



Inspiring Excellence

**CSE470: Software Engineering
Project Report
Project Title:
“Diet Planner- Fit Hoba?”**

Group No: 03, CSE470, Fall 2023	
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1. Introduction

Eat Smart, Live Well: Your Personalized Path to Health!

With this uplifting motto, we introduce users to our comprehensive dietary planning project - "Fit Hoba?" - a holistic approach to nurturing your health.

Users can discover tailored solutions to nurture their well-being effortlessly. From personalized workout recommendations to customizable meal plans, our platform empowers users to thrive at their own pace. Users can track their progress with ease and stay motivated with our intuitive calendar feature. But that's not all - "Fit Hoba?" fosters a vibrant community where users can engage with each other and dive into a supportive network of like-minded individuals through blogs, sharing insights, and experiences. They can calculate their BMI with precision and unlock personalized workout plans tailored to their preferences, complete with instructional videos for guidance.

With "Fit Hoba?" Users can embark on a journey towards a healthier, happier version of themselves.

2. Functional Requirements

Module 1

1. Register (unique username, unique email)
2. Login/Logout
3. Password Change
4. Navbar
5. Dashboard
6. User Profile
7. Home page

Module 2

8. Blog posts
9. Community page
10. Blog Details page
11. Update user profile
12. Add diseases/medication in the profile

Module 3

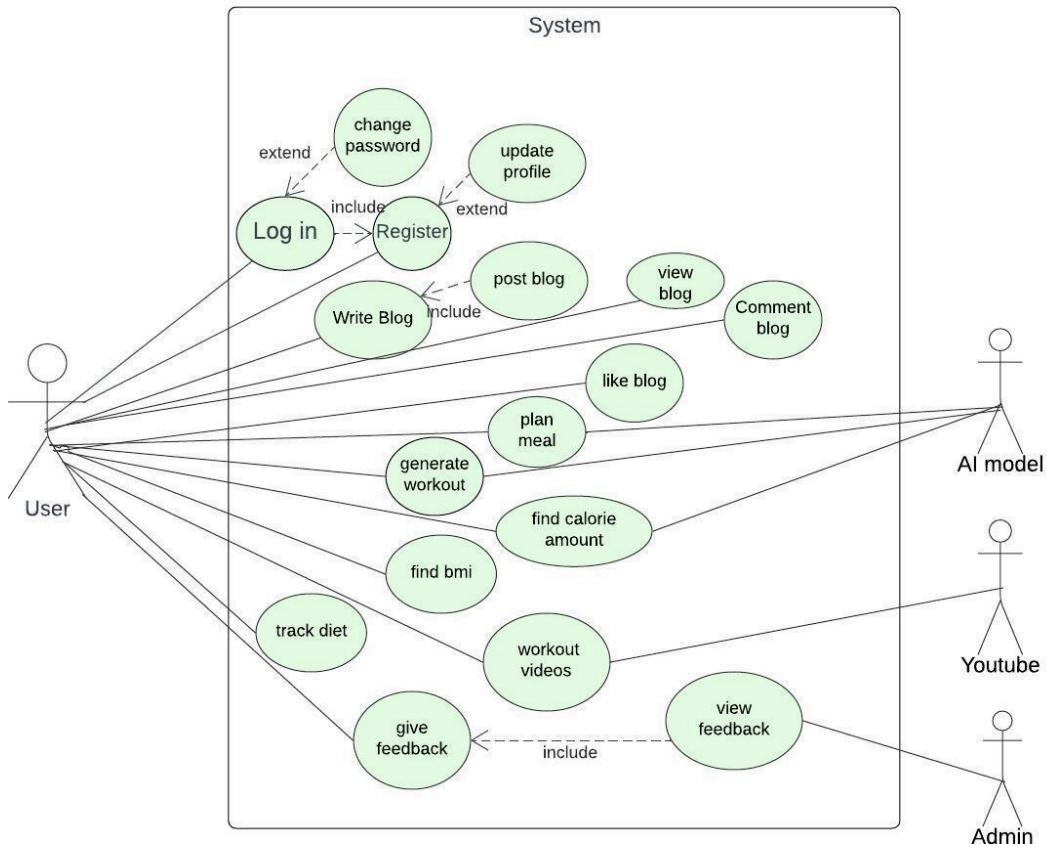
13. Like posts
14. Comment on blog posts
15. Tracking diet with calendar
16. BMI Calculator
17. Home page slider

Module 4

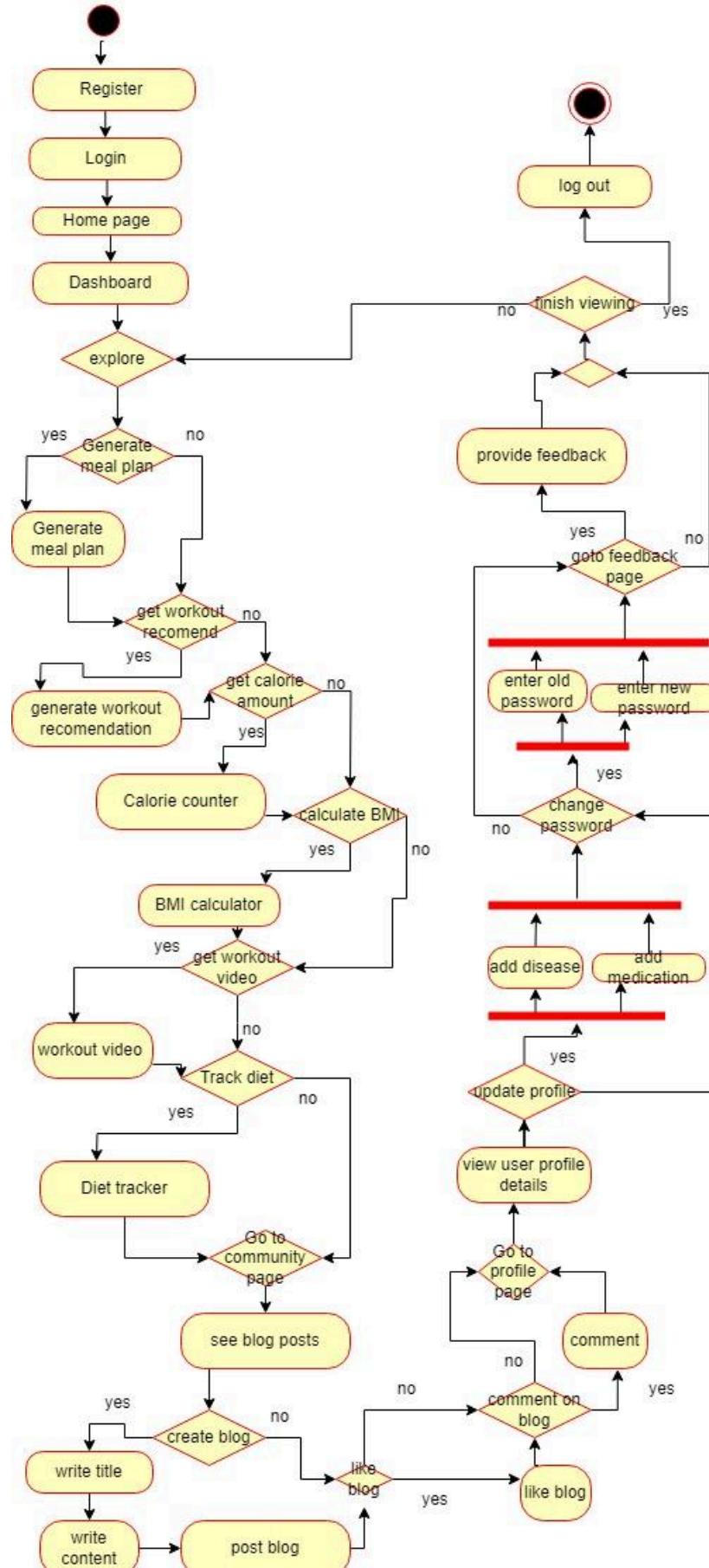
18. Workout type suggestions
19. Workout Video Suggestions
20. Meal plan generator
21. Calorie Counter
22. Admin, User Feedback

