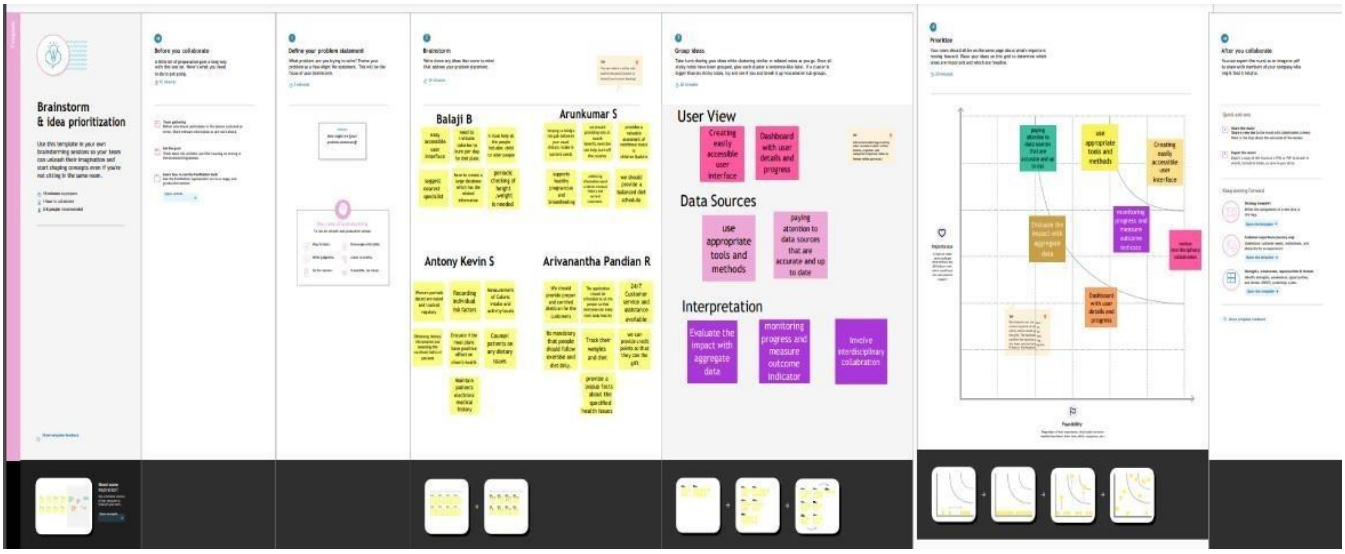
App-based nutrient dashboard systems which can analyze real-time images of a meal and analyze it for nutritional content which can be very handy and improves the dietary habits, and therefore, helps in maintaining a healthy lifestyle.

