INDEX

CHAPTER 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.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.).

1.2 PURPOSE

The main purpose 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.) and also This project helps for people who likes to maintain their fitness by knowing the nutrition fact of food by using this project.

CHAPTER 2

LITERATURE SURVEY

2.1   EXISTING PROBLEM

Some Analyzer always crashes at the time of scanning or doing a other purpose with the high usage of scanner and some Analyzer always load too much of data and does not predict correct results, also in some Analyzer projects there is too much of login and managing procedures are upsetting the users. Due to consumption of network and scanner usage most of their charge drains without any valid reason and also some projects are not giving an accurate result because of a sudden training data.

2.2   REFERENCES

Designing Calorie Counter Smartphone Applications for Effective Weight Loss, Wing, R. R., Lang, W., Wadden, T. A., Safford, M., Knowler, W. C., Berton. Accurate calorie counting algorithm, Woon Zheng Li.A Focused Review of Smartphone Diet Tracking Apps, Global Burden of Disease, Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA, United States. Food Recognition and Calorie Measurement Using Image Processing and Machine Learning Techniques Hemalatha Reddy, Sinhgad Technical Education Society, Soumya , Kumari, Sinhgad Technical Education Society. The Effects of Nutrition Knowledge on Food Label Use Lisa M. Soederberg Miller, Department of Human Ecology, University of California, Davis, One Shields Avenue Davis. My Fitness Pal Calorie Tracker Usage in the Eating Disorders, Ellison JM, Wonderlich SA, Engel SG. Application of modern technology in eating disorder

assessment and intervention. In: Walsh TB, Attia E, Glasofer DR, Sysko R, editors.

2.3   PROBLEM STATEMENT DEFINITION

This project will overcome from the many of the drawbacks from the older projects. It run with a pre trained dataset so in does not require any network facilities. It also does not consume that much of charge so it is very effective. It does not give any working trouble to user because it is very user friendly environment. We also going to give a daily health maintaining tips for get a fit with good health.

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1   EMPATHY MAP CANVAS
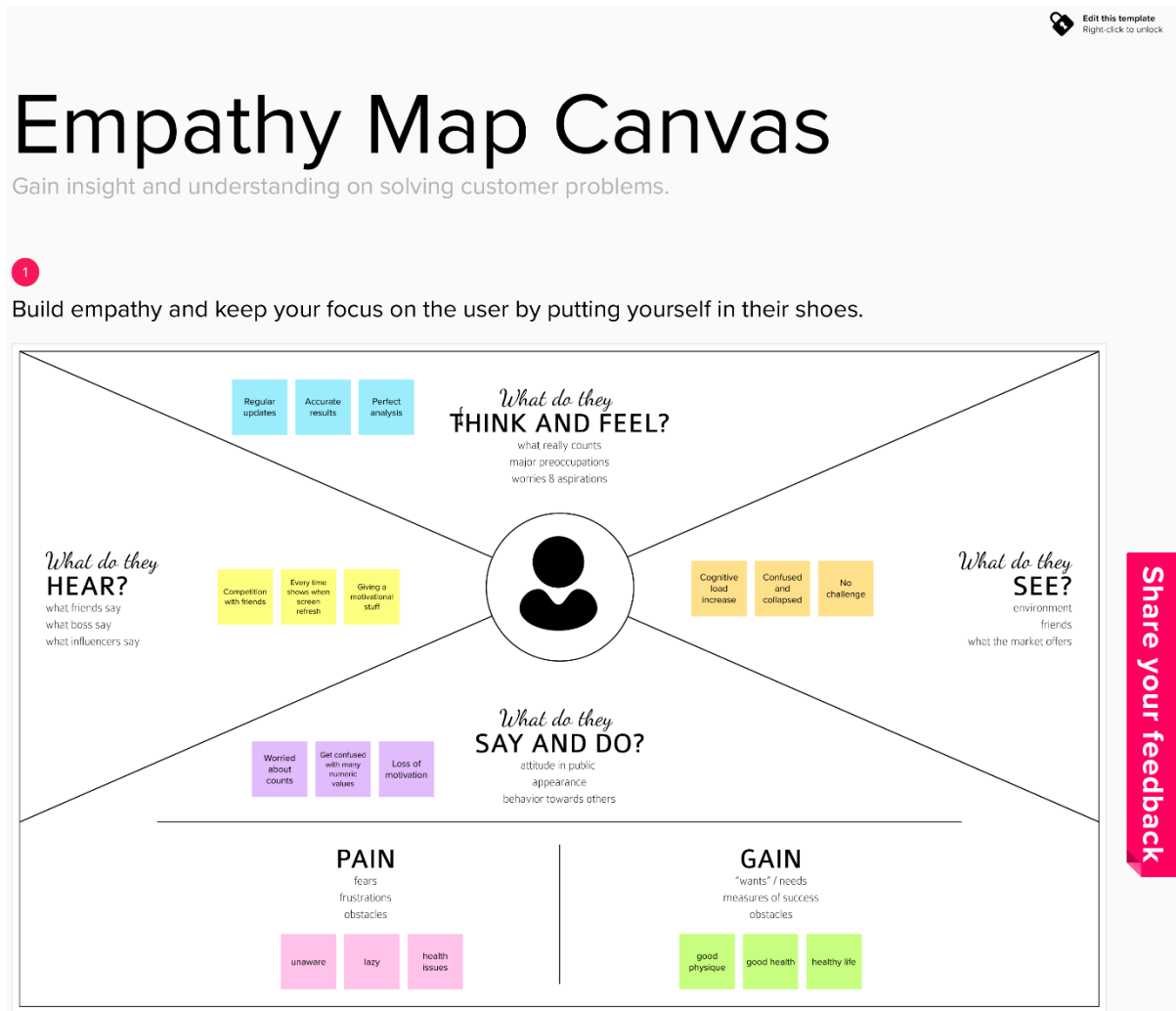
3.2   IDEATION & BRAINSTROMING