3. UML DIAGRAMS

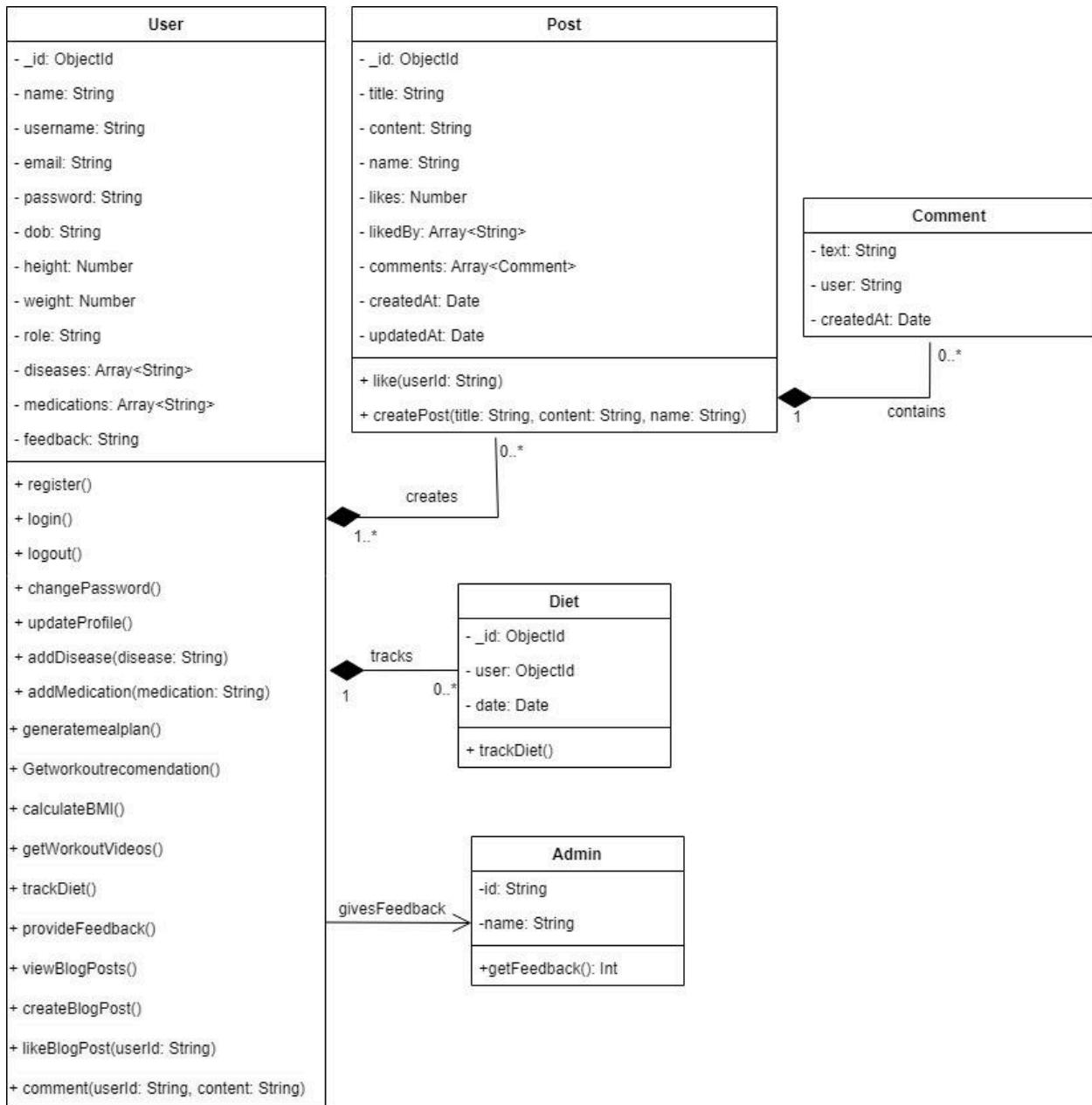
USE CASE DIAGRAM:



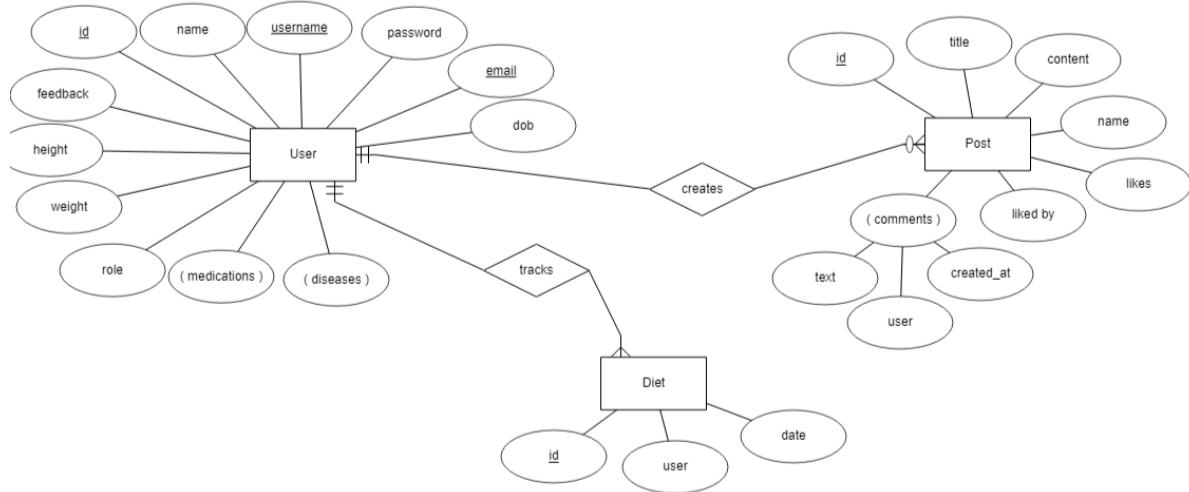
Activity diagram:



Class Diagram:



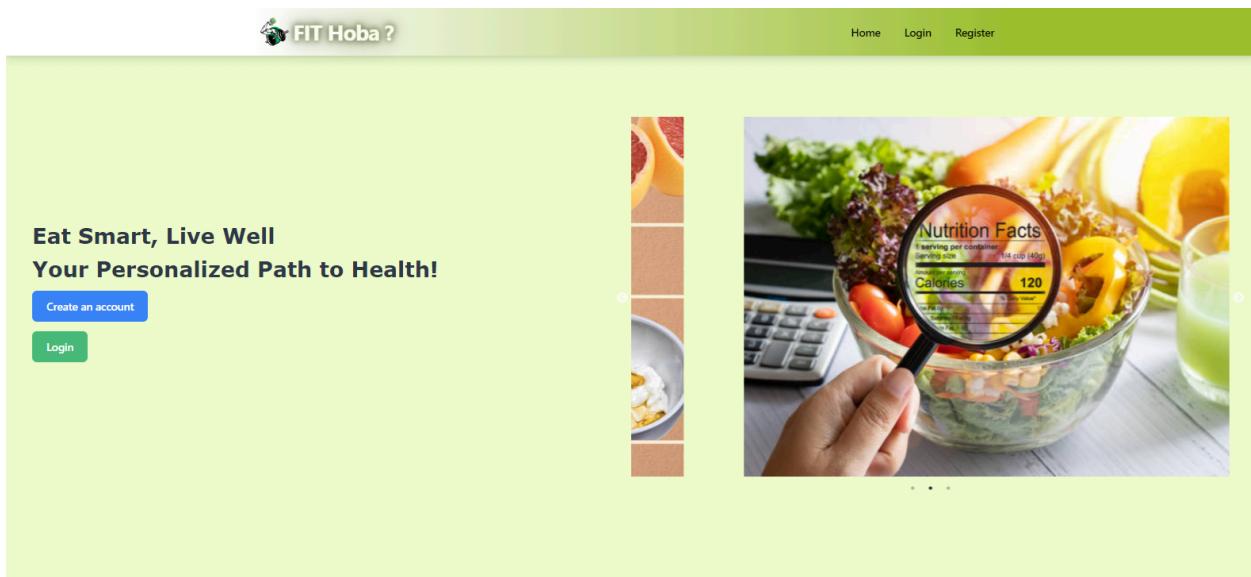
ER Diagram:

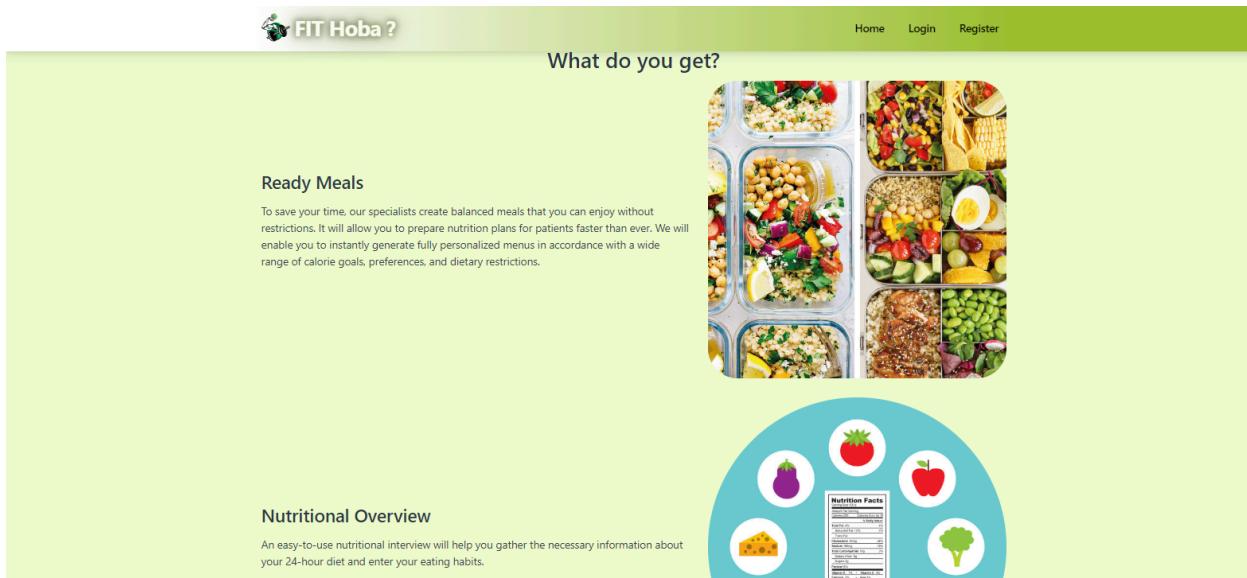


4. User Manual

4.1 Home Page

Users access the website through the homepage from where they can either create an account or log in. Moreover the home page shows a brief overview of what the users can expect.





4.2 Create Account and Login

From the home page users can either create an account or log in to their existing accounts.

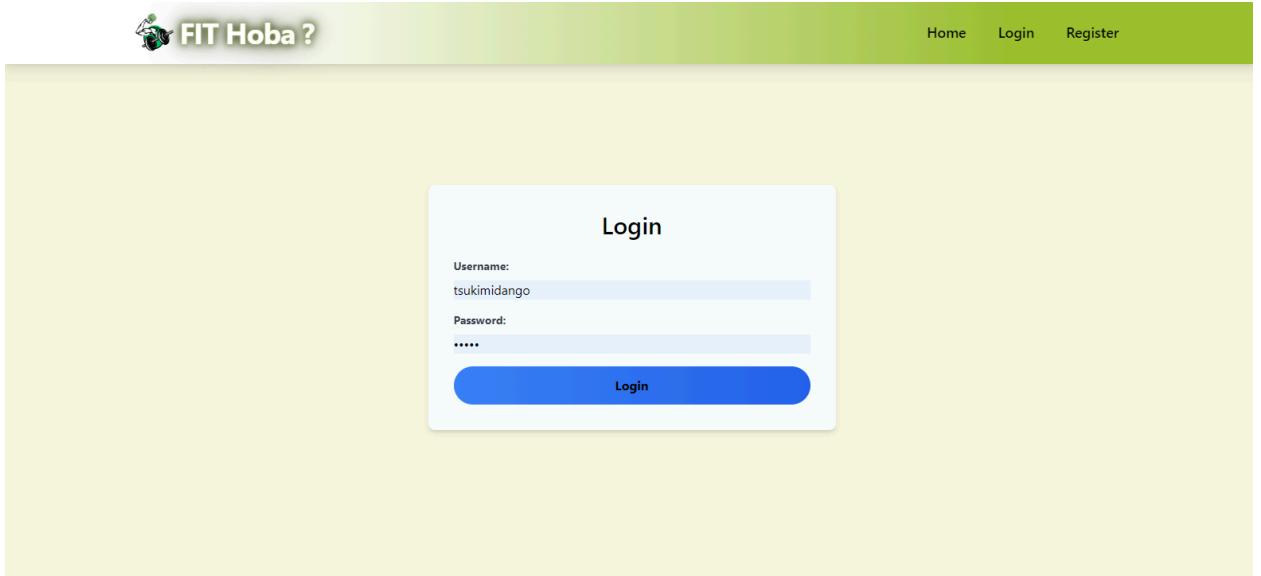
4.2.1 Register

By providing necessary information, the users can create a new account.

The image shows the 'User Registration' form from the FIT Hoba? website. The form is contained within a white box with rounded corners. It includes fields for Name, Username, Email, Password, Date of Birth (with a date input field), Height(cm), and Weight(kg). At the bottom of the form is a blue 'Register' button.

4.1.2 Log in

By providing their username and password, users can log in to the website. If credentials are wrong, then it shows an error message of either invalid username or incorrect password.



4.3 Community Page

On the right side of the community page users can create their own blog posts. And on the left side they can view all the blog posts posted by various users. Users can also like each other's blog posts. They can only like each blog once otherwise it will show the user has already liked the post.

me go gym, me fit
Me, being committed to my fitness journey, frequently visit the gym to stay in shape and maintain my health. With each session, I push myself to the limit, focusing on building strength, endurance, and overall fitness. Me find solace in the rhythmic movements of...
[Read More](#)
-tsukimidango

Benefits of Regular Exercise
Exercise has been shown to improve your mood and decrease feelings of depression, anxiety, and stress. The authors of a 2019 review found that 10–30 minutesTrusted Source of exercise is enough to improve your mood. Exercise plays a vital role in building and...
[Read More](#)
-malitha10

Invest in Your Health
Physical inactivity is a mounting challenge for America. In reviewing the 2013–2015 American time use survey, we found that most Americans report spending their daily leisure time watching screens, and devote only a small fraction of leisure time—24 minut...
[Read More](#)
-shreyaa10

New Blog Post
Type your title
Type your content
Post

4.3.1 Blog Detailed View Page

Clicking on Read More under each of the blog posts takes the users to the detailed view of the particular blog post. There users can comment on that blog post and see other users' comments.

Benefits of Regular Exercise

Exercise has been shown to improve your mood and decrease feelings of depression, anxiety, and stress. The authors of a 2019 review found that 10–30 minutes Trusted Source of exercise is enough to improve your mood. Exercise plays a vital role in building and maintaining strong muscles and bones. Exercise can help boost your energy levels Trusted Source while helping to reduce fatigue. This may help as a treatment method Trusted Source if you have certain health conditions, such as cancer.

Author: malha10
Likes: 0

[Like](#)

Comments

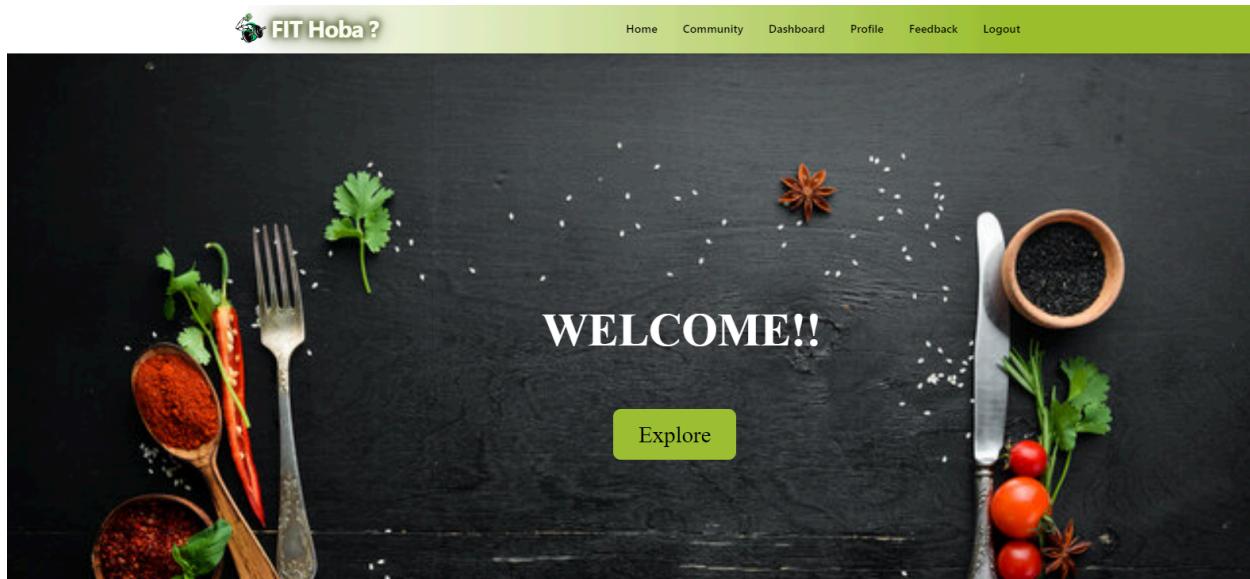
Nice post!
-shreya10

Add a comment...