IDEATION & PROPOSED SOLUTION

1)Empathy Map Canvas



2) Ideation & Brainstorming

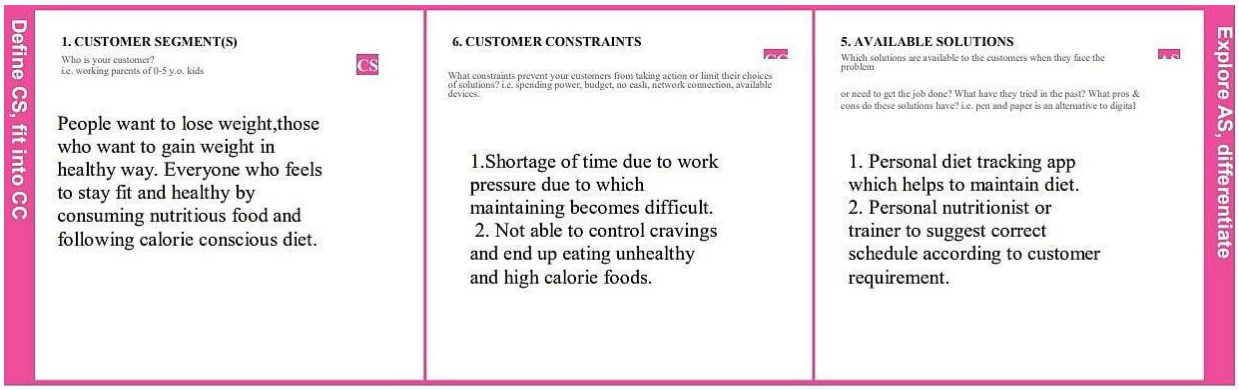


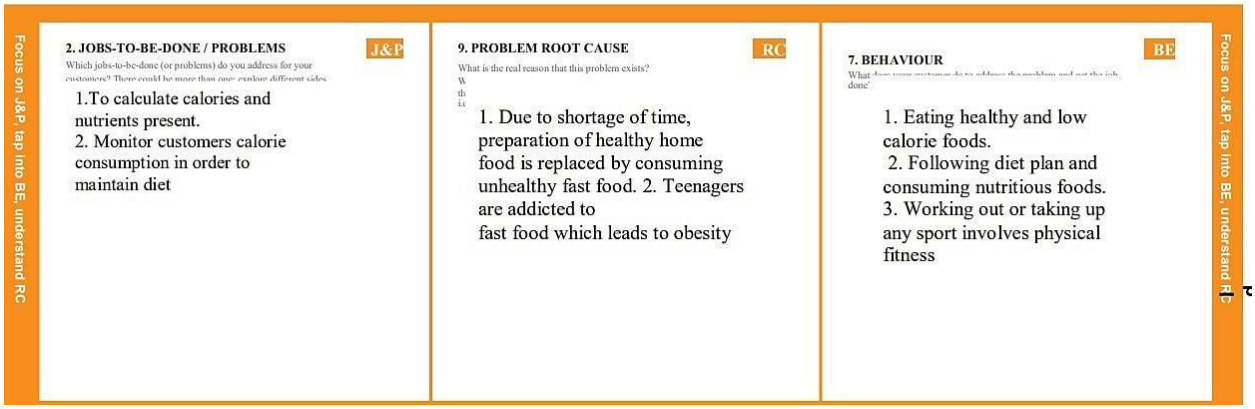
3) Proposed Solution

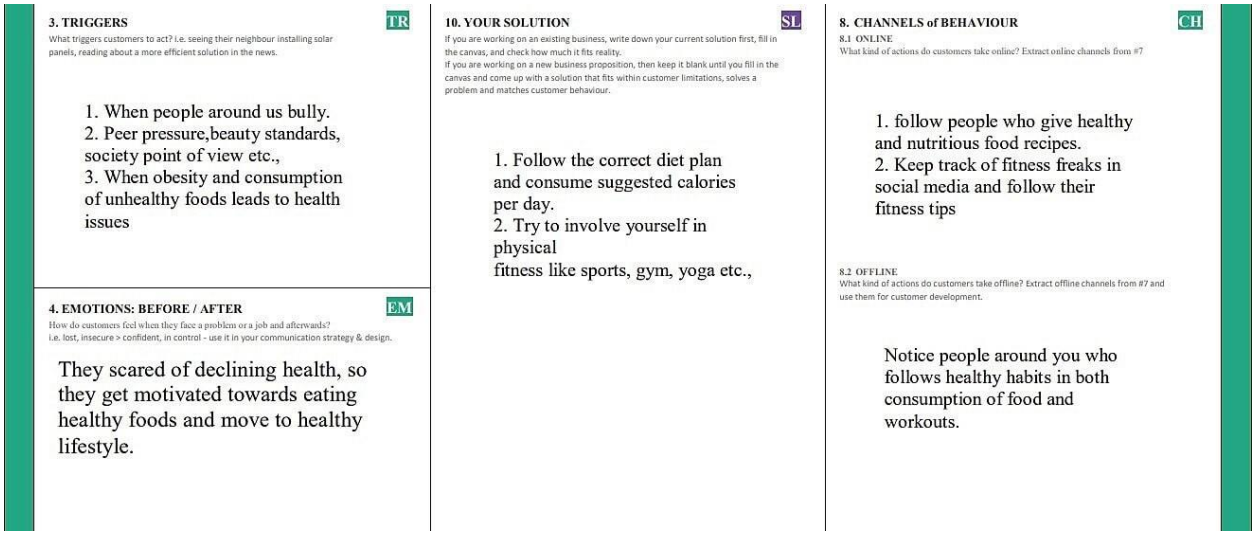
S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	• It is easy to fall into a trap of eating unhealthy foods which is heavy in calories. Once the nutritional value is replaced by foods high in sugar, bad fats and salt it leads to various health issues so users need to control their daily calorie intake to lead a healthy lifestyle.
2.	Idea / Solution description	• The solution is a responsive Web application that can be used in any PCdevices. • The website provides a user-friendly interface and accepts multiple samplespredicting them simultaneously. • Our method uses Clarifai's AI- driven food recognition model to accurately identify food suggestions. • A detailed report of the concerned person's health will be generated.
3.	Novelty / Uniqueness	• Keep a food journal. • Providing individual diet charts for users based on their BMI and medical condition if any. • Provides recipes according to their diet. • Providing a user-friendly environment.
4.	Social Impact / Customer Satisfaction	• Getting feedback from the users for enhancement and giving notification on their diet plans and goal tracking. • Nutrition focused food banking & targetedin-depth reporting reviews that

		paid subscriptions the best.
5.	Business Model (Revenue Model)	• Advertising membership option for users to get more benefits like diet- plans or consultation from experts and In-app advertisements. • Revenue is generated on a subscription basis, with big data processing and targetedin-depth reporting reviews that paid subscriptions the best.
6.	Scalability of the Solution	• Providing regular updates • Efficient goal tracking assistance • The additional features such that sleep tracking, mensuration tracking can be done.

4) Problem Solution fit







REQUIREMENT ANALYSIS

1) Functional requirement

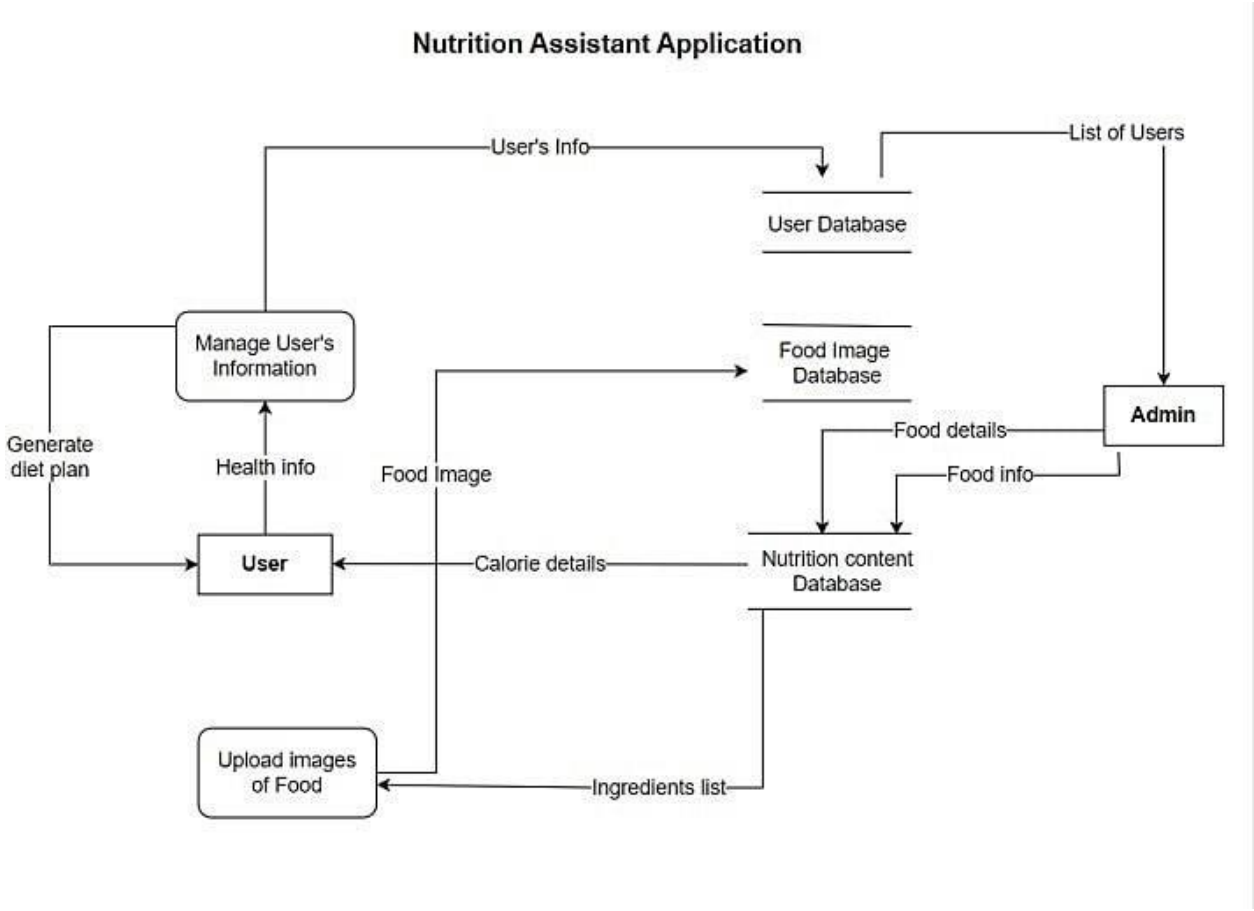
- ➤ User Registration
- ➤ User Confirmation
- ➤ Update Profile
- ➤ User Authentication
- ➤ Report

