IBM – NALAIYA THIRAN PROJECT

AI-powered Nutrition Analyzer for Fitness Enthusiasts

INDUSTRY MENTOR : SRI THULASI

FACULTY MENTOR : C CHELLASWAMY

TEAM ID : PNT2022TMID46013

TEAM LEAD : ABIRAMI E (814719106005)

TEAM MEMBER : ABISHA M(814719106006)

TEAM MEMBER : AKSHAYA V(814719106009)

TEAM MEMBER : DHARSHINI N(814719106017)

In partial fulfilment for the

award of degree of

Bachelor of Engineering (B.E)

In

Electronics and Communication Engineering

SRM TRP
ENGINEERING COLLEGE
Affiliated to ANNA UNIVERSITY
TIRUCHIRAPPALLI

1. **INTRODUCTION**
   1.1 Project Overview
   1.2 Purpose
2. **LITERATURE SURVEY**
   2.1 Existing problem
   2.2 References
   2.3 Problem Statement Definition
3. **IDEATION & PROPOSED SOLUTION**
   3.1 Empathy Map Canvas
   3.2 Ideation & Brainstorming
   3.3 Proposed Solution
   3.4 Problem Solution fit
4. **REQUIREMENT ANALYSIS**
   4.1 Functional requirement
   4.2 Non-Functional requirements
5. **PROJECT DESIGN**
   5.1 Data Flow Diagrams
   5.2 Solution & Technical Architecture
   5.3 User Stories
6. **PROJECT PLANNING & SCHEDULING**
   6.1 Sprint Planning & Estimation
   6.2 Reports from JIRA
7. **CODING**
8. **RESULTS**
9. **CONCLUSION**
10. **FUTURE SCOPE**

GitHub and project demo link

1. INTRODUCTION

1.1 Project Overview

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.

1.2 Purpose

The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, 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, Fibre, Protein, Calories, etc.).

2. LITERATURE SURVEY

1.Paper title	"Approximate Estimation of the Nutritions of Consumed Food by Deep Learning" by İbrahim Berkan Aydilek Published in 2017 International Conference on Computer Science and Engineering (UBMK), IEEE, 2017.
Problem definition	• Controlled intake of nutrition is recommended as a condition for being a healthy individual. Knowing and monitoring how much food is consumed during the day, following the calorie and nutrition of these foods helps to control healthy nutrition. • In this study, an attempt was made to approximate the nutrition of the food at the image level using the Food-pictures dataset that contain nutrient images.
Methodology/ Algorithm	• Convolutional Neural Network (CNN) • Artificial Intelligence • Deep Neural Network • Image Classification
Advantages	• Convolutional Neural Networks (CNN), a deep learning approach that has been used successfully in image recognition and classification tasks, has been trained with nutrition image training data. • A high classification success value has been achieved.

Disadvantages	• It is extremely expensive to train due to complex data models. • Moreover deep learning requires expensive GUIs and hundreds of machines. This increases the cost to the users.

2. PAPER TITLE	"Validation of a deep learning system for the fullautomation of bite and meal duration analysis ofexperimental meal videos" D Konstantinidis, K Dimitropoulos, B Langlet, PDaras… - Nutrients, 2020
PROBLEM DEFINITION	Eating behavior can have an important effect on, and becorrelated with, obesity and eating disorders. To remedy the latter a novel "Rapid Automatic Bite Detection" (RABiD) algorithm that extracts and processes skeletal features from videos was trained in a video meal dataset (59 individuals; 85 meals; three different foods) toautomatically measure meal duration
METHODOLOGY/ ALGORITHM	Deep learning LSTM – long Short Term Memory Convolutional Neural Network(CNN) Max Pooling
ADVANTAGES	On a methodological level, RABiD offers a valid, fully automatic alternative to human meal-video annotations forthe experimental analysis of human eating behavior, at a fraction of the cost and the required time, without anyloss of information and data fidelity Self-rated methodologies, which are predominantly used for estimating eating behavior, being cost effective and easy toanalyze, rely heavily on the participant's input

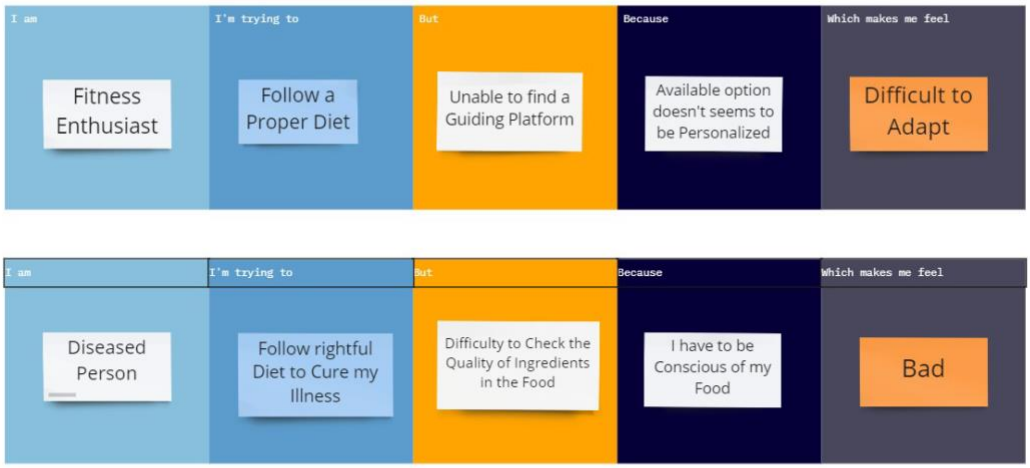
DISADVANTAGES	This methodology is still limited [15] by its dependency on time-consuming and error-prone manual video annotations,with many studies resorting to the use of multiple human annotators. Often suffers from reliability issues.

3.PAPER TITLE	"AI Nutrition Recommender System" by Thamos Theodoridis, Vassilios Solachidis, Kosmos Dimitropoulos,Lazaros Gymnopoulos and Petros Daras in the 12th Pervasive Technologies Related to Assistive Environments Conference
PROBLEM DEFINITION	The consumption of a wide variety of food items is necessary in order for the human body to obtain the right amounts of nutrients. Failing to follow such a well- balanced diet, in combination with a generally unhealthyway of living, has been shown to increase the risk for cardiovascular disease, type II diabetes and some forms of cancer. Taking all these factors into consideration, food intake monitoring can provide substantial benefits in certain cases.
METHODOLOGY/ ALGORITHM	Machine learning Food category Recogniser Object Vision Convolutional Neural Network(CNN) Computer Vision Information Retrieval
ADVANTAGES	AI and its various subsets have been leveraged by these platforms to identify the calorie intake and also to makefood recommendations for a healthy diet. In most cases,what we see is that these platforms act as a data repository where while providing real-time information to its users, it also makes available to numerous clients who work in this field for a determined rate.
DISADVANTAGES	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 .

