**AI-POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIATS**

**A PROJECT REPORT**

**Submitted by**

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**of**

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**in**

**COMPUTER SCIENCE AND ENGINEERING**

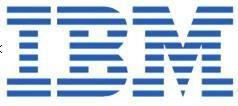
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**Executed By:**

**IBM**





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**ABSTRACT**

The increasing number of health issues reported due to obesity and overeating, people have become cautious about their diet intake to prevent themselves from the diseases such as hypertension, diabetes, and other heart related problem which are caused due to obesity. As per the data shared by WHO, at least 2.8 million people are dying each year because of being overweight or obese. The important part of any healthy diet plan is its calories intake. Hence, we propose a deep learning-based technique to calculate the calories of the food items present in the image captured by the user. We used a layer-based approach to predict calorie in the food item which include Image Acquisition, Food item classification, Surface area detection and calorie prediction. Researchers have also shown keen interest in predicting the calories present in the food item with the help of the image. Researchers have used various machine learning and deep learning techniques to perform the task of calories estimation with the help of supplied images.

# CHAPTER 1

# 1. Introduction

It is very important in today’s time that people should be aware of what they are consuming and what will be its impact on the body. So, a system that can help individuals to maintain their calories intake is very important. Most of the world’s population live in countries where overweight and obesity kills more people than any other health disease. The problem here is not about having enough food, it is about the people not knowing what is in their diet. If people could estimate their calorie intake during a day, they can easily decide on the number of calories they want to consume. However, managing calorie intake is a very cumbersome task which involves the people to manually keep a track of food item they have consumed throughout the day and they must determine the calories they have consumed. This process is not only manual but also inaccurate as the calorie estimation not only depends on what you are eating but also depends on how much are having. With the advancement in the field of image processing techniques, the image recognition models are in demand. Researchers are aggressively deploying image recognition model for various uses such as self-driving cars, cancer detection, video frame analysis etc. Researchers have also shown keen interest in predicting the calories present in the food item with the help of the image. Researchers have used various machine learning and deep learning techniques to perform the task of calories estimation with the help of supplied images.

A deep learning-based model which takes a food image clicked from the mobile camera which is capable of estimating calorie for the mixed portion of the food item as well. The dataset used contained 3000 images clicked under different condition with different camera model and then the clicked image is given as input. They used color segmentation, k-mean clustering, and texture segmentation tools. They employed Cloud SVM and deep neural network to increase the performance of the image identification model. For calorie prediction they used the reference object approach wherein they mandated the presence of the thumb in the image so that their model can use the thumb present in the mage as reference for the size estimation of food item present in the image which helped in calorie estimation.

## 1.1 Overview

Artificial intelligence (AI) makes it possible for machine to learn from experience, adjust to new inputs and perform human-like tasks. Artificial intelligence (AI) is a rapidly evolving area that offers unparalleled opportunities of progress and applications in many healthcare fields. In this review, we provide an overview of the main and latest applications of AI in nutrition research and identify gaps to address to potentialize this emerging field. AI algorithms may help better understand and predict the complex and non-linear interactions between nutrition-related data and health outcomes, particularly when large amounts of data need to be structured and integrated, such as in metabolomics.

## 1.2 Purpose

The increasing number of health issues reported due to obesity and overeating, people have become cautious about their diet intake to prevent themselves from the diseases such as hypertension, diabetes, and other heart related problem which are caused due to obesity. As per the data shared by WHO, at least 2.8 million people are dying each year because of being overweight or obese. The important part of any healthy diet plan is its calories intake. Hence, we propose a deep learning-based technique to calculate the calories of the food items present in the image captured by the user. We used a layer-based approach to predict calorie in the food item which include Image Acquisition, Food item classification, Surface area detection and calorie prediction.

# CHAPTER 2 LITERATURE SURVEY

## 2.1 Existing problem /approaches

A number of studies have been conducted on image categorization. Veggie-Vision was an initial attempt to develop a produce recognition system for use in supermarkets. The system could analyze color, texture and density, and thus was able to obtain more information. Density was calculated by dividing weight with the area of the fruit. The reported accuracy was approximately 95% when color and texture features were combined. Bot integrated technology using AIML and Python with interactive GUI. This Chabot is implemented using AIML scripts to pre-define user queries and bot’s response to help students to know about VIT college, the students may be already a student of the college or the student who’s willing to join the college can pass their queries to the Chabot via text and the text can be in any format and the bot brain will respond to every user by matching the pattern queries of the user with the corresponding template by redirecting to the AIML file and the input is processed using Natural Language Processing.

## 2.2 References

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1. Ji, Y.; Plourde, H.; Bouzo, V.; Kilgour, R.D.; Cohen, T.R. Validity and Usability of a Smartphone Image-Based Dietary Assessment App Compared to 3-Day Food Diaries in Assessing Dietary Intake Among Canadian Adults: Randomized Controlled Trial. JMIR Mhealth Uhealth IEEE 2020.

## 2.3 Problem Statement Definition

The purpose is to imitate thought processes, learning abilities and knowledge management , finds more and more applications in experimental and clinical medicine.

Expected evolution of skills requirements is to draw a general portrait of the future food industry by clarifying the industrial changes brought up by Industry. Used for dietary analysis of energy, nutrient intake, and meal timing in human studies using traditional dietary assessment methods.

**CHAPTER 3**

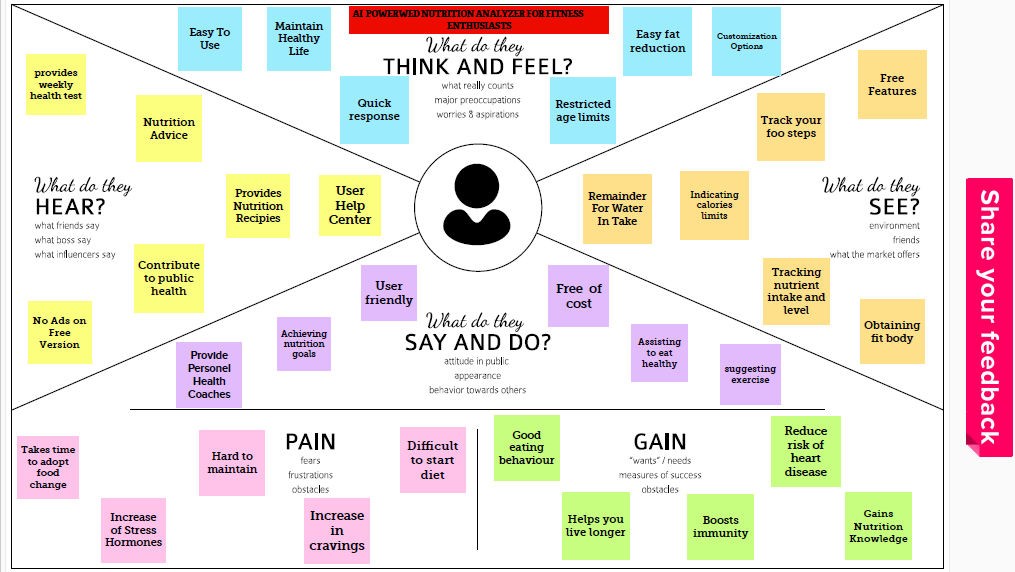
# IDEATION & PROPOSED SOLUTION

## 3.1 Empathy Map Canvas

An empathy map canvas is a more in-depth version of the original empathy map, which helps identify and describe the user’s needs and pain points. And this is valuable information for improving the user experience.

Teams rely on user insights to map out what is important to their target audience, what influences them, and how they present themselves. This information is then used to create personas that help teams visualize users and empathize with them as individuals, rather than just as a vague marketing demographic or account number.

An empathy map canvas helps brands provide a better experience for users by helping teams understand the perspectives and mindsets of their customers. Using a template to create an empathy map canvas reduces the preparation time and standardizes the process so you create empathy map canvases of similar quality.



