

AI-POWERED NUTRITION ANALYZER FOR FITNESS ENTHUSIASTS PROJECT REPORT

1.INTRODUCTION

1.1 PROJECT REVIEW:

- The science of food and nutritional analysis has developed rapidly in recent years
- Food scientists analyze foods to obtain information about their composition, appearance, texture, flavor, shelf life, etc., and also to guarantee the quality of the product.
- the term food and nutritional analysis is often thought only to be concerned with the determination of food composition and its nutritive value/quality.
- Food is essential for human life and has been the concern of many healthcare conventions
- It is a vital part of analytical chemistry that provides information about the chemical composition, processing, quality control and contamination of food.
- 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:

- 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.
- 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

2.LITERATURE SURVEY

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2.1 Existing problem

S.NO	TITLE AND AUTHOR	METHODOLOGY	ADVANTAGE	DRAWBACK
1	AI Mathematical AI based Diet Analysis and Transformation Model (2018)- L.K.Gautham ,S.A.Ladhake.	The AI Based mathematical model for diet optimizing using fuzzy algorithm and search space methaheuristic algorithm	Solve the common national problems of public health problems.	In this model not to be reached well.
2	Food Recognition based on Deep Learning Algorithms(2022)- Roslina Mohamad,Shahrani Shabuddin.	The model based on Convolution Neural Network(CNN).	Easily to Recognises of Training foods.	In this model backup details is not recorded on the database
3	Food Recognition and Calorie Measurement and image Processing(2019)- Karan Gigoo, Vinitha Muralidharan.	The model based on Convolution Neural Network(CNN).	In this model 78.7% testing accuracy with 93.29% training accuracy.	It is clearly lacking appropriate regulations and some ethical ,and financial transformation
4	Diet Monitoring and Health Analysis Using Artificial Inteligence(2019)- R.Divya , S.Vithiya Lakshmi.	The model based on IOT and visual seniors.	Model can be identified accurately by the classifiers.	AI cannot learn to think outside the box.
5	Healthily Me(2012) Trushar Vahisht and Mathew Cherian.	The food in plate technique and approach to life that we all need to embrace whole - heartedly.	This is software and include the lifestyle tracker ,first calorie counter are valuable	It's take some time otherwise platform is good.

2.2 REFERENCES:

1. Jeukendrup A.E.,Killer S.C. The myths surrounding pre-exercise carbohydrate feeding .

2. Coyle E.F.,Coggan A.R.,Hemmert M.K.,Lowe R.C., Walters T.J. Substrate usage during prolonged exercise following a preexercise meal.

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3. Ahlborg-Conus N., Felig P. Influence of glucose ingestion on fuel-hormone response during prolonged exercise.

4. Marmy-conus N., Fabris S. Preexercise glucose ingestion and glucose kinetics during exercise.

5. DeFronzo R.A., Ferrannini E., Hendler R., Felig P., Wahren J. Regulation of splanchnic and peripheral glucose uptake by insulin and hyperglycemia in man.

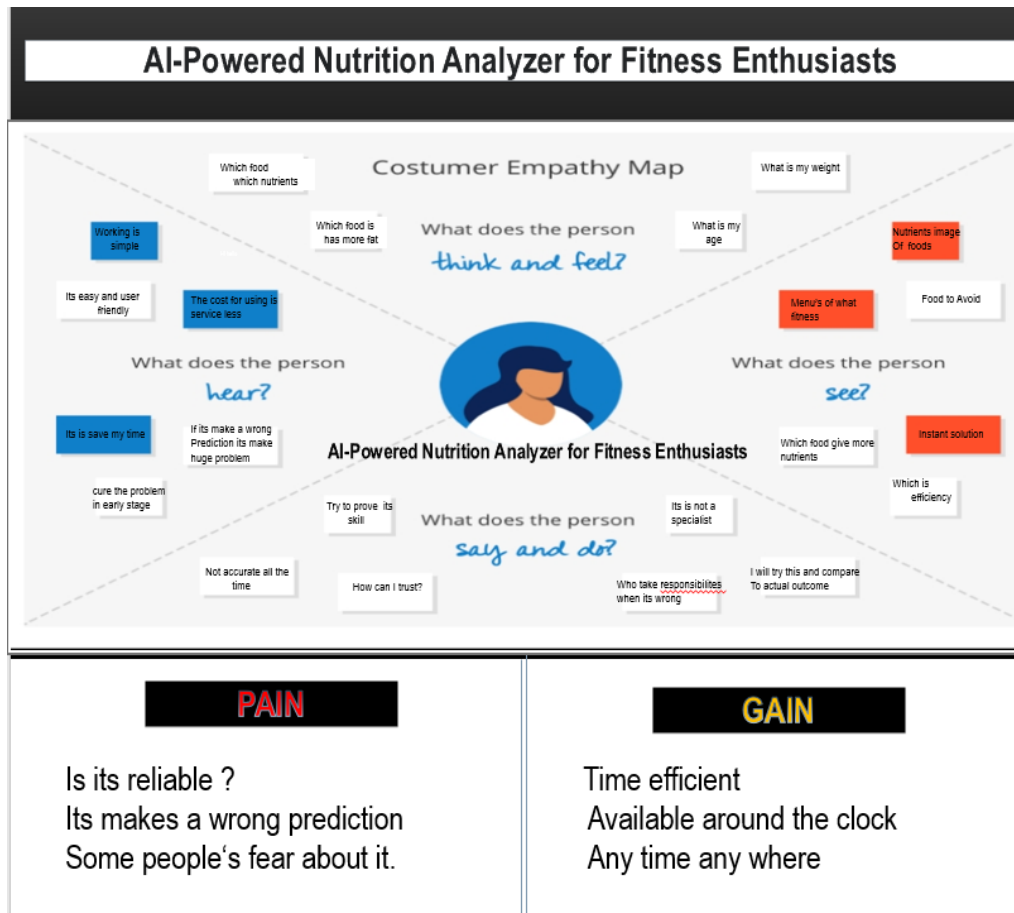
2.3 PROBLEM STATEMENT DEFINITION:

- Person 1-Diabetes person who can't control the sugar level because of busy and not able to take a food on time.
- Person 2-The person who wants classification of fruits and find the values of nutrients in food.
- Person 3-Obesity person who tries fit body and if he is a foody person ,likes varieties of foods and which makes him Tired.
- Person 4- Old peoples whose try to keep good health but not able to have a proper medicine due medicine price so they become weaker.
- Person 5 - Sport person who tries to get more energy but not much knowledge in food, because of lack of food information so he can't take proper stamina.

3. IDEATION & AND PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS:

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3.2 IDEATION AND BRAINSTORMING:

- We need to create a application for fitness enthusiasts to monitor their nutrients intake and tracking their diet.
- An for identify the fruits and their nutrients value based on the user providing image.
- To create full functional application to track and maintain healthy life style.
- AI algorithm which understand and predict the nutritional, fitness and proteins in your body.