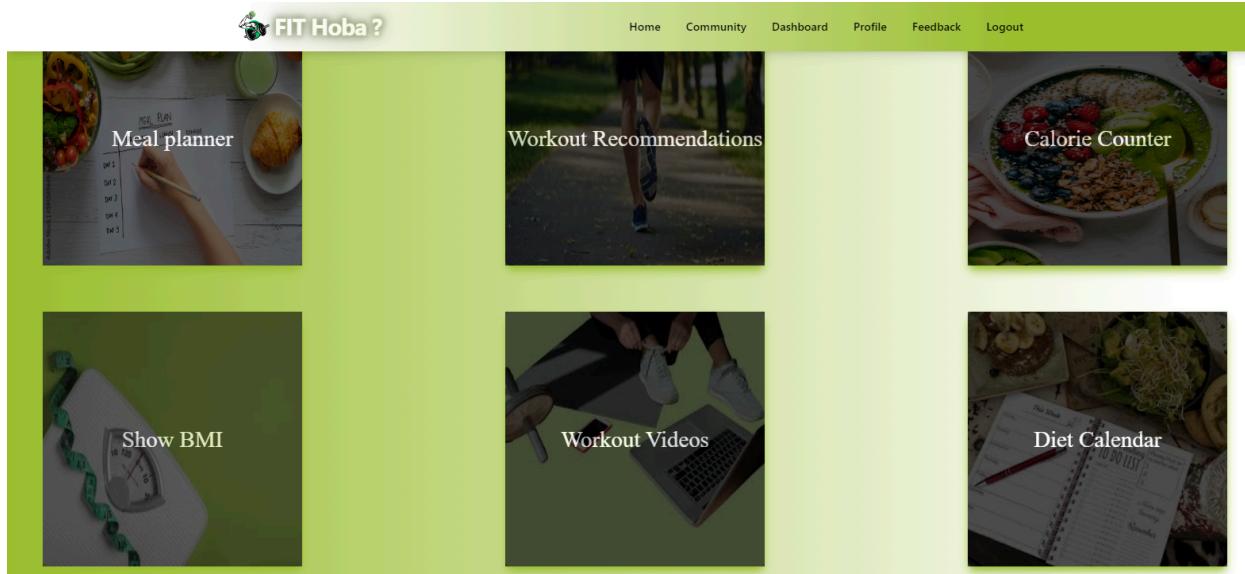
[Post Comment](#)

4.4 Dashboard

The dashboard consists of the main components of our Diet Planner. It consists of six different functionalities which the user can access.



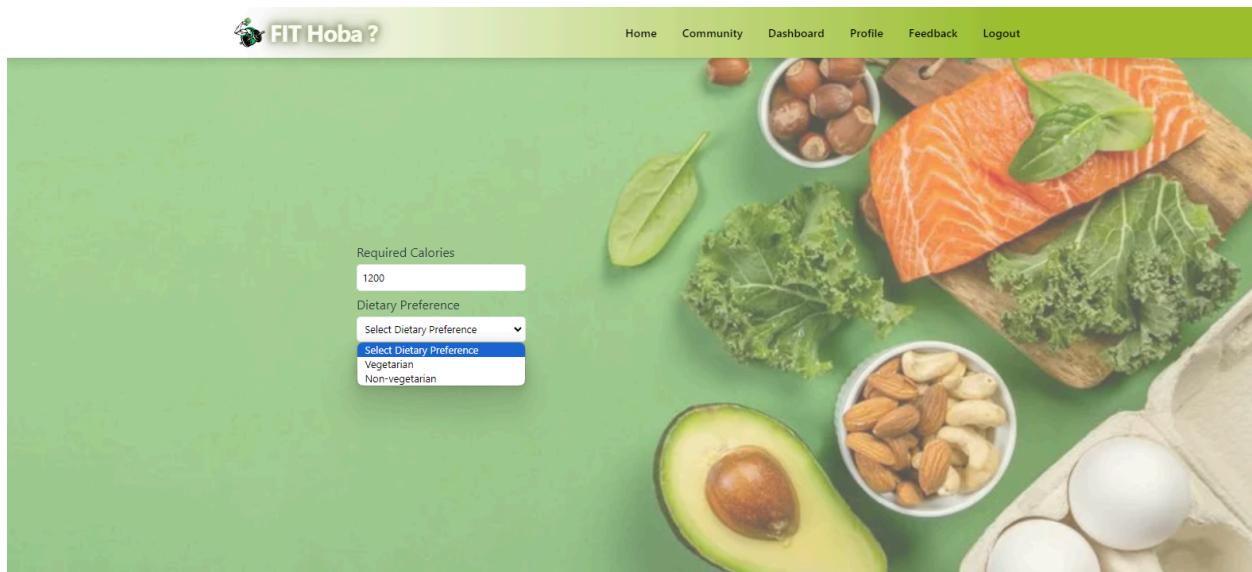
Pressing explore on the dashboard scrolls down to access the components of the dashboard.



Pressing on the buttons takes the user to their desired page.

4.4.1 Meal Planner

On the Meal Planner page the users can give an estimate of the calories they want to consume and select their Dietary Preferences(Vegetarian/ Non-Vegetarian) and pressing on Generate Meal Plan will generate a user-specific meal plan for that particular user based on their given preferences.



4.4.2 Workout Recommendations

Based on the calories the user wants to burn by working out, the workout recommendation page generates a chart containing a weekly workout plan based on both the user's calorie burn amount and BMI.

The screenshot shows a weekly workout and recovery plan for three days. The plan includes:

Day	Workout Plan	Recovery
Day 1	30 minutes of high intensity interval training (HIIT) - this can include a mix of exercises such as jumping jacks, burpees, mountain climbers, and high knees	Stretch for 10 minutes after the workout Stay hydrated and drink plenty of water throughout the day Get a good night's sleep
Day 2	30 minutes of strength training - this can include exercises such as push-ups, squats, lunges, and planks	Stretch for 10 minutes after the workout Take a warm bath or shower to relax the muscles Get a good night's sleep
Day 3	30 minutes of cardio - this can include activities such as running, cycling, or jumping rope	Stretch for 10 minutes after the workout Stay hydrated and drink plenty of water throughout the day