2.2 References

[1] IEEE Transactions on Geoscience and Remote Sensing, (), 1– 9. doi:10.1109/TGRS.2019.29 26110
[2] ISH Journal of Hydraulic Engineering, (), 1–13. doi:10.1080/09715010.20 19.1687338
[3] [IEEE 2019 9th International Conference on Cloud Computing, Data Science & Engineering (Confluence) - Noida, India (2019.1.10-2019.1.11)] 2019 9th International Conference on Cloud Computing, Data Science & Engineering (Confluence) - Hybrid Prediction Models for Rainfall Forecasting. , (), 392– 396. doi:10.1109/CONFLUEN CE.2019.8776885

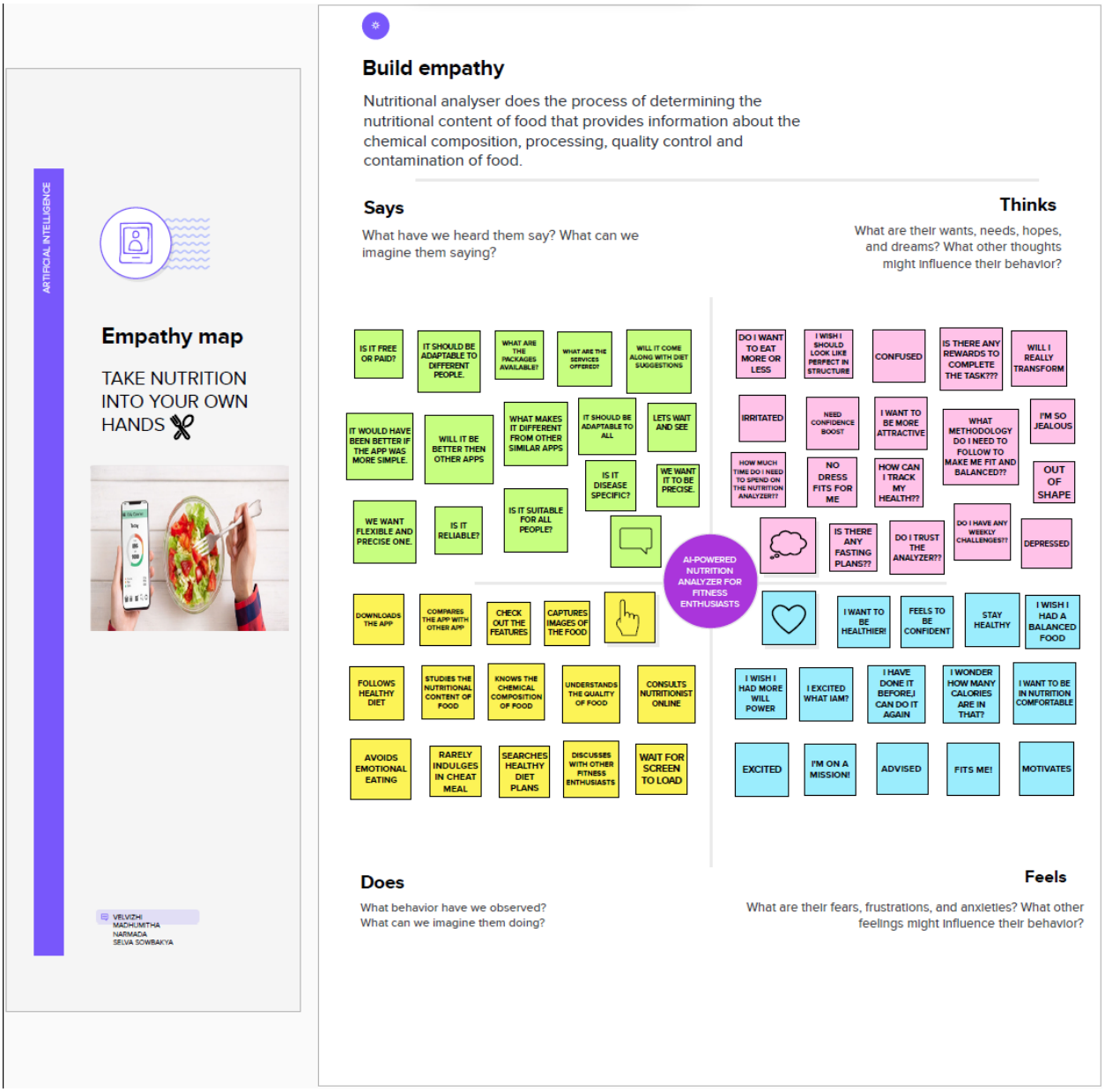
2.3 Problem Statement Definition



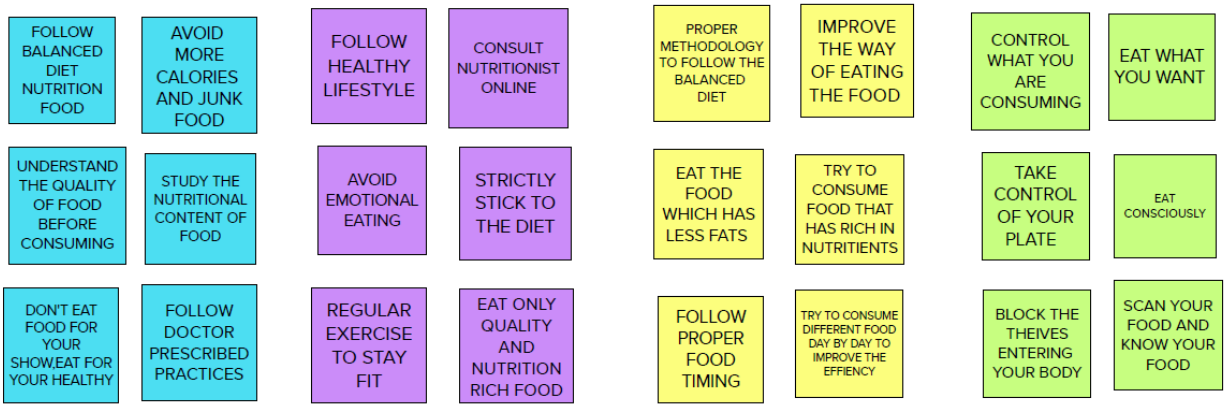
miro

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming



3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

TIP

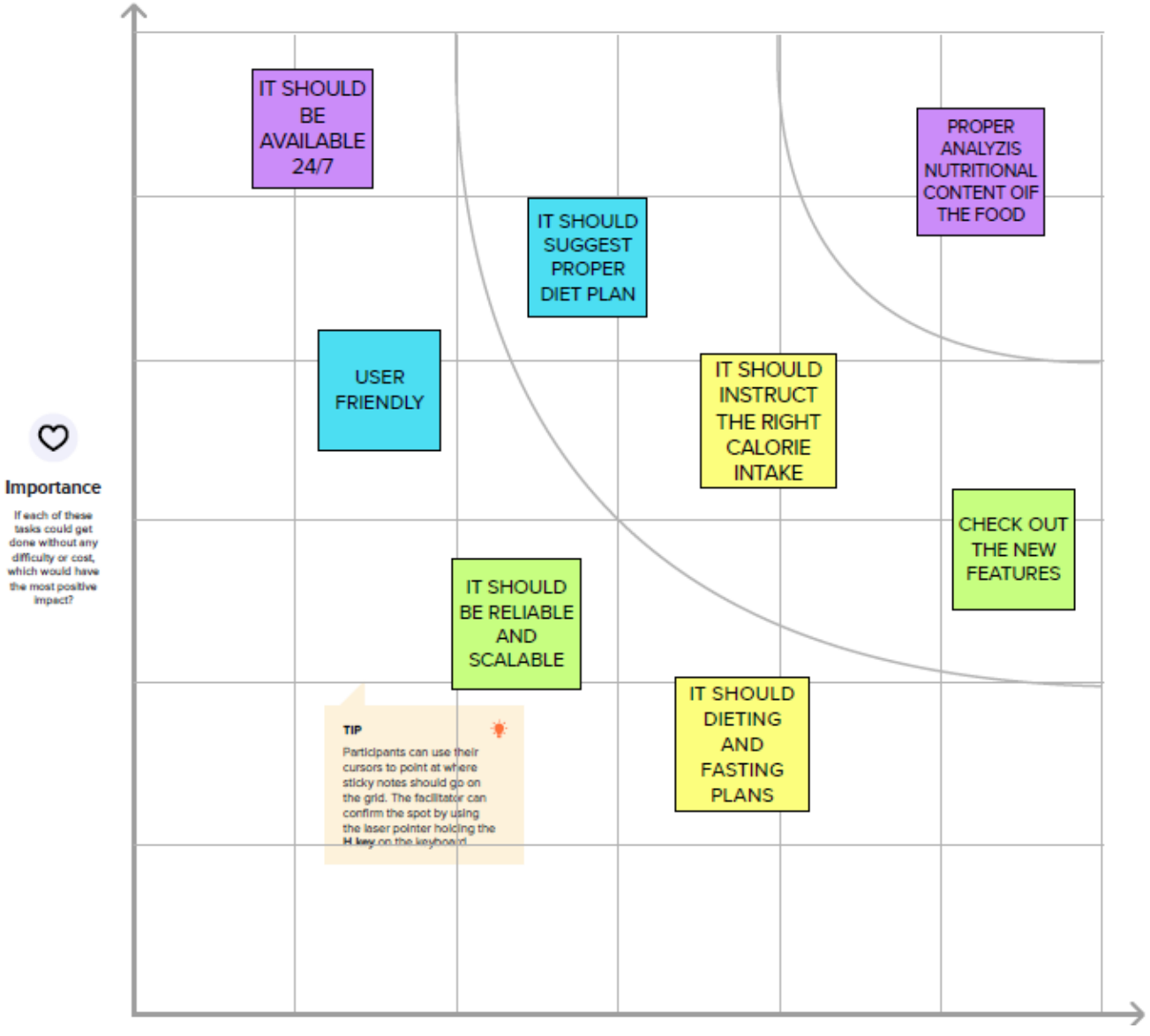
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes



3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement	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.
2.	Idea / Solution description	The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, 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, Fibre, Protein, Calories, etc.).

3.	Novelty / Uniqueness	Regional or zonal based prediction of rainfall, which would be helpful to farmer communities of different places having varied crop cultivation. Various ML models [in-built, hybrid or ensemble methods] would be applied to the datasets and chosen to make predictions based on their accuracy,reliability, and sustainability.
4.	Social Impact / Customer Satisfaction	This application would help the users to maintain an overall balance between demand and supply of agricultural stocks while the farmers can take decisions for cropping, harvesting, and efficient use of the water resources. It would reduce the losses and prevent the farmers from attempting suicide, providing an improved quality of life.
5.	Business Model (Revenue Model)	Correct and accurate predictions from the built model would fetch adequate profits for the respective users and user sectors. As the economy of India Is largely dependent on the primary sector especially agriculture and its allied activities, the model is useful to other departments like tea plantations, tourism, metrological dept. etc. Govt. aid and open-source datasets would allow the farmers and other users to avail the product in low or no charges.

6.	Scalability of the Solution	Effective analysis and prediction will assist not only farmers and other people associated with agriculture in tracking the effect of rainfall on their crops and harvests, but also people in all sectors [government ministry,news agencies, vegetable or crop sellers, common citizens] in using our product or tool for their daily needs. Any feature or module could easily be included into the application to expand the user functionalities.

3.4 Problem Solution fit

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

FR No.	Functional Requirement [Epic]	Sub-Requirement [Story / Sub-Task]
FR -1	User Registration	-Registration through Gmail -Registration through Mobile Number -Registration through Face-book
FR -2	User Confirmation	Confirmation via Email or OTP
FR -3	User Login	Using the registered email ID and password as login credentials
FR - 4	User Requirements	-The user simply inputs your recipe ingredients and amounts. The software will instantly produce an accurate readout of your dish in terms of nutritional analysis in a readable format that consumers are familiar with.

		-With already given details the system can alert the consumer if any content of their allergies ,it can alert the consumer

