

PROJECT REPORT FORMAT

1.INTRODUCTION

1. Project Overview
2. Purpose

2. LITERATURE SURVEY

1. Existing problem
2. References
3. Problem Statement Definition

3. IDEATION & PROPOSED SOLUTION

1. Empathy Map Canvas
2. Ideation & Brainstorming
3. Proposed Solution
4. Problem Solution fit

4. REQUIREMENT ANALYSIS

1. Functional requirement
2. Non-Functional requirements

5. PROJECT DESIGN

1. Data Flow Diagrams
2. Solution & Technical Architecture
3. User Stories

6. PROJECT PLANNING & SCHEDULING

1. Sprint Planning & Estimation
2. Sprint Delivery Schedule
3. Reports from JIRA

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

1. Feature 1
2. Feature 2
3. Database Schema (if Applicable)

8. TESTING

1. Test Cases
2. User Acceptance Testing

9. RESULTS

1. Performance Metrics

10. ADVANTAGES & DISADVANTAGES

11. CONCLUSION

12. FUTURE SCOPE

13. APPENDIX

Source Code GitHub & Project Demo Link

1.INTRODUCTION:

1.1Project Overview:

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 will not automatically select healthy foods.

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.

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.

At last I want to conclude that food and health both are related to each other. Our health depends upon what food we eat and how much we eat. Therefore we should be careful while eating.

For all these needs our platform supports to lead a healthy life.

1.2 Purpose

Nutrition assistant application helps dieticians with providing proper nutrition at healthcare facilities. It determines nutritional needs and assesses risk factors. 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.

Nutrition apps can help make life easier for individuals who need to track their food intake for health reasons. Eating a balanced diet is not always easy, especially when eating out, trying to cook new recipes, or managing the demands of a busy life.

2. LITERATURE SURVEY

2.1 Existing Problem:

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

a. References:

- i. Adnan Shehzad , Hui Su , Jin Lui , Si Chin , Zhidong Shen

(2019) "Machine Learning Based Approach on Food Recognition and Nutrition Estimation", International Conference On Identification, Information And Knowledge In The Internet Of Things(IOT)(IIKI2019).

- ii. Alisha Lalani, Md. Riyazudin, Mousmi Ajay Chaurasia, Salva Fathima, Syed Ibrahim Ibaad (2022) "Estimation

of Quantity and Nutritional Information Using Image Processing”, International Journal Of Scientific And Engineering Research.

- iii. Bojia Qiu , Chenxi Huang , Kunhui Lin , Landu Jiang , XueLiu (2022) “Deep Food: Food Image Analysis and Dietary Assessment via Deep Model”, International Journal Of Scientific And Engineering Research.
- iv. 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 Food in Images”, International Conference On Identification And Knowledge On IOT.
- v. Hazum Kemal Ekenel , Marwa Qaraqe , Seymanur Aktr (2016) “A Mobile Food Recognition System for Dietary Assessment”, International Conference On Identification And Knowledge On IOT.
- vi. Hui Deng , Jianbo Wu , Xianghui Zeng , Ying Wang (2021) “A Comprehensive Survey of Image-Based Food Recognition and Volume Estimation Methods for Dietary Assessment”, International Conference on Journal Publication.
- vii. Manpreetkour Basantsingh Sardar , Dr. Sayyad D. Ajij (2016) “Fruit Recognition and its Calorie Measurement: An Image Processing

b. **Problem statement definition:**

A problem statement is a concise description of the problem or issues a project seeks to address. 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 knows what the problem they need to address is and why the project is important.

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 a process improvement project.

3.IDEATION AND PROPOSED SOLUTION:

3.1 Empathy Map Canvas:

An empathy map is a collaborative tool teams can use to gain a deeper insight into their customers. Much like a user persona, an empathy map can represent a group of users, such as a

customer segment. The empathy map was originally created by Dave Gray and has gained much popularity within the agile community.

3.2 IDEATION AND BRAINSTORM

Define your problem statement:

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

PROBLEM

In this pandemic situation, we are in need to eat a healthy food. But in this fastest world we can't carry a nutrition chart to every place to identify the healthy

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 can break it up into smaller sub-groups.

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.

3.3 PROPOSED SOLUTION:

Proposed SolutionTemplate: Project team shall fill the following information in proposed solution template.

