NUTRITION ASSISTANT APPLICATION A PROJECT REPORT

Submitted by

VINOTHINI.V (610919104102)

KIRUTHIGA.A (610919104039)

VINITHA.T (610919104100)

VALLARASI.K (610919104095)

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THOPPUR, DHARMAPURI- 636 352

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1. <u>INTRODUCTION</u>

a. **Project Overview**

1.Living a healthy lifestyle can help prevent chronic diseases and long-term illnesses. Feeling good about yourself and taking care of your health are important for your self-esteem and self-image. Maintain a healthy lifestyle by doing what is right for your body.

- 2.Good nutrition promotes not only better physical health and reduced susceptibility to disease, but has also been demonstrated to contribute to cognitive development and academic success. Left to their own devices, children willnot automatically select healthy foods.
- 3. Nutrition is the process of consuming, absorbing, and using nutrients needed by the body for growth, development, and maintenance of life. To receive adequate, appropriate nutrition, people need to consume a healthy diet, which consists of a variety of nutrients the substances in foods that nourish the body.
- 4.At last I want to conclude that food and health both are related to each other. Our health depends upon what foodwe eat and how much we eat. Therefore we should be careful while eating.

b. Purpose

The Purpose of our Project is

- i. Nutrition assistant application helps dieticians with providing proper nutrition at healthcare facilities.
- ii. It determine nutritional needs and assets risk factors.
- iii. Nutrition apps can help make life easier for individuals who need to track their food intake for health reasons.
- iv. Nutritional assessment allows healthcare providers to systematically assess the food diagnose malnutrition, identify underlying pathologies in food that lead to malnutrition, and plan necessary interventions.

2. LITERATURE SURVEY

a. Existing Problem:

- i. In this pandemic situation, we need to lead a healthier life by means of taking healthier intake of foods.
- ii. But in our fast moving world while we taking food we can't find a chart and check whether the food isnutritional food or not.
- iii. Thus to overcome that risky we created a application known as nutrition assistant application.

References:

- Djilani Kebaili, Eric Antoine Scuccimarra, Gaurav Singhal, Harris Heritier, Marcel Salathe, Sharada Prasanna Mohanty, Victor Boulanger (2016) "The Food Recognition Benchmark: Using Deep Learning to Recognize Foodin Images", International Conference On Identification And Knowledge On IOT.
- 2. Alisha Lalani, Md.Riyazudin, Mousmi Ajay Chaurasia, Salva Fathima, Syed Ibrahim Ibaad (2022) "Estimation of
- 3. Quantity and Nutritional Information Using Image Processing", International Journal Of Scientific AndEngineering Research.
- 4. Bojia Qiu, Chenxi Huang, Kunhui Lin, Landu Jiang, Xue Liu (2022) "Deep Food: Food Image Analysis and Dietary Assessment via Deep Model", International Journal Of Scientific And Engineering Research.
- 5. Hui Deng, Jianbo Wu, Xianghui Zeng, Ying Wang (2021) "A Comprehensive Survey of Image-Based Food Recognition and Volume Estimation Methods for Dietary Assessment", InternationalConference on Journal Publication.

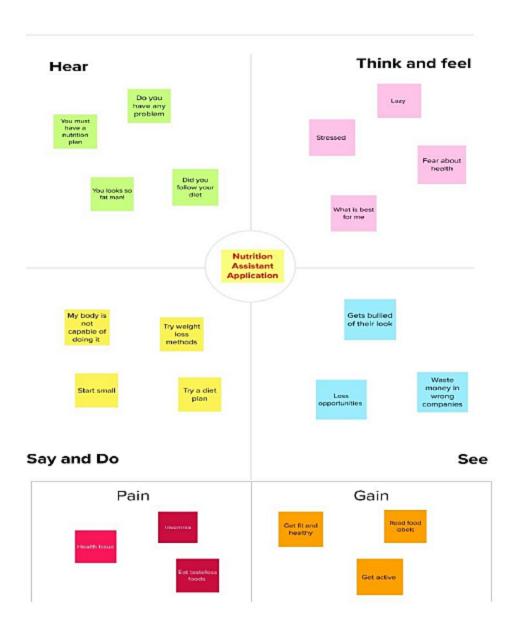
2.3 Problem Statement definition:

- i. The problem statement identifies the current state, the desired future state and any gaps between the two. A problem statement is an important communication tool that can help ensure everyone working on a project knowswhat the problem they need to address is and why the project is important.
- ii. A problem statement is important to a process improvement project because it helps clearly identify the goals of the project and outline the scope of a project. It also helps guide the activities and decisions of the people who are working on the project. The problem

