

ANNAI TERESA COLLEGE OF ENGINEERING – THIRUNAVAILUR

AI-powered Nutrition Analyzer for fitness enthusiasts

TEAM ID – PNT2022TMID38702

A PROJECT REPORT

SUBMITTED BY

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PROJECT REPORT

1.INTRODUCTION

1.1 PROJECT OVERVIEW

Food is essential for human life and has been the concern of many healthcare conventions. Nowadays new dietary assessment and nutrition analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. Nutritional analysis is the process of determining the nutritional content of food. It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food

1.2 PURPOSE

The main aim of the project is to building a model which is used for classifying the fruit depends on the different characteristics like colour, shape, texture etc. Here the user can capture the images of different fruits and then the image will be sent the trained model. The model analyses the image and detect the nutrition based on the fruits like (Sugar, Fibre, Protein, Calories, etc.).

2.LITERATURE SURVEY 2.1 EXITING PROBLEM In year 2022, “An AI Fitness Coach Solution”.

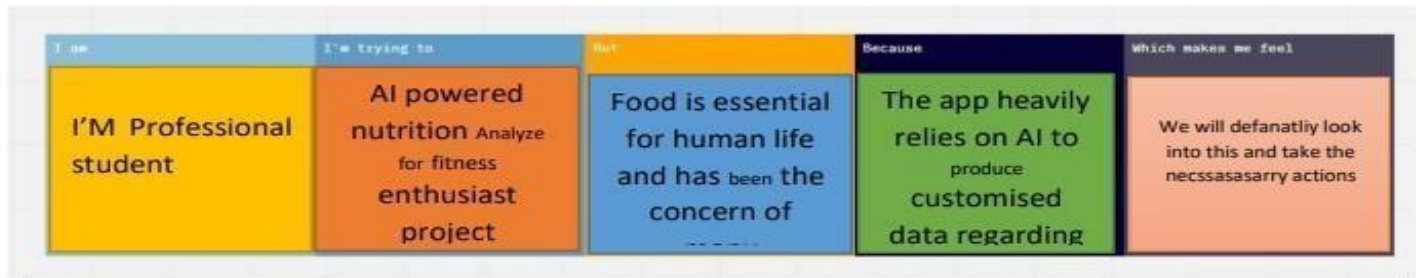
AUTHORS: Vaibahav Singh, Atharava Patade, Gaurang Pawar, Dhanashree Hadsul. Physical activity and exercise can have immediate and long-term health benefits. But when it comes to working out, form is the most important thing. Poor form places undue emphasis on muscles, tendons, and ligaments, leading to strains and sprains. Good form reduces overcompensation and the likelihood of injury. This is one of the many reasons why people work under the guidance of a trainer. Whether one wants to develop an individualised program, or simply feel that they indivisal.

Online coaching and virtual training have emerged as a staple in the fitness industry. Owing to technological advancements, with a suitable application, one can get constant reminders and a much-needed drive to focus more on fitness and nutrition. Over the years, AI has spread its roots in almost every functional area of business. Pose estimation is among the most popular solutions that AI has to offer; it is used to determine the position and orientation of the human body given an image containing a person. Our goal is to implement an automated fitness coach solution which performs all the tasks of a physical personal

