

A System for Recommending Food Based on User's Health Preferences

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Abstract: Making healthy decisions might feel like an uphill fight in a world where there are countless food alternatives and contradicting dietary recommendations. This is particularly true for people dealing with particular health issues, such as pregnancy or long-term illnesses, where dietary choices can significantly affect overall health. However, what if there was a method to make the procedure simpler? Imagine having a personal nutritionist always with you, someone who understands your needs intimately and can help you make better decisions with a few smartphone clicks. That's the idea behind our most recent invention, an app meant to completely change the way we think about nutrition. With the use of state-of-the-art technology and the most recent findings in nutritional science, we have developed a tool that gives you access to the power of individualized nutrition. This is how it operates: you begin by providing the app with some personal information, such as your age, height, weight, and any particular health issues you may be aware of. The software uses this data to estimate your daily caloric needs and compute your Body Mass Index (BMI). We don't stop there, though. Based on your individual profile, the app creates a customized list of food suggestions by utilizing a large library of foods and nutritional data.

Keywords: Personal nutrition, food recommendation, BMI

I. INTRODUCTION

Many people place a high importance on preserving optimal health in the fast-paced world of today. There is no one-size-fits-all approach to obtaining and maintaining excellent health, though. Because every person has different nutritional requirements due to their own health circumstances, tailored advice is crucial for general health. comes into play in this situation, providing a thorough solution that makes use of technology to provide personalized nutrient recommendations. To ensure a smooth experience for all parties, the platform is developed with separate modules for administrators and users. Administrators can log in and submit descriptive descriptions, type, range, and other special dietary requirements.

Additionally, they can address a variety of customer needs by offering general nutrition advice for common health issues like skin and orthopedic problems. The ability to add, edit, and remove nutrition requirements guarantees that the data is current and correct, representing the most recent advancements in the science of nutrition. The procedure starts on the user's end with a straightforward registration, which is followed by system login. Additionally, they can address a variety of customer needs by offering general nutrition advice for common health issues like skin and orthopedic problems. The ability to add, edit, and remove nutrition requirements guarantees that the data is current and correct, representing the most recent advancements in the science of nutrition.

They can also provide basic nutrition recommendations for common health conditions like skin and orthopedic disorders, which can meet a range of customer demands. The flexibility to add, amend, and remove nutrition requirements ensures that the information is accurate and up to date, reflecting the latest developments in the field of nutrition science. The process begins with a simple registration on the user's end, and then the system login. They can also provide basic nutrition recommendations for common health conditions like skin and orthopedic disorders, which can meet a range of customer demands. The flexibility to add, amend, and remove nutrition requirements ensures that the information is accurate and up to date, reflecting the latest developments in the field of nutrition science.

Additionally, accessing a personal profile and conducting targeted nutrition information searches adds even more ease and personalization to the user experience. React JS, a potent and effective JavaScript user interface toolkit, forms the foundation of this cutting-edge platform. The technology selection makes for a smooth and responsive user experience,

which makes interacting with the platform easy and fun. Robust functions along with an intuitive interface pave the way for a life-changing path towards improved health and wellbeing.

II. METHODOLOGY

The proposed system involves various modules that are depicted. These various modules integrate with each other to provide a seamless user experience.

Registration:

- Registration requires user to fill in various details such as an *username*, *name* and a *strong password*. A O-Authsign-in can also be done using a third party service as Google. Email verification is done by sending a verification code the user's email address.

Login:

- Login can be done similarly to registration process either using email and password or a third party O-Auth service. Once the user is logged in, a JSON Web Token (JWT) is stored in the local storage of the user's browser for authorization purposes.

User Preferences:

- Using controlled forms a user input allows the application to get user preferences. This inputs can further be validated using various libraries. The preferences are then further stored in the database with a key associated with user account as foreign key mapping.

Food Recommendation:

- A predefined approach is used to finally recommend food to the user. It is displayed on the frontend using a clean user interface with all the recipe information and contents.

Feedback:

- A continuous user feedback system is setup so that it updates user preferences automatically as a user may dislike a certain recommendation.