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- From this application the user can provide and plan to prepare his own diet chart.
- AI which is also helpful to avoid the human error which is imbalanced in food.
- It predicts the complex and non-linear interaction between nutrients.
- This application also reminds the water intake notification based on water content in your body.
- Articles and blogs related to fitness and healthy lifestyle.
- This application which also helps in diet and health tracking application.
- Tracking your health condition which leads to improve your health and fitness of your body.
- This is easy as getting the image as input from user for processing the image.
- This is also known for a Weight management tool.
- It will calculate the proteins and calories according to the given user input.

3.3 PROPOSED SOLUTION

S.No	Parameter	Description
1	Problem Statement (problem to be solved)	Nutrition Analysis tools enable more opportunities to help people understand their daily eating habits and diet plans.

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2	Idea / Solution description	To track the nutrition level of foods like fruits and vegetables . Its help to identify the energy and vitamins on foods.
3	Novelty / Uniqueness	To track all kind of health information's and giving eating schedules according to their body conditions.
4	Social Impact / Customer Satisfaction	User friendly ,affordable cost, Easy to use and exploring all kinds of foods and knows what they have vitamins on eating foods.
5	Scalability of the Solution	To increase the strong mental ability and expanded for more accurate decisions.
6	Business Model (Revenue Model)	Health conscious is to be important in our life. So the model will give good result and profit side give good result

3.4 PROBLEM SOLUTION FIT

1.Customer Segments

- *Who are looking to get in fit and need some motivation people like to track their progress and looking for New workout time and additionally get dissatisfied With existing system and fitness applications.*

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2. Jobs to be done / problems

- *Healthy diet plan, Quality Control of Rich food recommendations, different nutrition pattern, Nutritional analysis, classification of food based on its Nutrients.*

3. Triggers

- *Customers often prefer to share their achievements on social media.*
- *This makes them motivated and push themselves to work more .*
- *Thus helps us to increase the users.*

4. EMOTIONS: BEFORE / AFTER

- *BEFORE: depressed, Exhausted, Confused, feel bad*
- *AFTER: Confidence , Encouraged , motivated ,became Physically and mentally fit.*

5. AVAILABLE SOLUTIONS

- *So many applications have like Health time , My fitness pal, Everfit , NutriAdmin , FitBudd , Meez, apicbase, Nutrisum, Nutritics and DietMaster etc....*

6. CUSTOMER

- *It is undeniably simple and easy to use.*
- *The user can get accurate diet and food plans.*
- *It helps to set a routine to your life.*

7. BEHAVIOUR :

- *Consulting doctors or Nutritionist, Enquires about the food to be refer articles, videos, exercise do it, searching in websites etc...*

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8. CHANNELS OF BEHAVIOUR :

- *ONLINE - Customers can make their own watch others workouts, diet plans and healthy in customized features and checking websites related on nutrition*
- *OFFLINE- Customer can see their precious activity records, able to get diet plan , Tips regarding their past workouts and they can manage their schedule time*

9. PROBLEM ROOT CAUSE :

- *Due to lifestyle, Availability of low quality and nutrition less food, improper diet plan, lack of health related awareness, Emotional not well, not following Timing for foods and not have good sleep.*

10. YOUR SOLUTION :

- *Personalized nutrition*
- *Vegan plant-based nutrition*
- *Clarity on diet myths and nutritional fake news*
- *Healthy meal kit delivery service*
- *Deep knowledge about nutritional education*
- *Tracking your food habit.*
- *Sleep tracker.*

4. REQUIREMENT ANALYSIS:

4.1 FUNCTIONAL REQUIREMENTS

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1.System Interface

A furit classification processing system – The system will access the user information processing system via its web services.

2.User Interfaces

User of the system will have access to graphical user interface. There is no command line user interface.

3.Hardware Interfaces

The user must have a smartphone or laptop

4.Software Interfaces

The app will be built using Python Framwork

5.Performance Requirements

The performance requirements are as follows:

- *System login shall take less than 5 seconds.*
 - *Only one user can login from same device.*
 - *Shall return results within 10 seconds.*
 - *Diet plans shall be processed within 120 seconds.*
- App will be working 24 hours a day and 7 days a week.*

4.1 NON-FUNCTIONAL REQUIREMENTS

1.Reliability :

The average time of failure shall be 7 days. If the app crashes then a backup should be given in 7 days.

2.Availability :

available to userTs 24 hours a day, 7 days a week. If the bug appears then it should be handled within 12 hours.

3.Security :

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Users will be able to access only their personal information and not that of other users. Medical conditions and payment methods will be handled through a secure server to ensure the protection of user's credit card and personal information.

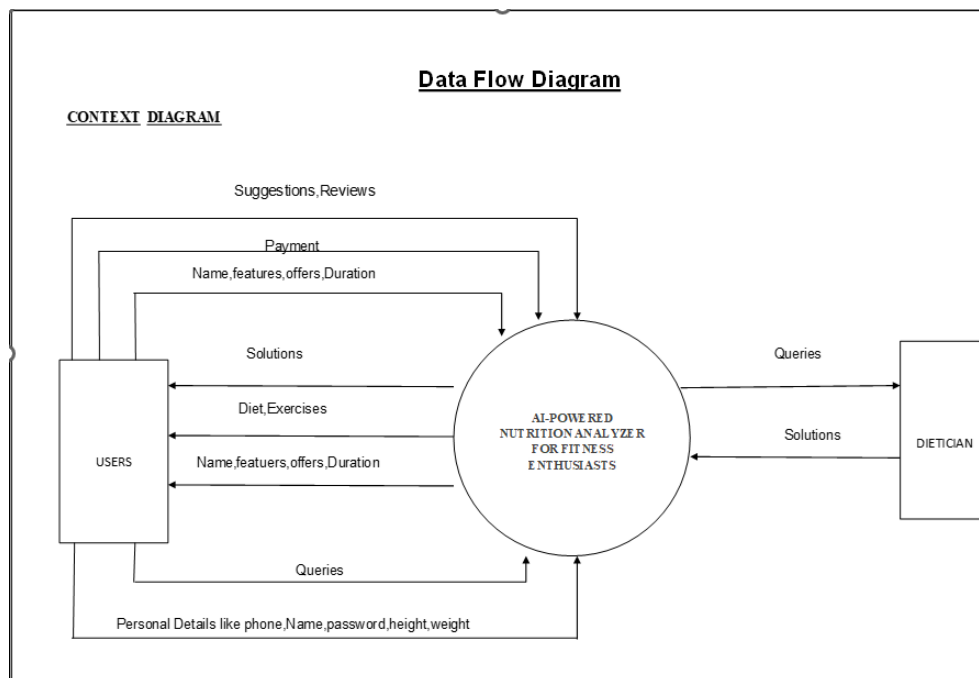
4. Maintainability:

Any updates or detect fixes shall be made on server-side computers only without any patches required by the user.