4.4.3 Calorie Counter

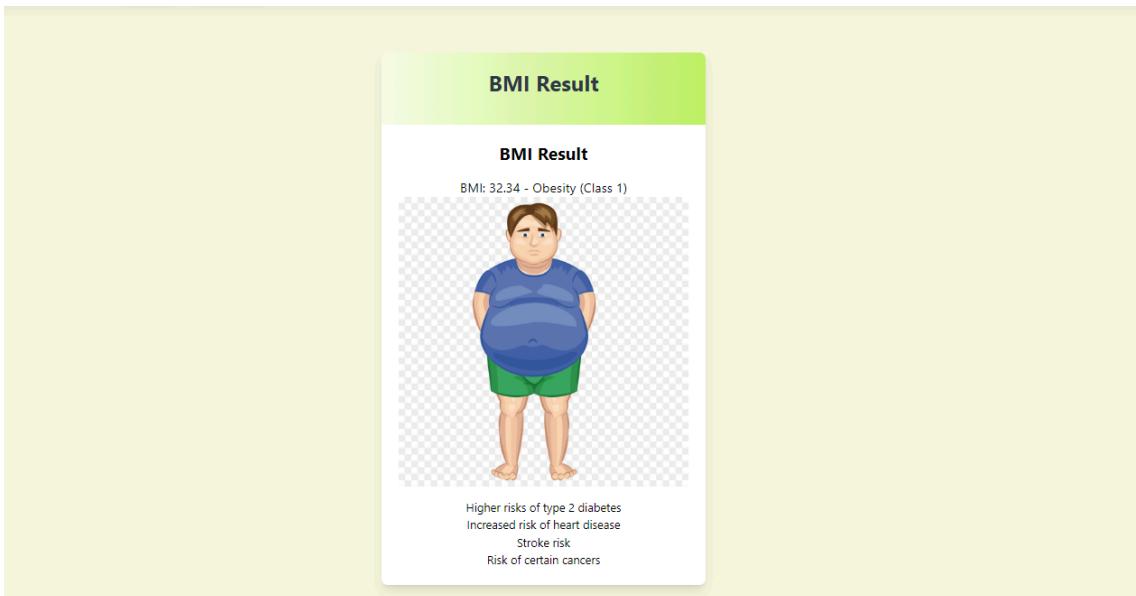
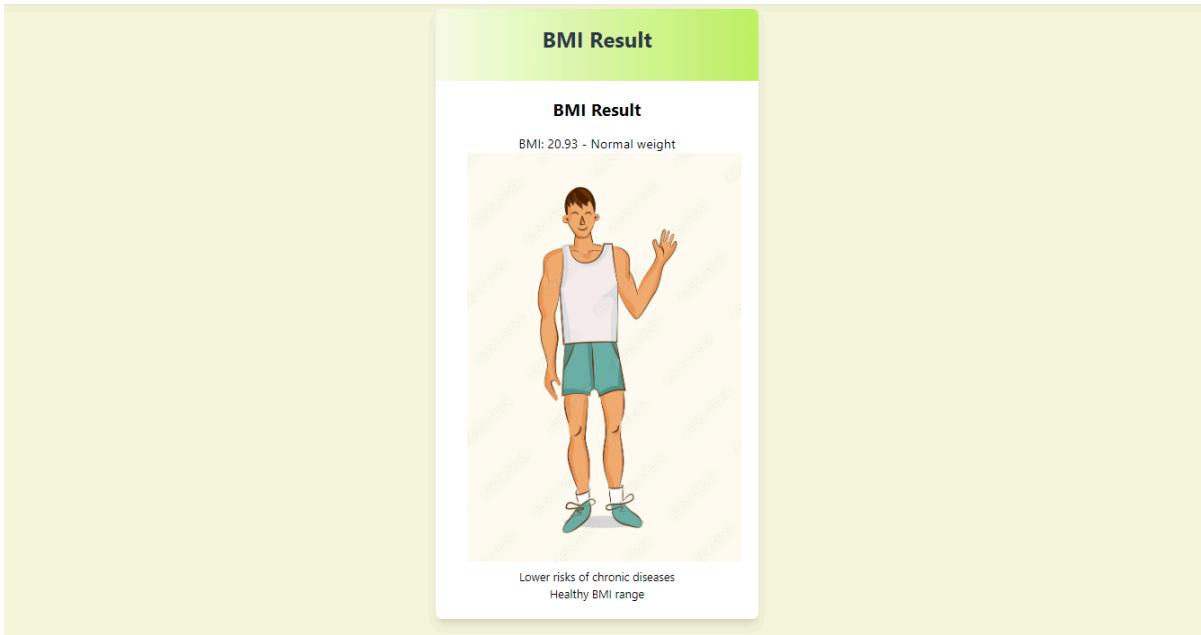
In the calorie counter page, users can input food items they already have at home and get an estimation of the amount of calories in their existing food items at home. Moreover, they get a meal plan customized according to the food they have and the calories they want to consume that day.

The screenshot shows a calorie counter interface. The user has entered "Egg, chicken, milk" and selected a goal of "2000". The system provides the following information:

- The total calorie intake for the foods you have at home is approximately as follows:
 - * Egg (50g) - 70 calories
 - * Chicken (100g) - 165 calories
 - * Milk (1 cup) - 146 calories
- This gives a total of around 381 calories. To reach a total of 2000 calories, you will need to supplement these foods with additional items. Here are some suggestions for breakfast, lunch, and dinner:
 - Breakfast (approximately 500-600 calories):
 - * Scrambled eggs (2 eggs) with spinach and feta cheese (100g)
 - * Whole grain toast (2 slices)
 - * Fresh fruit salad (1 banana, 1 apple, 1 orange)

4.4.4 Show BMI

In the show BMI page users can view their BMI based on their height and weight. Along with that they can see risk factors for their particular BMI.



4.4.5 Workout Videos

Based on the users' BMI the workout videos page suggests various workout videos to the user which are linked through youtube.

The screenshot shows the FIT Hoba? app interface. At the top, there's a navigation bar with links for Home, Community, Dashboard, Profile, Feedback, and Logout. Below this, a green header box displays the 'BMI Result'. It states 'BMI: 21.91 - Normal weight' and 'For you, the Suggested Videos are given here:'. Three video thumbnails are shown below:

- STAY FIT**: A thumbnail featuring a man flexing his bicep. It includes a 'Watch on YouTube' button and a 'TIGHTEN' tag.
- Fast Morning Exercises for Full Body**: A thumbnail showing a muscular torso with a play button overlay. It includes a 'Watch on YouTube' button and a '1 M' tag.
- 20 Min Fat Burning HIIT Workout - Full ...**: A thumbnail showing a person performing a workout. It includes a 'Watch on YouTube' button and a '300 CALORIES' tag with three fire icons.

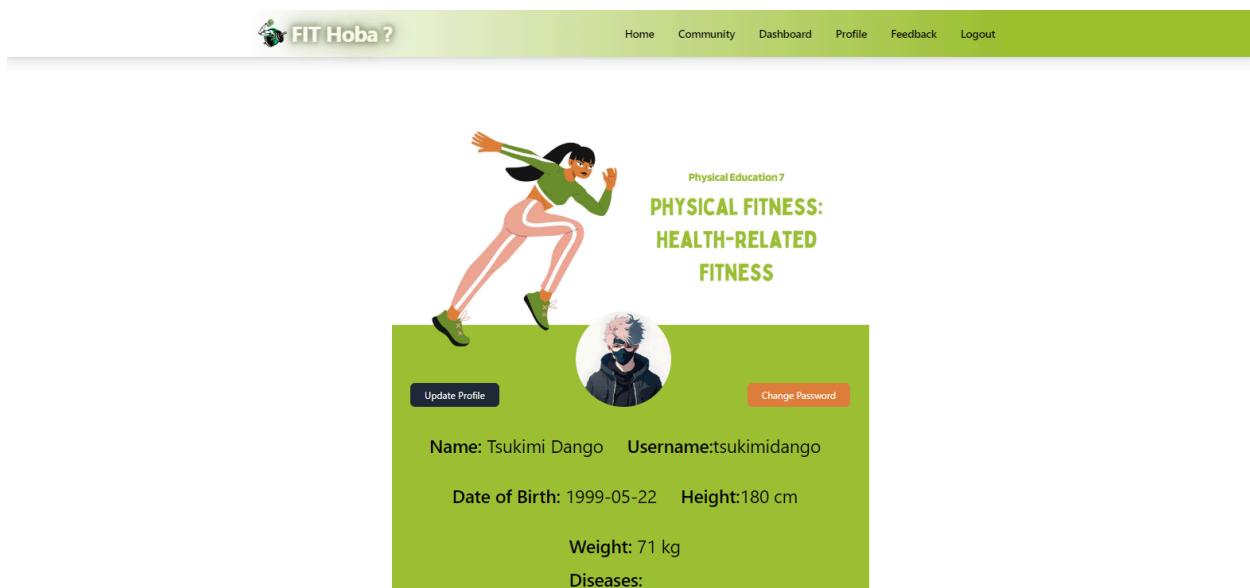
4.4.6 Diet Calendar

In the Diet Calendar Page users can track their diet in a calendar and view the total number of days they have maintained their diet and the number of days they have maintained their diet in the current month. The days where diet has been maintained are highlighted in green in the calendar.