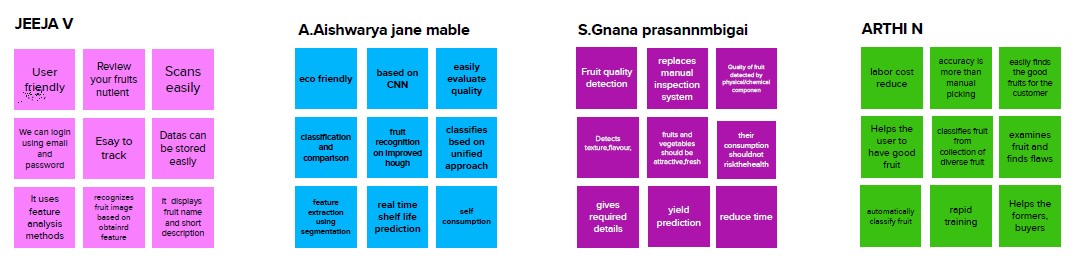
## 3.2 Ideation & Brainstorming

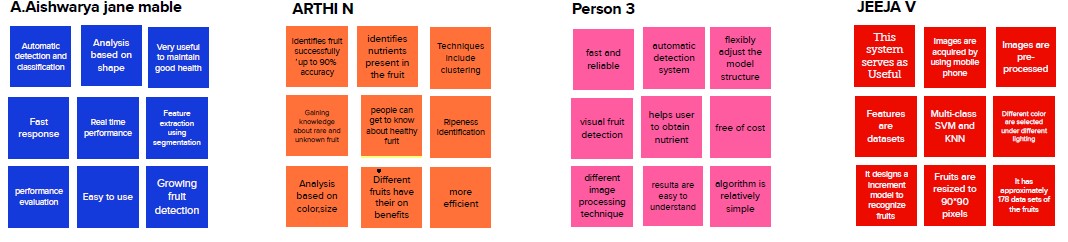
Ideation is often closely related to the practice of brainstorming, a specific technique that is utilized to generate new ideas. A principal difference between ideation and brainstorming is that ideation is commonly more thought of as being an individual pursuit, while brainstorming is almost always a group activity. Brainstorming is usually conducted by getting a group of people together to come up with either general new ideas or ideas for solving a specific problem or dealing with a specific situation.

Participants in a brainstorming session are encouraged to freely toss out whatever ideas may occur to them. The thinking is that by generating a large number of ideas, the brainstorming group is likely to come up with a suitable solution for whatever issue they are addressing.

The lines between ideation and brainstorming have become a bit more blurred with the development of several brainstorming software programs, such as Brightidea and Ideawake. These software programs are designed to encourage employees of companies to generate new ideas for improving the companies’ operations and, ultimately, bottom-line profitability.

The programs often combine the processes of ideation and brainstorming in that individual employees can use them, but companies may simulate brainstorming sessions by having several employees all utilize the software to generate new ideas intended to address a specific purpose.



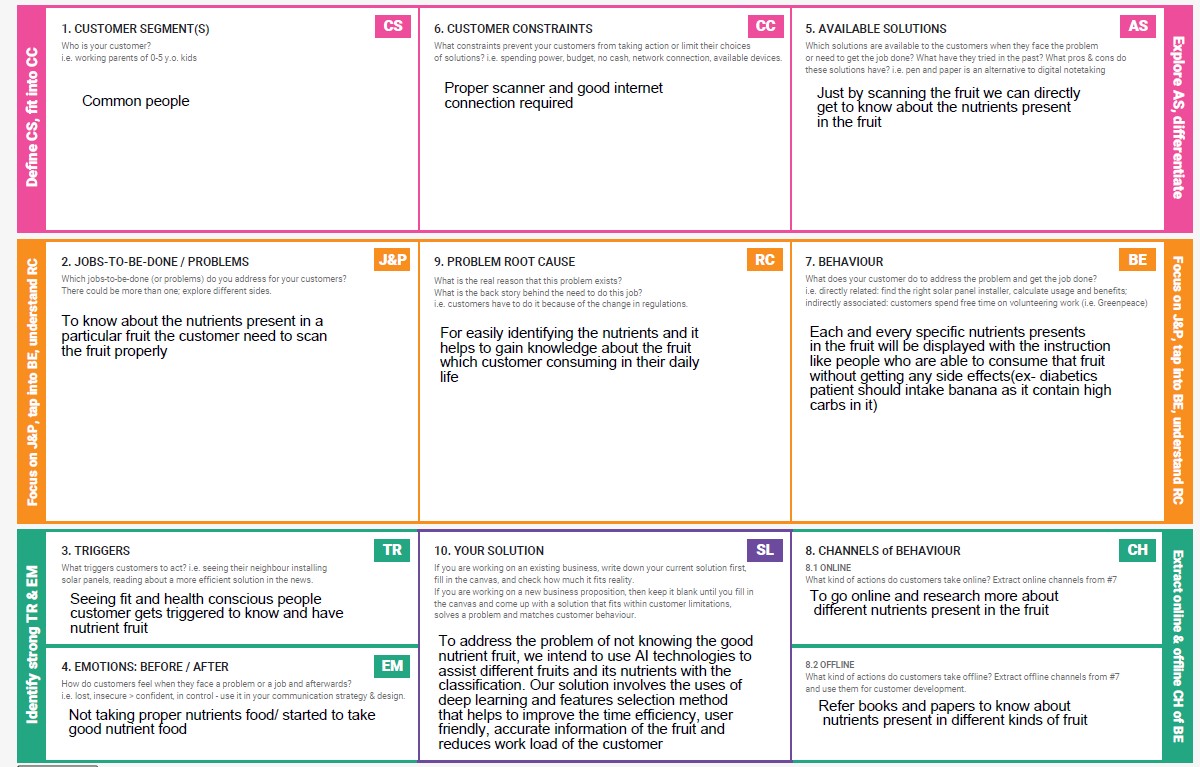


## 3.3 Proposed solution

There are already serving in certain domain to accomplish complex tasks or support humans to achieve high efficiency at their activity. Several platforms, including Facebook, KiK, Telegram and Slack are already hosting applications with several purposes, ranging from ecommerce, health, entertainment, productivity and lifestyle promotion. s can provide users with health information and diet plans. There are a range of bots available depending on the type of diet and exercise plans the user needs, such as Health Hero1, Tasteful Bot2 and Forksy3 all build for Telegram and Slack platforms

|  |  |  |
| --- | --- | --- |
| **S.NO** | PARAMETER | **DESCRIPTION** |
| 1 | Problem Statement  (Problem to be solved) | The problem here is not about having enough food, it is about the  people not knowing what is in their diet |
| 2 | Idea / Solution description | Consuming healthy food after knowing the nutrients in food |
| 3 | Novelty / Uniqueness | Easy to access and user friendly |
| 4 | Social Impact /  Customer Satisfaction | Customer gets motivated to stay fit and suggest to other users |
| 5 | Business Model  (Revenue Model) | deep learning-based technique to calculate the calories of the food items present in the image captured by the user |
| 6 | Scalability of the Solution | It has high scalability and works efficiently |

## 3.4 Problem solution fit



**CHAPTER 4**

# REQUIREMENT ANALYSIS

## INTORDUCTION

In product development, it is important to understand the difference between the baseline functionality necessary for any system to compete in that product domain, and features that make the system different from their competitor's products. Some strategies have important implications for software architecture. Specifically, it is not just the Software requirements specifications of the initial release that must be supported in the architecture. The Software requirements specifications of initial products need to be explicitly taken into consideration.

## FUNCTIONAL REQUIREMENTS

In Software engineering and systems engineering, a functional requirement defines a function of a system or its component. A function is described as a set of inputs, the behavior, and outputs. ... This should be contrasted with non-functional requirements which specify overall characteristics such as cost and reliability.

## PRODUCT PERSPECTIVE

The product is supposed to be an open source, under the GNU general Public License. It is a web based system implementing client-server model. The portal System provides simple mechanism for users to share and acquire knowledge.

## PRODUCT FEATURES

The following are the main features Cross platform support:

Offers operating support for most of the known and commercial operating systems. User account: The system allows the user to create their accounts in the system and provide features of updating and viewing profiles.

Number of users being supported by the system:

Though the number is precisely not mentioned but the system is able to support a large number of online users at a time. Search: search is simply local search engine based on key words.