2.2 PROBLEM STATEMENT DEFINITION.

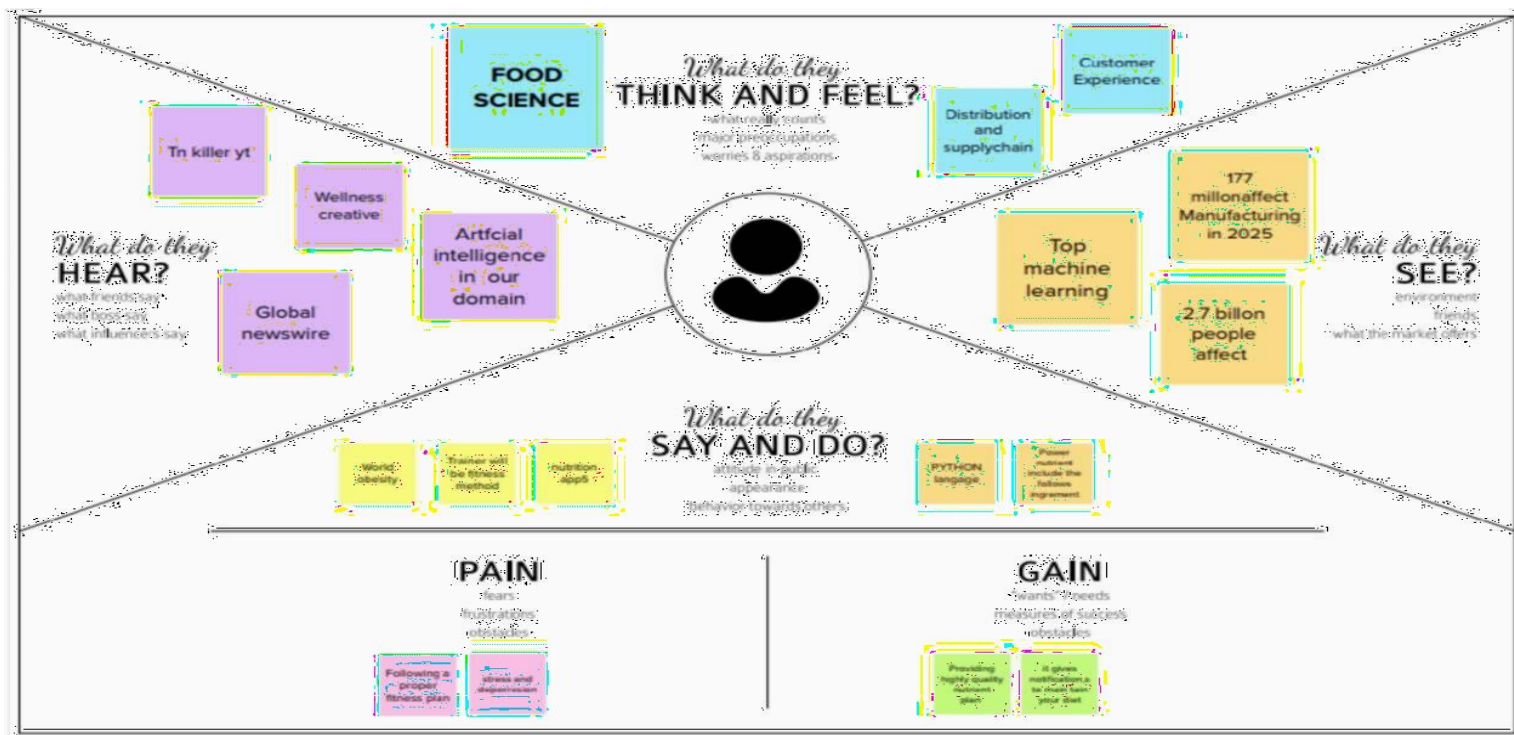
Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love. A well-articulated customer problem statement allows

you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.



3.IDEATION&PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS



3.2 IDEATION & BRAINSTROMING

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

3.3 PROPOSED SOLUTION

3.4 PROPOSED SOLUTION FIT

Problem – Solution Fit Template:

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

Purpose:

- Solve complex problems in a way that fits the state of your customers.

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
You can select a sticky note and hit the pencil icon to start drawing!

Manimaran.P

1. Identify the problem statement
2. Brainstorm ideas that address the problem
3. Prioritize ideas based on feasibility and impact
4. Develop a solution that addresses the problem
5. Test the solution with a small group of users
6. Iterate on the solution based on feedback
7. Launch the solution to a larger audience
8. Monitor the performance of the solution
9. Optimize the solution based on data
10. Scale the solution to a global audience

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Arunkumar.S

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Jothivel.K

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3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, 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.