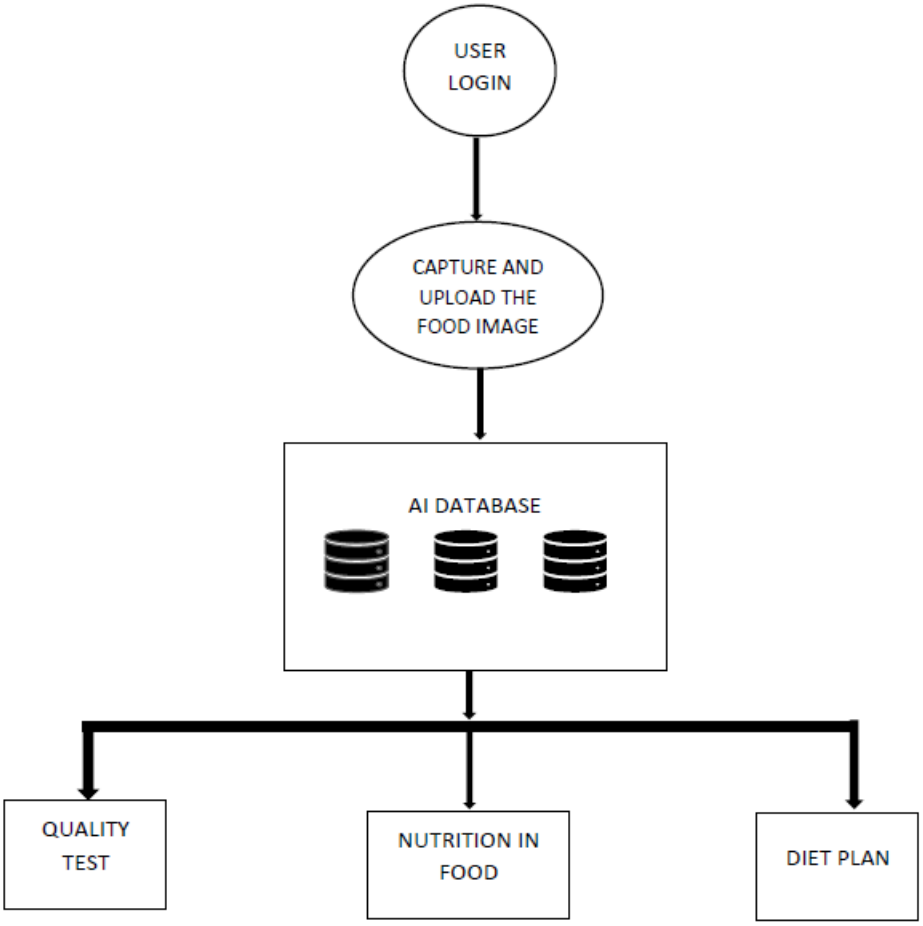
4.2 Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR -1	Usability	• The system should administer a quality attribute that assesses how easy user interfaces are to use • The system doesn't expect any technical prerequisites from the user's side
NFR -2	Security	• User details and login credentials should be safe and secure • The confirmation of a valid user is required for authentication
NFR -3	Reliability	• Portable and cross-platform independent • The application should be subjected to an experiment, test, or measuring procedure

		that yields the same results on repeated trials
NFR -4	Performance	• The system should handle the traffic efficiently and service requests while consuming less bandwidth • The accuracy of the result of a measurement, calculation, or specification should be dependent the datasets • The page should not take a lot of time to load the contents and display them
NFR -5	Availability	• The version of the application should be available even at the time of maintenance and updating • The system should run 24 hours a day, 7 days a week [24/7 available]
NFR -6	Scalability	• The application should be in the way of adding new functionalities or modules without affecting the existing functionalities • The system should be able to manage numerous users at a time and be less prone to errors

5. PROJECT DESIGN

5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture

TECHNOLOGY ARCHITECTURE:

Client

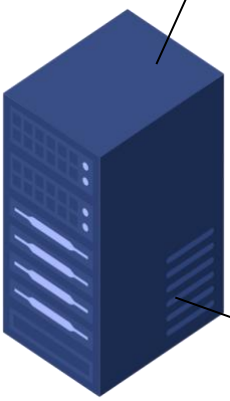
Input

Server

-Food Types

-The area of the food types should be Estimated

Volume and Density Estimation of the



-Visual Characterization

-Nutrient Information

Research Community

At last the output is determined by the food images with the nutritional content facts table and give a better feedback about the food. It also says the content the food that we consume like apple, carrot, grapes etc...

+

OUTPUT

User Confirmation and

5.3 User Stories

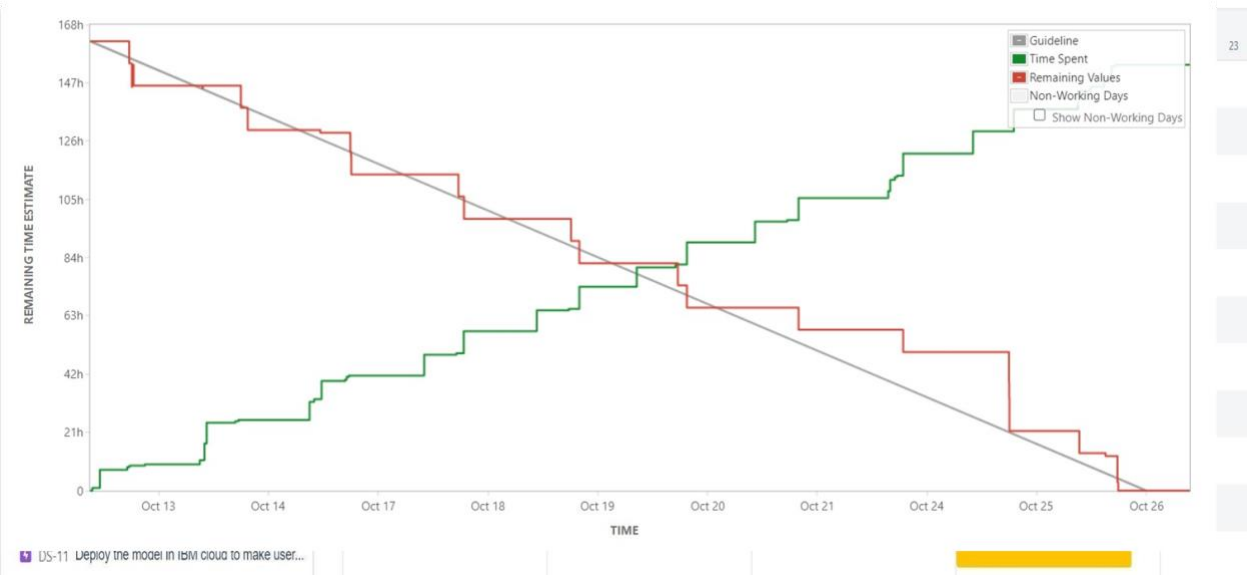
User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by Filling the form	I can receive confirmation via OTP	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	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	**Data Collection & Image Processing**					
Sprint-1		USN-1	Collect images of different food items organized into subdirectories based on their respective names	3	Medium	Keerthiyogan
Sprint-1		USN-2	Import and configure the Image data generator library from Keras	3	Medium	Prasanth
Sprint-1		USN-3	Apply Image data generator functionality to training set and testing set	5	High	Pravek
Sprint-1		USN-4	Improving the image data that suppresses unwilling distortions or enhances some image features important for further processing	3	Medium	Priyadharsan

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2	**Model Building & Testing**					
Sprint-2		USN-5	Importing the model building libraries and Initializing the model	5	High	Keerthiyogan
Sprint-2		USN-6	Adding CNN layers, Dense layers & other necessary layers and Compile the model	5	High	Prasanth
Sprint-2		USN-7	Train & Test the model based on the image dataset	3	Medium	Pravek
Sprint-3	**Application building**					
Sprint-3		USN-8	Create HTML pages to design the front-end part of the web page	5	High	Priyadharsan
Sprint-3		USN-9	Create the flask application and loading the model file	5	High	Keerthiyogan
Sprint-3		USN-10	Routing to the HTML page and Running the application	5	High	Prasanth
Sprint-4	**Cloud integration**					
Sprint-4		USN-11	Train the model on Cloud	5		Priyadharsan, Pravek