Discussion Forum:

Provides users with a platform to discuss and help each other with their problems Ticketing system: Allows user to submit his issue to the admin in case his problems are not solved by FAQs and discussion forums.

FAQs section: Frequently asked section contains answer of problem which tablet user frequently faced.

## USER CHARACTERISTICS

It is considered that the user do have the basic knowledge of operating the internet and to have access to it. The administrator is expected to be familiar with the interface of the tech support system.

## ASSUMPTION AND DEPENDENCIES

This software highly depends on type and version of browser being installed in the system i.e. browser version should be used which have HTML5 support.

## DOMAIN REQUIREMENT

Domain requirement is the Requirement that comes from the application domain of the system that reflects the characteristics of that domain. Therefore, as our System is an inventory System, the domain requirement of this system should concern about the requirements that reflect characteristic of Inventory System.

## 4.2. NON-FUNCTIONAL REQUIREMENTS

In systems engineering and **requirements** engineering, a **non**-**functional requirement** (NFR) is a **requirement** that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrasted with **functional requirements** that **define** specific behavior or functions.

**PRODUCT REQUIREMENTS**

##  EFFICIENCY SPACE EFFICIENCY

Storage **efficiency** is the ability to store and manage data that consumes the least amount of **space** with little to no impact on performance; resulting in a lower total operational cost. **Efficiency** addresses the real-world demands of managing costs, reducing complexity and limiting risk.

## TIME EFFICIENCY

The state or quality of being **efficient**, or able to accomplish something with the least waste of **time** and effort is Time efficiency; competency in performance. And accomplishment of or ability to accomplish a job with a minimum expenditure of **time** and effort

## RELIABILITY

Reliability Posted by: Margaret Rouse WhatIs.com Contributor(s): KajBackholm Word of the Day 5G 5G is the coming fifth-generation wireless broadband technology based on the IEEE 802.11ac standard. An important goal of 5G is to erase the differences between wireline and wireless networking to accommodate the growing mobility of network users. Subscribe to the Word of the Day Word of the Day Archive 20 Newest and Updated Terms competitive advantage mobile application management (MAM) Avro (Apache Avro) quality assurance (QA) gross revenue voice recognition (speaker recognition) Amazon Pinpoint employee engagement software Microsoft Project Honolulu project scope unstructured data hands-off infrastructure management Microsoft Windows Insider Program for Business risk map (risk heat map) VMware vCenter Server (formerly VMware VirtualCenter) Advanced Message Queuing Protocol (AMQP) network engineer cloud storage service Ansible cloud backup (online backup) Reliability is an attribute of any computer-related component (software, or hardware, or a network, for example) that consistently performs according to its specifications. It has long been considered one of three related attributes that must be considered when making, buying, or using a computer product or component. Reliability, availability, and serviceability - RAS, for short - are considered to be important aspects to design into any system. In theory, a reliable product is totally free of technical errors; in practice, however, vendors frequently express a product's reliability quotient as a percentage.

## PORTABILITY

**Portability** is a characteristic attributed to a computer program if it can be used in an operating systems other than the one in which it was created without requiring major rework. Porting is the task of doing any work necessary to make the computer program run in the new environment.

## USABILITY

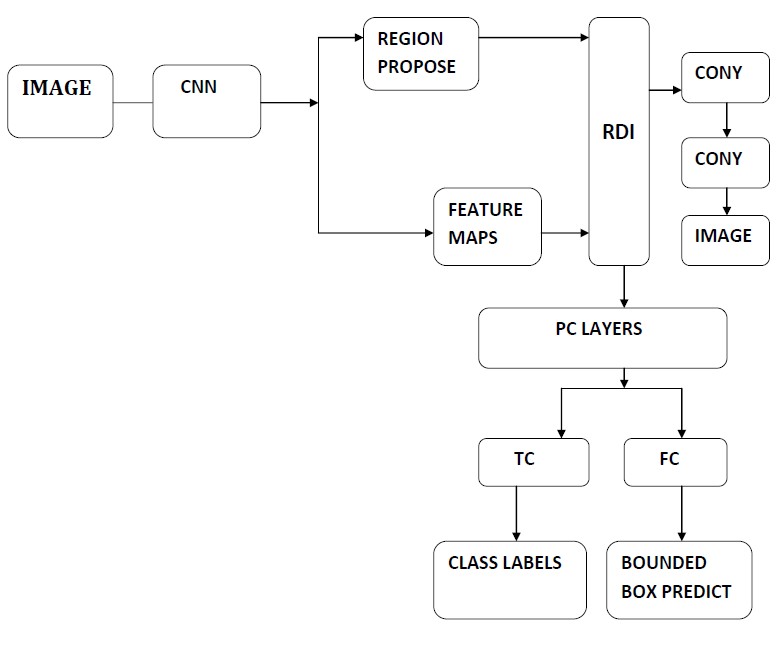
**Usability** is the ease of use and learnability of a human-made object such as a tool or device. In **software engineering**, **usability** is the degree to which a **software**can be used by specified consumers to achieve quantified objectives with effectiveness, efficiency, and satisfaction in a quantified context of use.

**CHAPTER 5**

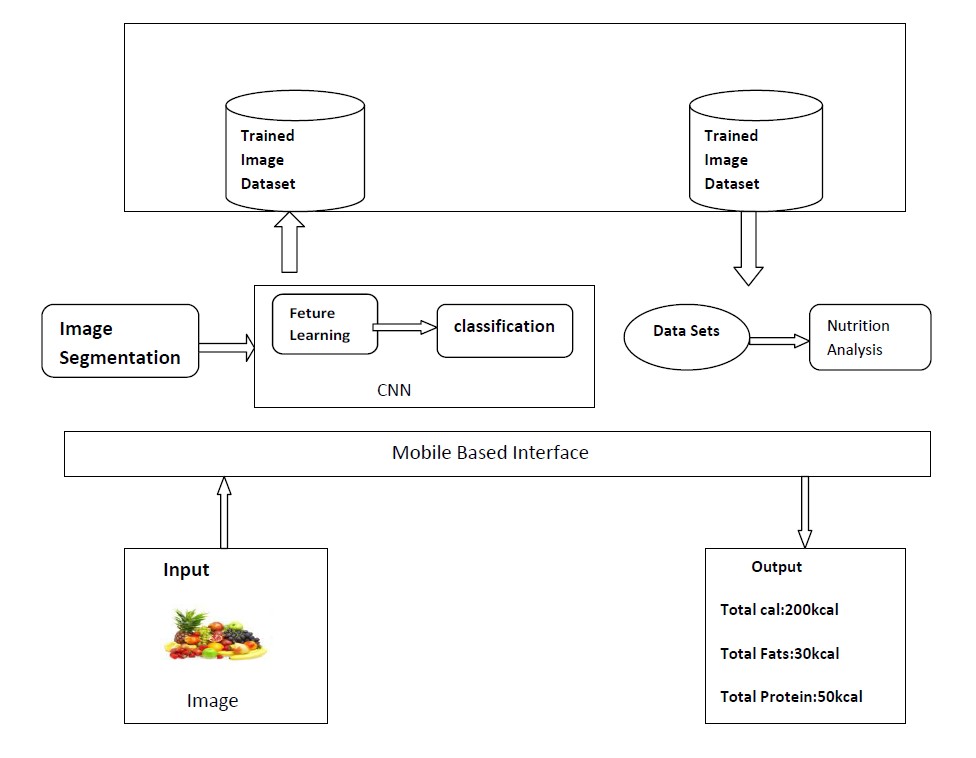
# PROJECT DESIGN

## 5.1 Data Flow Diagrams

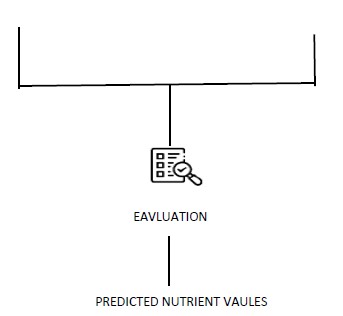
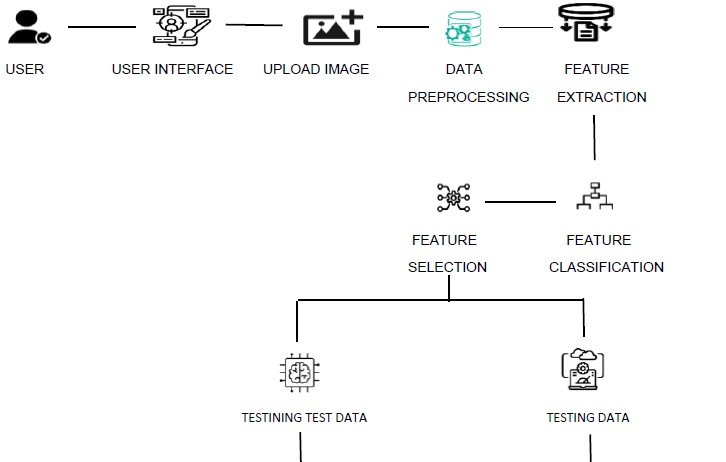
A **data-flow diagram** is a way of representing a flow of data through a process or a system (usually an information system). The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow — there are no decision rules and no loops. Specific operations based on the data can be represented by a flowchart