2) Non-Functional requirements

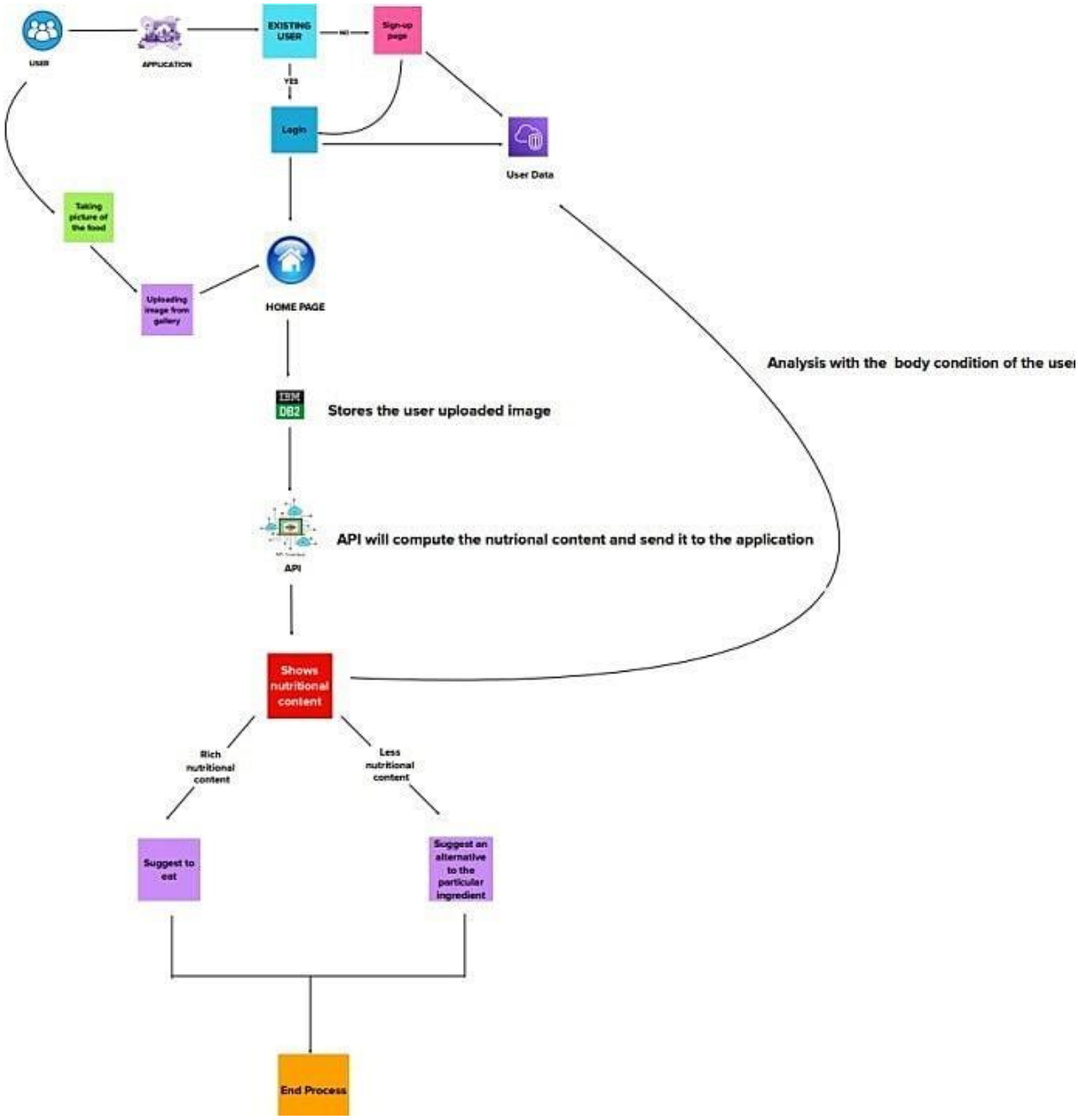
- ➤ Usability
- ➤ Security
- ➤ Reliability
- ➤ Performance
- ➤ Availability
- ➤ Scalability