5 PROJECT DESIGN

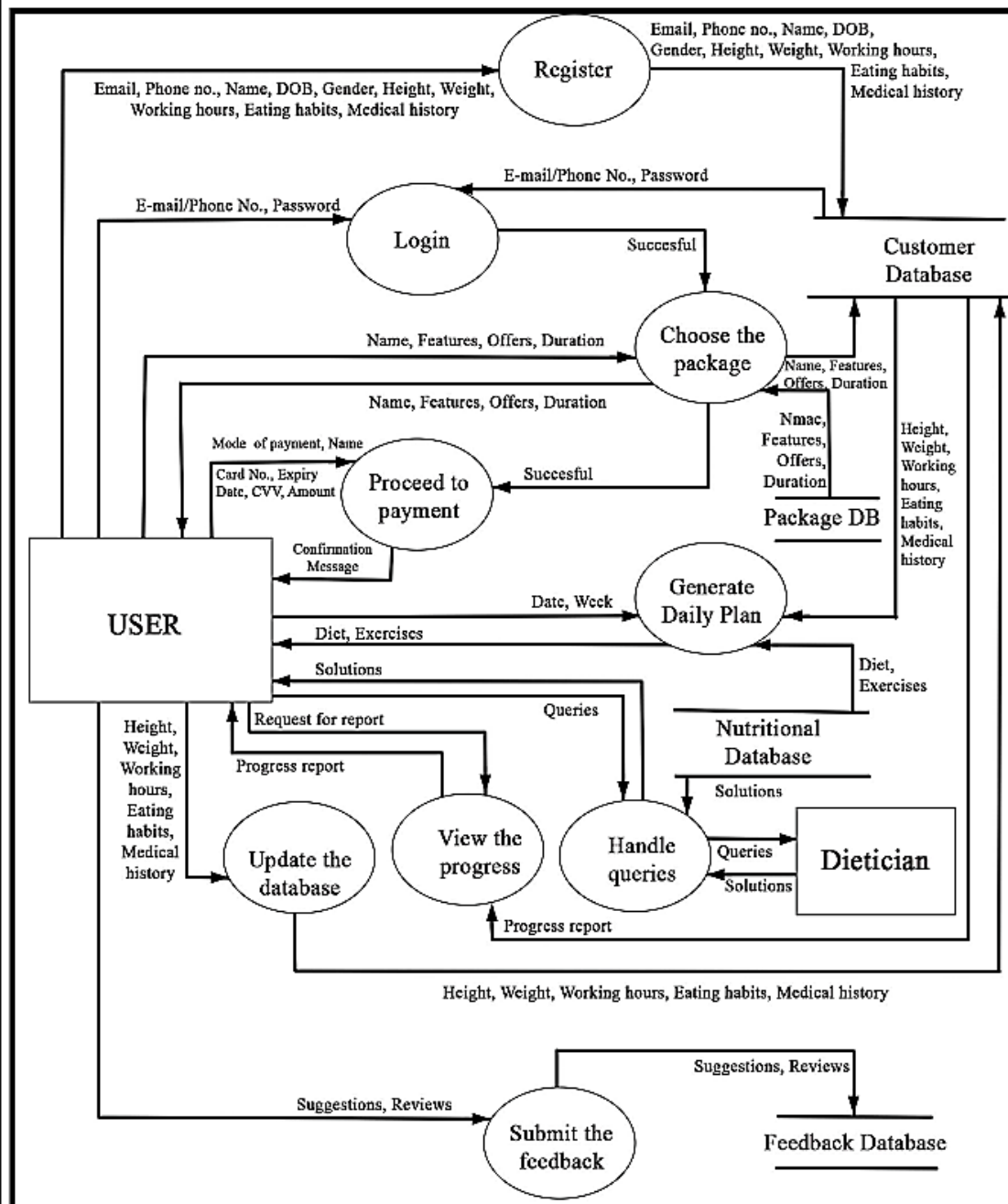
5.1 DATA FLOW DIAGRAMS

LEVEL-1 DFD



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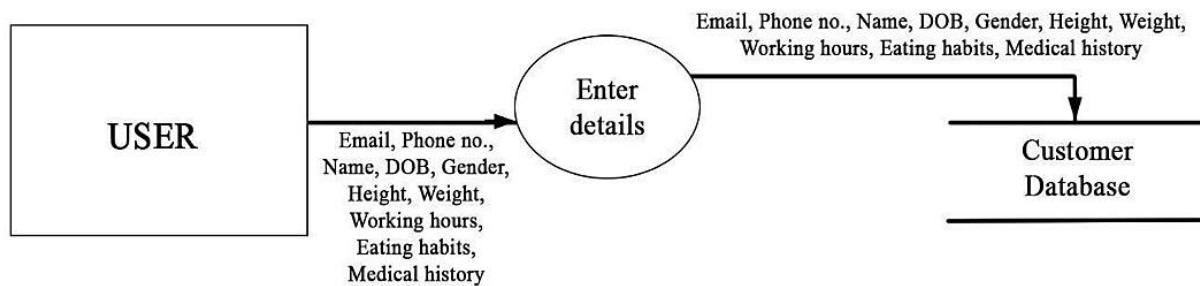
LEVEL-1 DFD



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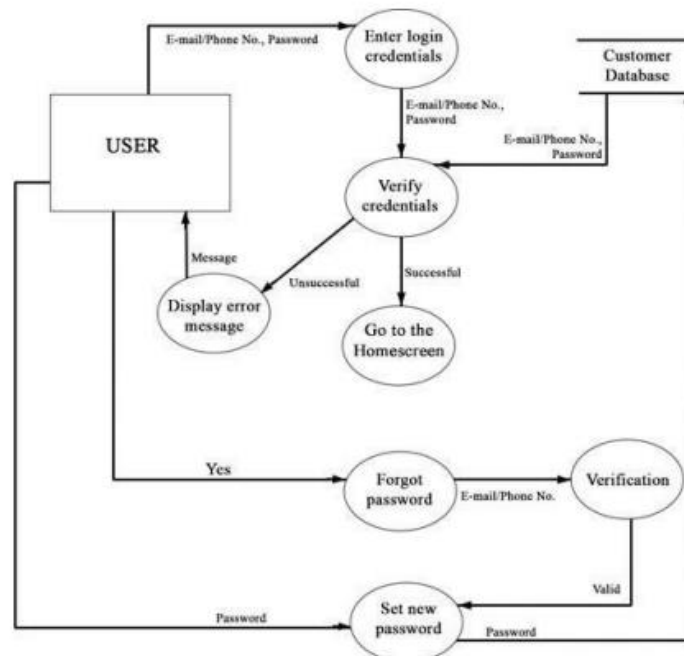
LEVEL-2 DFDs