3.3 PROPOSED SOLUTION

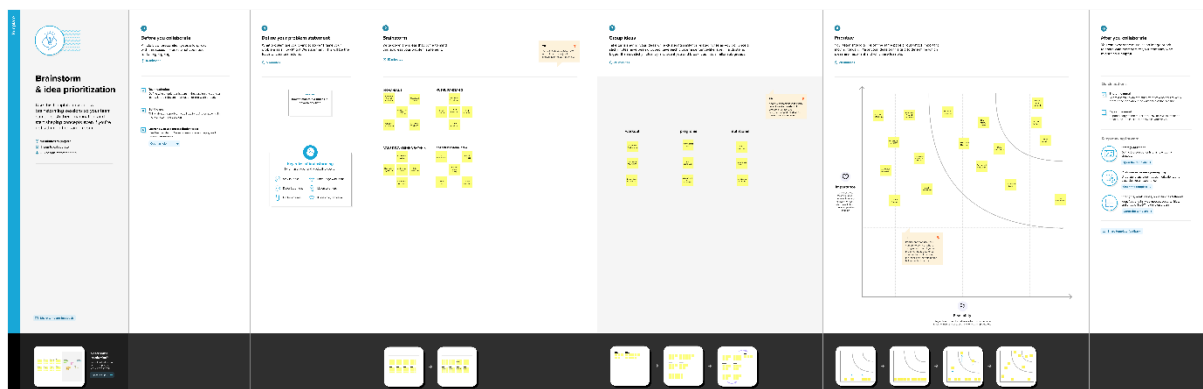| S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	Peoples does't aware about foods and its Nutrition facts.
2.	Idea / Solution description	Solving problem through CNN.
3.	Novelty / Uniqueness	It helps user to get nutrition facts with the suggestion of the scanned food is suitable for user or not. The suggestion is based on user's data and BMI value.
4.	Social Impact / Customer Satisfaction	Users are aware of their food habits by getting food facts.
5.	Business Model (Revenue Model)	By showing a supplements and food advertisements we can earn money through the project.
6.	Scalability of the Solution	Its plays a vital role in users life because it shows and give a suggestions to user so they can control their food habits and maintain their health and fitness.

3.4 PROBLEM SOLUTION FIT

Define CS, fit into CC	**1. CUSTOMER SEGMENT(S)** — CS Everyone from kids to adults can use this app. Can use this app, everyone gats a chace to know and eat the nutrients in their daily food	**6. CUSTOMER CONSTRAINTS** — CC User interface design is the process designers use to build interfaces in software or computerized devices, focusing on looks or style. Designers aim to create interface which users find easy to use pleasurable . UI design refers graphical user interface and other forms.	**5. AVAILABLE SOLUTIONS** — AS Capsule Neural network alternatively We used Convolution Neural Network. **Merits**;It automatically detects the image without human supervision. **Demerits**: Lots of training data set is required.	**Explore AS, differentiate**
Focus on J&P, tap into BE, understand RC	**2. PROBLEMS** — J&P Food is essential to human life and is the concern of many health traditional.Nowaday new food evalution and nutritional analysis tools are used by people in their daily life but all these only capture the nutrients and deficiencies in the food	**9. PROBLEM ROOT CAUSE** — RC • To ensure peoples nutrition • Adulteration in food products • Lack of fake application • Lack of incorrect training	**7. BEHAVIOUR** — BE Peoples always think of their hydrated body maintance And concentrate on the fitness & nutrition	**Focus on J&P, tap into BE, understand RC**
Identify strong TR &	**3. TRIGGERS** — TR This app uses CNN algorithm to analysis the images in the best way so that all the food images are analysis in the best way and highlight the nutrients in them **4. EMOTIONS: BEFORE / AFTER** — EM The nutrition app used by people in their daily life only tells people's dietary habits and nutrtion in food After applying our solution ,what food people should take in their daily life , the nutrition in that food and benefits and disadvantage of eating that food the maximum amount of that particular food should be consumed . And recommend foods to suit people's health	**10. YOUR SOLUTION** — SL AI powered nutrition analyzer for fitness enthusiasts. We are creating an app that makes it easy for people to find out the nutritional benefits and drawbacks of the nutrients in the food they eat in their daily lives. It also includes how much food people should consume using this app.	**8. CHANNELS of BEHAVIOUR** — CH 1. ONLINE We notify the information about of food in application 8.2 OFFLINE You are offline the application show last information about the food	**Extract online & offline CH of BE**