## 5.2 Solution & Technical Architecture



**5.3 Technical Architecture diagram**



## 5.3 User Stories

In this nutrition fit analyzer project ,it is very user friendly and able to understand even by a common man. It is a best analyzer for the fitness keen person. It gives required details about the food . Helps user to maintain good health. Consumers can now access instant information on nutrition. Accurate nutrition information create trust in users. User’s can ensure that food has the optimal requirements of vitamins and minerals.so we can increase the metabolism on using the nutrition analyzer.

**User Stories**

Use the below template to list all the user stories for the product.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **User Type** | **Functional**  **Requirement**  **(Epic)** | **User**  **Story**  **Number** | **User Story / Task** | **Acceptance**  **criteria** | **Priority** | **Release** |
| Customer | Registration | USN-1 | As a user, I can register for the application by entering my email, password, and confirming my password. | I can access my account / dashboard | 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 |
|  |  | USN-3 | As a user, I can register for the application through  Google | I can register & access the dashboard with Facebook  Login | Low | Sprint-2 |
|  |  | USN-4 | As a user, I can register for the application through  Microsoft | I can access the  Dashboard with  Microsoft. | Medium | Sprint-1 |
|  | Login | USN-5 | As a user, I can log into the application by entering email &  password | I can login the Application by entering password | High | Sprint-1 |
|  | Main Interface | USN-6 | As a user I can view my calorie intake by clicking photo of the food I eat | Access the  proper  information  about the nutrition and the calorie  intake | High | Sprint-2 |
|  | Package DB,  Dashboard | USN-7 | As a user I can choose variety of packages based on my requirement | Selecting an appropriate package | Medium | Sprint-2 |
| Administrator | Dashboard | USN-8 | As an administrator I take care of all the operations which takes place in the app | Zero issues  from the user | High | Sprint-2 |

**CHAPTER 6**

# PROJECT PLANNING & SCHEDULING

## 1.1 Sprint Planning & Estimation

IDENTIFYING THE PROBLEM STATEMENT:

It is necessary to identify the problem for any problem. In our project the problem we are trying to overcome is using hand gestures to perform actions on the radiology images, this is useful in the medical field.

UNDERSTANDING THE PROJECT OBJECTIVES:

Identifying the method to solve the problem. Selecting the best algorithms, software, and technology to develop an application that enables hand gesture recognition.

FINDING BASE PAPERS FOR REFERENCE:

Look for base papers that were previously published that aimed at solving similar problems. Try to take adaptations from it and makes modifications for the drawbacks of the previous papers.

IDENTIFYING THE PROBLEM STATEMENT

UNDERSTANDING THE PROJECT OBJECTIVES

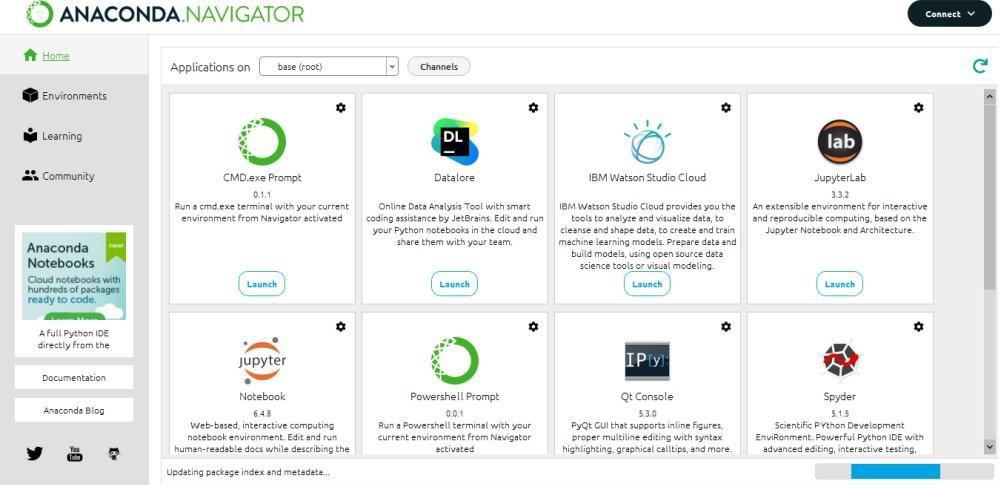
FINDING BASE PAPER FOR REFERENCE

## 1.2 Sprint Delivery Schedule

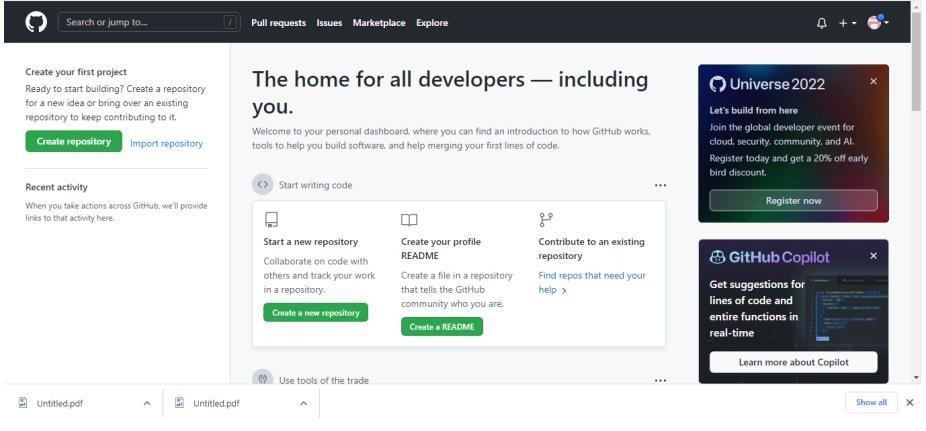
PREREQUISITES:

For this project, we must download and install anaconda navigator, python,

Jupyter notebook, and pip libraries



CREATING A GIT HUB ACCOUNT:



PRIOR KNOWLEDGE:

Understand and learn about the deep learning concepts such as

1. CNN
2. OpenCV
3. Flask

# CHAPTER 7

# CODING & SOLUTIONING

## 7.1 Feature

Food is the fuel the body needs to replenish itself with. Each civilization has given profound importance to food types and consumption patterns.

Hence, it can be easily assumed that food has the power to influence bodily metabolism and organ health directly. After ingestion, food is digested through our gut with the help of various digestive juices and ends in being absorbed in bloodstreams as different types of biomolecules which are known as Nutrients.

If food is the reason, Nutrition is the result. We consume food so that we can obtain proper nutrition.

Nutrition is the process by which important beneficial biomolecules or Nutrients, after reaching their destination within the body, positively helps in functioning, maintaining, or improving important bio metabolisms like building muscles, producing energy, thriving body cells, improving body health, replenish malnourishment, and strengthening immunity.