The screenshot shows the FIT Hoba? app's Diet Maintenance section. At the top, there's a navigation bar with links for Home, Community, Dashboard, Profile, Feedback, and Logout. Below this, a green header box says 'Welcome to your Diet Calendar'. On the left, there's a 'Mark Diet Maintained' button and a calendar for April 2024. The calendar highlights the 24th as a green box. Below the calendar, there's a 'Diet Maintenance' section with two lines of text: 'Diet maintained for 0 days' and 'Diet maintained for 0 days this month'. To the right of the calendar, there's a photograph of a black alarm clock, a red pencil, and a piece of paper with handwritten numbers.

4.5 Profile

The profile page consists of the user information like name, username, date of birth, height, weight, diseases and medications. From profile page, profile information can be updated and password can be changed.



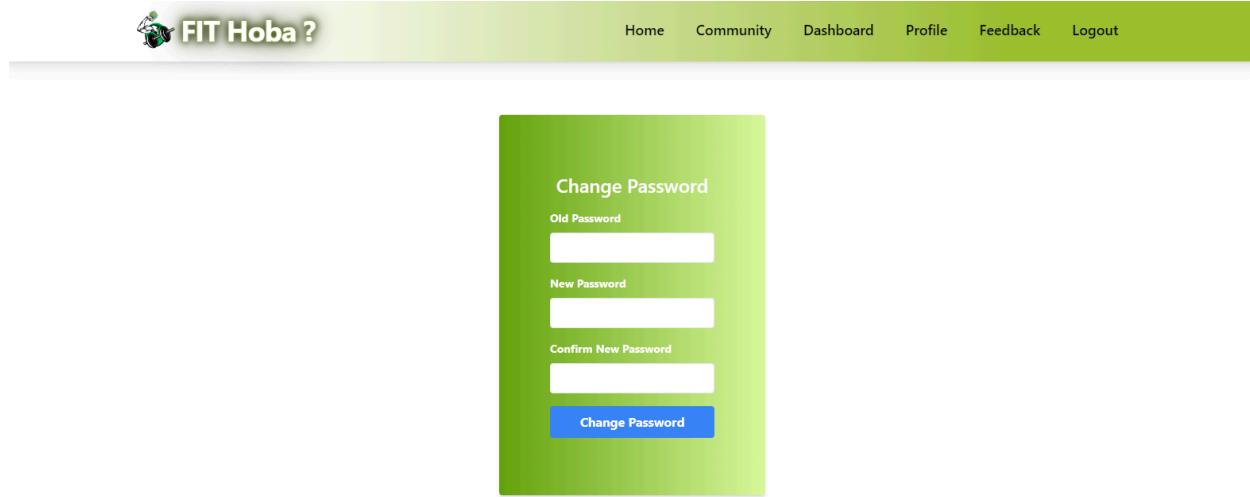
4.5.1 Update Profile

Users can update their height, weight and can add diseases and medications in the update profile page and pressing update profile in the blue box saves the changes.

A screenshot of the FIT Hoba! update profile form. The title is "Update Profile". It contains fields for "Height (in cm)" (180) and "Weight (in kg)" (71). Under "Diseases", there are checkboxes for Diabetes (checked), Hypertension (unchecked), Obesity (unchecked), HeartDisease (unchecked), HighCholesterol (unchecked), DigestiveIssues (checked), Allergies (unchecked), and Others... (unchecked). Under "Medications", there is a text input field labeled "List your medications (if any)". At the bottom is a large blue "Update Profile" button.

4.5.2 Change Password

Entering the old password, new password and confirming the new password and clicking on change password in the blue box changes and updates the user password in the change password page.

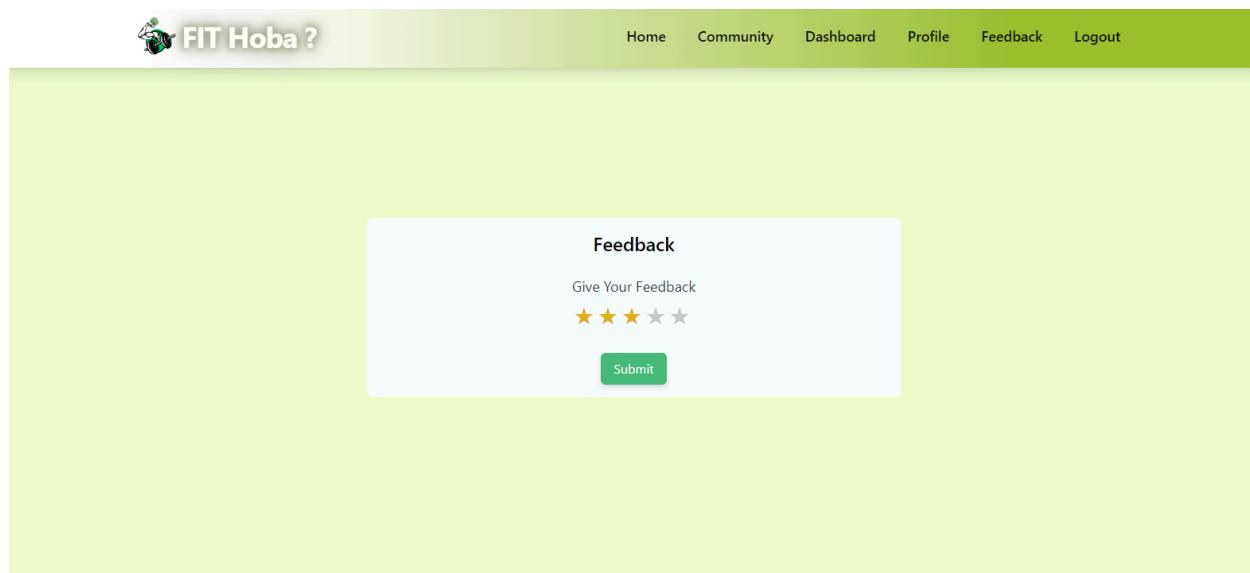


The screenshot shows a green header bar with the logo 'FIT Hoba?' on the left and navigation links 'Home', 'Community', 'Dashboard', 'Profile', 'Feedback', and 'Logout' on the right. Below the header is a white content area containing a green 'Change Password' form. The form has three input fields: 'Old Password', 'New Password', and 'Confirm New Password', each with a corresponding text input box. At the bottom is a blue 'Change Password' button.

4.6 Feedback

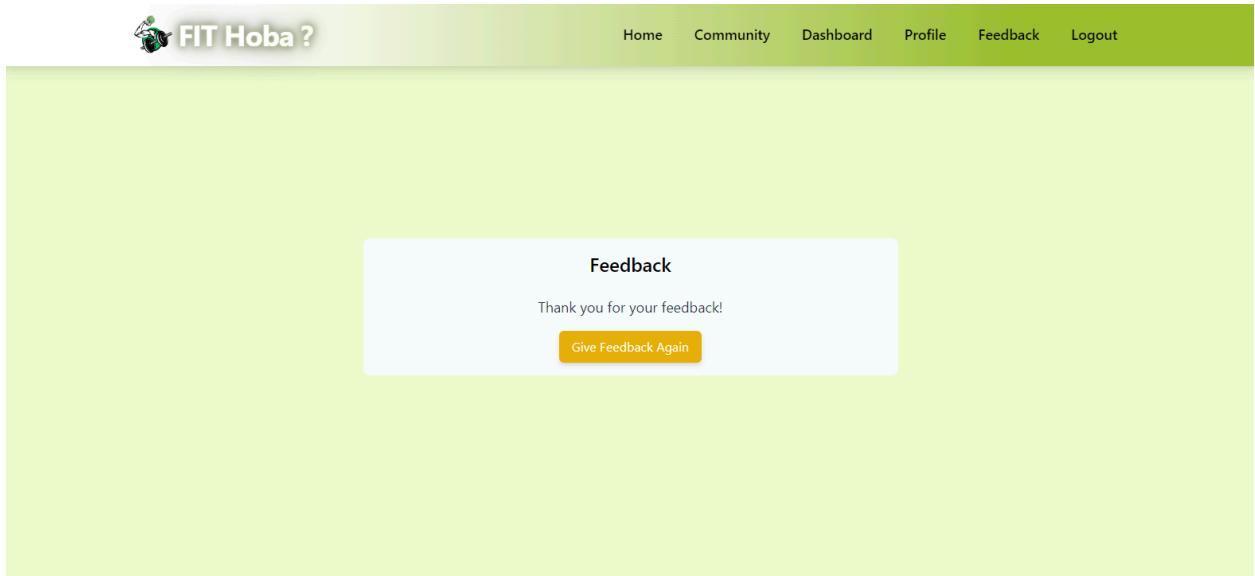
4.6.1 User Feedback:

In the feedback page users can provide feedback which is sent to the admins. By rating the website out of 5 stars and selecting their preferred stars and submitting gives feedback from users to admins.