CHAPTER 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIRMENTS

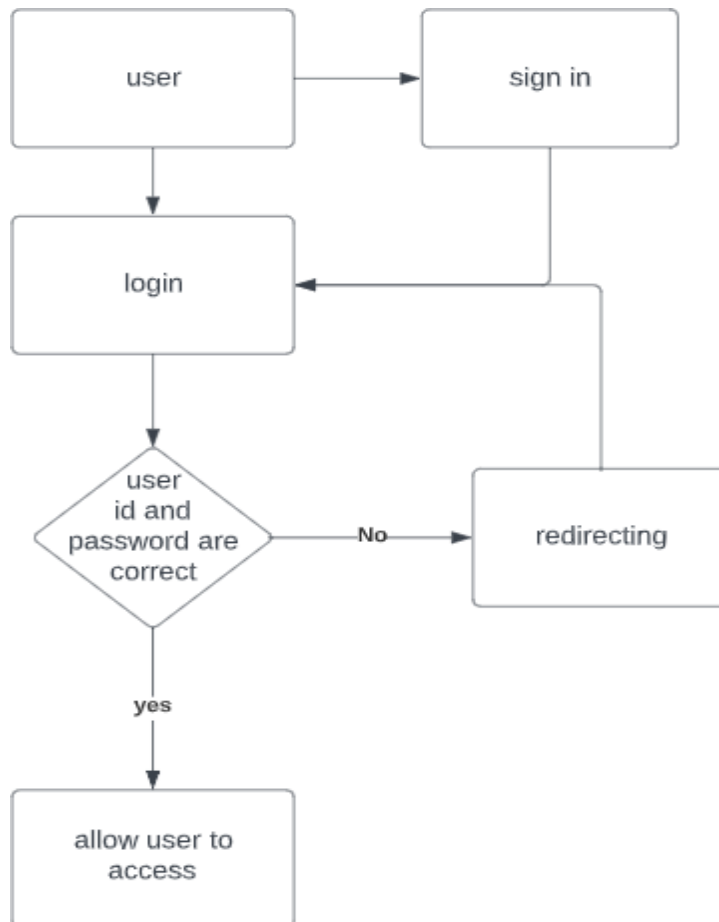| FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Web application Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Personal information	Collecting personal information for calculation

4.2 NON FUNCTIONAL REQUIREMENTS

| FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Efficient for the frequent users, User can easily understand what the application does and feel satisfied with the system.
NFR-2	**Security**	Assures all the data inside the system will be protected against malware attacks or unauthorized access. This application must remain resilient in the face of attacks. The behaviour of the application must be correct and predictable.
NFR-3	**Reliability**	This application must perform without any failure.
NFR-4	**Performance**	This application supporting high amount of users per hour must provide 6 seconds or less response time in a desktop browser, including the rendering of text and images, over an good network connection.
NFR-5	**Availability**	It must be available to user for any time. Users can access any time without any hesitation.
NFR-6	**Scalability**	It construct with scalable so it can supports for many users at a single time.

CHAPTER 5

PROJECT DESIGN
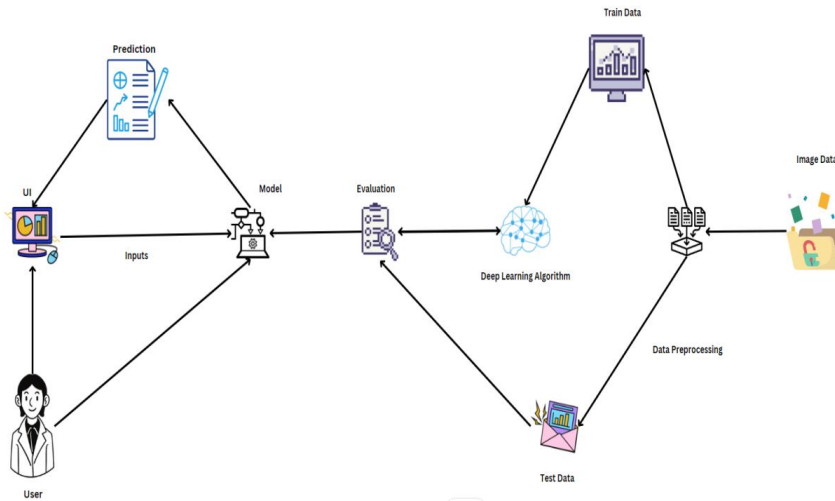
5.1   DATA FLOW DIAGRAMS

DFD LEVEL 0:

DFD LEVEL 1:
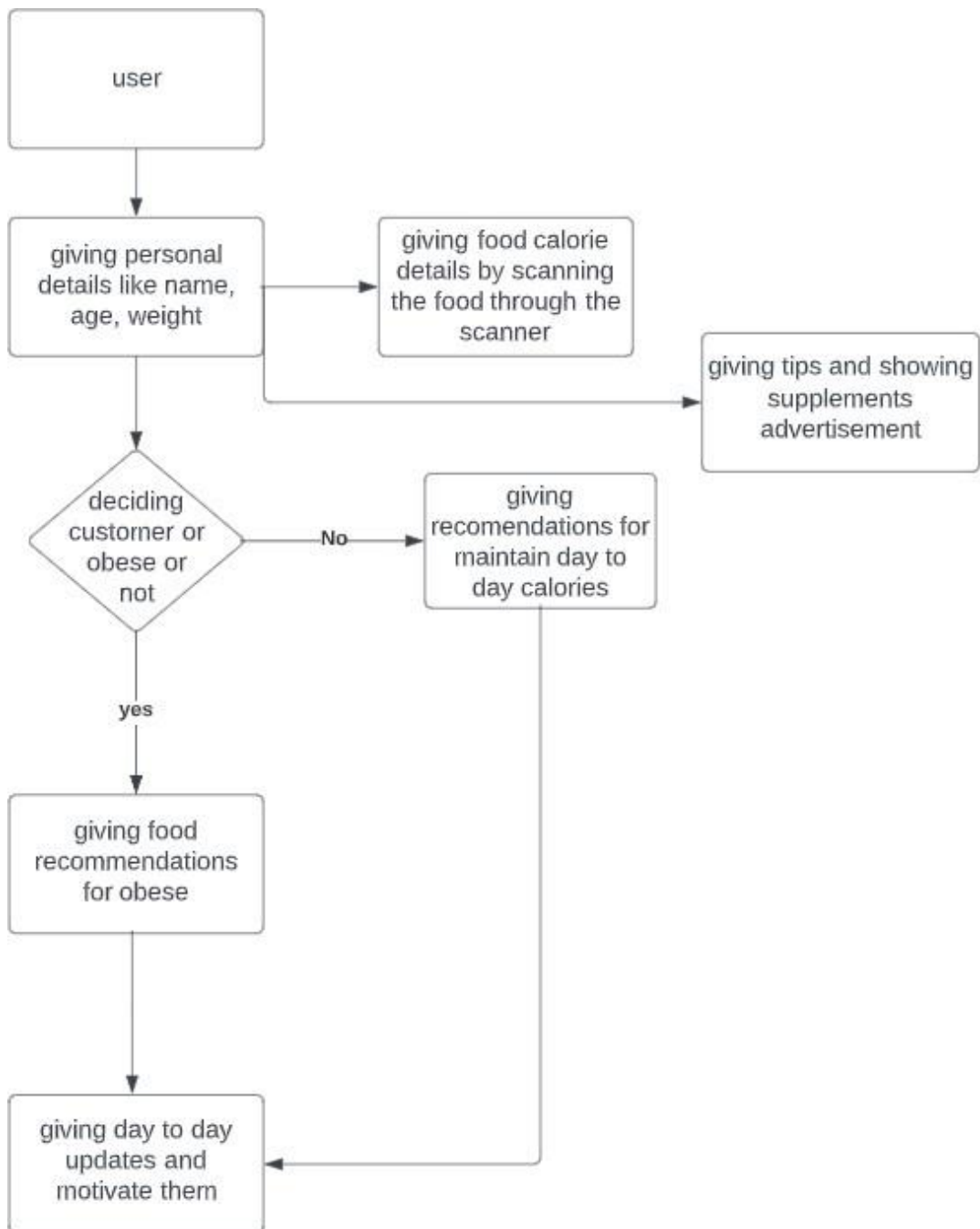
5.2   SOLUTION & TECHNICAL ARCHITECTURE

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 entering my email, password, and confirming my password.	I can access my account/ dashboard	High	
		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	
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	
		USN-4	As a user, I can register for the application through Gmail	I can access my account/ dashboard	Medium	
	Login	USN-5	As a user, I can log into the application by entering email & password	I can access my dashboard	High	
	Dashboard	USN-6	As a user, I can capture the image of the fruit use capture option	Through which I can get the nutrition present in the fruit	high	
Customer (Web user)	Registration/ Login	USN-7	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	
Customer Care Executive		USN-8	As a customer care executive, I can resolve the login issues or any issue of the customer	I can provide support for 24X7.	medium	
Administrator	Application	USN-9	As an administrator I can update the application	I can resolve the bugs which arises for the users of the app	medium	

CHAPTER   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	Registration	USN-1	User can register for the application by entering user name and entering a strong password.	2	High	Muthupandian G
Sprint-1	Login	USN-2	User can login to the application by entering user name and password	1	high	Balasubramanian A
Sprint-2	Upload image	USN-3	User can input the food images into the application's document	1	high	Mohanlal S
Sprint-2	Prediction	USN-4	User can predict the image	1	medium	Muthupandian G
Sprint-3	Recognize fruit	USN-5	User can choose their fruit type	1	medium	Mohanlal S
Sprint-3	Recognize fruit type	USN-6	User can recognize their selected fruit in the output, and recognize it and its benefits	1	medium	Balasubramanian A
Sprint-4	Recognize fruit data	USN-7	User can recognize the fruit colour in the dataset and differentiate it with others	1	high	Vasu Deva Krishna Rayan K