20 minutes

algorithm is designed to separate the key motion information

Nutritional analysis is the process of determining the nutritional content of food.

This paper proposes an innovative Fitness Tracking app using the


Recent research implies that people's urge to stay healthy and fit has drastically improved and currently, many people are in need to maintain their physical fitness


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

Importance
If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

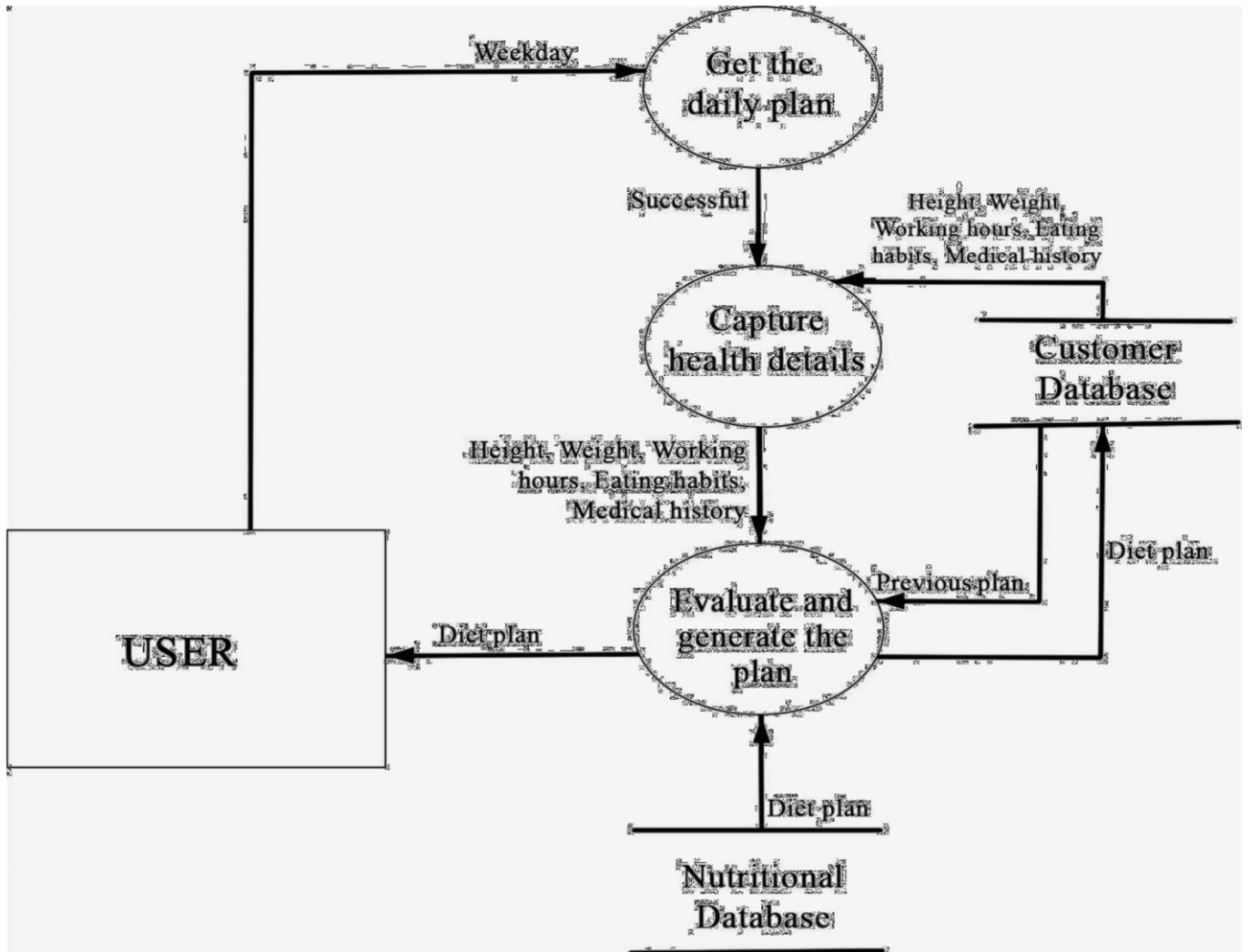
- ➔ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- ➔ Sharpen your communication and marketing strategy with the right triggers and messaging.
- ➔ Increase touch-points with your company by finding the right problembehavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- ➔ **Understand the existing situation in order to improve it for your target group.**