III. IMPLEMENTATION

ADMIN MODULE:

1. Login:

This module allows administrators to securely log in to the system using their credentials. Authentication mechanisms ensure that only authorized personnel can access the admin functionalities.

2. Post Nutrition Requirements:

Admins can post specific nutrition requirements tailored to users' health conditions. This includes specifying the type of nutrient, acceptable range, title, and a description detailing its importance. Nutrition requirements are categorized based on their relevance to different health conditions.

3. View Nutrition Requirements:

Admins have access to a comprehensive view of all posted nutrition requirements in the system. This module enables them to review and manage the existing requirements efficiently.

4. Update/Delete Nutrition Requirements:

Admins can update or delete existing nutrition requirements as needed. This functionality ensures that the system's database remains accurate and up-to-date with the latest nutritional guidelines and recommendations.

5. Post Common Nutrition:

This module allows admins to post common nutrition recommendations for prevalent health conditions such as skin health or orthopedic concerns. Admins can provide general dietary advice tailored to specific health conditions to supplement personalized nutrition requirements.

6. Update/Delete Common Nutrition:

Admins have the ability to update or delete previously posted common nutrition recommendations. This ensures that the system's database reflects the most current and relevant information for users.

7. View Feedback:

The view feedback module in the admin login section allows administrators to access and manage feedback submitted by users within the application. This module provides administrators with valuable insights into user experiences, concerns, and suggestions, empowering them to make informed decisions and take appropriate actions to enhance the application's functionality and user satisfaction.

USER MODULE:

1. Register:

Users can create an account by registering with the system. This module collects necessary user information and credentials to establish user profiles within the application.

2. Login:

Registered users can securely log in to their accounts using their credentials. Authentication mechanisms ensure that only authorized users can access the user functionalities of the application.

3. Post Test Lab Value:

Users can input their test lab values, such as blood test results or biomarker measurements, into the system. These values serve as input data for generating personalized nutrition recommendations based on the user's health condition.

4. View Nutrition Recommendation:

Upon posting their test lab values, users can view personalized nutrition recommendations tailored to their individual health conditions. These recommendations are generated based on the user's test results and nutritional needs.

5. Search Nutrition:

Users have the ability to search for specific nutrition recommendations within the system. This module enables users to quickly locate relevant dietary advice based on their health concerns or dietary preferences

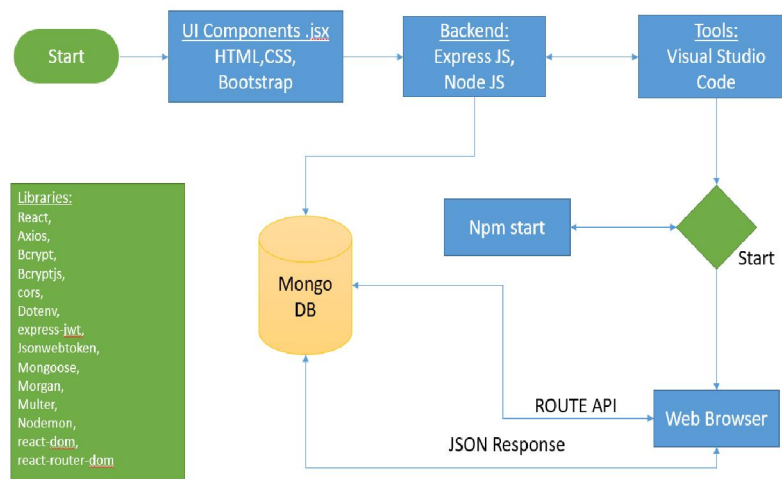
6. Post Feedback:

The feedback module enables users to provide valuable feedback about their experience with the application. This module serves as a channel for users to express their opinions, suggestions, and concerns, helping the development team improve the application's quality and user satisfaction.