6.2   SPRINT DELIVERY SCHEDULE

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

6.3   REPORTS FROM JIRA
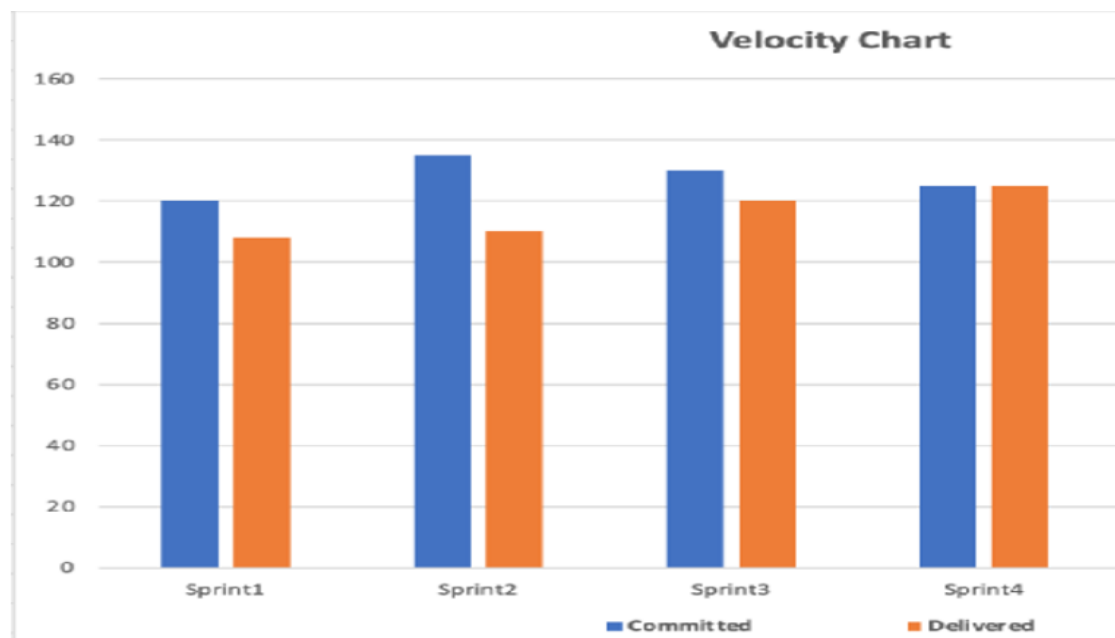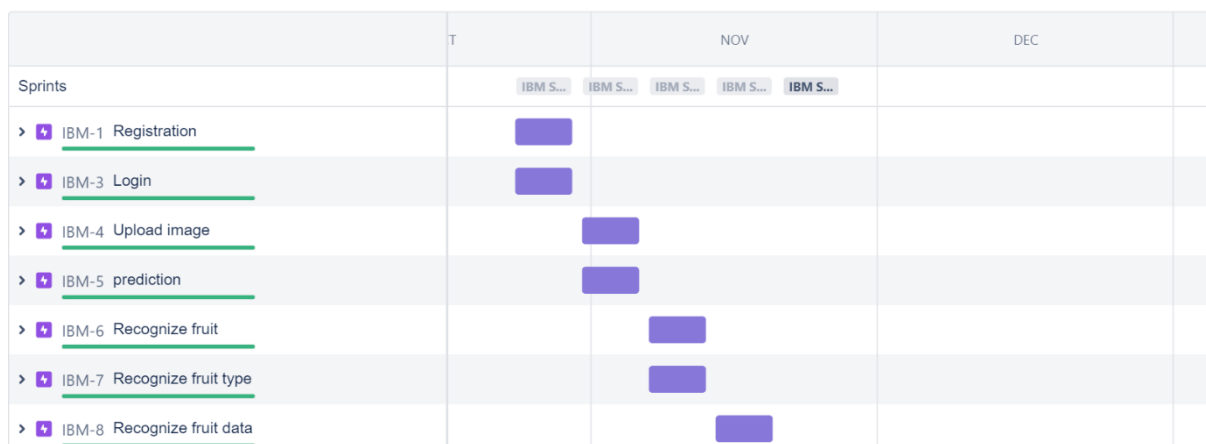
CHAPTER 7

CODING & SOLUTIONING

7.1 FEATURE 1 (IBM WATSON STUDIO)

IBM Watson Studio empowers data scientists, developers and analysts to build, run and manage AI models, and optimize decisions anywhere on IBM Cloud Pak for Data. Unite teams, automate AI lifecycles and speed time to value on an open multi-cloud architecture.

```
pwd

!pip install keras

!pip install tensorflow

import os, types

import pandas as pd

from botocore.client import Config

import ibm_boto3

def __iter__(self): return 0

# @hidden_cell

# The following code accesses a file in your IBM Cloud Object Storage. It includes your credentials.

# You might want to remove those credentials before you share the notebook.

cos_client = ibm_boto3.client(service_name='s3',

    ibm_api_key_id='aX6G_3-rKT8zqbjOMZjt6UPNDvDoCoE7Ms-Fe-0LITqr',

    ibm_auth_endpoint="https://iam.cloud.ibm.com/oidc/token",
```

```python
        config=Config(signature_version='oauth'),

        endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')

    bucket = 'aipowerednutritionanalyzerforfitn-donotdelete-pr-mwavm7mlz3gvz2'

    object_key = 'fruitdata.zip'

    streaming_body_1 = cos_client.get_object(Bucket=bucket, Key=object_key)['Body']

    # Your data file was loaded into a botocore.response.StreamingBody object.

    # Please read the documentation of ibm_boto3 and pandas to learn more about the
possibilities to load the data.

    # ibm_boto3 documentation: https://ibm.github.io/ibm-cos-sdk-python/

    # pandas documentation: http://pandas.pydata.org/

    from io import BytesIO

    import zipfile

    unzip=zipfile.ZipFile(BytesIO(streaming_body_1.read()),'r')

    file_paths=unzip.namelist()

    for path in file_paths:

        unzip.extract(path)

    pwd

    import os

    filenames = os.listdir('/home/wsuser/work/fruitdata/traindata')

    from keras.preprocessing.image import ImageDataGenerator

    train_datagen = ImageDataGenerator(rescale = 1./255, horizontal_flip = True, shear_range =
0.2, zoom_range = 0.2)

    test_datagen = ImageDataGenerator(rescale = 1./255)

    x_train =
train_datagen.flow_from_directory("/home/wsuser/work/fruitdata/traindata",target_size=(64,64),ba
tch_size=5,color_mode='rgb',class_mode='sparse')
```

```python
x_test = train_datagen.flow_from_directory("/home/wsuser/work/fruitdata/testdata",target_size=(64,64),batch_size=5,color_mode='rgb',class_mode='sparse')

print(x_train.class_indices)

print(x_test.class_indices)

from collections import Counter as c

c(x_train.labels)