7. CODING

```
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 keras.models import load_model#to load our trained model
import tensorflow as tf
from keras.preprocessing import image
import requests
import os

app = Flask (_name_,template_folder="templates") # initializing # Loading the
model
model=load_model('C:/Users/Keerthiyogan/Desktop/IBM
dummy/Flask/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('/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=tf.keras.utils.load_img(filepath, target_size=(64, 64)) #load and
reshaping the image
        x=tf.keras.utils.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": "apple"}
headers = {
'x-rapidapi-key': "80ad4f850cmshe617b19ac5967a4p156138jsnd7d3d30677c4",
'x-rapidapi-host': "calorieninjas.p.rapidapi.com"
}
```

```
response = requests.request("GET", url, headers-headers, params=querystring)
print(response.text)

if _name_ == "_main_":# running the app
    app.run(debug=False)
<!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>PREDICT</title>
    <link href="https://cdn.bootcss.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet">
    <script
src="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></script>
    <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://png.pngtree.com/background/20210710/original/pngtree-fruit-
minimalist-white-poster-background-banner-picture-image_1017444.jpg");
    background-size: cover;
}
.bar
{
margin: 0px;
padding:30px;
background-color:black;
opacity:0.6;
color:red;
```

```
font-family:'Roboto',sans-serif;
font-style: italic;
border-radius:30px;
font-size:10px;
}




.header {      position: relative;
                        top:0;
                        margin:0px;
                        z-index: 1;
                        left: 0px;
                        right: 0px;
                        position: fixed;
                        background-color: #01FF70 ;
                        color: white;
                        box-shadow: 0px 8px 4px grey;
                        overflow: hidden;
                        padding-left:10px;
                        font-family: 'Josefin Sans'
                        font-size: 1.5vw;
                        width: 100%;
                        height:10%;

                }
                .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: #FFDC00;
  color: black;
}

.topnav-right a.active {
  background-color: #FFDC00;
  color: black;
}

.topnav-right {
  float: right;
  padding-right:100px;
}




.navbarScroll.navbarDark {
    background-color: black;
}

.ct-socials {
    position: fixed;
    top: 25%;
    right: 0;
```

```
background-color: yellow;
    padding-left: 20;

    margin: 50;

          padding: 10px;
  font-size: 10px;
  width: 40px;
  text-align: center;



  border: 80px;

}



.section.triad-section {
  margin-top: 10px;
}
section.section h2 {
    font-size: 20px;
    line-height: 46px;
    margin-bottom: 20px;
    text-align: center;
    margin-top: 0;
}
h2 {
    color: #000;
}
h1, h2, h3, h4, h5, h6 {
    font-weight: 200;
```

```
    letter-spacing: -1px;
        font-size: 30px;

}
section.section p.sub-heading {
    font-size: 16px;
    font-family: "Gotham SSm A", "Gotham SSm B";
    font-weight: 300;
    text-align: center;
    margin-bottom: 40px;
}
section.triad-section .triad-sub-section {
    padding-right: 60px;
}
section p.detail-paragraph:first-child {
    margin-top: 0;
}
section p.detail-paragraph {
    font-family: 'Open Sans Condensed', sans-serif;
    margin-top: 40px;
    font-size: 18px;
    color: #000;
}
b, strong {
    font-weight: 700;
}
.bgimage {
    height:100vh;
    background: url('images/heroImage.jpg');
    background-size:cover;
    position:relative;
}

.hero_title {
    font-size: 4.5rem;
```

```
}
.hero_desc {
   font-size: 2rem;
}
.hero-text {
   text-align: center;
   position: absolute;
   top: 50%;
   left: 50%;
   transform: translate(-50%, -50%);
   color: white;
}



.imageAboutPage {
   width: 100%;
}




</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%;">NUTRITION IMAGE ANALYSIS</div>
  <div class="topnav-right"style="padding-top:0.5%;">

   <a href="{{ url_for('home')}}"><b>HOME</b></a>
   <a  class="active" href="{{ url_for('image1')}}"><b>CLASSIFY</b></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>

</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</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,
.webp">
   </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">ANALYZE</button>
     </center></div>
  </div>

  <div class="loader" style="display:none;margin-left: 450px;"></div>

  <h3 id="result">

     <span><p style="padding-top: 25px;"><h4>IMAGE CLASSIFIED IS :
<br><h4><b><u>{{showcase}}{{showcase1}}</p> </span>
  </h3>

</div>
</div>



{% endblock %}
<!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 rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/font-awesome.min.css">
   <link href="https://cdn.bootcss.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet">
   <script
src="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></script>
```

```
    <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>
.card1 {
  box-shadow: 0 4px 8px 0 rgba(0, 0, 0, 0.2);
  max-width: 300px;
  margin: auto;
  text-align: center;
  font-family: arial;
}

.title {
  color: grey;
  font-size: 18px;
}

button {
  border: none;
  outline: 0;
  display: inline-block;
  padding: 8px;
  color: white;
  background-color: #000;
  text-align: center;
  cursor: pointer;
  width: 100%;
  font-size: 18px;
}

a {
  text-decoration: none;
  font-size: 22px;
  color: black;
```

```
}

button:hover, a:hover {
  opacity: 0.7;
}
.navbarScroll.navbarDark {
    background-color: black;
}
body
{
    background-image: url("https://www.livingproofnyc.com/wp-
content/themes/livingproof/assets/img/hero-background.jpg");
    background-size: cover;
}
.bar
{
margin: 0px;
padding:30px;
background-color:black;
opacity:0.6;
color:red;
font-family:'Roboto',sans-serif;
font-style: italic;
border-radius:30px;
font-size:10px;
}




.header {      position: relative;
                        top:0;
                        margin:0px;
```

```
                    z-index: 1;
                    left: 0px;
                    right: 0px;
                    position: fixed;
                    background-color: #01FF70 ;
                    color: white;
                    box-shadow: 0px 8px 4px grey;
                    overflow: hidden;
                    padding-left:10px;
                    font-family: 'Josefin Sans'
                    font-size: 1.5vw;
                    width: 100%;
                    height:10%;

                }
                .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: #FFDC00;
  color: black;
}

.topnav-right a.active {
```

```
  background-color: #FFDC00;
  color: black;
}

.topnav-right {
  float: right;
  padding-right:100px;
}




.navbarScroll.navbarDark {
    background-color: black;
}

.ct-socials {
    position: fixed;
    top: 25%;
    right: 0;

background-color: yellow;
    padding-left: 20;