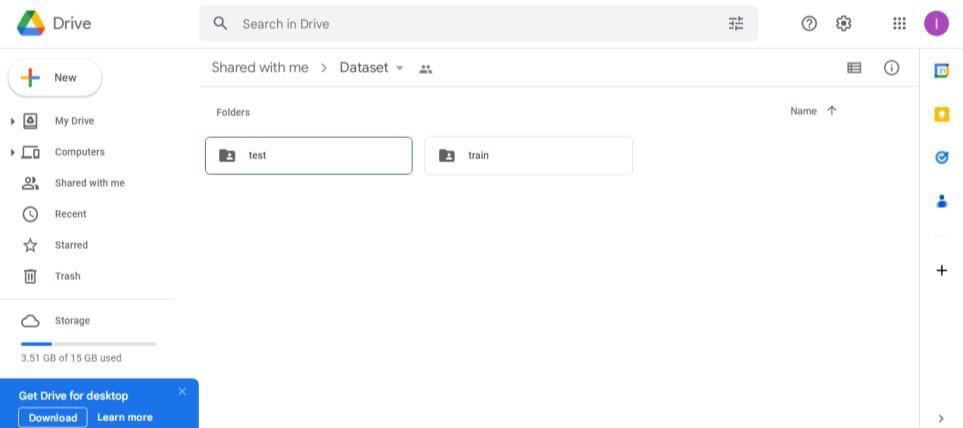
**CHAPTER 8**

# TESTING

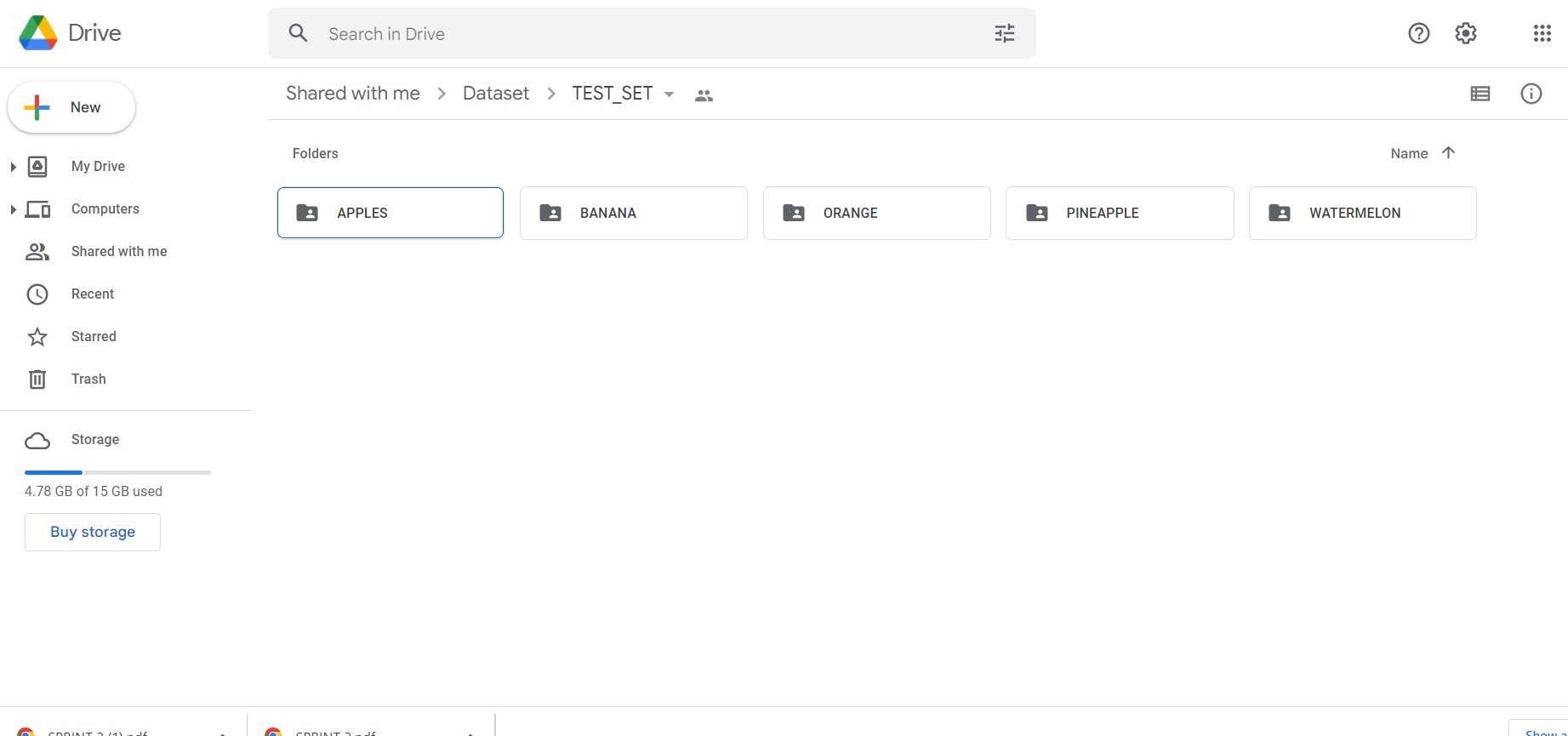
## 8.1 Test Cases

the RGB algorithm allowed the system to find the red indicators on the user’s fingers by varying the color threshold and comparing pixel by pixel from the captured video frame.

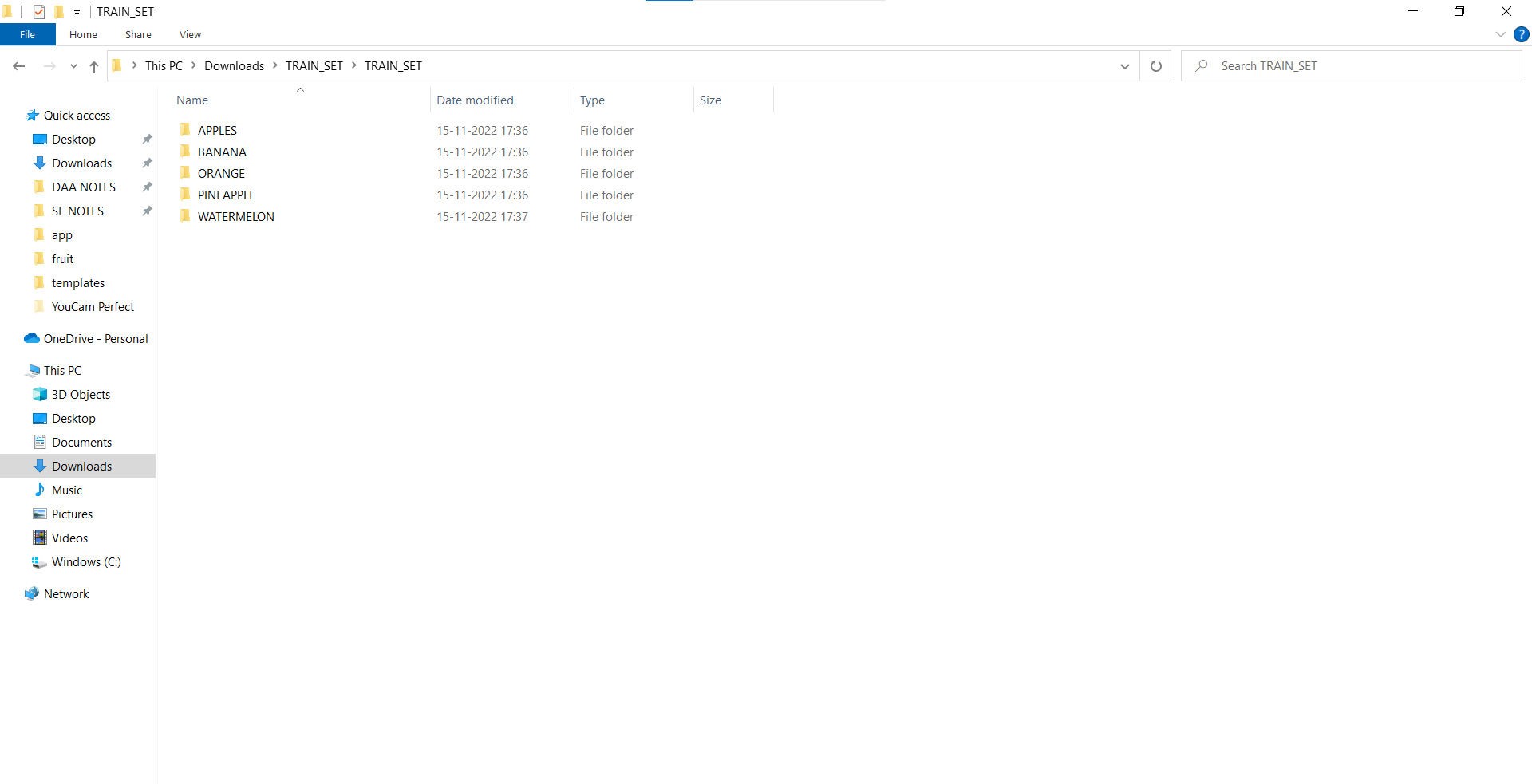
Collect the data sets required. Create two different folders for test data and train data.