REGISTRATION



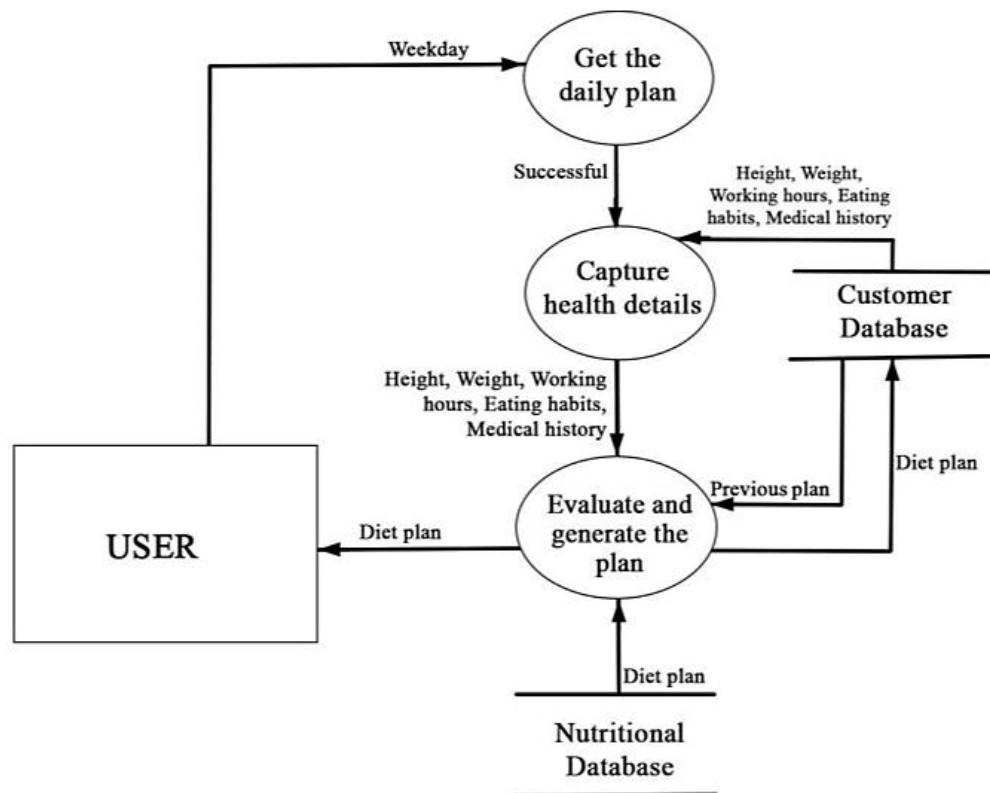
LOGIN

LOGIN

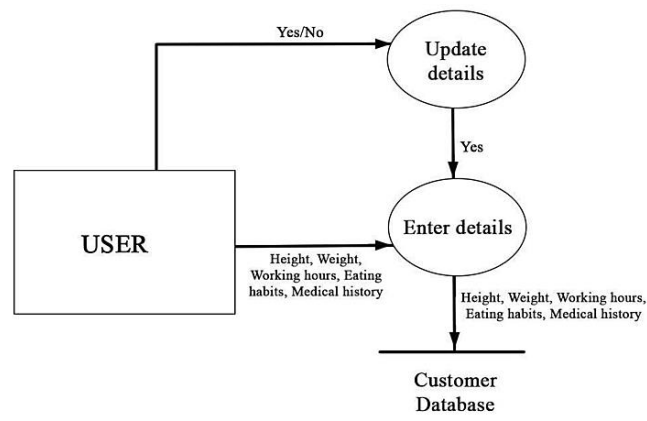


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GENERATION OF DAILY PLAN

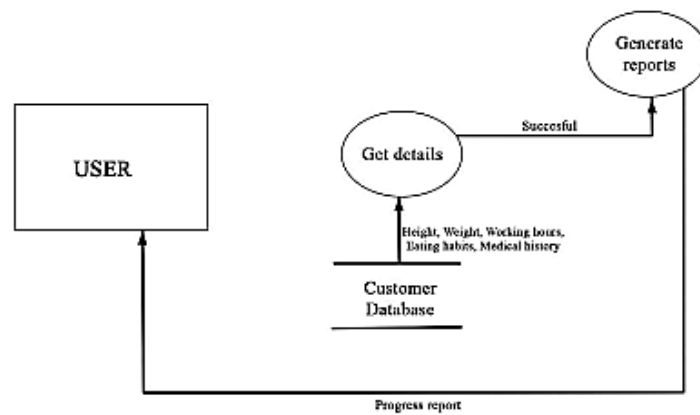


UPDATE THE DETAILS

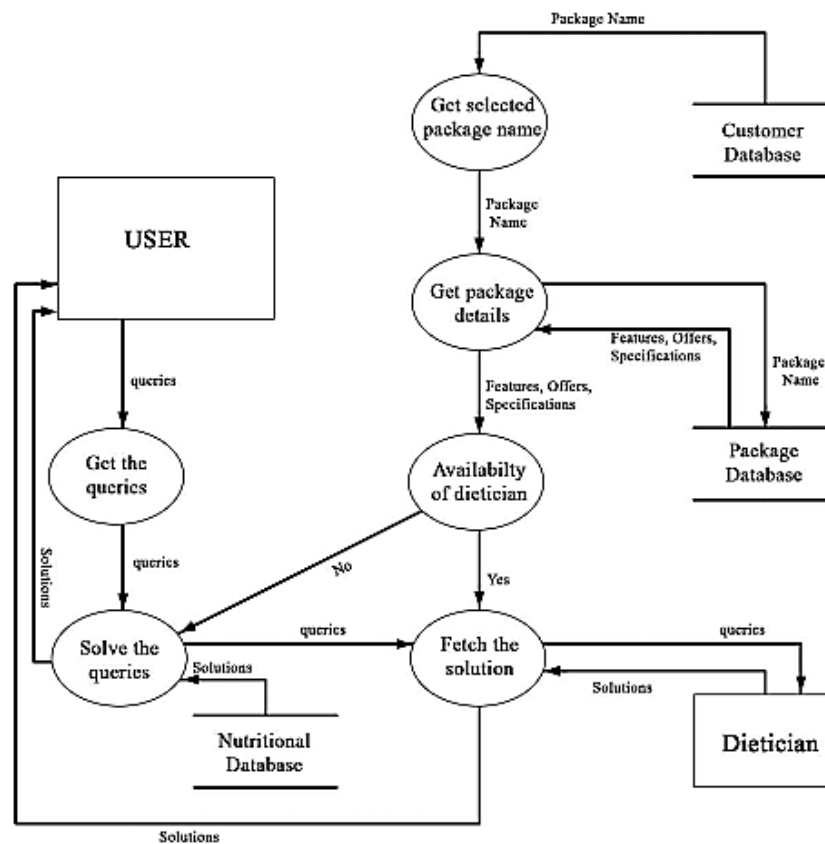


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MANAGE PROGRESS REPORT

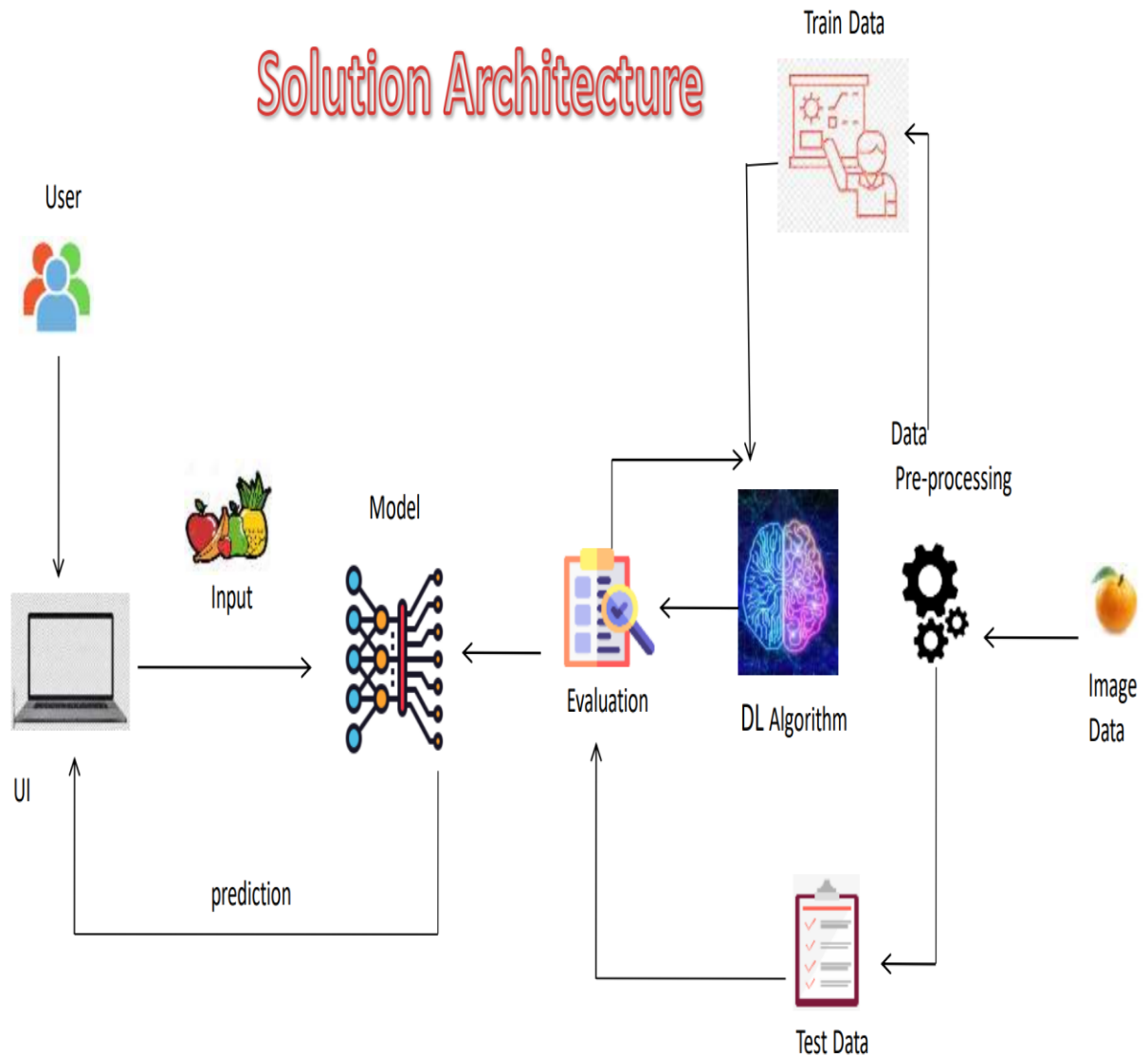


QUERIES



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5.2 SOLUTION & TECHNICAL ARCHITECTURE:



5.3 USER STORIES

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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 & Web 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	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 dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	I can login the application by entering password	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-2
	Dashboard	USN-6	As a user, I can view my calorie intake by clicking photo of food	Access the proper information about nutrition and the calorie intake	High	Sprint-2
	Diet & Exercises	USN-7	As a user, I can select my diet plan and exercise	Making it more accessible to continue the diet	High	Sprint-3
Dietician	Customer record	USN-8	As a customer , view the daily plans for betterment of body	Positive results form customers	High	Sprint-3
Customer Care Executive	Feedback	USN-8	As a customer care executive , I collect feedbacks form customers	Maintaining proper environment for the customers	High	Sprint-3
Administrator	login	USN-10	As a admin, I can login to the website using my login credentials	I can login to the website using my login credentials	High	Sprint-4
	Dashboard	USN-11	As a admin, I can view the dashboard of the application	I can access my dashboard	High	Sprint-4

6. PROJECT DESIGN:

6.1 Sprint Planning & Estimation

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Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story / Task	Priority	Team Members
Sprint-1	Registration	As a user, I can register for the application by entering my email, password, and confirming my password.	High	Team Member-1, Team Member-2