    margin: 50;

          padding: 10px;
  font-size: 10px;
  width: 40px;
  text-align: center;



  border: 80px;
```

```
}



.section.triad-section {
  margin-top: 10px;
}
section.section h2 {
    font-size: 20px;
    line-height: 46px;
    margin-bottom: 20px;
    text-align: center;
    margin-top: 0;
}
h2 {
    color: #000;
}
h1, h2, h3, h4, h5, h6 {
    font-weight: 200;
    letter-spacing: -1px;
          font-size: 30px;

}
section.section p.sub-heading {
    font-size: 16px;
    font-family: "Gotham SSm A", "Gotham SSm B";
    font-weight: 300;
    text-align: center;
    margin-bottom: 40px;
}
section.triad-section .triad-sub-section {
    padding-right: 60px;
}
```

```
section p.detail-paragraph:first-child {
    margin-top: 0;
}
section p.detail-paragraph {
    font-family: 'Open Sans Condensed', sans-serif;
    margin-top: 40px;
    font-size: 18px;
    color: #000;
}
b, strong {
    font-weight: 700;
}
.bgimage {
    height:100vh;
    background: url('images/heroImage.jpg');
    background-size:cover;
    position:relative;
}

.hero_title {
    font-size: 4.5rem;
}
.hero_desc {
    font-size: 2rem;
}
.hero-text {
    text-align: center;
    position: absolute;
    top: 50%;
    left: 50%;
    transform: translate(-50%, -50%);
    color: white;
}
```

```
.imageAboutPage {
   width: 100%;
}



#services .services {
        flex-direction: column;
        text-align: center;
        max-width: 1500px;
        margin: 0 auto;
        padding: 100px 0;
}
#services .service-top {
        max-width: 500px;
        margin: 0 auto;
}
#services .service-bottom {
        display: flex;
        align-items: center;
        justify-content: center;
        flex-wrap: wrap;
        color: red;
        margin-top: 50px;
}
#services .service-item {
        flex-basis: 80%;
        display: flex;
        align-items: flex-start;
        justify-content: center;
        flex-direction: column;
        color: red;
        padding: 30px;
```

```
        border-radius: 10px;
        background-image: url(./img/img-1.png);
        background-size: cover;
        margin: 10px 5%;
        position: relative;
        z-index: 1;
        overflow: hidden;
}
#services .service-item::after {
        content: '';
        position: absolute;
        left: 0;
        top: 0;
        height: 100%;
        width: 100%;
        background-image: linear-gradient(60deg, #29323c 0%, #485563 100%);
        opacity: 0.9;
        z-index: -1;
}
#services .service-bottom .icon {
        height: 80px;
        width: 80px;
        margin-bottom: 20px;
}
#services .service-item h2 {
        font-size: 2rem;
        color: red;
        margin-bottom: 10px;
        text-transform: uppercase;
        text-align: left;
}
#services .service-item p {
        color: white;
        text-align: left;
}
```

```
#services .service-item a {
	color: white;
	text-align: center;
}

.section-title {
	font-size: 4rem;
	font-weight: 300;
	color: black;
	margin-bottom: 10px;
	text-transform: uppercase;
	letter-spacing: 0.2rem;
	text-align: center;
}
.section-title span {
	color: crimson;
}


.cta:hover {
	color: white;
	background-color: crimson;
}
.brand h1 {
	font-size: 3rem;
	text-transform: uppercase;
	color: white;
}
.brand h1 span {
	color: crimson;
}
.brand a {
	font-size: 3rem;
	text-transform: uppercase;
```

```
        color: Tomato;

}
.brand a span {
        color: crimson;
}
.brand  p{

        text-transform: uppercase;
        color: Tomato;
                font-size: 4rem;
        font-weight: 300;

        margin-bottom: 10px;
        text-transform: uppercase;
        letter-spacing: 0.2rem;
        text-align: center;

}



.brand p span {
        color: crimson;
}
#logo {
float: right;
}

.face{
        position: relative;
        width: 250px;
        height: 250px;
        border-radius: 50%;
        background: #ffcd00;
```

```
        display: flex;
        justify-content: center;
        justify-items: center;
        align-items: center;
}
.face::before
{
   content: '';
   position: absolute;
   top: 150px;
   width: 150px;
   height: 70px;
   background: #b57700;
   border-bottom-left-radius: 70px;
   border-bottom-right-radius: 70px;
   transition: 0.5s;
}
.face::hover::before
{
   top: 210px;
   width: 150px;
   height: 20px;
   background: #b57700;
   border-bottom-left-radius: 0px;
   border-bottom-right-radius: 0px;
}
.eyes
{
        position: relative;
        top: -40px;
        display: flex;
}
.eyes .eye
{
        position: relative;
```

```
        width: 80px;
        height: 80px;
        display: block;
        background: #fff;
        margin: 0 15px;
        border-radius: 50%;
}
.eyes .eye::before
{
        content: '';
        position: absolute;
        top: 50%;
        left: 25px;
        transform: translate(-50%,-50%);
        width: 40px;
        height: 40px;
        background: #333;
        border-radius: 50%;
}


#header {
        position: fixed;
        z-index: 1000;
        left: 0;
        top: 0;
        width: 100vw;
        height: auto;
}
#header .header {
        min-height: 8vh;
        background-color: rgba(31, 30, 30, 0.24);
        transition: 0.3s ease background-color;
}
#header .nav-bar {
```

```
        display: flex;
        align-items: center;
        justify-content: space-between;
        width: 100%;
        height: 100%;
        max-width: 1300px;
        padding: 0 10px;
}
#header .nav-list ul {
        list-style: none;
        position: absolute;
        background-color: rgb(31, 30, 30);
        width: 100vw;
        height: 100vh;
        left: 100%;
        top: 0;
        display: flex;
        flex-direction: column;
        justify-content: center;
        align-items: center;
        z-index: 1;
        overflow-x: hidden;
        transition: 0.5s ease left;
}
#header .nav-list ul.active {
        left: 0%;
}
#header .nav-list ul a {
        font-size: 2.5rem;
        font-weight: 500;
        letter-spacing: 0.2rem;
        text-decoration: none;
        color: white;
        text-transform: uppercase;
        padding: 20px;
```

```
        display: block;
}
#header .nav-list ul a::after {
        content: attr(data-after);
        position: absolute;
        top: 50%;
        left: 50%;
        transform: translate(-50%, -50%) scale(0);
        color: rgba(240, 248, 255, 0.021);
        font-size: 13rem;
        letter-spacing: 50px;
        z-index: -1;
        transition: 0.3s ease letter-spacing;
}
#header .nav-list ul li:hover a::after {
        transform: translate(-50%, -50%) scale(1);
        letter-spacing: initial;
}
#header .nav-list ul li:hover a {
        color: crimson;
}
#header .hamburger {
        height: 60px;
        width: 60px;
        display: inline-block;
        border: 3px solid white;
        border-radius: 50%;
        position: relative;
        display: flex;
        align-items: center;
        justify-content: center;
        z-index: 100;
        cursor: pointer;
        transform: scale(0.8);
        margin-right: 20px;
```

```
}
#header .hamburger:after {
	position: absolute;