TEST DATA:



TRAIN DATA:



APPLE:



**8.2 User Acceptance Testing**

**1.Purpose of Document**

The purpose of this document is to briefly explain the test coverage and open issues of the [AI-Powered Nutrition Analyzer For Fitness Euthusiasts] project at the time of the release to User Acceptance Testing (UAT).

## 2.Defect Analysis

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



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Resolution** | **Severity**  **1** | **Severity 2** | **Severity 3** | **Severity 4** | **Subtotal** |
| By Design | 15 | 4 | 2 | 3 | 25 |
| Duplicate | 0 | 0 | 3 | 0 | 0 |
| External | 2 | 3 | 0 | 1 | 6 |
| Fixed | 11 | 2 | 4 | 20 | 37 |
| Not  Reproduced | 0 | 0 | 0 | 0 | 0 |
| Skipped | 0 | 0 | 0 | 0 | 0 |
| Won't Fix | 0 | 0 | 0 | 0 | 0 |
| Totals | 28 | 9 | 9 | 24 | 69 |

## 3.Test Case Analysis

This report shows the number of test cases that have passed, failed, anuntested

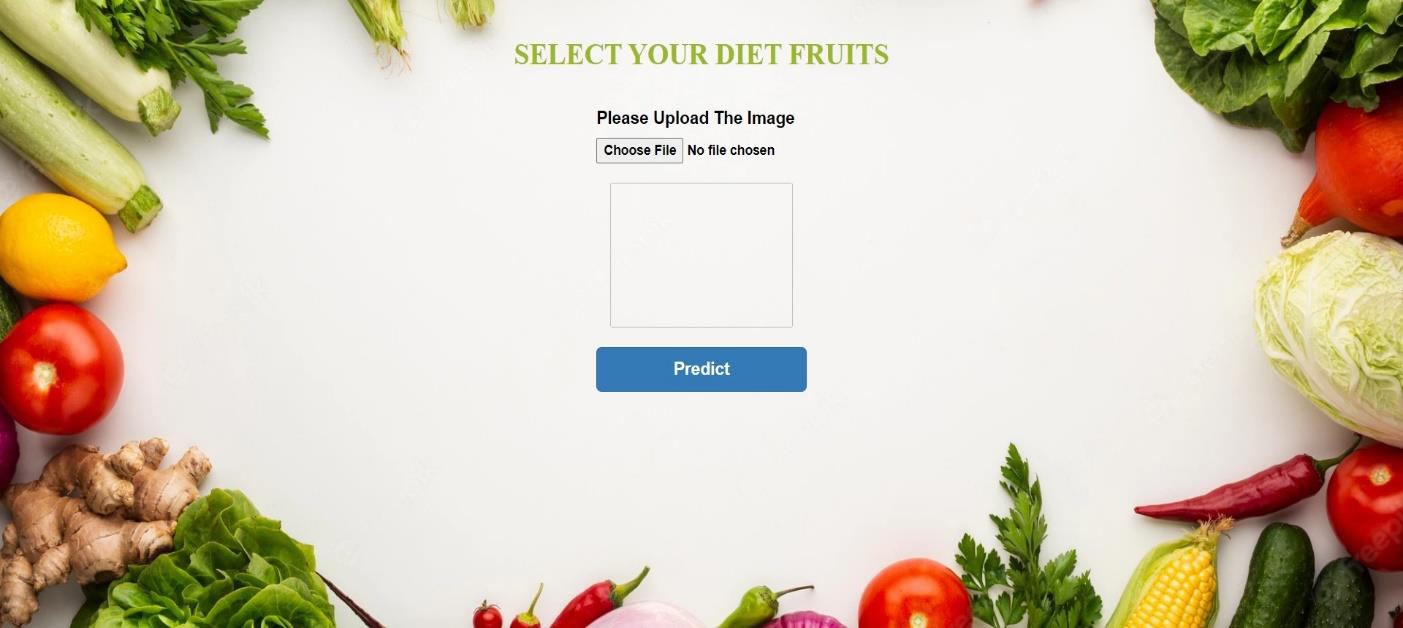
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Section** | **Total**  **Cases** | **Not**  **Tested** | **Fail** | **Pass** |
| Print Engine | 5 | 0 | 0 | 5 |
| Client Application | 15 | 0 | 0 | 15 |
| Security | 2 | 0 | 0 | 2 |
| Outsource Shipping | 3 | 0 | 0 | 3 |
| Exception Reporting | 15 | 0 | 0 | 15 |
| Final Report Output | 5 | 0 | 0 | 5 |
| Version Control | 2 | 0 | 0 | 2 |