Problem-Solution fit canvas 2.0		Purpose / Vision	
Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS Who is your customer? I.e. working parents of 0-5 y.o. kids Food is essential for human life and has been the concern of many healthcare conventions	6. CUSTOMER CONSTRAINTS CC What constraints prevent your customers from taking action or limit their choices of solutions? I.e. spending power, budget, no cash, network connection, available devices. 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.	5. AVAILABLE SOLUTIONS AS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? I.e. pen and paper is an alternative to digital notetaking Health is a leading Indian health and fitness app whose artificial intelligence powered virtual nutritionist, , helps its users regarding their queries around fitness and nutrition in both audio and text in more than 10 languages
	2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides. Endurance athletes rarely compete in the fasted state, as this may compromise fuel stores. Thus, the timing and composition of the pre-exercise meal is a significant consideration for optimizing metabolism and subsequent endurance performance	9. PROBLEM ROOT CAUSE RC What is the real reason that this problem exists? What is the back story behind the need to do this job? I.e. customers have to do it because of the change in regulations. The app uses AI and image classification technology to identify the food correctly and accurately and also calculated the amount the calories just from the picture. Their proprietary API, called Food	7. BEHAVIOUR BE What does your customer do to address the problem and get the job done? I.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (I.e. Greenpeace) Is yet another online platform which uses deep learning and image recognition to analyse what the users eat and determine what is trending in terms of each popular dish that the user eats and consumption time
3. TRIGGERS TR What triggers customers to act? I.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news. The app heavily relies on AI to produce customised data regarding calorie intake and	10. YOUR SOLUTION SL If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour. macro adjustments thus providing high-quality nutrient plan each week for its users which is generated from its 1+ million foods	8. CHANNELS of BEHAVIOUR CH 8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7 Their proprietary API, called Food AI API has been trained to identify cuisines from across the world	
4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem or a job and afterwards? I.e. lost, insecure > confident, in control - use it in your communication strategy & design. It also integrates with their Food Knowledge Graph that contains a large set of commonly eaten foods,	8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development. Thus making it the most culturally diverse food identification system in the world.		


 Problem Solution fit canvas is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 license
 Created by Daria Nepriakhina / Amaltama.com