	content: '';
	height: 100%;
	width: 100%;
	border-radius: 50%;
	border: 3px solid white;
	animation: hamburger_puls 1s ease infinite;
}
#header .hamburger .bar {
	height: 2px;
	width: 30px;
	position: relative;
	background-color: white;
	z-index: -1;
}
#header .hamburger .bar::after,
#header .hamburger .bar::before {
	content: '';
	position: absolute;
	height: 100%;
	width: 100%;
	left: 0;
	background-color: white;
	transition: 0.3s ease;
	transition-property: top, bottom;
}
#header .hamburger .bar::after {
	top: 8px;
}
#header .hamburger .bar::before {
	bottom: 8px;
}
#header .hamburger.active .bar::before {
```

```
        bottom: 0;
}
#header .hamburger.active .bar::after {
        top: 0;
}

#hero {
        background-image: url('logo.png');
  background-repeat: no-repeat;
  background-attachment: fixed;
  background-position: 90% 40%;
        position: relative;
        z-index: 1;
}
#hero::after {
        content: '';
        position: absolute;
        left: 0;
        top: 0;
        height: 100%;
        width: 100%;
        background-color: black;
        opacity: 0.7;
        z-index: -1;
}
#hero .hero {
        max-width: 1200px;
        margin: 0 auto;
        padding: 0 50px;
        justify-content: flex-start;
}
#hero h1 {
        display: block;
        width: fit-content;
        font-size: 4rem;
```

```
        position: relative;
        color: transparent;
        animation: text_reveal 0.5s ease forwards;
        animation-delay: 1s;
}
#hero h1:nth-child(1) {
        animation-delay: 1s;
}
#hero h1:nth-child(2) {
        animation-delay: 2s;
}
#hero h1:nth-child(3) {
        animation: text_reveal_name 0.5s ease forwards;
        animation-delay: 3s;
}
#hero h1 span {
        position: absolute;
        top: 0;
        left: 0;
        height: 100%;
        width: 0;
        background-color: crimson;
        animation: text_reveal_box 1s ease;
        animation-delay: 0.5s;
}
#hero h1:nth-child(1) span {
        animation-delay: 0.5s;
}
#hero h1:nth-child(2) span {
        animation-delay: 1.5s;
}
#hero h1:nth-child(3) span {
        animation-delay: 2.5s;
}
#hero h2 {
```

```
        display: block;
        width: fit-content;
        font-size: 4rem;
        text-align: top;
        position: relative;
        color: orange;
        background-color:Tomato
        animation: text_reveal 0.5s ease forwards;
        animation-delay: 1s;
}

#services .services {
        flex-direction: column;
        text-align: center;
        max-width: 1500px;
        margin: 0 auto;
        padding: 100px 0;
}
#services .service-top {
        max-width: 500px;
        margin: 0 auto;
}
#services .service-bottom {
        display: flex;
        align-items: center;
        justify-content: center;
        flex-wrap: wrap;
        color: red;
        margin-top: 50px;
}
#services .service-item {
        flex-basis: 80%;
        display: flex;
        align-items: flex-start;
        justify-content: center;
```

```
        flex-direction: column;
        color: red;
        padding: 30px;
        border-radius: 10px;
        background-image: url(./img/img-1.png);
        background-size: cover;
        margin: 10px 5%;
        position: relative;
        z-index: 1;
        overflow: hidden;
}
#services .service-item::after {
        content: '';
        position: absolute;
        left: 0;
        top: 0;
        height: 100%;
        width: 100%;
        background-image: linear-gradient(60deg, #29323c 0%, #485563 100%);
        opacity: 0.9;
        z-index: -1;
}
#services .service-bottom .icon {
        height: 80px;
        width: 80px;
        margin-bottom: 20px;
}
#services .service-item h2 {
        font-size: 2rem;
        color: red;
        margin-bottom: 10px;
        text-transform: uppercase;
        text-align: left;
}
#services .service-item p {
```

```
        color: white;
        text-align: left;
}

#services .service-item a {
        color: white;
        text-align: center;
}


#footer {
        background-image: linear-gradient(60deg, #29323c 0%, #485563 100%);
}
#footer .footer {
        min-height: 200px;
        flex-direction: column;
        padding-top: 50px;
        padding-bottom: 10px;
}
#footer h2 {
        color: white;
        font-weight: 500;
        font-size: 1.8rem;
        letter-spacing: 0.1rem;
        margin-top: 10px;
        margin-bottom: 10px;
}
#footer .social-icon {
        display: flex;
        margin-bottom: 30px;
}
#footer .social-item {
        height: 50px;
        width: 50px;
        margin: 0 5px;
```

```
}
#footer .social-item img {
	filter: grayscale(1);
	transition: 0.3s ease filter;
}
#footer .social-item:hover img {
	filter: grayscale(0);
}
#footer p {
	color: white;
	font-size: 1.3rem;
}

@keyframes hamburger_puls {
	0% {
		opacity: 1;
		transform: scale(1);
	}
	100% {
		opacity: 0;
		transform: scale(1.4);
	}
}
@keyframes text_reveal_box {
	50% {
		width: 100%;
		left: 0;
	}
	100% {
		width: 0;
		left: 100%;
	}
}
@keyframes text_reveal {
	100% {
```

```
            color: white;
        }
}
@keyframes text_reveal_name {
        100% {
            color: crimson;
            font-weight: 500;
        }
}

@media only screen and (min-width: 768px) {
        .cta {
            font-size: 2.5rem;
            padding: 20px 60px;
        }
        h1.section-title {
            font-size: 6rem;
        }


        #hero h1 {
            font-size: 7rem;
        }

        #services .service-bottom .service-item {
            flex-basis: 45%;
            margin: 2.5%;
        }




}
```

```
@media only screen and (min-width: 1200px) {

	#header .hamburger {
		display: none;
	}
	#header .nav-list ul {
		position: initial;
		display: block;
		height: auto;
		width: fit-content;
		background-color: transparent;
	}
	#header .nav-list ul li {
		display: inline-block;
	}
	#header .nav-list ul li a {
		font-size: 1.8rem;
	}
	#header .nav-list ul a:after {
		display: none;
	}


	#services .service-bottom .service-item {
		flex-basis: 22%;
		margin: 1.5%;
	}
}
</style>
</head>
<body>

<!--Brian Tracy-->
```

```
<div class="header">
<div style="width:50%;float:left;font-size:2vw;text-align:left;color:black; padding-top:1%;padding-left:5%;">NUTRITION IMAGE ANALYSIS</div>
  <div class="topnav-right"style="padding-top:0.5%;">

    <a class="active" href="{{ url_for('home')}}"><b>HOME</b></a>
    <a   href="{{ url_for('image1')}}"><b>CLASSIFY</b></a>
  </div>
</div>
</div>
<br>
<br>



<section id="about">
       <div class="container mt-4 pt-4">
                 <br><br><br>
           <h1 class="text-center"><center><b> OBJECTIVE OF THE PROJECT</center></b></h1>
           <div class="row mt-4">
              <div class="col-lg-4">
                 <img src="https://cdn.pixabay.com/photo/2017/05/07/19/32/strawberry-2293337_960_720.jpg" class= "imageAboutPage"alt="">
              </div>

              <div class="col-lg-8">
                                 <br>

                                        <ul>
<li>Food is essential for human life and has been the concern of many healthcare conventions. </li>
```