PROJECT DESIGN

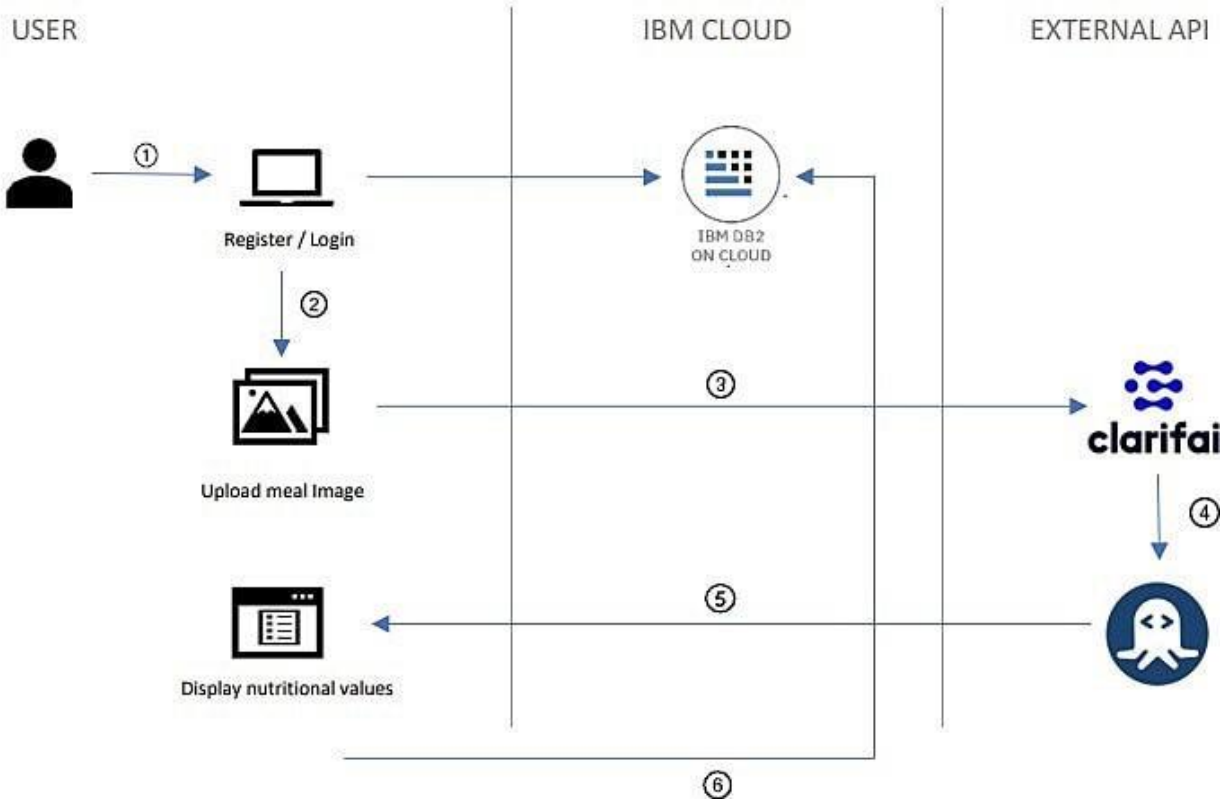
1) Data Flow Diagrams



2) Solution & Technical Architecture



Technical Architecture:



3) User Stories

- ➤ As a user, I can register for the application by entering my email, password, and Confirming my password
- ➤ As a user, I will receive confirmation email once I have registered for the application
- ➤ As a user, I can log into the application by entering email & password
- ➤ As a user, I can fill the details.
- ➤ As a user,I will search the food items.
- ➤ As a user, I can scan the food an get the nutrition details and recipe for related scanned food.

PROJECT PLANNING & SCHEDULING

1) Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
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	Arivanantha Pandian R Arunkumar S Antony Kevin S Balaji B
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Arivanantha Pandian R Arunkumar S Antony Kevin S Balaji B
Sprint-1	Login	USN-3	As a user, I can log into the application by entering email & password	1	High	Arivanantha Pandian R Arunkumar S Antony Kevin S Balaji B
Sprint-2	User details	USN-4	As a user , I can fill the Details.	2	High	Arivanantha Pandian R Arunkumar S Antony Kevin S Balaji B
Sprint-3	Push notification	USN-5	As a user, I will search the food items.	2	Medium	Arivanantha Pandian R Arunkumar S Antony Kevin S Balaji B
Sprint-4	Shown the nutrition details and Recipe for scanned food	USN-6	As a user, I can scan the food an get the nutrition details and recipe for related scanned food	1	High	Arivanantha Pandian R Arunkumar S Antony Kevin S Balaji B