The screenshot shows a green header bar with the logo 'FIT Hoba?' on the left and navigation links 'Home', 'Community', 'Dashboard', 'Profile', 'Feedback', and 'Logout' on the right. Below the header is a white content area containing a 'Feedback' form. The form has a text input field 'Give Your Feedback' and a star rating section with five yellow stars followed by two grey stars. At the bottom is a green 'Submit' button.

After giving feedback once, the option of giving feedback appears again.



4.6.2 Admin Feedback List:

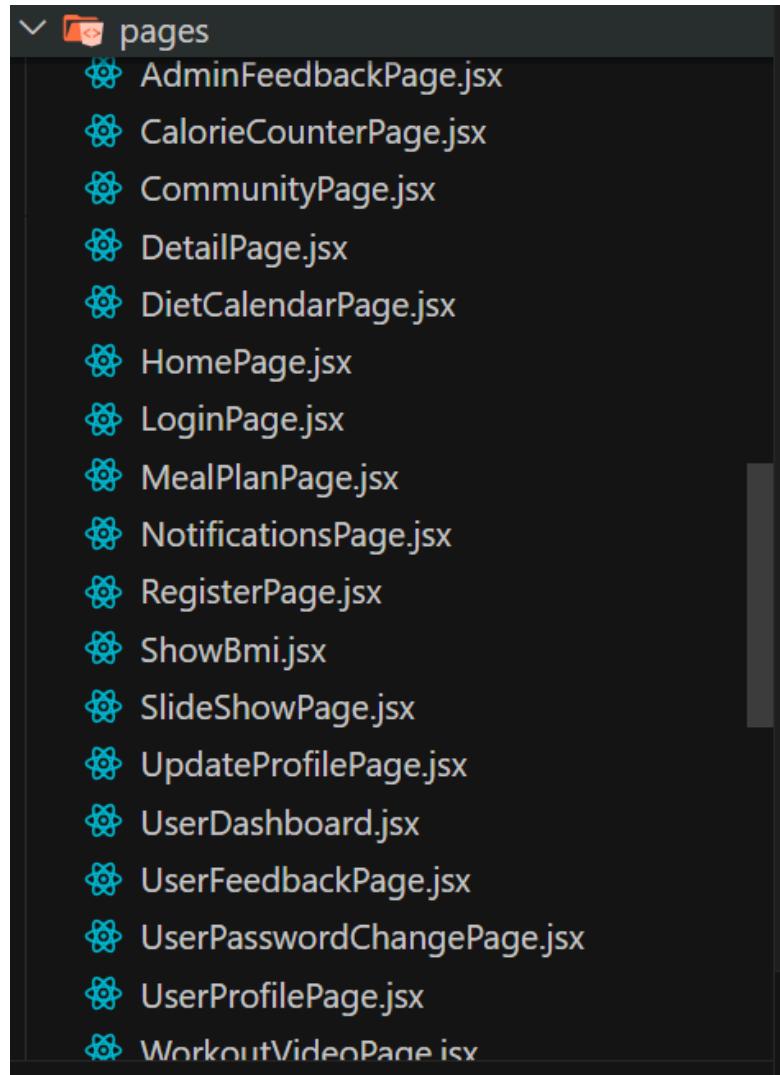
Admins can view a list of feedback provided by users.

A screenshot of the FIT Hoba? application's user feedback list page. At the top, there is a navigation bar with links for Home, Community, Dashboard, Profile, Feedback List, and Logout. The main content area has a light green background. In the center, there is a white rectangular box with rounded corners containing the heading "User Feedback List". Below the heading is a vertical list of six feedback entries, each represented by a small white box with a rating and a star icon. The entries are as follows:

Rating	Feedback
3	★★★
3	★★★
1	★
3	★★★
2	★★
5	★★★★★

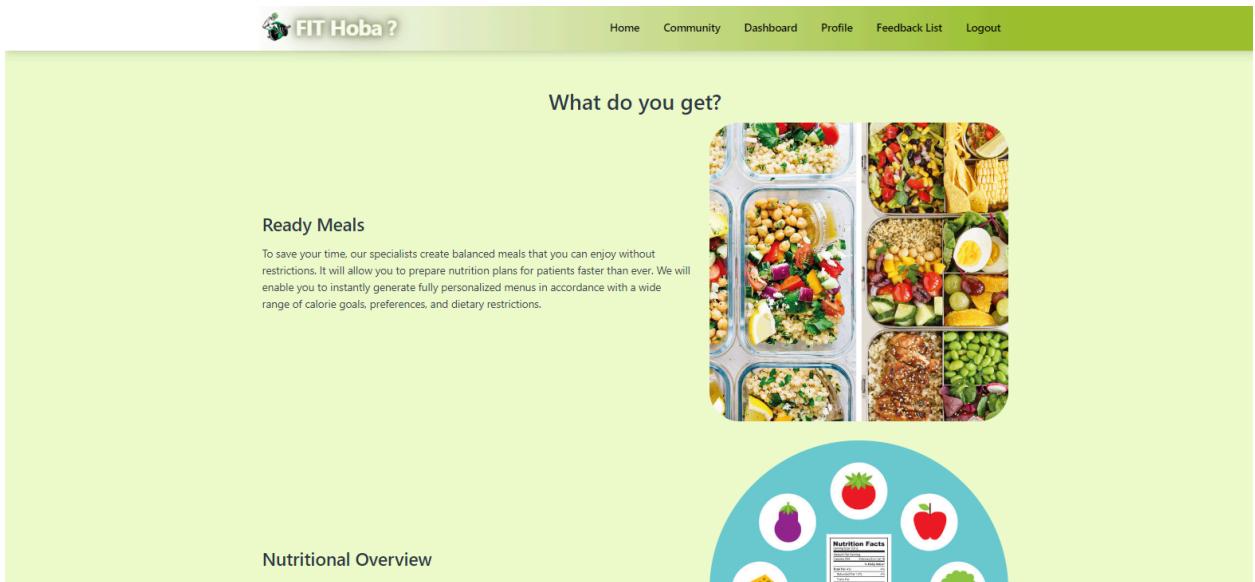
5. Frontend Development

For FrontEnd Development , we have used REACT, Tailwind. Our frontend code consists of pages and their components. HTML and CSS has been used to enhance the frontend. Our pages are shown below and each of these pages consists of one or more components.



Color palette

An overall green, lime green and beige color palette has been used for the system along with pictures representing diet planning and health.



Header and Footer

A lime green header and footer has been used for all the pages. The header has a pulse animation and the footer has an additional functionality of wave animation. The logo in the header glows and moving the cursor through the contents of the header highlights the content and provides accessibility to that component.



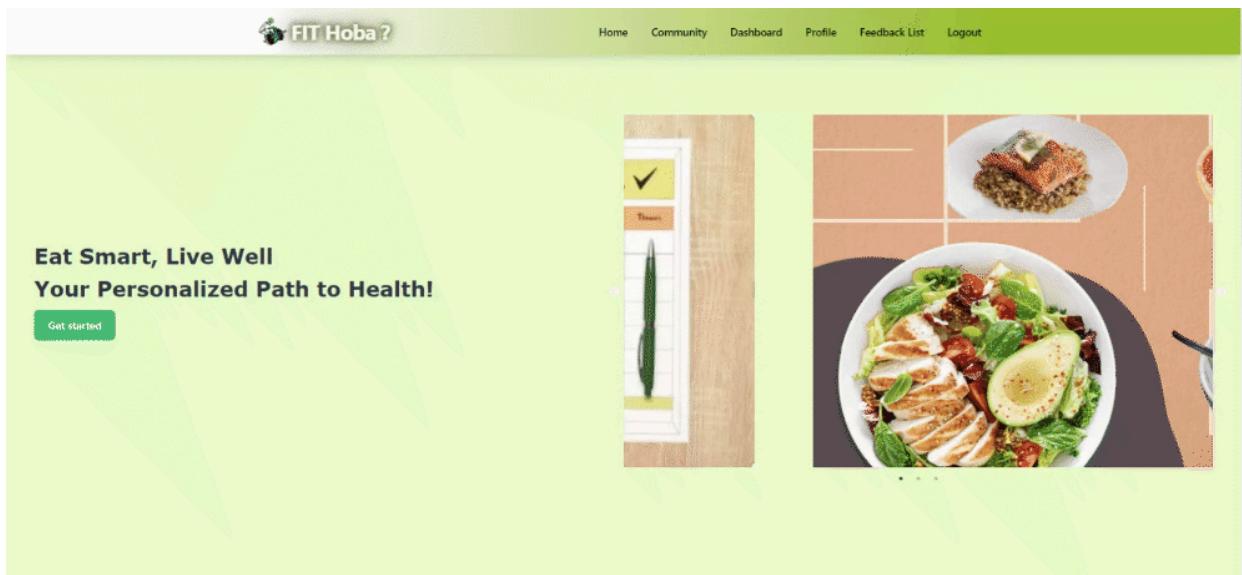
Header Pulse Animation



Footer Wave Animation



Home page slider



Dashboard buttons and components



6. Backend Development

For our Backend Development, we have used MongoDB, Express and Node. We have used axios to connect our frontend and backend.