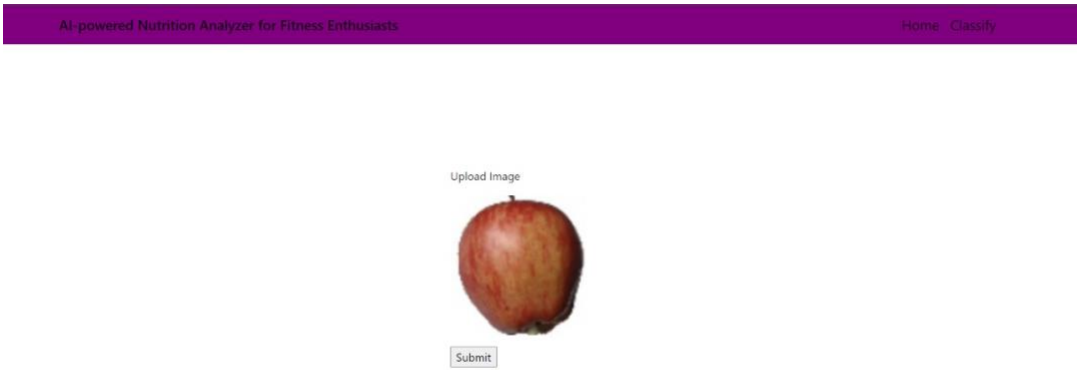
<li>Nowadays new dietary assessment and nutrition analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. </li>
<li>Nutritional analysis is the process of determining the nutritional content of food. </li>
<li>It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food.</li>
</ul>

```
            </div>
          </div>
    </section>
 <br>
                <br>
                <br><br>
<section id="about">
       <div class="container mt-4 pt-4">
                 <br><br><br>
          <h1 class="text-center"><b>AIM OF THE PROJECT</b></h1>
          <div class="row mt-4">
             <div class="col-lg-4">
                <img
src="https://www.cdc.gov/foodsafety/images/comms/features/GettyImages-
1247930626-500px.jpg?_=00453" class= "imageAboutPage" alt="">
             </div>

             <div class="col-lg-8">
                              <br>
                                    <ul>
<li>The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc.  </li>
<li>Here the user can capture the images of different fruits and then the image will be sent the trained model.</li>
```