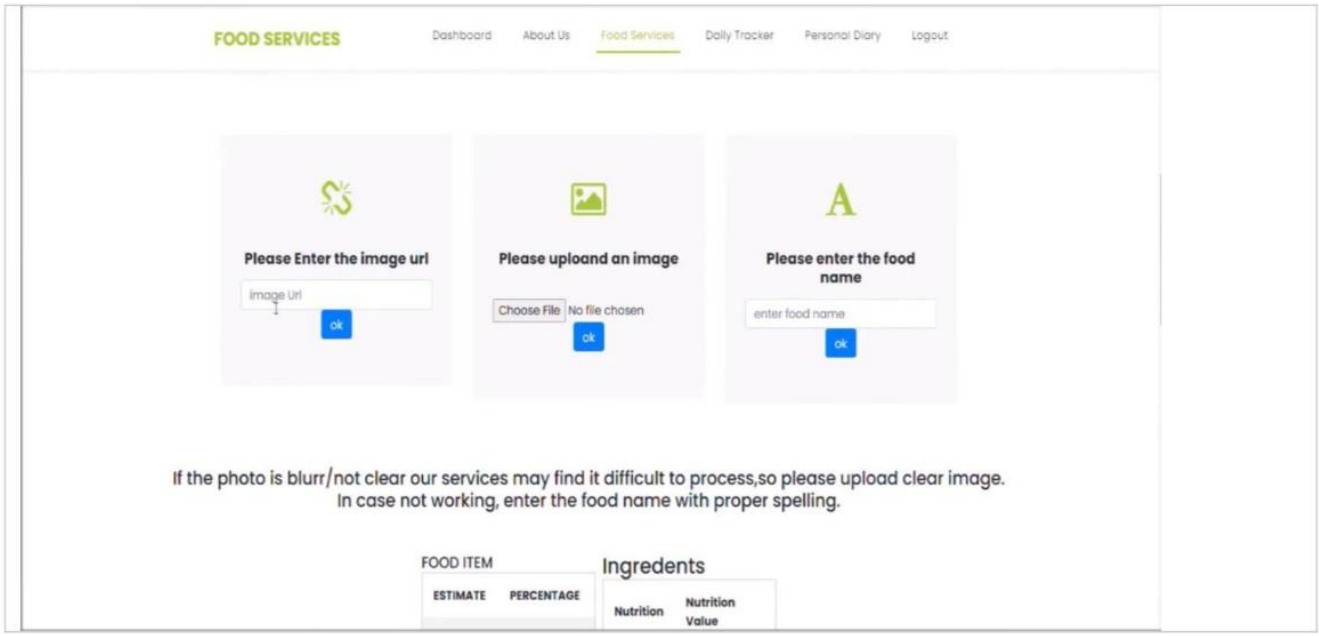
2) Sprint Delivery Schedule

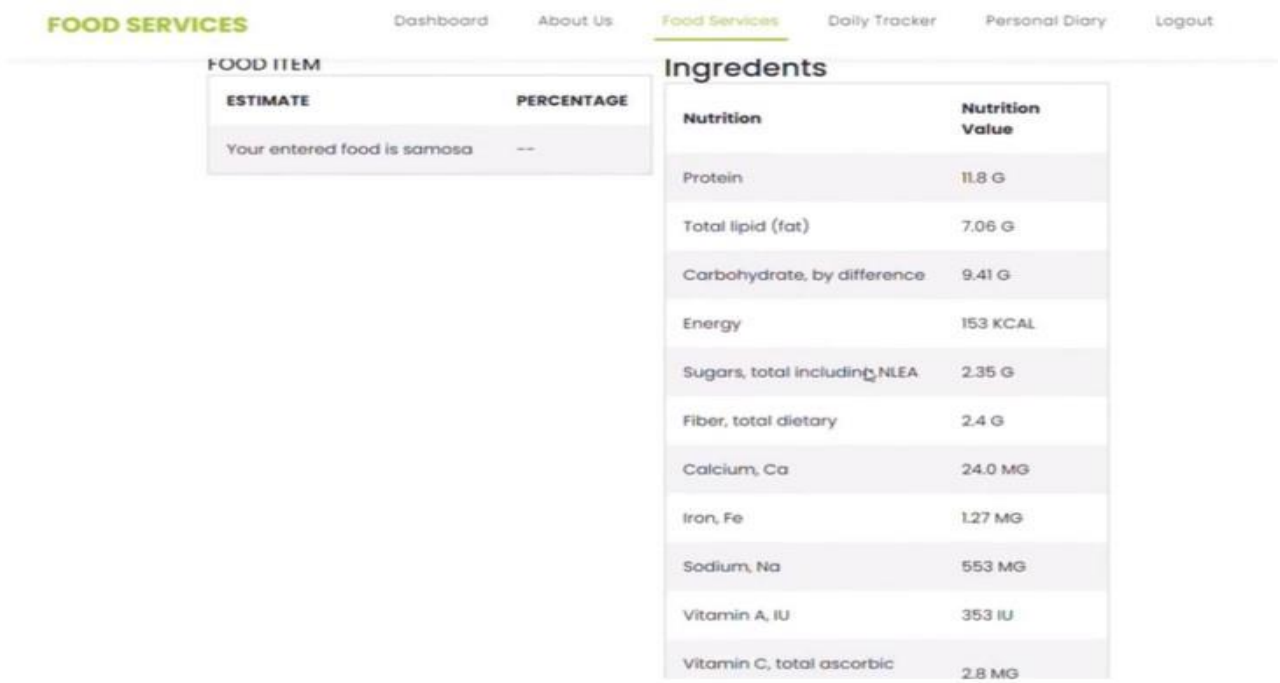
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	28 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022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

CODING & SOLUTIONING

1) Feature 1

The user can upload any food image Nutrients present in the uploaded image will be displayed





2) Feature 2

```python
from flask import Flask,render_template,request,redirect,url_for ,session
import ibm_db
import re
import os
import math
import random
import smtplib
import requests
app=Flask(__name__,template_folder='templates',static_folder='static')
app.secret_key='a'
conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=ea286ace-86c7-4d5b-8580-3fbfa46b1c66.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=3
print("successfully connected")
@app.route('/')
def home():
    return render_template('index.html')


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

    if request.method=='POST':
        username=request.form.get('username',False)
        password=request.form.get('password',False)
        sql='SELECT * FROM USER 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['Logged in']=True
            session['id']=account['USERNAME']
            userid=account['USERNAME']
            session['username']=account['USERNAME']
            msg='Logged in successfully'
```