Sprint-1		As a user, I will receive confirmation email once I have registered for the application	High	Team Member-1, Team Member-2
Sprint-1		As a user, I can register for the application through Facebook	Low	Team Member-1, Team Member-2
		As a user, I can register for the application through Gmail	Medium	Team Member-1, Team Member-2
	Login	As a user, I can log into the application by entering email & password	High	Team Member-1, Team Member-2
	Dashboard	As a user, I can view my profile and update my details	Low	Team Member-1, Team Member-2
		As a user, I can change my password	High	Team Member-1
Sprint-2		As a user, I can view my personal calorie calendar	High	Team Member-3, Team Member-2
Sprint-2	Data Collections	Download Food Nutrition Dataset & data collections	High	Team Leader, Team Member-3
	Data Pre-processing	Importing The Dataset into Workspace & image preprocessing	High	Team Leader, Team Member-3
	Model Building	Initializing The Model and training and testing model	High	Team Leader, Team Member-3
		Model Evaluation, save model	Medium	Team Leader, Team Member-3

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Sprint-3	Data Storage	In the application, the calorie value of different food items are stored using a database	High	Team Leader, Team Member-2
	Application Building	Create an HTML File Create an CSS File, Create an JavaScript File	High	Team Leader, Team Member-1
		Build Python Code	High	Team Leader, Team Member-3
		Showcasing Prediction On UI	Medium	Team Member-2, Team Member-1
	Nutrition Analyzer	Provide diet plans and exercise	Medium	Team Member-2, Team Member-1
Sprint-4	Diet Plan Specification	As a user, I can specify my target based on which I receive personalized diet plans	High	Team Leader, Team Member-1
	Train The Model On IBM	Register For IBM Cloud And train The ML Model On IBM	Medium	Team Leader, Team Member-2
		Integrate Flask with Scoring End Point	Medium	Team Leader, Team Member-3
		Create User acceptance testing and performance testing	High	Team Leader, Team Member-2
	Feedback Forms	reviews and ratings	Low	Team Member-1, Team Member-3