S. N o.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Rate of Obesity are increasing at a high speed, due to the ignorance of the proper Nutrition foods, and this leads to risks in 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, some food packaging has an

		added nutrition and calorie values, but it's not very comfortable to refer.
2	Idea / Solution description	<p>People can easily track the Nutrition and calories by scanning an real-time images of a food and examine it's nutritional content which will improves the dietary habits. Smart nutrition and foodscan prevent diseases. This app will provide proper nutrition, helps in maintaining a healthy lifestyle and also recommended diet plans for users.</p>

3	Novelty / Uniqueness	This solution has the uniqueness that we can realize real time images of meal and can easily analyze its nutritional
		content. A web app that can automatically estimates food attributes such as ingredients and nutrition value by classifying the input image.
4	Social Impact / Customer Satisfaction	The Obesity rate will get reduced and people can be able to lead a healthy life. It helps achieve and maintain a healthy weight.

5	Business Model (Revenue Model)	<p>Social media is the best way to develop this application.</p> <p>This application will increase the confidence among the people. It is great to use, amazing convenience and also have subscription once user hit certain services.</p>
6	Scalability of the Solution	<p>People can access from anywhere at anytime</p> <p>to track the calories and</p>
		<p>nutrition value that will improve a healthy eating pattern.</p> <p>This App will improve the dietary habits and helps in maintaining a healthy weight and healthy lifestyle.</p>

3.4 Problem Solution Fit:

4.REQUIREMENTS :

4.1 Functional Requirements:

Following are the functional requirements of the proposed solution

FR No	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration throughForm.
FR-2	User Confirmation	Confirmation viaEmail.
FR-3	Image Uploading	Calculation of Nutrition level.
FR-4	View History	Enable to view the old result.
FR-5	Delete History	Enable to delete the old result.

4.2 NON FUNCTIONAL REQUIREMENTS:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Using Android or IOS or windowsapplication.
NFR-2	Security	The userdata is storedsecurely inIBM Cloud.

NFR-3	Reliability	The Quality Of the Service are trusted.
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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 sizefor users.

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. A Data Flow Diagram is a traditional visual representation of the information flow within a system.it shows how data enters and leaves the system, what changes the information,and where data is stored.

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5.2 Solution & Technical Architecture:

5.3 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 name, e-mail and password.	As a user, I feel the site is very secure.	High	Sprint -1
	Registration	USN-2	As a user, I will receive confirmation email once I have registered for the application.	I can receive confirmation email & click confirm.	Medium	Sprint -1
	Login	USN-3	As a user, I can login to the application through email and password.	I can access my account /dashboard.	Medium	Sprint -2

Sprint	Functional Requirement (Epic)		User Story Number		User Story/Task		Story Points	Priority	Team
		Database	USN-4	As a user, I can upload image of the meal.	I can get the nutritional value of that particular meal		High	Sprint -3	
	Administrator	Maintaining details for users	USN-5	Maintaining details for users.	I can access data base.		High	Sprint -4	
		Security	USN-6	As a user, I feel the site is very secure.	I can access my account with my login credentials.		High	Sprint -1	

6. PROJECT PLANNING & SCHEDULING

6.1 sprint planning & Estimation

Sprint Delivery schedule

Product Backlog, Sprint Schedule, and Estimation

Use the below template to create product backlog and sprint schedule

6.3 Reports from JIRA

Project Tracker, Velocity & Burndown Chart :

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 containing measurable progress over time.

7. CODING AND SOLUTIONING:

7.1 Feature-1 – E mail Service

To the project, we incorporated an email service. This service sends email messages with nutrition-related information directly to customers' inboxes.

```
def custom_send_mail(email, data):  
    sg =  
    sendgrid.SendGridAPIClient(SENDGRID_API_KEY  
    ) from_email = Email("nutritioninyourlife.foryoy@gmail.com") to_email= To(email) # Change to your recipient  
    subject = "Nutrition is a basic human need and a prerequisite for healthy life"  
    content = Content("text/plain",  
                      f"{data}")  
    mail = Mail(from_email, to_email, subject, content)  
  
    # Get a JSON-  
    ready representation of the Mail object mail_json =  
    mail.get() sg.client.mail.send.post(request_body=mail_json)
```