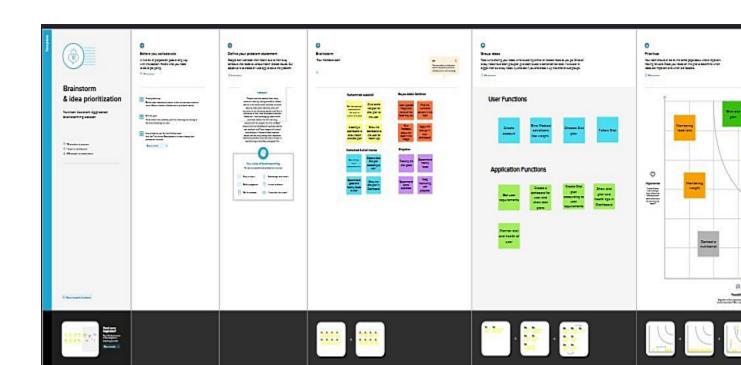
statement can help a business or organization gain support and buy-in for process

improvement project.

- 1. IDEATION & PROPOSED SOLUTION
 - a. **EMPATHY MAP CANVAS**



b. Ideation & Brainstorming



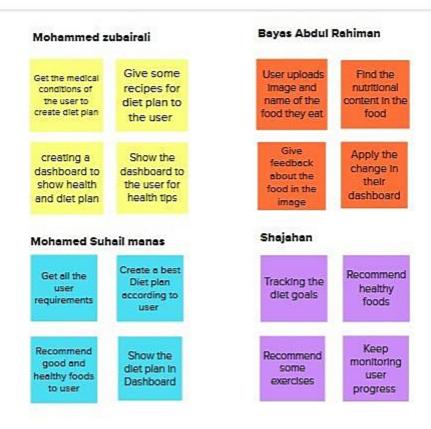
Brainstorm

Four members team

0

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!



c. **Proposed Solution**

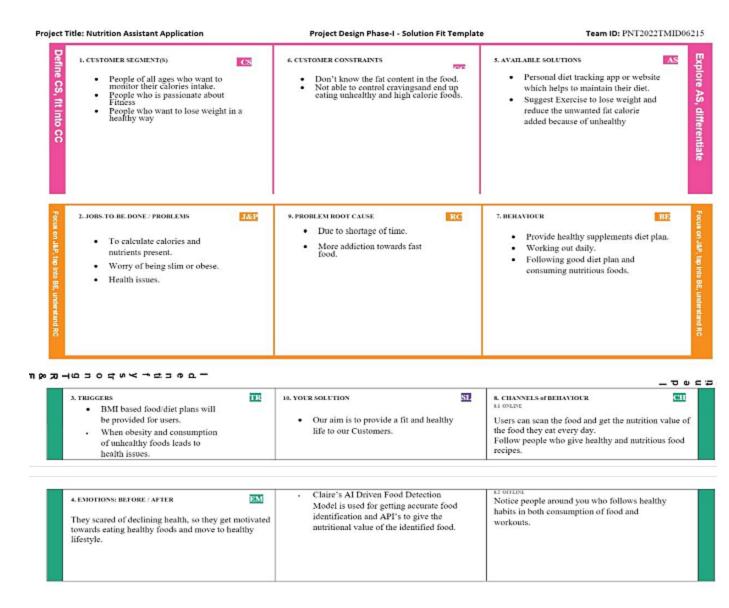
S .No	Parameter	Description
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1	Problem Statement (Problem to be solved)	Due to the ignorance of healthy food habits, obesityrates are increasing at an alarming speed, and this isreflective of the risks to people's health. People need to control their daily calorie intake by eating healthier foods, which is the most basic method to avoid obesity. However, although food packaging comes with
		nutrition (and calorie) labels, it's still not very convenient for people to refer
2	Idea / Solution description	The key research objectives are as follows: • The proposed system would be able to determine the ingredients from the provided image. • The proposed system also consists of a nutrition API, which provides the amount of nutrition present inthe food.
3	Novelty / Uniqueness	The current system is capable of calculating nutrition, but the user must provide food item details manually. We are adding a system that is capable of detecting food items from an image, and this is a uniqueness we made here besides from project constrain.