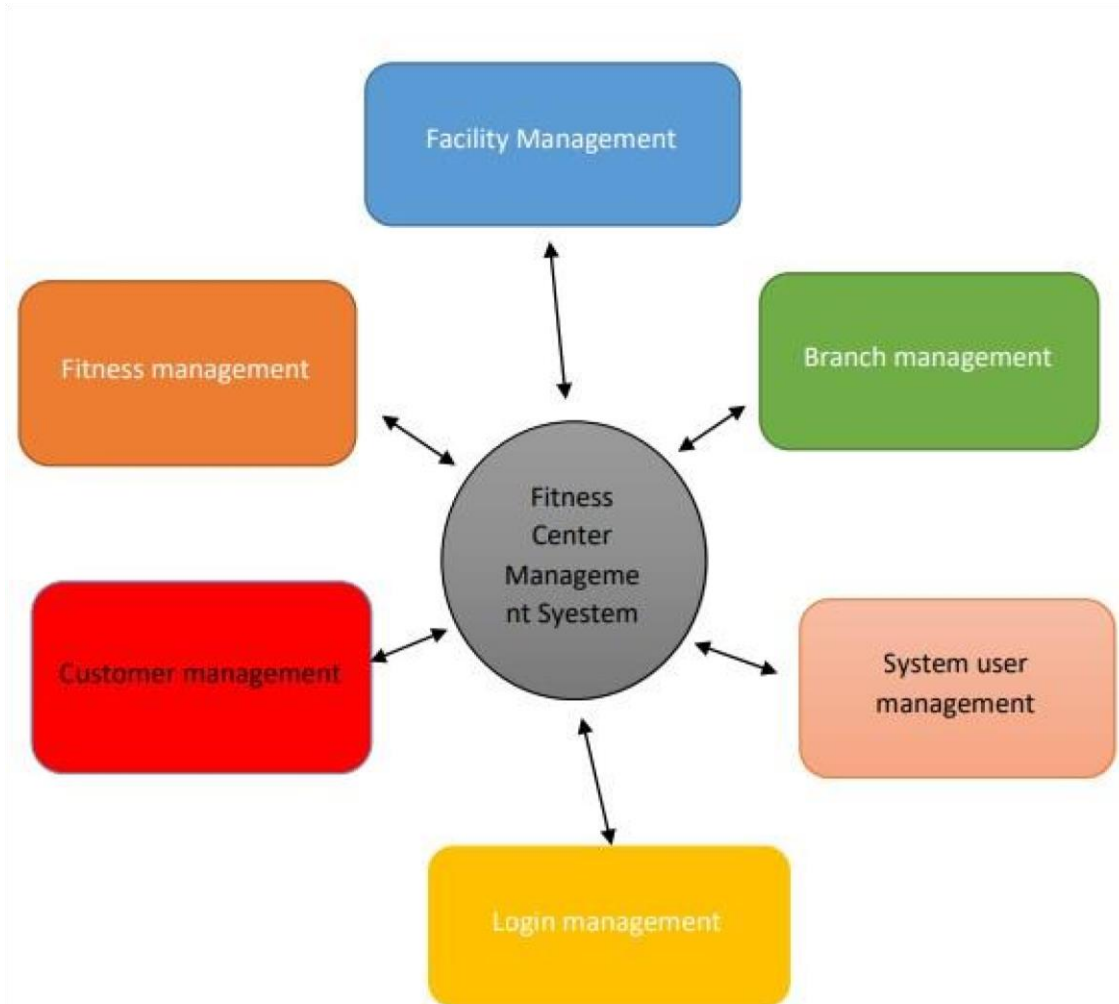

AMALTAMA

3.5 Proposed Solution Architecture



4.PROJECT DESIGN

4.1 DATA FLOW DIAGRAM



Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data stored

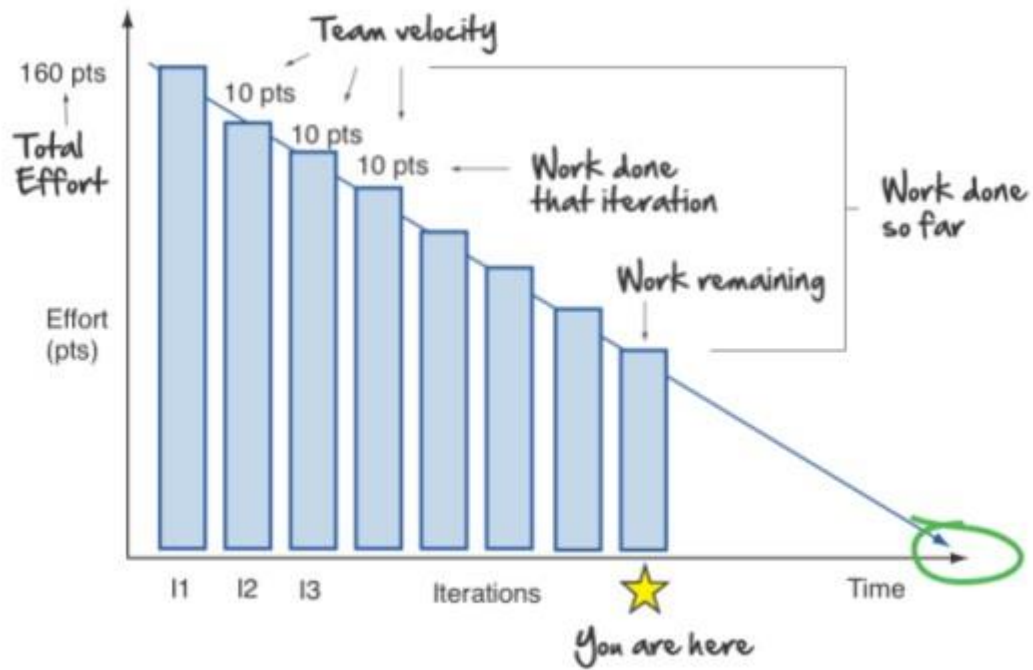
4.2 USER STORIES

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

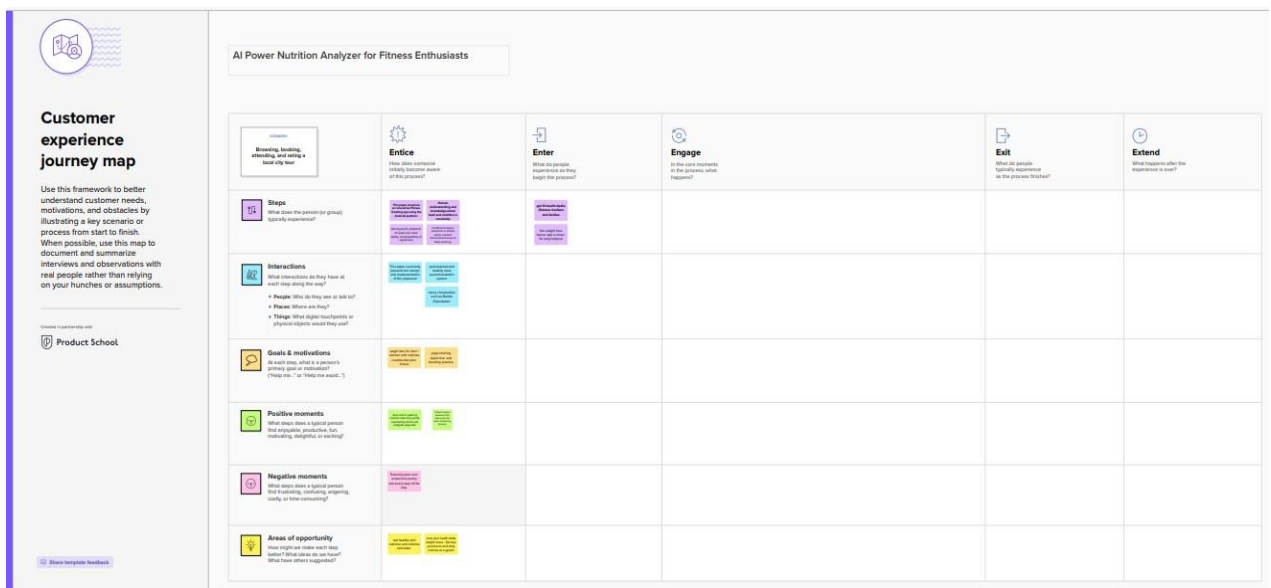
User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / app	High	Sprint-1
		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 Facebook	I can register & access the Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web user)		USN-6	As a user I can fill the detail here	I can register the asked detail	High	Sprint-1
Customer Care Executive		USN-6	User can register in this application directly.	I can access the home page.	High	Sprint-2
Administrator		USD-7	As a administer if can predict the result.	Show the result	High	Sprint-1