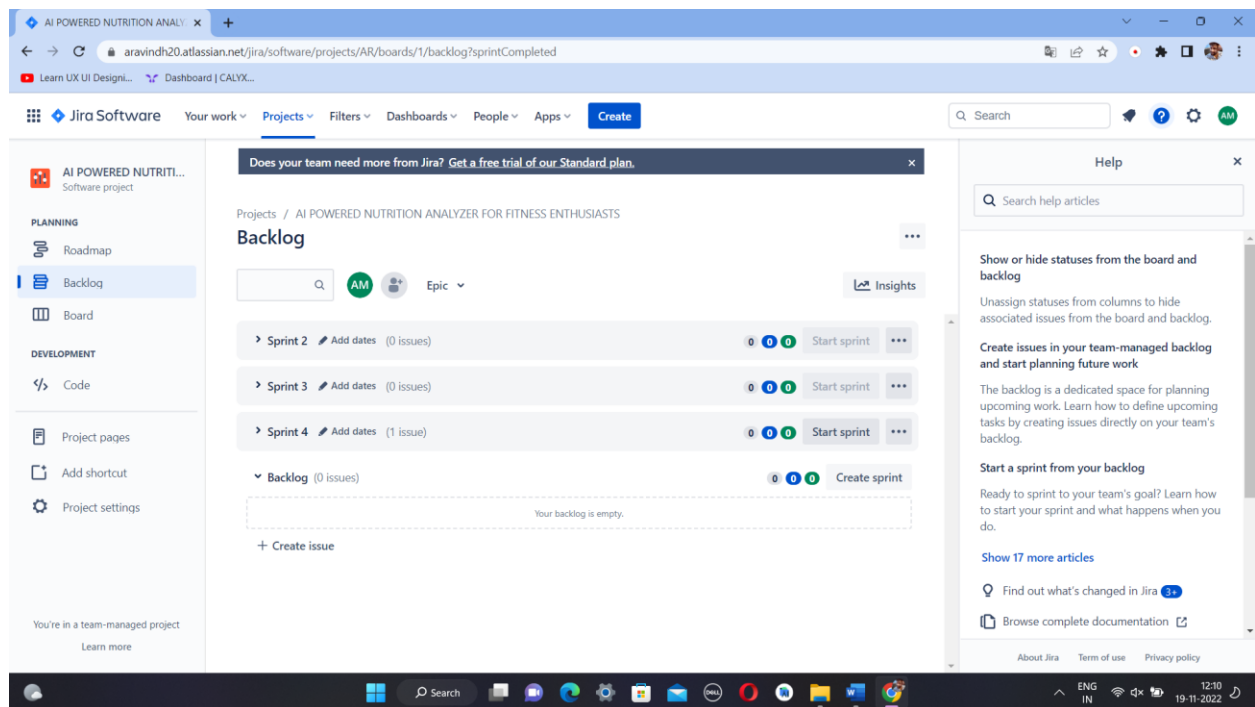
6.2. Sprint Delivery Schedule

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

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6.3 Reports from JIRA

Jira helps teams plan, assign, track, report, and manage work and brings teams together for everything from agile software development and customer support to start-ups and enterprises. Software teams build better with Jira Software, the #1 tool for agile teams



7. CODING & SOLUTIONING

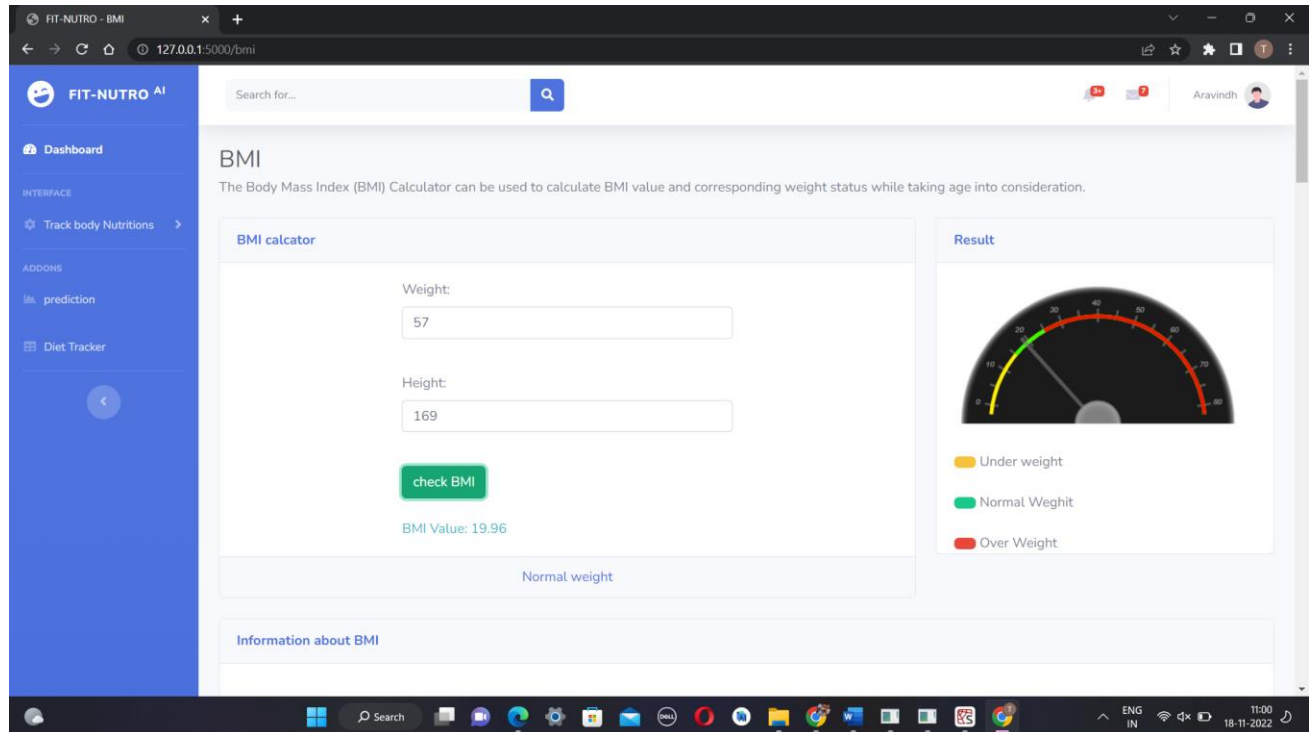
7.1 Feature 1

BMI CALCULATION:

The Body Mass Index (BMI) Calculator can be used to calculate BMI value and corresponding weight status while taking age into consideration. Use the "Metric Units" tab for the International System of Units or the "Other Units" tab to convert units into either US or metric units. Note that the

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calculator also computes the Ponderal Index in addition to BMI, both of which are discussed below in detail.



(Note: Source Code given below)

7.2 Feature 2

BMR CALCULATION:

The basal metabolic rate (BMR) and calorie calculator is an excellent tool for estimating how many calories your body needs on a daily basis depending on the amount and intensity of your exercise regime.