		Nutrition is a critical part of health and
		development. Better nutrition is related
		to improvedinfant, child, and maternal
4	Social Impact / Customer	health; stronger immune systems; safer
	Satisfaction	pregnancy and childbirth; a lower risk
		of non- communicable diseases (such as
		diabetes and cardiovascular disease);
		and longevity
		It has multiple business models Some
		of it, · An individual can use this
_		application to take care of their diet. •
5	Business Model (Revenue Model)	Nutrition assistants help dieticians with
		providing proper nutrition at
		healthcare facilities.

6	Scalability of the Solution	It provides access to a large number of users at a time with accurate information about nutrition. It can handle a large variety of food items.
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d. Problem Solution fit



2. REQUIREMENT ANALYSIS

a. Functional requirement

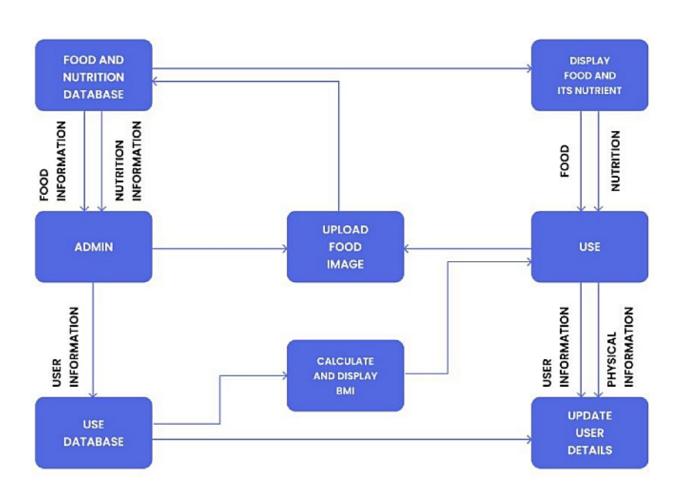
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Gmail Registration through Form Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Diet Plan	can customize based on user needs
FR-4	My Nutrition	Can add or update the existing food plan based on user needs
FR-5	Workout	walking, gym
FR-6	Nutrients Display	Display nutrients through IBM Cloud
FR-7	Consultation	User can get consultation with doctor whenever the user want

b. Non-Functional requirement

FR		
No.	Non-Functional Requirement	Description
NFR-1	Usability	Using Android or IOS or windowsapplication.
	Security	
NFR-2		The user data is stored securely in IBMCloud.
NFR-3	Reliability	The Quality Of the Service are trusted.
NFR-4	Performance	It provide smooth user experience.
NFR-5	Availability	The Service are available for 24 /7.
NFR-6	Scalability	It is easy to scalable size for users.

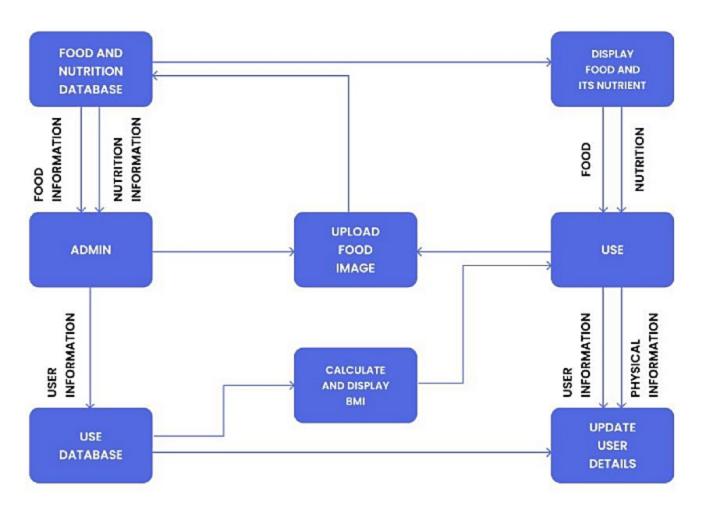
3. PROJECT DESIGN

a. Data Flow Diagram

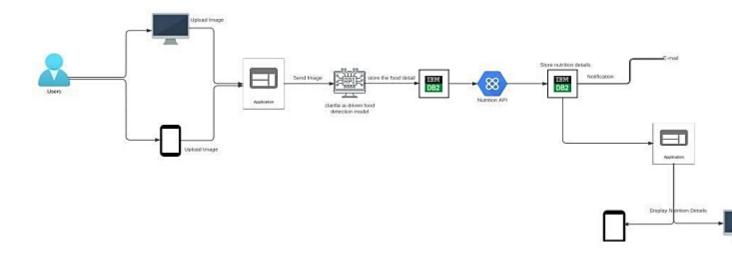


b. <u>Solution and Technical Architecture</u>

Solution Architecture:



Technical Architecture:



c. <u>User Stories</u>

User	Functional	User	User Story /	Acceptan	Priority	Relea
Туре	Requireme	Sto	Task	cecriteria		se
	nt(Epic)	ry				
		Number				
Custom	Registration	USN-1	As a user, I	As a user, I feel	High	Sprin
er			can			t-1
			register for	the site is very		
			the			
			application	secure.		
			by			
			entering my			
			name,			
			e-mail and			
			password.			

Registration	USN-2	As a user, I will	I can receive	Medi um	Sprin t-1
		receive confirmati on email once I have registered for the application.	confirmation email & click confirm.		
Login	USN-3	As a user, I can login to the application throughe mail and password.	I can access myaccount /dashboard.	Medi um	Sprin t-2
Database	USN-4	As a user, I can	I can get the	High	Sprin t-3
		upload image of the meal.	nutritional value of that particular meal		

Administrator	Maintaining	USN-5	Maintaining	I can	High	Sprint-
	details for		detailsfor	access		4
	users		users.	database.		

Security	USN-6	As a user, I	I can access	High	Sprint-
		feel thesite is	my account		1
		very secure.	with mylogin		
			credentials.		

4. PROJECT PLANNING & SCHEDULING

a. <u>Sprint Planning & Estimation</u>

Data Flow Diagrams	Draw the data flow diagrams andsubmit forreview.	09 OCTOBER 2022

Sprint Allocate time for eachand DeliveryPlan everyFunctions	20 OCTOBER 2022
--	--------------------

Prepare Milestone & ActivityList	Prepare the milestones & activity list of the project	21 OCTOBER 2022
Project Development - Delivery of Sprint1, 2, 3 & 4	Develop & submit the developed code by testing it.	IN PROGRESS

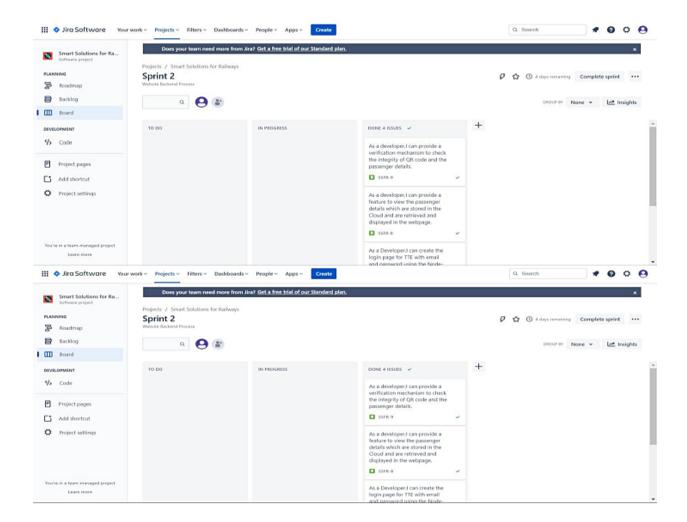
b. <u>Sprint Delivery Schedule:</u>

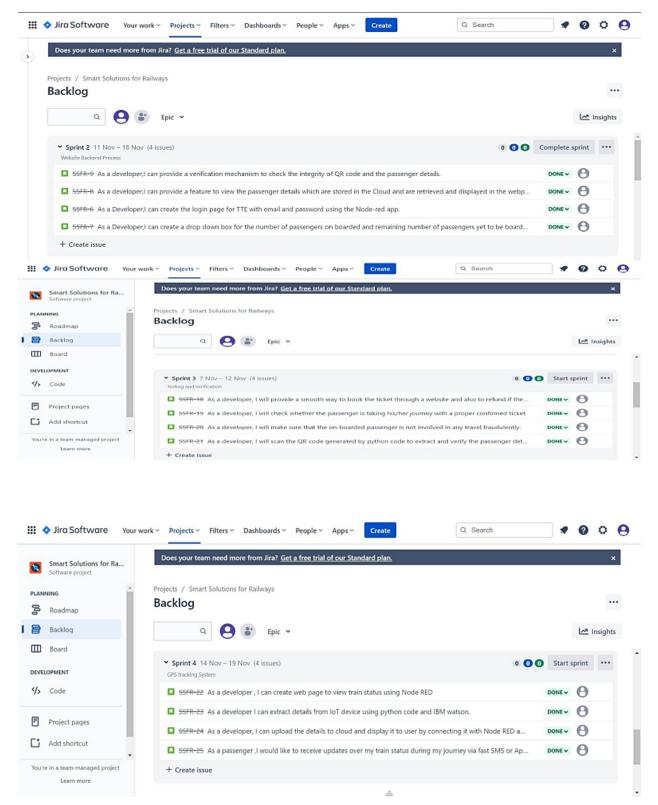
Sprint	Total	Duration	Sprint	Sprint	Story	Sprint
	Story		Start	End Date	Points	Release
	Points		Date	(Planned)	Completed	Date
					(as on	(Actual)
					Planned	
					End Date)	