**CHAPTER 9**

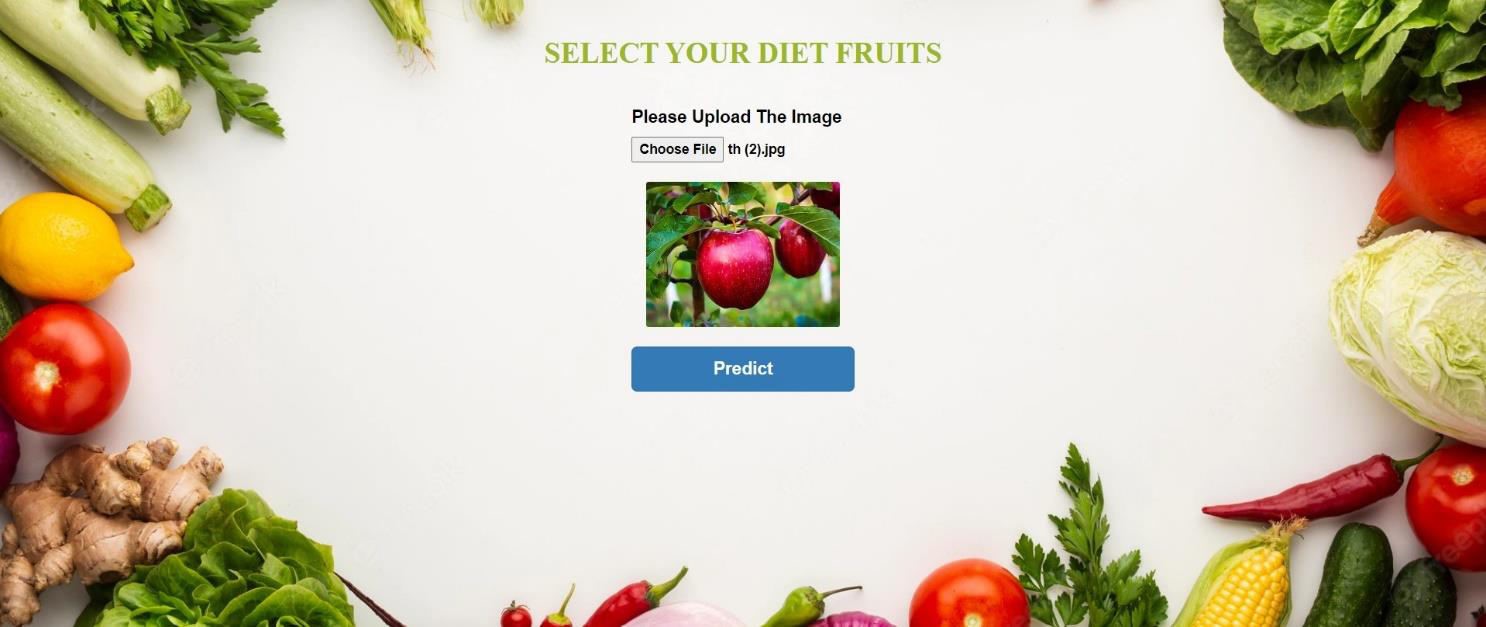
# RESULTS

**Final findings (Output) of the project along with screen-shots.**

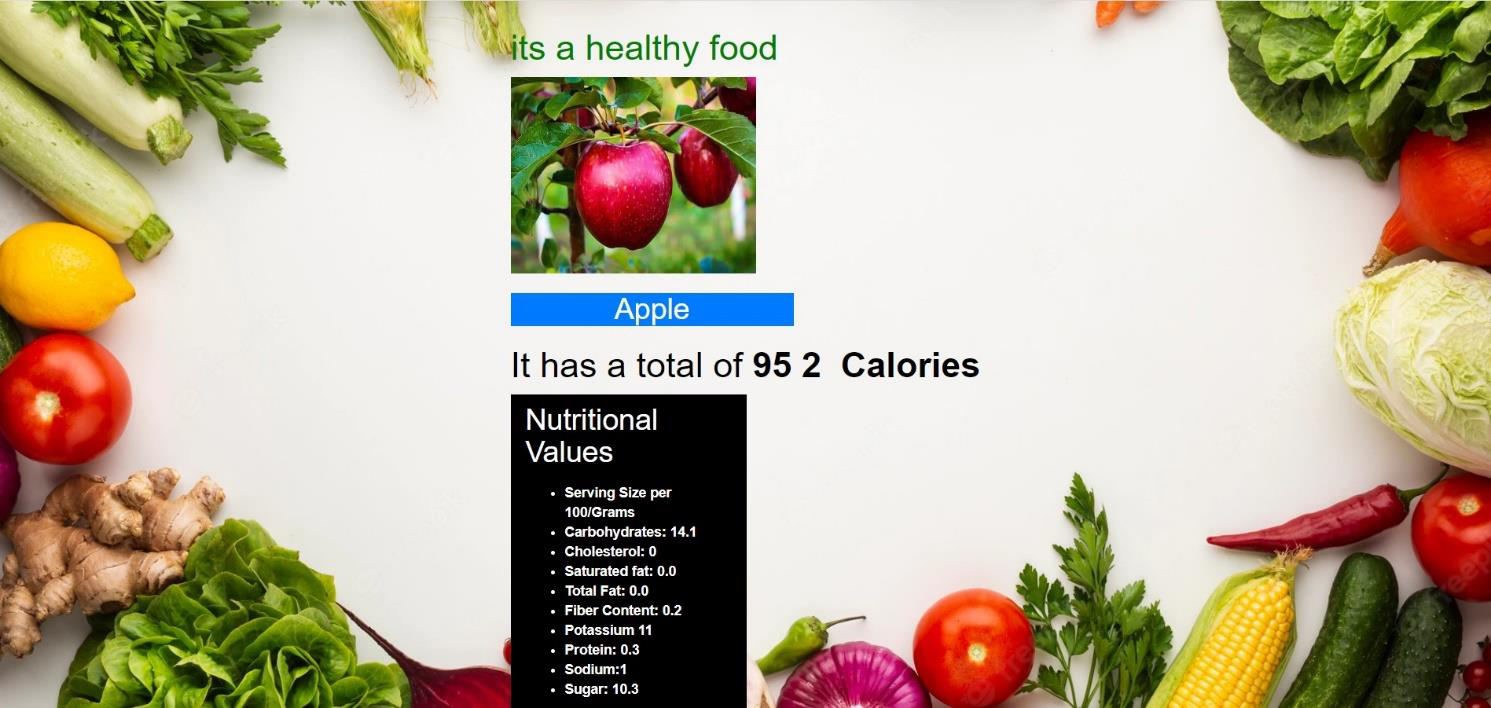
**Home Page:**



**Upload image:**



**Prediction:**



# CHAPTER 10 ADVANTAGES & DISADVANTAGES

**10.1 Advantages:**

1. Classification of fruits is a needful exercise to differentiate the particular variety of fruits of the same family. Most of the case, the variety of fruits of the same family differ in the sense of colour and size only.

1. The use of image processing for the grading of fruits involves categorization of fruits, with consideration of the severity of the disease, defects, and contamination on fruits. Grad-ing is an important step in the post-harvest process. Grading of fruits manually is a time taking and unreliable process. Therefore, it is needful to adapt the automated faster system in this regard.

1. Some of the other associated benefits include speed operation, production consistent, greater product stability and safety.

**10.2 Disadvantages:**

1. Most of the research conducted by taking the one-side view of fruits. In addition, by considering the one-side image of fruit, it is challenging to evaluate the quality fruits.

1. It does not provide stable recognition in adverse imaging condition.

**CHAPTER 11**

# CONCLUSION

In this paper, we have used the deep learning-based model to predict the total calories of the food item present in the image. To develop this solution, we used Mask R-CNN technique to create mask and bounding boxes. This in turn helped the model to calculate the surface area occupied by the different food items in the image which further facilitated the model with the ability to satisfactorily predict the calories associated with each food item. Calorie are estimated with the help of mathematical formulas which compares the proportion of the image occupied by each food items and determines the calories associated with it. In future work, we plan to extend the scope of model by increasing the ability of the model to identify a greater number of food items instead of 6 food items, which we used in our current dataset. The dataset we used contain 638 images of food item with 6 different categories, which will be extended in our next model. Finally, we would like to calculate the calories of the food item based on their volume with the help of 3D images. As the technology is advancing, it would be interesting to work on the model development which can handle 3D image as input and predict the calories of the food item with better results.

# CHAPTER 11

# FUTURE SCOPE

Hopefully, in the future, this project can be extended with a larger dataset having more categories of fruits & vegetables. We will also have the plan to implement some other CNN based models to compare the accuracy on the same dataset, can also work on some more features for grading and classification, which can identify types of disease and/or texture structure of fruits. All these are future direction.

# CHAPTER 13

**APPENDIX**

**APPENDIX A**

In this section we present the source code and project structure used in this project.

## 13.1 PYTHON SOURCE CODE

from dataclasses import dataclass

from pickle import FALSE

from django.shortcuts import render

from .models import store

from django.http import JsonResponse

from django.views.decorators.csrf import csrf\_exempt

def img(request):

from django.core.files.storage import FileSystemStorage

from tensorflow.keras.preprocessing import image

from openpyxl.reader.excel import load\_workbook

import tensorflow as tf

from django.core.files.storage import default\_storage

from tensorflow import keras

import numpy as np

import cv2

from PIL import Image as img

import random

import os

if request.method == 'POST':

batch\_size = 32

img\_height = 64

img\_width = 64

dir = './static/img/upload'

for f in os.listdir(dir):

os.remove(os.path.join(dir, f))

model\_dl = keras.models.load\_model("model.h5")

dict = {0:'Apple pie',1:'Baby back ribs',2:'Baklava',3:'Beef carpaccio',4:'Beef tartare',5:'Beet salad',6:'Beignets',7:'Bibimbap',8:'Bread pudding',9:'Breakfast burrito',

10:'Bruschetta',11:'Caesar salad',12:'Banana',13:'Caprese salad',14:'Carrot cake',15:'Ceviche',16:'Pine apple',17:'Cheese plate',18:'Chicken curry',19:'Chicken quesadilla',

20:'Chicken wings',21:'Chocolate cake',22:'Jamun',23:'Churros',24:'Clam chowder',25:'Club sandwich',26:'Crab cakes',27:'Creme brulee',28:'Croque madame',

29:'Apple',30:'Deviled eggs',31:'Donuts',32:'Dumplings',33:'Edamame',34:'Eggs benedict',35:'Escargots',36:'Falafel',37:'Filet mignon',38:'Banana',

39:'Foie gras',40:'French fries',41:'French onion soup',42:'French toast',43:'Fried calamari',44:'Fried rice',45:'Orange',46:'Garlic bread',47:'Gnocchi',