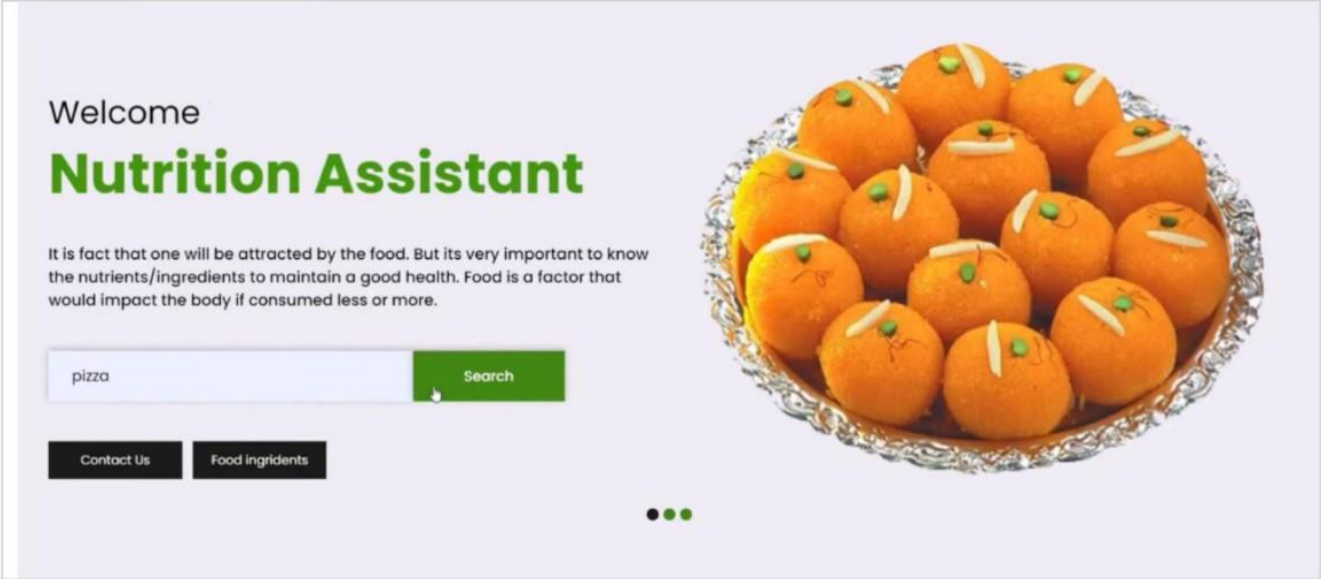
TESTING

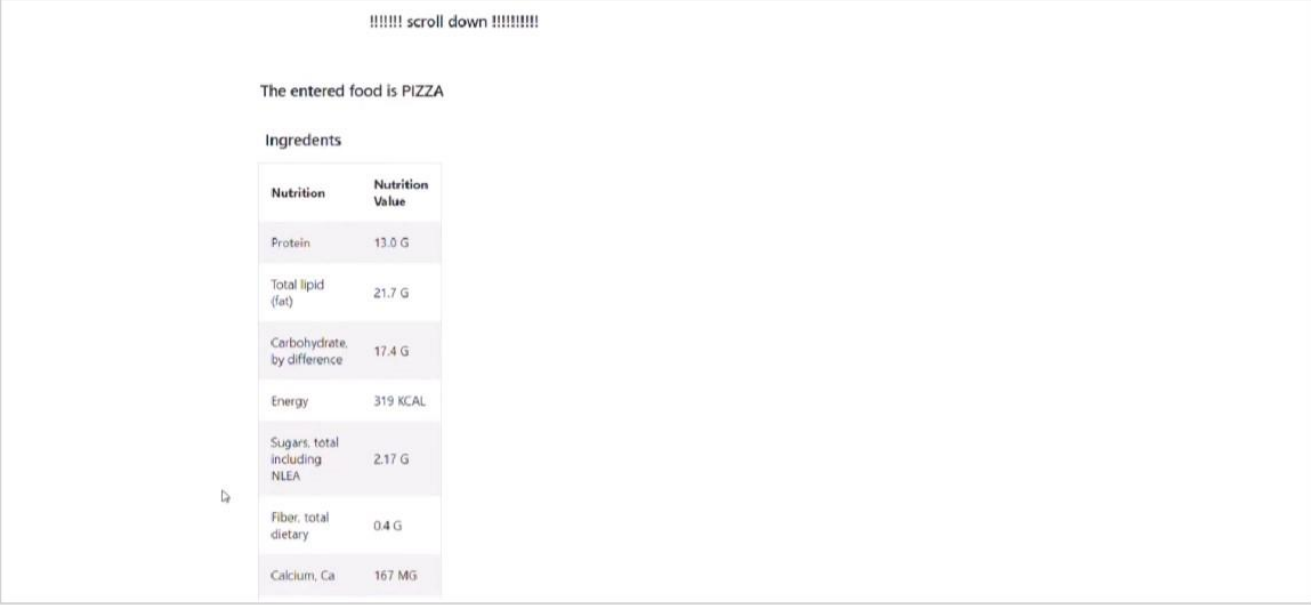
1)Test Cases

i. Our code was tested on various food to check whether it gives the correct output ii. To satisfy the customer's expectations we tested it fully.

2)User Acceptance Testing

Our project was tested by an end user to verify that it's working correctly.