Sprint-1	20	6 Days	24 Oct	29 Oct 2022	20	29 Oct 2022
			2022			
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	07 Oct 2022
Sprint-3	20	6 Days	07 Nov	12 Nov 2022	20	10 Oct 2022
Sprine 5		5 _ u y5	2022			20 000 202

Sprint-4	20	6 Days	14 Nov	19 Nov 2022	20	15 Oct 2022	
			2022				

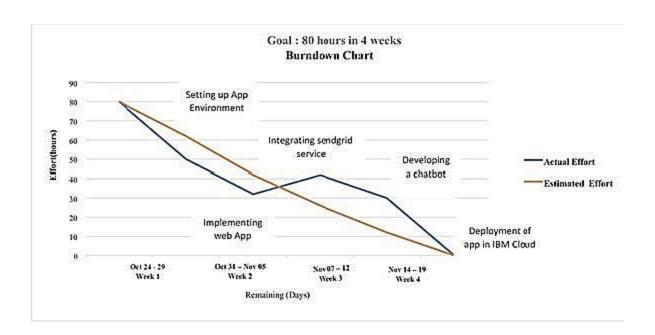
C. Reports from JIRA:





Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containingmeasurable progress over time.



5. CODING & SOLUTIONING

a. Feature 1

we incorporated an email service. This service sends email messages with nutrition-related information directly tocustomers' inboxes.

b. Feature 2

We store the nutrition-related information on the database, so users can access the data when they need it. Adding result into database.

```
insert_sql = "INSERT INTO PERSON VALUES (?,?,?,?)"
prep_stmt = ibm_db.prepare(conn,
insert_sql)
ibm_db.bind_param(prep_stmt, 1,
session['name'])
ibm_db.bind_param(prep_stmt, 2,
session['email'])
ibm_db.bind_param(prep_stmt, 3,
complete_value)
ibm_db.bind_param(prep_stmt, 4,
```

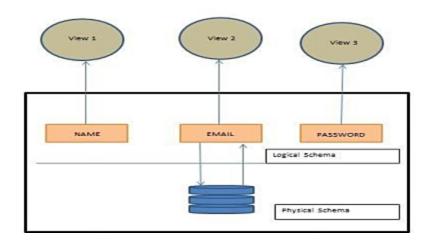
```
current_time)
ibm_db.execute(prep_stmt)

Getting information from the database :

def get_history():

history = []
    sql = f"SELECT * FROM PERSON WHERE email =
    '{session['email']}'"st
    mt =
    ibm_db.exec_immedia
    te(conn, sql)dictionary
    =
    ibm_db.fetch_both(st
    mt)while
    dictionary:history.app
    end(dictionary)
        dictionary = ibm_db.fetch_both(stmt)return history
```

C. DATABASE SCHEMA



TESTING:

import unittest

try:from app import app

except Exception as e:print('Some modules missing {}'.format(e))

class FlaskTest(unittest.TestCase):

check if response is 200def test_index(self): tester = app.test_client(self)response = tester.get("/")statuscode = response.status_code

self.assertEqual(statuscode, 200)

check content typedef test_index_content(self):tester = app.test_client(self)response =
tester.get("/") self.assertEqual(response.content_type, 'text/html; charset=utf-8')

```
tester.post('/',
   data=dict(email='userna
   me',
  password='password'),
  follow_redirects=True)se
  lf.assertTrue(b'email' in
  response.data)
# checking forgot functiondef test_forgot(self): tester = app.test_client(self)
       response =
   tester.post('/',
   data=dict(email='userna
   me'),
   follow_redirects=True)
   self.assertTrue(b'email'
   in response.data)
if name== ' main ': unittest.main()
```

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 [Smart Solutions for Railways] project at the time of the release to User Acceptance Testing (UAT).