48:'Greek salad',49:'Grilled cheese sandwich',50:'Grilled salmon',51:'Guacamole',52:'Gyoza',53:'Hamburger',54:'Hot and sour soup',55:'Hot dog',56:'Huevos rancheros',

57:'Hummus',58:'Ice cream',59:'Lasagna',60:'Lobster bisque',61:'Lobster roll sandwich',62:'Macaroni and cheese',63:'Mango',64:'Miso soup',65:'Papaya',

66:'Nachos',67:'Omelette',68:'Jamun',69:'Oysters',70:'Pad thai',71:'Paella',72:'Pancakes',73:'Pine Apple',74:'Peking duck',75:'Pho',76:'Pizza',77:'Pork chop',

78:'Poutine',79:'Prime rib',80:'Pulled pork sandwich',81:'Ramen',82:'Ravioli',83:'Red velvet cake',84:'Risotto',85:'Samosa',86:'Sashimi',87:'Scallops',88:'Seaweed salad',

89:'Shrimp and grits',90:'Spaghetti bolognese',91:'Spaghetti carbonara',92:'Guava',93:'Steak',94:'Strawberry shortcake',95:'Sushi',96:'Tacos',97:'Kiwi',

98:'Papaya',99:'Tuna tartare',100:'Waffles'}

img = request.FILES['image']

# file=img.save(filename='1.jpg')

# print(img)

# image = st.file\_uploader(img, type=["JPEG", "JPG", "PNG"])

file\_name = "static/img/upload/pic.png"

default\_storage.save(file\_name, img)

img\_to\_detect =cv2.imread('static/img/upload/pic.png', cv2.IMREAD\_COLOR)

# img=cv2.resize(img, (img\_rows, img\_cols))

# img = cv2.cvtColor(cv2.imread('lena\_caption.png'), cv2.COLOR\_BGR2RGB)

# if(type(image) == type(None)):

# pass

# else:

# print(len(image))

# cv2. imwrite('static/img/save.jpg',img\_to\_detect)

img = cv2.resize(img\_to\_detect, (64,64), interpolation=cv2.INTER\_AREA)

# img = cv2.resize(img\_to\_detect,(64,64))

x = image.img\_to\_array(img)

x = np.expand\_dims(x, axis=0)

imag = np.vstack([x])

classes = model\_dl.predict\_classes(imag, batch\_size=batch\_size)

text = str(dict[classes.item()])

print(text)

wrkbk = load\_workbook(r"calorie.xlsx")

sh = wrkbk.active

for i in range(1,101):

c=str(sh.cell(row=i,column=1).value)

# print(c)

if c == text:

calo =str(sh.cell(row=i,column=2).value)

print("calories",calo)

typr =str(sh.cell(row=i,column=4).value)

if typr == 'yes':

print("Its a junk food-")

elif typr == 'no':

print("Its a healthy food")

# cv2.putText(img\_to\_detect,text,(45,60),cv2.FONT\_HERSHEY\_SIMPLEX,1.25,(255,0,0),5)

# cv2.imshow("Detection Output", img\_to\_detect)

import json

import requests

api\_url='https://api.api-ninjas.com/v1/nutrition?query='

api\_request=requests.get(api\_url + text ,headers= {'X-Api-Key': '5N7iKNAXiJy7N2KjpnKWXg==AH2UJ6cd29gWhXLW'})

try:

api=json.loads(api\_request.content)

# print(api\_request.content)

except Exception as e:

api="oops! There was an error"

print(e)

# return render(request, 'home.html',{'api':api})

context={"text":text,"calo":calo,"typr":typr ,"api":api}

return render(request,'detail.html',context)

**Detail.html**

<style>

body{

background-image: url('../static/img/foo.jpg');

background-repeat: no-repeat;

background-size: cover;

height: 610px;

background-position:center;

margin-left: auto;

margin-right: auto;

}

#val{

background:black;

color:white;

}

</style>

{%include 'nav.html'%}

<div style="

width: 500px;

height: 45rem;

margin: 0px auto;

color: black;

border-radius: 25px;

padding: 10px 10px;

font-weight: bold;">

{% if typr == 'yes'%}

<h1> its a junk food </h1>

{% else %}

<h1 style="color:green;" >its a healthy food</h1>

{% endif %}

{% load static %}

<img src="{% static "img/upload/pic.png" %}" style="width: 250px; height:

20rem; border-color:none">

<h2 class=" bg-primary text-wrap mx-10 " style="text-align: center;

width:60%;" > {{ text }}</h2>

{% if api %}

<h1>It has a total of <strong> {{ calo }} Calories</strong>

</h1>

{%if api.0.sodium\_mg > 1000%}

<div class="alert alert-danger d-flex align-items-center mt-3" role="alert">

<div>

This food contains an high amount of sodium. High Sodium causes Sever

dehydration and water retention.

</div>

</div>

{%endif%}

{%if api.0.sugar\_g > 100%}

<div class="alert alert-danger d-flex align-items-center mt-3" role="alert">

<div>

This food contains an high amount of sugar. Sugar causes insulin spikes

and is a no.1 cause for Obesity.

</div>

</div>

{%endif%}

<div class="col-md-6" id="val">

<h2 class="mt-3 mb-4">Nutritional Values </h2><span></span>

<ul>

<li class="servingsize">Serving Size per 100/Grams <span class="floatend"></

span></li>

<li>Carbohydrates: <span class="floatend">{{

api.0.carbohydrates\_total\_g}}</span></li>

<li>Cholesterol: <span class="floatend">{{

api.0.cholesterol\_mg}}</span></li>

<li>Saturated fat: <span class="floatend">{{

api.0.fat\_saturated\_g}}</span></li>

<li>Total Fat: <span class="floatend">{{

api.0.fat\_saturated\_g}}</span></li>

<li>Fiber Content: <span class="floatend">{{

api.0.fat\_total\_g}}</span></li>

<li>Potassium <span class="floatend">{{

api.0.potassium\_mg}}</span></li>

<li>Protein: <span class="float-end">{{api.0.protein\_g}}</span></li>

<li>Sodium:<span class="floatend">{{

api.0.sodium\_mg}}</span></li>

<li>Sugar: <span class="float-end">{{api.0.sugar\_g}}</span></li>

</ul>

</div>

{%endif%}</div>

**Food.html**

<style>

body{

background-image: url('../static/img/foo.jpg');

background-repeat: no-repeat;

background-size: cover;

height: 610px;

background-position:center;

margin-left: auto;

margin-right: auto;

}

</style>

{%include 'nav.html'%}

<body>

<br />

<h2 style="text-align: center; margin: 0px; color: #9bb827;font-family: 'Times

New Roman', Times, serif;">

<b>SELECT YOUR DIET FRUITS</b>

</h2>

<br>

<div style="

width: 250px;

height: 25rem;

margin: 0px auto;

color: black;

border-radius: 25px;

padding: 10px 10px;

font-weight: bold;

">

<form class="form-signin" method='POST' enctype='multipart/form-data'

action= 'img'>

{% csrf\_token %}

<h2 class="h4 mb-3 font-weight-normal"><b>Please Upload The

Image</b></h2>

<input type="file" name="image" class="form-control-file" id="inputfile"

onchange="preview\_image(event)" style="font-weight: bold;">

<br>

<img id="output-image" style="width: 200px; height: 15rem; bordercolor:

none" class="rounded mx-auto d-block" />

<br>

<button class="btn btn-lg btn-primary btn-block" type="submit" style="fontweight:

bold;">Predict</button>

</form>

</div>

<script type="text/javascript">

function preview\_image(event) {

var reader = new FileReader();

reader.onload = function () {

var output = document.getElementById('output-image')

output.src = reader.result;

}

reader.readAsDataURL(event.target.files[0]);

}

</script>

</div>

</body>

</html>

**PROJECT DEMO LINK:**

1.Git Hub link

<https://github.com/IBM-EPBL/IBM-Project-30017-1660138379>

2.Demo link

<https://drive.google.com/file/d/1UPuvAkw0BUD7ejDoiEFY5HiZd-rEU60t/view?usp=share_link>