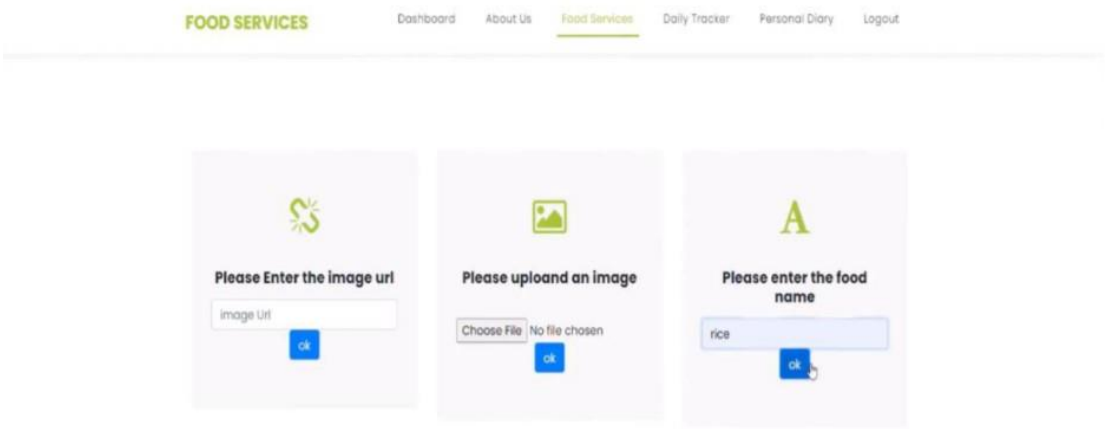




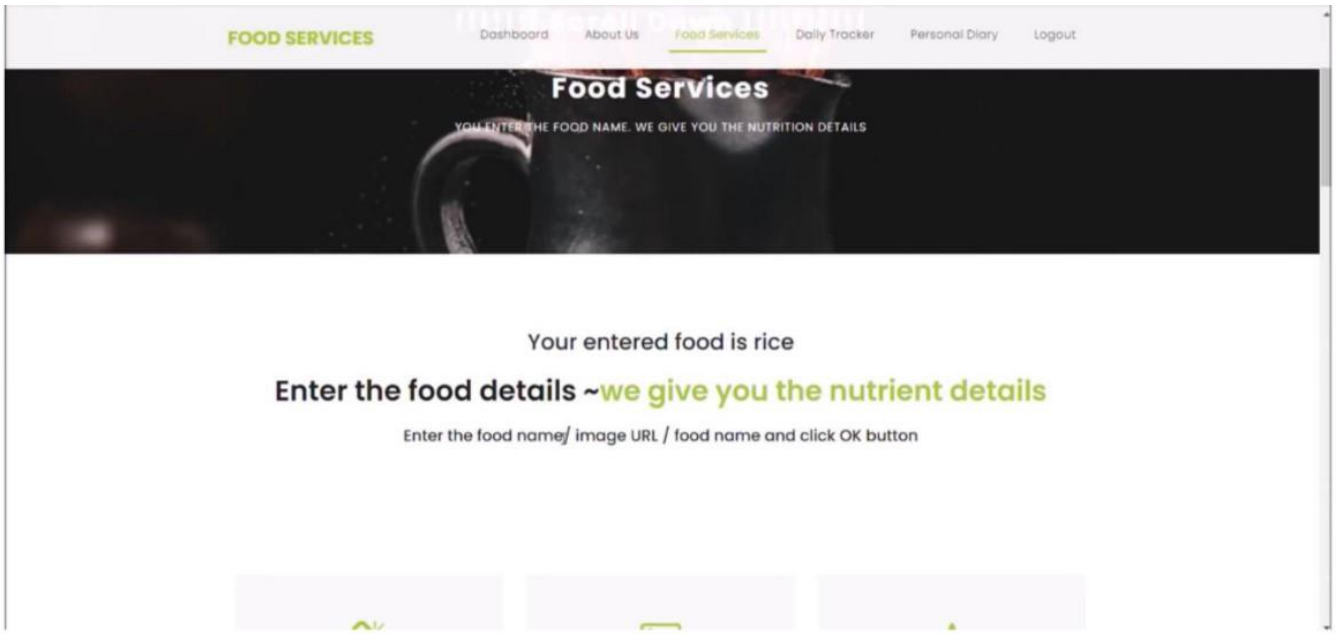
RESULTS

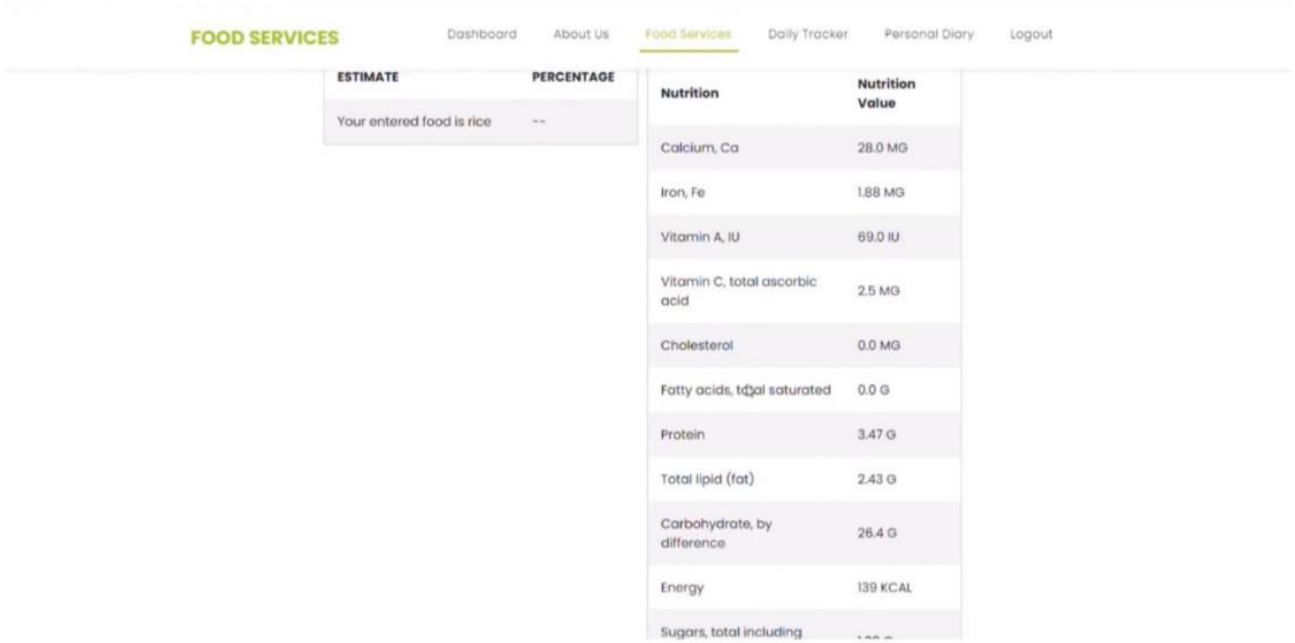
Performance Metrics

The proposed procedure was implemented and tested set of images. The training database consists of various images of food items. Once a food is recognized the equivalent **Nutri on** in shown on the screen



If the photo is blurr/not clear our services may find it difficult to process,so please upload clear image.
In case not working, enter the food name with proper spelling.