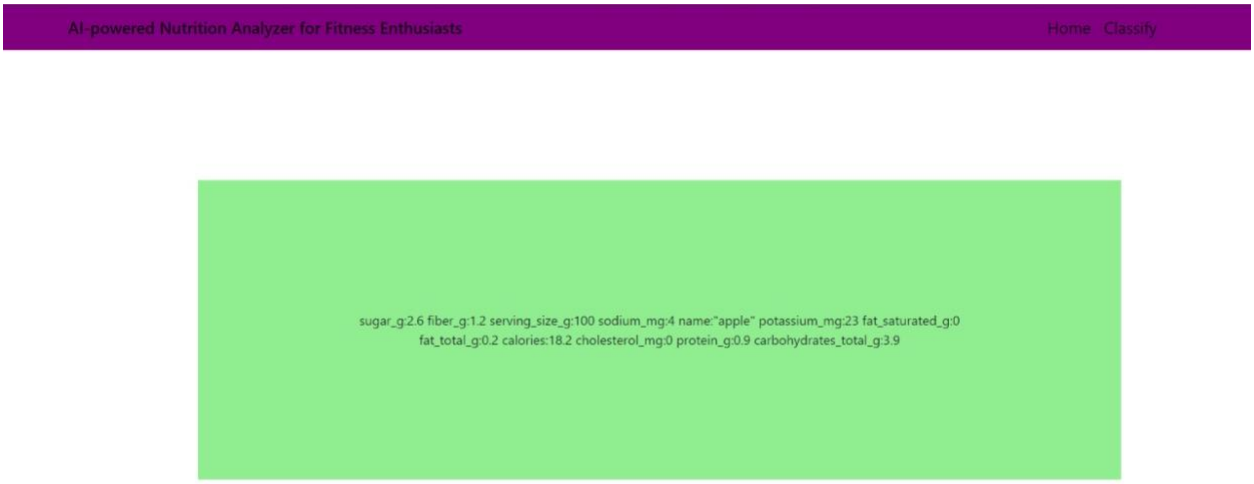
```
<li>The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.).</li>
</ul>


            </div>
          </div>
    </section>
<br>
<br>
</body>
</html>
<html lang="en" dir="ltr">
<head>
<style>

</style>
                <meta charset="utf-8">
                <title>NUTRITION IMAGE ANALYSIS</title>
                <link rel="shortcut icon" href="{{ url_for('static', filename='diabetes-favicon.ico') }}">
                <link rel="stylesheet" type="text/css" href="{{ url_for('static', filename='style.css') }}">
                <script src="https://kit.fontawesome.com/5f3f547070.js" crossorigin="anonymous"></script>
                <link href="https://fonts.googleapis.com/css2?family=Pacifico&display=swap" rel="stylesheet">
        </head>

                <div class="results">
                      <p style="padding-top: 150px; color:blue;"><h4 style="color:blue;">IMAGE 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>
```

8. RESULTS


AI-powered Nutrition Analyzer for Fitness Enthusiasts
Home Classify
Upload Image
Submit

AI-powered Nutrition Analyzer for Fitness Enthusiasts
Home Classify
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.



---

9. CONCLUSION

A nutrient analyzer was built for individual person according to their health condition .A nutrient must be intake in correct quantity for a good health.

10. FUTURE SCOPE

1. We will develop an App for gyming and for fitness enthusiast
2. For every individual a separate diet plan with a budget according to the individual.

GITHUB AND PROJECT DEMO LINK

GITHUB LINK:

https://github.com/IBM-EPBL/IBM-Project-49934-1660884841

PROJECT DEMO LINK:

https://youtu.be/ZLmTGC3ILuU