7.2 Feature – 2 Keeping Records

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(prepare_stmt, 1, session['name'])
ibm_db.bind_param(prepare_stmt, 2, session['email'])
ibm_db.bind_param(prepare_stmt, 3, complete_value)
ibm_db.bind_param(prepare_stmt, 4, current_time)
ibm_db.execute(prepare_stmt)

```

Getting information from the database

```

def get_history():
    history = []
    sql = f"SELECT * FROM PERSON WHERE email = '{session['email']}'"
    stmt = ibm_db.exec_immediate(conn, sql)
    dictionary = ibm_db.fetch_both(stmt)
    while dictionary:
        history.append(dictionary)
        dictionary = ibm_db.fetch_both(stmt)
    return history

```

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 i

    f response is 200

    def test_index(self):
        tester =
        app.test_client(self) res
        ponse =
        tester.get("/") statuscod
        e = response.status_cod
        eself.assertEqual(status
        code, 200)

    # check content type
    def
        test_index_con
        tent(self): teste
        r = app.test_cli
        ent(self)respon
        se= tester.get("
        /")
        self.assertEqual(response.content_type, '
text/html;charset=utf-8')

    def test_register(self):
        tester =
        app.test_client(self)
        response = tester.pos
        t('/register',

```

```

data=dict(email='username',
password='password'),follow_redirects=True)
    self.assertTrue(b'email' in response.data)

# check log in
def test_login(self):
    tester = app.test_client(self)
    response = tester.post('/', data=dict(email='username',password='password'), follow_redirects=True)
    self.assertTrue(b'email' in response.data)

# checking forgot
functiondef test_forgot(self):
    tester = app.test_client(self)
    response = tester.post('/', data=dict(email='username'),follow_redirects=True)
    self.assertTrue(b'email' in response.data)

if __name__ == '__main__':
    unittest.main()

```

RESULT:

Nutrition Assistant

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Nutritional support is the provision of adequate nutrients to maintain a healthy body weight and avoid malnutrition. The continuous delivery of high-quality and cost-effective nutritional care to patients has been shown to be an increasingly difficult task. 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 tasks are not completed due to lack of time or inadequate number of personnel. Development of a web-based tool for calculating nutrition in food, which will help patients and clients maintain their healthier lifestyles. The nutrient content calculation was planned to undertake with commonly consumed traditional as well as junk foods

Welcome Back!

To keep connected with us please login with your personal info.

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Create Account

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Nutrition Assistant

[Home](#)[Signin](#)[Signup](#)[About](#)

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Sign in

[Forgot your password?](#)[SIGN IN](#)

Hello, Friend!

Enter your personal details and start journey with us.

[SIGN UP](#)



Dashboard

Welcome Deva

Log Out

Control panel

Delete All History

History

Thu, 17 Nov 2022 18:29:50

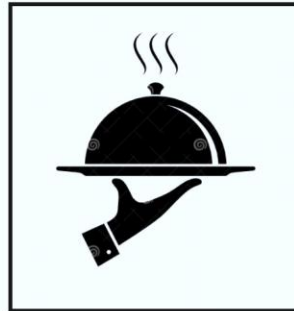
[View](#) [Delete](#)

2022-11-18 01:10:40.288940

[View](#) [Delete](#)

2022-11-18 15:54:03.314245

[View](#) [Delete](#)