from tensorflow.keras.models import Sequential

from tensorflow.keras.layers import Convolution2D, MaxPooling2D,Flatten, Dense

model = Sequential()

classifier = Sequential ()

classifier.add(Convolution2D(32,(3,3),activation = "relu", input_shape  = (64,64,3)))

classifier.add(MaxPooling2D(pool_size=(2,2)))

classifier.add(Convolution2D(32,(3,3),activation = "relu"))

classifier.add(MaxPooling2D(pool_size=(2,2)))

classifier.add(Flatten())

classifier.add(Dense(units = 128,activation='relu'))

#classifier.add(Dense(300,activation='relu'))

classifier.add(Dense(units =5, activation ='softmax'))

classifier.summary()

classifier.compile(loss = "sparse_categorical_crossentropy", metrics = ["accuracy"], optimizer = 'adam')

classifier.fit_generator(generator=x_train,steps_per_epoch = len(x_train),epochs=20, validation_data=x_test,validation_steps = len(x_test))

classifier.save('Nutrition.h5')

!tar -zcvf image-classification-model_new.tgz Nutrition.h5

ls -1
```

```python
!pip install watson-machine-learning-client --upgrade

from ibm_watson_machine_learning import APIClient

wml_credentials = {

    "url":"https://us-south.ml.cloud.ibm.com",

    "apikey":"TswEaaF03GI-gBzbxLGUKN6H1WHs-JRYCqFwCUCFmJee"

            }

client = APIClient(wml_credentials)

client = APIClient(wml_credentials)

def guid_from_space_name(client, space_name):

    space = client.spaces.get_details()

    return(next(item for item in space['resources'] if item['entity']["name"] ==
space_name)['metadata']["id"])

space_uid = guid_from_space_name(client, 'imageclassifier')

print("space UID = " +space_uid)

client.set.default_space(space_uid)

client.software_specifications.list()

software_spec_uid = client.software_specifications.get_uid_by_name("tensorflow_1.15-
py3.6")

software_spec_uid

model_details = client.repository.store_model(model='image-classification-
model_new.tgz',meta_props={

    client.repository.ModelMetaNames.NAME:"CNN",

    client.repository.ModelMetaNames.TYPE:"keras_2",

    client.repository.ModelMetaNames.SOFTWARE_SPEC_UID:software_spec_uid}

                )

model_id = client.repository.get_model_uid(model_details)

model_id
```

CHAPTER 8

TESTING

8.1 TEST CASES

Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	Executed By
Home Page_TC_OO1	Functional	Home Page	Verify the home page contents	1.Enter URL and click go	Showing the main contents	Working as expected	Pass	sucessful	Y	Muthupandian G/Vasu Deva Krishna Rayan
Classify_TC_OO2	Functional	Home Page	Upload the file to classify	1.Upload the file 2.Load the data	file load on the trained model in server side	Working as expected	Fail	Steps are not clear to follow	Y	Mohanlal S / Balasubramanian A