4.3 SPRINT DELIVERY SCHEDULE

The delivery plan of project deliverables is a strategic element for every Project Manager. The goal of every project is, in fact, to produce a result that serves a specific purpose. With the word “purpose“, we can mean the most disparate goals: a software program, a chair, a building, a translation, etc.... In project sprint delivery, planning is one of the processes of completing the project and show casing the time line of the project planning. This delivery plan can help to understand the process and work flow of the project working by the team mates. Every single modules are assigned to the team mates to show case their work and contribution of developing the project



4.4 CUSTOMER JOURENEY



4.4 PROJECT PLANING

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through app Registration through use email Registration through fill form and submit
FR-2	User Confirmation	User can register in this application directly you can access the home page.
FR-3	User fill the particular	User fill through the online
FR-4		

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Used to improve the accuracy of the model
NFR-2	Security	In the project we can secure user data safety.
NFR-3	Reliability	Reliability of this project is accessing the model without failure.
NFR-4	Performance	The performance of this project is to improve the burn and plan your diet according
NFR-5	Availability	AI powered nutrition analyzer for fitness enthusiast project the invalment
NFR-6	Scalability	80%-90%

5 source code

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta http-equiv="X-UA-Compatible" content="ie=edge">
  <title>Home</title>
  <link href="https://cdn.bootcss.com/bootstrap/4.0.0/css/bootstrap.min.css" rel="stylesheet"
  <script src="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></script>
  <script src="https://cdn.bootcss.com/jquery/3.3.1/jquery.min.js"></script>
  <script src="https://cdn.bootcss.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
  <link href="{{ url_for('static', filename='css/main.css') }}" rel="stylesheet">
<style> body
{
    background-image:
url("https://www.livingproofnyc.com/wpcontent/themes/livingproof/assets/img/herobackground.jpg")
background-size: cover;
} .bar {
margin: 0px; padding:20px;
```

```
background-color:white;
opacity:0.6; color:black;
fontfamily:'Roboto',sans-serif;
fontstyle: italic;
borderradius:20px;
```

```
font-size:25px;
} h3 { margin: 0px; padding:20px; background-
color:#9ACD32; width:
800px; opacity:0.6;
color:#000000;
fontfamily:'Roboto',sans-serif;
fontstyle: italic;
borderradius:20px; font-
size:25px;
} a { color:grey;
float:right;
textdecoration:none; font-
style:normal; padding-
right:20px;
} a:hover{
backgroundcolor:black;
color:white;
borderradius:15px;
fontsize:30px;
paddingleft:10px;
} .div1{ background-color:
lightgrey; width: 500px;
border: 10px solid peach;
padding: 20px; margin: 20px;
height: 500px; }
```

```

.header { position: relative;
top:0;      margin:0px;      z-index:
1;      left: 0px;      right: 0px;

      position: fixed;      background-color: #8B008B ;      color: white;      box-
shadow: 0px
8px 4px grey;      overflow:
hidden;      padding-left:20px;      font-family: 'Josefin Sans';      font-size: 2vw;
width: 100%;      height:8%;      text-align: center;
}
.topnav { overflow: hidden; background-color: #FCAD98; }

.topnav-right a { float: left; color: black; text-align: center; padding:
14px 16px; text-decoration: none; font-size: 22px; }

.topnav-right a:hover { background-color: #FF69B4; color: black; }

.topnav-right a.active { background-color: #DA70D6; color: black;
}
.topnav-right {
float: right;
padding-right:100px;
}
</style>
</head>
<body>

```

```

<!--Brian Tracy-->

```

```

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

```


analysis tools enable more opportunities to help people understand their daily eating habits, exploring nutrition patterns and maintain a healthy diet. Nutritional analysis is the process of determining the nutritional content of food. It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food. It ensures compliance with trade and food laws.</h3>

</center>

</h1>

</body>

</html>

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