Clear Image

Upload Image

No file chosen



Dashboard

Welcome Deva

Log Out

Control panel

Delete All History

History

Thu, 17 Nov 2022 18:29:50

2022-11-18 01:10:40.288940

2022-11-18 15:54:03.314245

2022-11-18 19:47:02

Nutrition Facts

Calories

62.92cal

Total Fat

Daily Value

3.83g

Saturated Fat

1.38g

Polyunsaturated Fat

0.84g

Monounsaturated Fat

1.61g

Cholesterol

163.68mg

Sodium

62.48mg

Potassium

60.72mg

Sugar

0.16g

Protein

5.54g

Carbohydrates

0.32g

Vitamin A

237.6IU

Vitamin C

0.0mg

Vitamin D

0.88µg

Vitamin B5

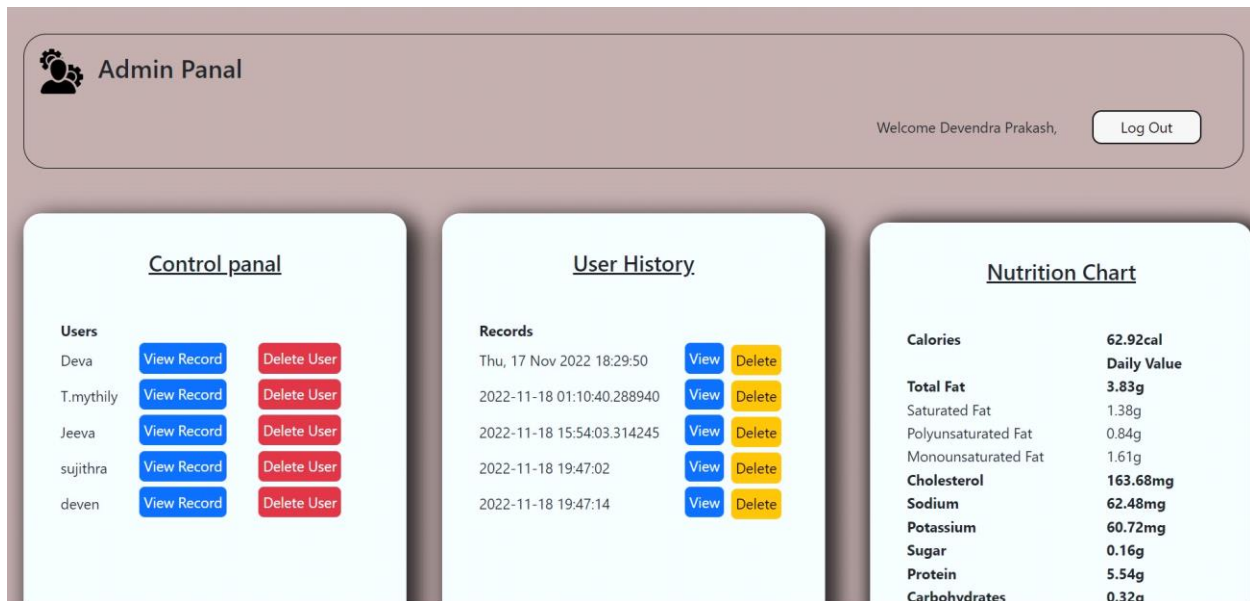
0.67mg

Calcium

24.64mg

Image

No file chosen



ADVANTAGES:

- Low Energy Consumption.
- Works Under Low Data Connection.
- User Friendly Web Application.
- Data Privacy.
- Easy to Understand.

DISADVANTAGES:

- It Cannot be Used Without Internet Connection.
- Usage of 3rd party API may cause the time delay.

• **CONCLUSION:**

Nutritional support is the provision of adequate nutrients to maintain a healthy body weight and avoid malnutrition. The continuous delivery of high-quality and cost-effective nutritional care to patients has been shown to be an increasingly difficult task.

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 tasks are not completed due to lack of time or inadequate number of person.

We developed a cloud based nutrition application which detects the nutrition in food. It clarifies the calories in the food which affects our health.

• **FUTURE SCOPE :**

Associations and effects of foods and nutrients on health. Dietary patterns and health. Molecular nutrition. Health claims on foods.

The scope of a study explains the extent to which the research area will be explored in the work and specifies the parameters within the study will be operating. Basically, this means that you will have to define what the study is going to cover and what it is focusing on.

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.

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 their options in terms of time, resources, inclination etc.

You can work as a Nutritionist/Dietitian there and take control of the food intake and also the food quality consumed by the people. With a degree in food and nutrition, you can act as a Public Health Nutritionist in non governmental organizations and play

your part in spreading some good in the world.

The scope of this field is as follows: Graduates can work as a project assistant, project associate at an organization like PHFI, WHO, UNICEF, health organizations. Work as a chief nutritionist in NGO or private organizations.

APPENDIX: SOURCE CODE

SOURCE CODE- GITHUB LINK:

<https://github.com/IBM-EPBL/IBM-Project-52441-1661004135>

DEMO VIDEO

LINK:<https://youtu.be/P8RiNqI6tm4>