8.2 USER ACCEPTANCE TEST

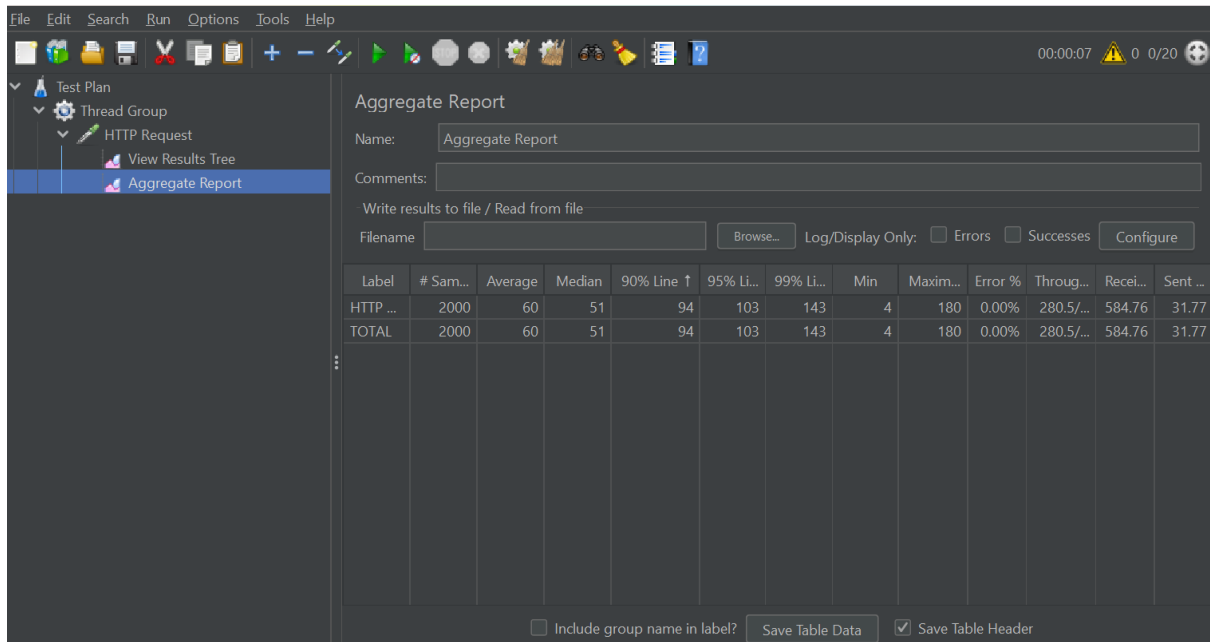| Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	3	20
Duplicate	0	0	0	0	0
External	0	0	0	0	0
Fixed	10	5	0	0	15
Not Reproduced	0	0	0	0	0
Skipped	0	0	0	0	0
Won't Fix	0	5	2	1	8
Totals	20	14	4	4	43

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	10	0	0	10
Security	2	0	0	2
Outsource Shipping	2	0	0	2
Exception Reporting	4	0	0	4
Final Report Output	5	0	0	5
Version Control	2	0	0	2

CHAPTER 9

RESULTS

PERFORMANCE METRICS:

CHAPTER 10

ADVANTAGES & DISADVANTAGES

Nutritional Analysis ensures that the food has optimal requirement of vitamins and minerals wherein the examining of nutrition in food helps in understanding about the fat proportion, carbohydrates dilution, proteins, fiber, sugar, etc., Sometimes it makes a level of disbalance in the balanced diet of an individual. It can improve the level of nutrition among individuals but delivers an inappropriate means of nutritional labeling. Sometimes, it is considered one of the major factors of weight gain. A nutritional program may be defined as an initiative under which food meals or snacks are furnished by any governing authority of a nutrition program provider in this state on a nonprofit basis to individuals. Nutrition programs have many advantages and disadvantages. An advantage is control over what you eat. A nutrition program ensures you are eating what your body needs and limits the amount of unnecessary fat you may eat. A disadvantage is that you aren't as free. A nutrition program limits you, so there isn't as much room for you to choose what to eat. The emphasis on food manufacturers to make accessible, affordable healthy food has also increased. There is a huge need for consumers on low incomes with less access to nutritious food to be prioritised by the food industry, which has a significant role to play in making this possible. Nutrient profiles can act as handrails for product development in the food industry; more nuanced than a traffic light system, they can also be used to motivate consumers to make healthier choices.

CHAPTER 11

CONCLUSION

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 and also this work is demonstrated and run successfully without any difficulty.

CHAPTER 12

FUTURE SCOPE

There is a lot of future scope in this project like it reduces the prior knowledge of nutritional facts studies. Whenever the user needs to know about the food just in tips simple scan. It also makes user to control their own motivation in diet. In future users does not need to be dependent on their nutritional advisor for advices they can able to decide a right nutrition choice without any type of doubts. It also helps a solder to connection with their new economical growth. Because by using this portal to sell a fitness and supplementary products like Whey protein, Pre-Workout, Mass gainers etc., It give a good economical exchange between seller and buyers.

CHAPTER 12

APPENDIX

HTML CODE:

Home.html

```html
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<style>
   .navmo{
 float:left;
 color: whitesmoke;
}
body {
 background-image: url('static/bg.jpg');
 background-size: 100%;
}
.center {
 margin: auto;
 width: 50%;
 padding: 10px;
}
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
```

```css
    overflow: hidden;

    background-color:#8605c6;

  }


  li {

    float: right;

  }


  li a {

    display: block;

    color: yellowgreen;

    text-align: center;

    padding: 14px 16px;

    text-decoration: none;

  }
li a:hover {

      background-color: #8605c6;

      }

</style>
```

```html
<div>
  <nav>
  <ul>
    <li><a href="/image">Classify</a></li>
    <li><a class="active">Home</a></li>
    <p class="navmo">Nutrition image analysis</p>
  </ul>
```

```
</nav>

</div>

<body>

    <div class="center">

        <h1 style="color: red">Today's fact</h1>

        <p>To improve the taste of processed foods, producers often add sugar
to them. This type of sugar is known as added sugar.

        Common types of added sugar include table sugar (sucrose) and syrups,
such as high-fructose corn syrup.

        Everyone knows that eating too much added sugar is unhealthy.

        While some think sugar is a simple matter of "empty" calories, others
believe it increases the risk of diseases that kill millions of people each year.

        It is definitely true that added sugar contains empty calories. There are
no nutrients in it, other than sugar. As a result, basing your diet on products high
in added sugar may contribute to nutrient deficiencies.

        But this is just the tip of the iceberg. There are many other risks
associated with excessive sugar intake that are now reaching mainstream
attention.</p>

        </div>

    </body>

</head>

</html>
```