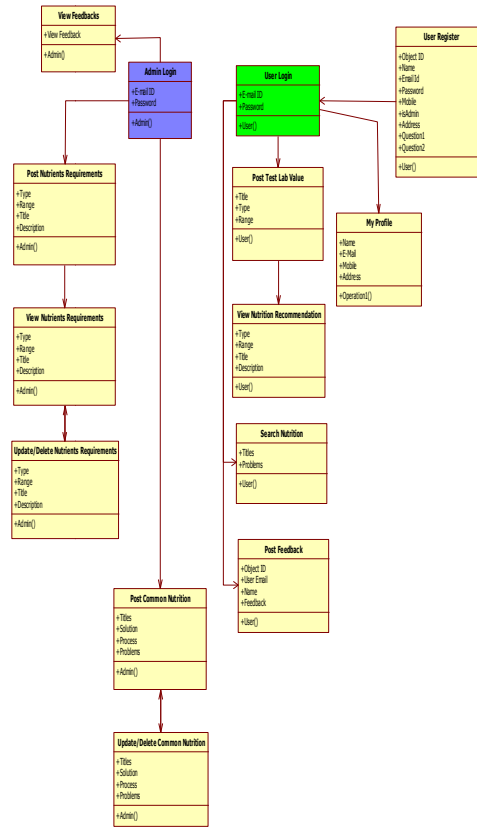
7. My Profile:

Users can access and manage their personal profiles within the application. This module allows users to update their account information, review their posted test lab values, and track their interactions with the system.

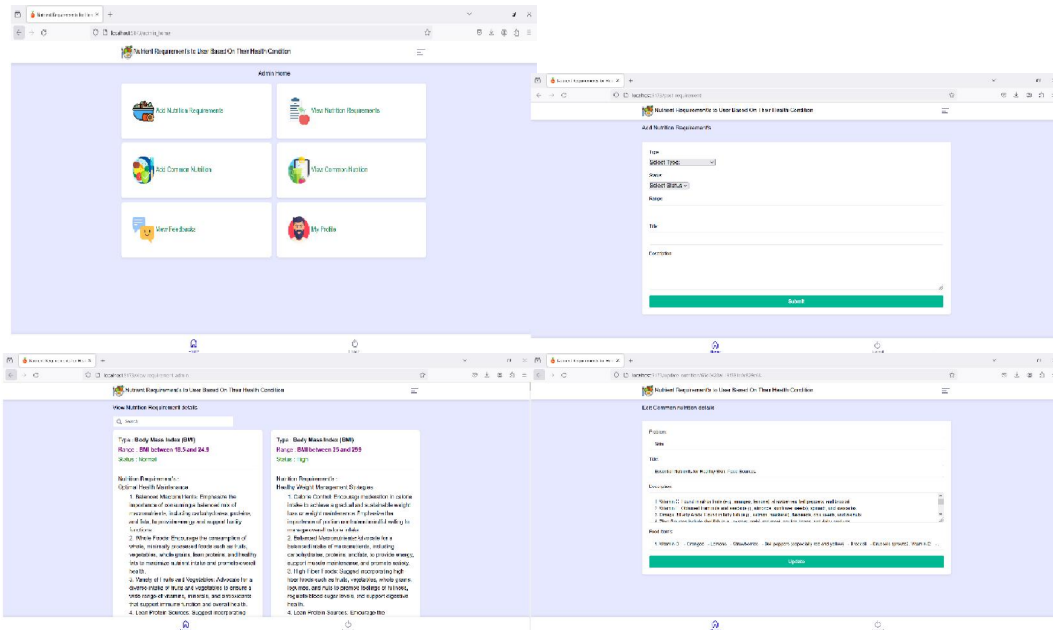
Work Flow Diagram:



Class Diagram:



INTERFACE OF THE APPLICATION



IV. CONCLUSIONS

In conclusion, this will make things more convenient for users, particularly for those who are ill. By doing research on which foods to avoid, individuals can avoid being overly busy and save time.

V. FUTURE SCOPE

There is a great deal of room for expansion in the suggested system. User interactivity can be further enhanced by integrating with wearables and currently available calorie-tracking programs. The platform would benefit from an expansion of the dataset to encompass a greater variety of multi-culinary dishes. Adding alerts for hydration reminders and meal reminders could improve user experience. Furthermore, the quality of recommendations for larger audiences may be improved if the recommendation system is trained using all of the user data.

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