ADVANTAGES

➤ It provides a maintained strategy of healthy eating habits.

➤ It delivers information on the nutritional value of foods and how balanced and healthy eating habits are important for us.

➤ It limits the amount of unnecessary food such as fat that people consume a lot.

CONCLUSION

In conclusion, many people have become aware of their health. Moreover, they are also informed how to live a healthy lifestyle. Most of the research related to these themes aims to iden fy changes in healthy lifestyle behavior with web applica ons that are considered effec ve in dietary self-monitoring.

FUTURE SCOPE

Nutri on assistants help die ans with providing proper nutri on at healthcare facili es. They determine pa ents' nutri onal needs, assess risk factors, and plan meals and menus. They also ensure proper steriliza on of plates and utensils.

APPENDIX

1) Source Code

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

@app.route('/register',methods=['GET','POST'])
def register():
    msg=''
    if request.method =='POST':
        username=request.form['username']
        email=request.form['email']
        password=request.form['password']
        Firstname=request.form['firstname']
        lastname=request.form['lastname']
        #phoneno=request.form['phoneno']
        sql='SELECT * FROM USER WHERE username=?'
        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:
            msg="Account already exist!"
        elif not re.match(r'[^@]+@[^@]+\.[^@]+',email):
            msg="Invalid email address"
        elif not re.match(r'[A-Za-z0-9]+',username):
            msg="name must contain character and numbers"

        else:
            insert_sql='INSERT INTO USER 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.bind_param(prep_stmt,4,Firstname)
            ibm_db.bind_param(prep_stmt,5,lastname)
            ibm_db.execute(prep_stmt)
```

```python
@app.route('/login/dash/viewprofile/personinfo',methods=['GET','POST'])
def per_info():
    msg=''
    if request.method =='POST':
        Name=request.form['Name']
        gender=request.form['gender']
        tar_weight=request.form['Target Weight']
        Age=request.form['Age']
        Height=request.form['Height']
        Weight=request.form['Weight']
        email=request.form['email']
        location=request.form['location']
        phoneno=request.form['phoneno']
        sql='SELECT * FROM USER WHERE username=?'
        stmt=ibm_db.prepare(conn,sql)
        ibm_db.bind_param(stmt,1,Name)
        ibm_db.execute(stmt)
        account=ibm_db.fetch_assoc(stmt)
        print(account)
        if account:
            insert_sql='INSERT INTO USER values(?,?,?,?,?,?,?)'
            prep_stmt=ibm_db.prepare(conn, insert_sql)
            ibm_db.bind_param(prep_stmt,1,Name)
            ibm_db.bind_param(prep_stmt,2,gender)
            ibm_db.bind_param(prep_stmt,3,Age)
            ibm_db.bind_param(prep_stmt,4,Height)
            ibm_db.bind_param(prep_stmt,5,Weight)
            ibm_db.bind_param(prep_stmt,7,location)
            ibm_db.execute(prep_stmt)
            msg="Your details are successfully stored"
            return render_template('viewprofile.html',msg=msg)
    elif request.method=="POST":
        msg="Please fill out the form"
    return render_template('personal info.html',msg=msg)
```

```python
        if account:
            insert_sql='INSERT INTO USER values(?,?,?)'
            prep_stmt=ibm_db.prepare(conn, insert_sql)
            ibm_db.bind_param(prep_stmt,1,Name)
            ibm_db.bind_param(prep_stmt,2,email)
            ibm_db.bind_param(prep_stmt,3,Feedback)
            ibm_db.execute(prep_stmt)
            msg="Your Feedback has been stored"
            return render_template('ratings.html',msg=msg)
    elif request.method=="POST":
        msg="Please fill out the form"
    return render_template('ratings.html',msg=msg)

@app.route('/dash/view recipe')
def search_page():
  #session ['item']=request.form.get("Ingridients", False)
  return render_template('search.html')
@app.route('/recipes')
def get_recipes():
  #food=session['item']
  if (str(request.args['ingridients']).strip() != ""):
      print(request.args['ingridients'])
      # If there is a list of ingridients -> list
      querystring = {"name":request.args['ingridients'],"tags":request.args['tag'],"includeIngredients":request.args['included'],"exclude
      response = requests.request("GET", url + searchForRecipes, headers=headers, params=querystring)
      data=response.json()
      return render_template('recipes.html', recipes=data)
  else:
      # Random recipes
      response = requests.request("GET", url+ getRandomRecipe  , headers=headers)
      data=response.json()
      return render_template('recipes.html', recipes=data)

@app.route('/recipe')
def get_recipe():
  recipe_id = request.args['id']
  recipe_info_endpoint = "/recipes/{0}".format(recipe_id)
```

```
        data=response.json()
        return render_template('recipes.html', recipes=data)

@app.route('/recipe')
def get_recipe():
  recipe_id = request.args['id']
  recipe_info_endpoint = "/recipes/{0}".format(recipe_id)
  print(recipe_info_endpoint)
  recipe_info = requests.request("GET", url + recipe_info_endpoint, headers=headers)
  data=recipe_info.json()
  return render_template('recipe.html', recipe=data)


@app.route('/logout')
def logout():
    session.pop('loggedin',None)
    session.pop('id',None)
    session('username',None)
    return render_template("index.html")

if __name__=="__main__":
    app.run(debug=True ,host='0.0.0.0',use_reloader=False)
```

2) GitHub

https://github.com/IBM-EPBL/IBM-Project-30789-1660189611