Image.html

```
<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<style>
```

```css
    .navmo{
 float:left;
 color: whitesmoke;
}
body {
 background-image: url('static/bg.jpg');
 background-size: 100%;
}
.center {
 margin: auto;
 width: 40%;
 padding: 10px;
}
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
    overflow: hidden;
    background-color:#8605c6;
    }

  li {
   float: right;
   }

  li a {
   display: block;
```

```css
        color: yellowgreen;

        text-align: center;

        padding: 14px 16px;

        text-decoration: none;

    }
li a:hover {

        background-color: #8605c6;

        }

        .button {

    background-color: #8605c6;

    border: 10px;

    color: white;

    padding: 15px 32px;

    text-align: center;

    text-decoration: none;

    display: inline-block;

    font-size: 16px;

    margin: 4px 2px;

    cursor: pointer;

    border-radius: 18px;

}
```

```html
</style>
<div>
    <nav>
    <ul>
        <li><a class="active">Classify</a></li>
```

```html
      <li><a href="/">Home</a></li>
      <p class="navmo">Nutrition image analysis</p>
    </ul>
    </nav>
    </div>
    <h1>Upload picture</h1>
    <form action="/action_page.php">
      <input type="file" id="file" name="file">
      <input class="button" type="submit">
    </form>
</head>
</html>
```

Imageprediction.html

```html
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<style>
    .navmo{
  float:left;
  color: whitesmoke;
}
body {
  background-image: url('static/bg.jpg');
  background-size: 100%;
}
.center {
```

```css
  margin: auto;
  width: 40%;
  padding: 10px;
}
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
    overflow: hidden;
    background-color:#8605c6;
    }

    li {
      float: right;
    }

    li a {
      display: block;
      color: yellowgreen;
      text-align: center;
      padding: 14px 16px;
      text-decoration: none;
    }
li a:hover {
        background-color: #8605c6;
        }
</style>
```

```html
<div>
  <nav>
  <ul>
    <li><a class="active">Classify</a></li>
    <li href="/"a>Home</a></li>
    <p class="navmo">Nutrition image analysis</p>
  </ul>
  </nav>
  </div>
  <div class="center">
<h1>Picture is classified as {{result}} </h1>
<p id="demo"></p>


<script>
switch (result) {
  case "APPLES":
    document.write('Calories: 52 Water: 86% Protein: 0.3 grams Carbs: 13.8 grams Sugar: 10.4 grams Fiber: 2.4 grams Fat: 0.2 grams')
    break;
  case "BANANA":
    document.write('110 calories, 0 gram fat, 1 gram protein, 28 grams carbohydrate, 15 grams sugar (naturally occurring), 3 grams fiber, and 450 mg potassium.')
    break;
  case "ORANGE":
    document.write('60 calories,No fat or sodium.,3 grams of fiber.,12 grams of sugar.,1 gram of protein.,14 micrograms of vitamin A.,70 milligrams of vitamin C.')
```

```javascript
      break;
    case "PINEAPPLE":
      document.write('Calories: 83; Fat: 1.7 grams; Protein: 1 gram; Carbs: 21.6
grams; Fiber: 2.3 grams')
      break;
    case "WATERMELON":
    document.write('Calories: 46 · Total fat: 0.2 gram (g) · Carbohydrates: 12 g ·
Dietary fiber: 0.6 g · Protein: 1 g · Sugars: 9.4 g · Water content: 139 g')
      break;
  }
  document.getElementById("demo").innerHTML = "Fruit is classified as " +
result;
  </script>


</p>
</div>
</head>
</html>
```

PYTHON CODE:

```python
from flask import Flask, render_template, request
import os
import numpy as np
from tensorflow.keras.model import load_model
from tensorflow.keras.preprocessing import image
app = Flask(__name__, template_folder='templates')
print('Loaded model from disk')
model = load_model('Nutrition Analyzer.h5')
@app.route('/')
```

```python
def home():
    return render_template('home.html')

@app.route('/image', methods = ['GET', 'POST'])
def image():
    return render_template('image.html')

@app.route('/route', methods = ['GET', 'POST'])
def launch():
    if request.method == 'POST':
        f=request.files['file']
        basepath = os.path.dirname('__file__')
        filepath = os.path.join(basepath, "uploads", f.filename)
        f.save(filepath)

        img = image.load_img(filepath, target_size=(64, 64))
        x = image.img_to_array(img)
        x = np.expand_dims(x, axis=0)

        pred = np.argmax(model.predict(x), axis=1)
        print("prediction", pred)
        index = ['APPLES', 'BANANA', 'ORANGE', 'PINEAPPLE', 'WATERMELON']
        result = str(index[pred[0]])

        x = result
        print(x)
        print(result)
```

```python
    return render_template("imageprediction.html", showcase=(result),
showcase1=(x))

if __name__ == "__main__":

 app.run(debug=False)
```

GITHUB : https://github.com/IBM-EPBL/IBM-Project-6469-1658829727

DEMO VIDEO LINK: https://youtu.be/V-v-LjSw1o8