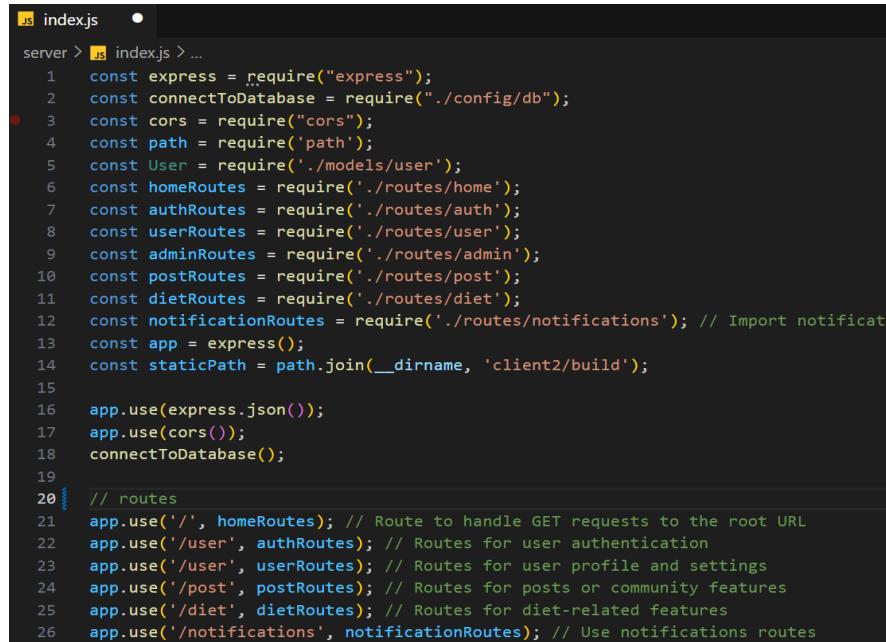
Database

For the database we have used MongodB Atlas which is a cloud database.

The screenshot shows the MongoDB Atlas interface. The top navigation bar includes 'Atlas', 'Tahsina's Or...', 'Access Manager', and 'Billing'. The main menu on the left has sections for 'Project 0', 'DEPLOYMENT', 'Database', 'SERVICES', and 'SECURITY'. Under 'Database', 'cse471' is selected, showing collections like 'diets', 'notifications', 'posts', and 'users'. The 'users' collection is expanded, showing documents with fields such as '_id', 'name', 'username', 'password', 'dob', 'height', 'weight', and '__v'. A search bar at the top right allows for natural language queries.

Index file

The index file serves as the entry point for our Node.js application. It initializes the Express.js server, sets up middleware, defines routes, connects to the database, and starts the server to listen for incoming requests.

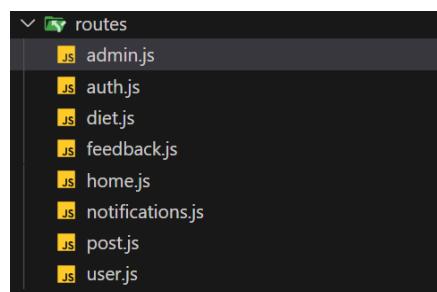


```
index.js
server > index.js > ...
1  const express = require("express");
2  const connectToDatabase = require("./config/db");
3  const cors = require("cors");
4  const path = require('path');
5  const User = require('./models/user');
6  const homeRoutes = require('./routes/home');
7  const authRoutes = require('./routes/auth');
8  const userRoutes = require('./routes/user');
9  const adminRoutes = require('./routes/admin');
10 const postRoutes = require('./routes/post');
11 const dietRoutes = require('./routes/diet');
12 const notificationRoutes = require('./routes/notifications'); // Import notifications routes
13 const app = express();
14 const staticPath = path.join(__dirname, 'client2/build');
15
16 app.use(express.json());
17 app.use(cors());
18 connectToDatabase();
19
20 // routes
21 app.use('/', homeRoutes); // Route to handle GET requests to the root URL
22 app.use('/user', authRoutes); // Routes for user authentication
23 app.use('/user', userRoutes); // Routes for user profile and settings
24 app.use('/post', postRoutes); // Routes for posts or community features
25 app.use('/diet', dietRoutes); // Routes for diet-related features
26 app.use('/notifications', notificationRoutes); // Use notifications routes
```

Routes

The file in the routes folder defines routes using Express's Router object. It starts by importing the Express module and creating an instance of the Router. Each route file defines one or more endpoints of the API using methods like router.get(), router.post(), router.put() etc. These methods specify the HTTP method (GET, POST, PUT, DELETE) and the URL path for the endpoint, along with a callback function that handles the request and generates the response for the diet planner website.

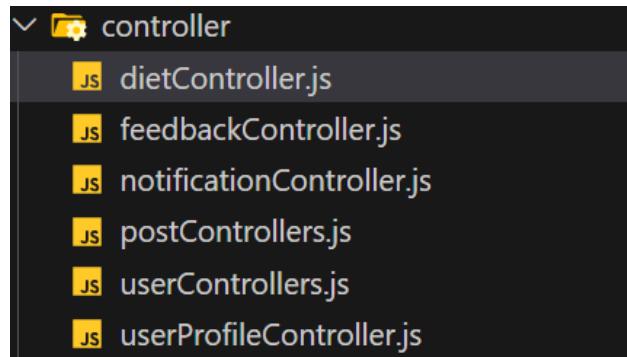
Language used: Node.js and Express.js



Controller

The controller folder houses the backend logic for handling HTTP requests and responses within the user, blog posts, feedback, diet tracking features of the application. Written primarily in JavaScript, these controllers serve as the bridge between the user interface and the database models, facilitating the management of user data and diet tracking functionality.

Language Used: JavaScript (Node.js)



Model

For our meal planner, workout recommendations and calorie counter we have used AI models called Mistral AI and Gemini.

Model name: 'mistralai/Mixtral-8x7B-Instruct-v0.1', model: "gemini-pro"

```
const WorkReco = () => {
  const getMealPlan = async () => {
    const questionString = `

I am ${age} years old and my goal is to burn ${requiredCalories} calories per day
My current BMI rate is ${bmi},
Based on these details, here are some workout recommendations tailored to my need
First tell me description of my BMI rate ,in which stage that I fall in.
Using these details answer the following question in 5 paragraphs (each with bullet
keep the details as simple as possible and in less words.
Day 1: What should be my workout plan and how to do recovery from the workout?
Day 2: What should be my workout plan and how to do recovery from the workout?
Day 3: What should be my workout plan and how to do recovery from the workout?
Day 4: What should be my workout plan and how to do recovery from the workout?
Day 5: What should be my workout plan and how to do recovery from the workout?
Day 6: What should be my workout plan and how to do recovery from the workout?
Day 7: What should be my workout plan and how to do recovery from the workout?
Each of the questions for each of the day must refer to different exercises that
And give me the output in HTML table format only. Keep the BMI Section separated.
`;

    const response = await llm.chat.completions.create({
      model: 'mistralai/Mixtral-8x7B-Instruct-v0.1',
      messages:[{'role':'user', 'content':questionString}]
    })
  }
}
```

Based on our code and prompt engineering the model generates our desired outputs.

7. Technology (Framework, Languages)

Framework: MERN

Languages: Javascript

8. Github Repository

Link: <https://github.com/shreyaarita108/CSE470FitHoba>