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The screenshot shows a web browser window with the address bar displaying "127.0.0.1:5000/bmr". The page title is "FIT-NUTRO - BMR". The interface includes a sidebar with navigation links: "Dashboard", "INTERFACE", "Track body Nutritions", "ADDONS", "prediction", and "Diet Tracker". The main content area is titled "BMR" and contains a description: "The basal metabolic rate (BMR) and calorie calculator is an excellent tool for estimating how many calories your body needs on a daily basis depending on the amount and intensity of your exercise regime." Below this is a "BMR calculator" form with the following fields: "Age" (21), "Gender" (Male selected, Female unselected), "Weight" (64), "Height" (165), and "Activity" (Lightly active (light exercise/sports 1-3 days/week)). A green "Calculate" button is at the bottom of the form. To the right of the form, there is a text box explaining the formulas used: "The calculator uses two formulas to calculate your body's daily calorie requirements". It lists "1. Basal Metabolic Rate (BMR) Formula:" and "2. Harris Benedict Formula:". Below the form, the "BMR Value: 2241.44" is displayed. At the bottom of the page, there is a link "Information about BMR". The Windows taskbar is visible at the bottom of the screen, showing the time as 11:01 on 18-11-2022.

Search for...

BMR

The basal metabolic rate (BMR) and calorie calculator is an excellent tool for estimating how many calories your body needs on a daily basis depending on the amount and intensity of your exercise regime.

BMR calculator

Age: 21

Gender: ☒ Male ☐ Female

Weight: 64

Height: 165

Activity: Lightly active (light exercise/sports 1-3 days/week)

[Calculate](#)

BMR Value: 2241.44

[Information about BMR](#)

[The calculator uses two formulas to calculate your body's daily calorie requirements](#)

1. Basal Metabolic Rate (BMR) Formula:
The basal metabolic rate formula takes several variables like height, weight, age and gender to calculate your calorie needs as if you did not do any exercise.

2. Harris Benedict Formula:
The Harris Benedict Formula takes the number produced by the BMR formula and multiplies it depending on your activity level.

(Note: Source Code given below)

7.3 Feature 3

DIET TRACKER:

It may be worthwhile if you want to lose weight and improve health. That is because you will need to make changes to your regular habits if you want to lose weight. Nutrition tracking can help by increasing awareness of what and how much you eat and drink and holding yourself accountable.

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While calorie counting focuses on precise measurements of all food portions, nutrition tracking is less obsessive and includes more emphasis on other aspects of food and eating patterns.

The screenshot shows a web browser window displaying the FIT-NUTRO AI Diet Tracker application. The browser's address bar shows the URL 127.0.0.1:5000/diet_tracker. The application has a blue sidebar on the left with a logo and navigation links: Dashboard, INTERFACE, Track body Nutritions, ADDONS, prediction, and Diet Tracker. The main content area is titled 'Diet Tracker' and includes a search bar, a description of the tool's purpose, and a form with five input fields: breakfast calories, lunch calories, dinner calories, exercise, and bmr. Each field has a placeholder text question. A green 'Submit' button is at the bottom left of the form. A link 'Click here' is provided for calculating bmr. The Windows taskbar is visible at the bottom of the screen.

FIT-NUTRO AI

Search for...

Diet Tracker

It can help you remember what you have eaten that day. If you are also tracking calories, you can see where you can improve if you are trying to achieve a goal. It will let you see if you are eating too much or NOT enough.

Diet Tracker

breakfast calories: How many calories did you have for breakfast ?

lunch calories: How many calories did you have for lunch?

dinner calories: How many calories did you have for Dinner?

exercise: How many calories did you burn exercise?

bmr: What os your basic metabolic rate?

if you want calucate bmr value,Click [here](#)

Submit

(Note: Source Code given below)

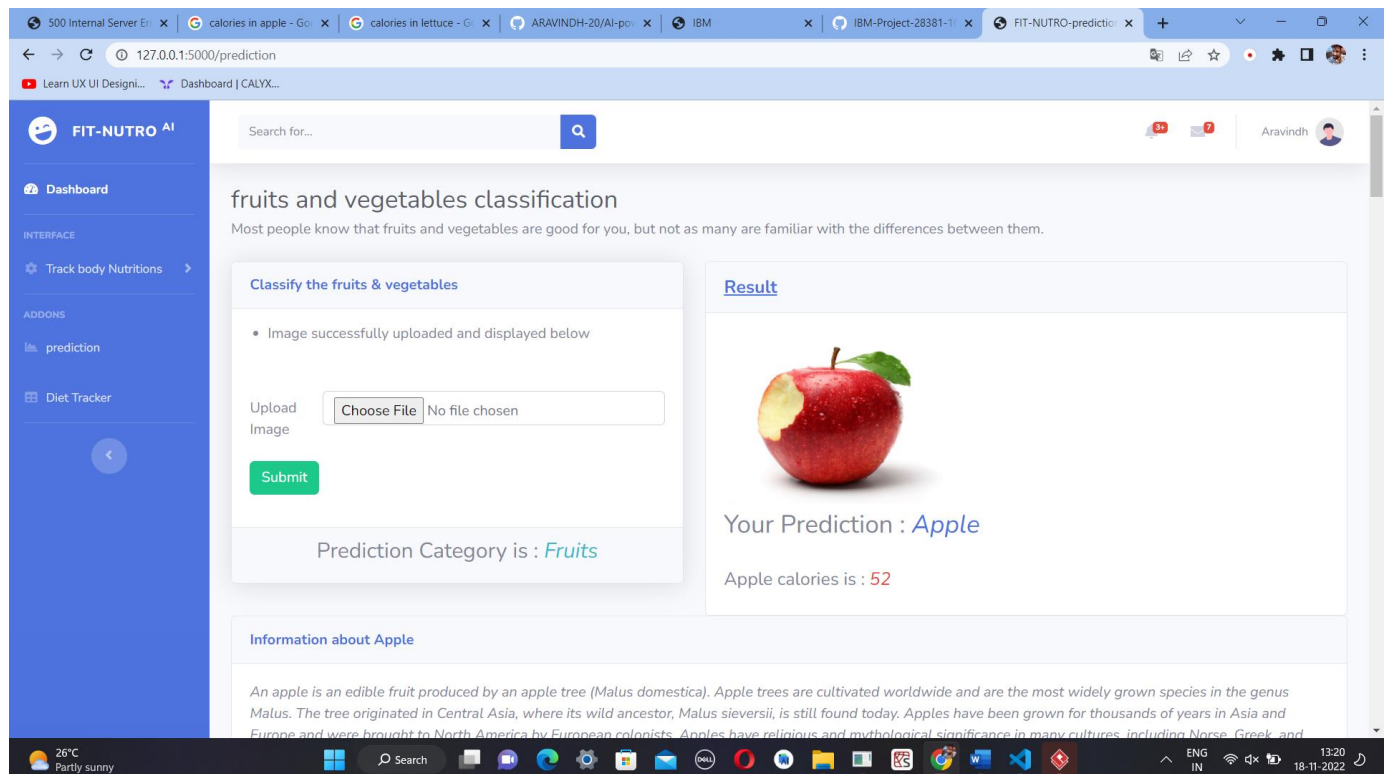
7.4 Feature 4

fruit and vegetable classification

Morphology is a discipline of science that focuses on the exterior structure and characteristics of living systems. It is largely concerned with the investigation of plant forms, morphological characteristics, and the relative placements of various plant components. The study of exterior aspects of

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flowering plants is referred to as the morphology of flowering plants. The root system and the shoot system are the two primary exterior elements of a plant. Plant morphology encompasses the structure, functions, characterizations, and other morphological components of flowering plants' roots, stems, leaves, flowers, fruits, and seedlings.