2. Defect Analysis

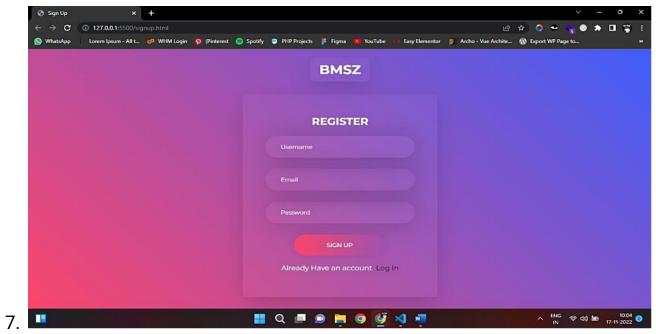
This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

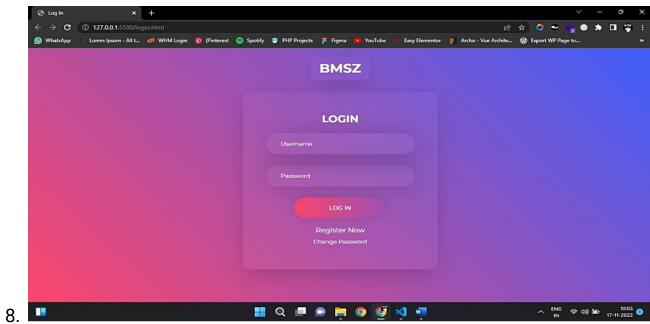
Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	5	2	3	1	11
Duplicate	1	1	0	0	2
External	2	1	0	0	3
Fixed	9	4	5	2	20
Not Reproduced	0	0	1	0	1
Skipped	0	1	0	2	3
Won't Fix	1	0	1	0	2
Totals	18	9	10	5	42

The defect analysis was resolved by,

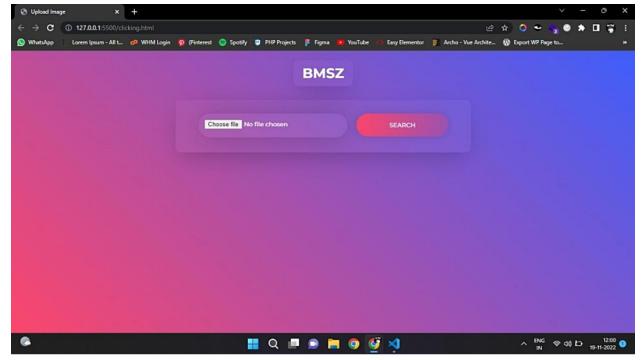
- 1. Reviewing the code and establishing checkpoints.
- Debugging window.
- 3. By working in pairs and conducting team window.
- 4. By developing action plans to cope with specific issues.
- 5. Defect resolution process.
- 6. Prioritize and resolving defect.
- 7. Validating the corrective action presented.

6. RESULTS









ADVANTAGES:

1. Works Under Low Data Connection.

2. Low Energy Consumption.

4. Data Privacy.

5. Easy to Understand.

3. User Friendly Web Application.

- 2. We developed a cloud based nutrition application which detects the nutrition in food. It clarifies the calories in the food which affects our health.
- 3. It is observed that dieticians are requested to carry out the nutritional assessment, to manually calculate the nutritional needs and to design the everyday meal plan for each patient. In most cases, these time-consuming tasksare not completed due to lack of time or inadequate number of person.

<u>Future Scope</u>

- 1. Project scope is a way to set boundaries on your project and define exactly what goals, deadlines, and project deliverables you'll be working towards. By clarifying your project scope, you can ensure you hit your project goals and objectives without delay or overwork. Defining your project scope isn't a one-person job.
- 2. You can work as a Nutritionist/Dietitian there and take control of the food intake and also the food qualityconsumed by the people. With a degree in food and nutrition, you can act as a Public
- 3. Health Nutritionist in non governmental organizations and play your part in spreading some good in the world.
- 4. Future Scope is for the Undergraduates, Graduates and the Working Professionals. They may want to review or reconsider their future options and goals in terms of its suitability now; may be with a different perspective of theiroptions in terms of time, resources, inclination etc.

Source Code

https://github.com/IBM-EPBL/IBM-Project-52683-1661079098/

Demo Link

https://youtu.be/ztOoHGsFj4