(Note: Source Code given below)

8. TESTING

8.1 Test Cases

- Verify user is able to see login page
- Verify user is able to loginto application or not?
- Verify user is able to navigate to create your account page?
- Verify user is able to recovery password
- Veriify login page elements
- Verify the BMI calculation
- Verify the BMR calculation

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Verify the fruit and vegetables classification

8.2 User Acceptance Testing

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	10	4	2	3	20
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	20	37
Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	2	5	2	1	10
Totals	26	14	13	26	79

Test Case Analysis

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

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	51	0	0	51
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9

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Final Report Output	4	0	0	4
Version Control	2	0	0	2

9. RESULTS

9.1 Performance Metrics

Performance metrics are defined as figures and data representative of an organization's actions, abilities, and overall quality. There are many different forms of performance metrics, including sales, profit, return on investment, customer happiness, customer reviews, personal reviews, overall quality, and reputation in a marketplace. Performance metrics can vary considerably when viewed through different industries.

Performance metrics are integral to an organization's success. It's important that organizations select their chief performance metrics and focus on these areas because these metrics help guide and gauge an organization's success. Key success factors are only useful if they are acknowledged and tracked. Business measurements must also be carefully managed to make sure that they give right answers, and that the right questions are being asked. In this project the Performance metrics have viewed the following financial measurements as indicators of success:

- *Customer satisfaction*
- *Process excellence*
- *Employee satisfaction*

Organizations across most industries rely on these indicators as well as:

- *Fast, responsive time to market*
- *A loyal customer base*
- *Outstanding processes for quality and timeliness*
- *Mechanisms that ensure learning, growth, and continual improvement*

10 ADVANTAGES AND DISADVANTAGES:

ADVANTAGES :

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1. It can increase awareness of your regular habits

Once you start tracking your meals, you can see how many calories and nutrients you have been consuming from which foods. This can lead to discoveries that can let you increase your weight loss.

For example, you might learn that your fiber and protein intakes are often low, which could explain constant hunger. Or, you might find that a high amount of your calories come from just a couple of foods, such as a morning breakfast biscuit and coffee beverage contributing over 1,000 calories.

This knowledge can enable better choices, such as adding more fiber and protein, or switching to black coffee and a breakfast sandwich on an English muffin.

2. You can learn to make good food choices

As you learn which nutrients come from which foods, and which foods are higher in calories, you can become an expert at making nutritious food choices that will get you to your goals. For example, Lark might teach you that dietary fiber is associated with better weight loss and lower blood sugar.

You might also learn, through nutrition tracking, that high-fiber foods include vegetables, whole grains, fruit, beans, and nuts. If you know that choosing these types of foods at the supermarket and at restaurants can help you reach your weight and health goals, you might do so regularly instead of opting for less healthful choices.

3. It can increase accountability

One of the reasons why nutrition tracking works is that it can increase your feelings of accountability. Knowing that you will log what you eat may be enough to think twice before, say, taking a

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second slice of pizza or ordering a large instead of a medium mocha.

4. It can support mindfulness

While obsessive calorie counting can make eating less fun, it can be enlightening to notice relationships between what you eat and personal results such as your weight or how you feel. Nutrition tracking can support mindfulness by helping you focus on savoring tastes, aromas, and textures and the experience of eating, as you begin to appreciate what food does for you and your body.

The following are the significant benefits of a diet tracking mobile app.

- *The diet and nutrition app helps people think and consider their food choice before taking a bite.*
- *Users can identify the patterns in their eating behavior and tweak their diet plan according to their diet pattern.*
- *The food and fitness apps provide general awareness about the various nutrients in food.*
- *The diet & nutrition tracking app is a targeted way to focus on health.*
- *The diet and nutrition planning application would suggest healthy food options to the users and help them build a healthy grocery list.*

DISADVANTAGES:

1. Tedious

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Logging each and every bite and sip is a lot of work. Especially for athletes who eat a large amount of food to fuel training efforts. Having to search a database for each ingredient takes a bit of work and patience. However, once you get the hang of it, it does become easier—promise.

2. Slippery Slope

Having to be confronted with your choices every day is motivating! However, for those with disordered eating tendencies, it can lead to you being overly strict, "clean" and preoccupied with your food intake. In the end, tracking your food intake is a simple and effective tool in defining problem areas of your diet, leading you to successful changes

For the best results, be honest with your recordings, write down more than the calories (energy, weight, mood, performance) and write it down in order as nutrient timing is an important factor for fitness goals. It is best to record as much info as you can, but make it work for you. If recording the brand, portion, time and every other little detail is too much, dial it back a bit and simply record the food and drink without the rest.

Of course, it is best to use this method in combination with sports dietitian care to have the healthy, individualized and sustainable results.

If at any time you feel like tracking your intake is causing you excess stress, it might not be the method for your personal success.

11. CONCLUSION

This study proposed an Intelligence Precision Nutrient Analysis Model based on a digital data collection framework, where the nutrient intake was analyzed by entering dietary recall data. The AI Precision Nutrient Analysis Model was used to analyze the ingredients of the fruits or vegetables and calculate nutrient intake by automatically analyzing the fruits or vegetables, and portion sizes were analyzed using a digital data semantic analysis model.

The results of this study show very little difference in nutrient intake between the model and the NNHS analysis and are highly accurate;

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therefore, the AI model can be used as a reference for nutrition surveys and personal nutrition analysis. In terms of data access, as there is not yet a complete set of publicly available data on food nutrient ingredients; more complete data and references on micro-nutrients should be available in the future. On the other hand, the scope of fruits and vegetables should be expanded.

12. FUTURE SCOPE

With people becoming conscious about their diets and fitness goals, there is a wide scope of diet and fitness apps thriving in the app world. Therefore, this time is pretty much perfect to create a diet and fitness app of your own and enter the market with a unique idea in order to lure the audience towards your app. For developing a healthcare app, you must be sure of hiring the best team of experts who have prior experience in the same field and can guide you through the development process.

13. APPENDIX

Source Code

<https://github.com/IBM-EPBL/IBM-Project-28381-1660111242>

Project Demo Link

<https://youtu.be/g5KS0GzsTJo>