A PROJECT ON

NUTRITION AWARENESS WEBSITE

III SEM INTERNSHIP REPORT

SUBMITTED BY:

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SUBMITTED TO :

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CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY

(A)

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COMMITTED TO RESEARCH, INNOVATION AND EDUCATION

47 years

INTERNSHIP REPORT 2025

SUBMITTED BY:

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Organization Information:

Name of the organization: Codegnan IT Solutions Pvt. Ltd.

Duration of the internship: 90 hours

Brief description about organization:

Codegnan is a software training institute that offers industry-oriented courses in Python, Java, Data Science, Machine Learning, Full-Stack Development, and related technologies. Known for its practical, hands-on learning approach, Codegnan focuses on real-time projects, skill-based training, and structured placement support through mock interviews and career guidance. With training centers in Hyderabad, Vijayawada, and Bangalore, the institute aims to help students become job-ready with updated course material, experienced mentors, and a strong support system for beginners as well as advanced learners.

Domains Offered:

Courses in **Python**, **Java** (core and full stack), **Data Science**, **Machine Learning**, **Software Testing**, **React JS**, **C programming**, and more

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8th Nov 2025,
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CERTIFICATE OF INTERNSHIP

This is to certify that the **Gopthri Yellapragada 160124735025**, a student of **Chaitanya Bharathi Institute of Technology**, has successfully completed the Internship Program as an **"Web Developer"** under the guidance and supervision of **Mr. N Ravi Siva Ram Teja – MERN STACK Mentor ,** Codegnan IT Solutions Pvt Ltd, Vijayawada, in association with CBIT IT Department, from 16th June 2025 to 16th August 2025.

During the internship, various tasks related to **HTML, CSS, React, Firebase, GitHub** were undertaken. A project on "**Nutrition Awareness Website**" was also completed. The candidate demonstrated professionalism, knowledge, and a result-oriented mindset throughout the internship, showcasing a theoretical and practical understanding of design work requirements.

The candidate exhibited a friendly, outgoing personality and performed well both as an individual and as a team member, meeting the management's expectations. On behalf of the company, I take this opportunity to wish the candidate all the very best in their future career endeavour and have a smooth life.

For Codegnan IT Solutions Pvt Ltd.

Codegnan IT Solutions Pvt. Ltd.

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CERTIFICATE OF INTERNSHIP

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ACKNOWLEDGMENT

We express our sincere gratitude to **Dr. B. Swathi Sowmya, Assistant Professor, IT Department**, Chaitanya Bharathi Institute of Technology, for her valuable guidance, encouragement, and support throughout the completion of our project titled **"Nutrition Awareness."** Her expertise and insightful suggestions were instrumental in shaping the architecture and methodology of the NutriWell platform, particularly in the effective integration of AI/ML technologies for personalized meal planning. Her dedication ensured that our work maintained a high standard of technical rigor and relevance.

Furthermore, we are thankful to the entire team of **Codegnan** and the management of the **Chaitanya Bharathi Institute of Technology** for providing us with the necessary academic freedom, resources, and a state-of-the-art laboratory environment essential for the development and testing of this complex application. We also thank the development team members for their commitment and hard work. Finally, we acknowledge the unwavering support received from our families and peers, whose encouragement was a source of strength throughout this challenging and rewarding journey.

INTRODUCTION

1.1 PROBLEM STATEMENT:

To create a Nutrition Awareness Website that covers the following aspects:

SDG 3 – Good Health & Well-being

Promotes healthy eating and lifestyle awareness among students.

Features:

- Food pyramid visualizations
- Healthy recipe page
- BMI calculator

Add-on: AI that suggests daily meal plans based on BMI

1.2 PROPOSED SOLUTION :

Despite increasing health concerns among students, awareness about balanced nutrition and healthy lifestyle habits remains low. Many students lack proper guidance on what to eat, how much to eat, and how to maintain overall well-being. To address this issue and support **SDG 3 – Good Health & Well-being**, there is a

need for an interactive digital platform, a website, that educates students about nutrition in an engaging and accessible way.

This project proposes the development of a **Nutrition Awareness Website** that provides essential tools such as food pyramid visualizations, a healthy recipe library, and a BMI calculator. To further enhance personalization, an AI-powered chatbot will suggest daily meal plans based on the user's BMI, helping students make informed dietary choices and adopt healthier lifestyles.

SOFTWARE USED

The NutriWell project was architected using a high-performance, contemporary software ecosystem often termed a MERN-adjacent stack, leveraging the power and flexibility of JavaScript across the full development spectrum.

Frontend Development: The user interface was meticulously crafted using React.js. This choice enabled the creation of a highly modular and scalable Single-Page Application (SPA), which delivers a fast, dynamic, and responsive user experience without constant page reloads. For styling, Tailwind CSS was strategically employed as a utility-first framework. This dramatically accelerated the development process by allowing rapid construction of complex components and ensuring pixel-perfect responsiveness across various devices. Furthermore, Framer Motion was integrated to apply sophisticated, engaging animations and transitions, significantly enhancing the professional and modern feel of the UI/UX design.

Backend Development: The server-side application logic was managed using Node.js as the runtime environment, coupled with the minimal and flexible

Express.js framework. This combination allowed for the creation of robust, high-throughput, and scalable RESTful APIs. This backend serves as the core engine, handling all data exchange, complex business logic, user authentication via JWT, and communication with the database and external AI services.

Database Management and Hosting: The project utilizes PostgreSQL, a highly reliable and feature-rich relational database management system, chosen for its transaction integrity and ability to handle complex structured data efficiently. For ease of deployment and managed services, PostgreSQL was hosted via Supabase. Supabase provided crucial services beyond mere hosting, including simplified user authentication, real-time database capabilities, and a reliable mechanism for storing all user data and the generated AI outputs, such as personalized meal plans. Database interaction was managed through Prisma ORM (Object-Relational Mapping), which provided a type-safe layer over SQL, simplifying migrations, schema management, and data querying in the Node.js environment.

AI Integration and Deployment: The platform's intelligence is powered by the OpenAI API, which was integrated to leverage powerful Natural Language Processing (NLP) models. This integration is responsible for the complex task of generating coherent, personalized meal plans and providing conversational

assistance. Finally, the application was deployed using Vercel, a platform known for its efficiency in handling modern Jamstack architectures, providing a global Content Delivery Network (CDN) for extremely fast frontend load times and seamless deployment pipelines.

PROGRAMING LANGUAGES

The technical success of the NutriWell platform rests on the strategic use of a few key programming and query languages.

JavaScript (ECMAScript 2015+): This is the primary full-stack language of the project. On the client side (frontend), JavaScript, via React.js, is responsible for all interactive elements, state management, and the construction of the virtual DOM. On the server side (backend), JavaScript, running on Node.js, manages all API endpoints, data validation, security, and integration with the database and AI services.

***SQL (Structured Query Language)*:** As the language of the PostgreSQL relational database, SQL was indispensable for defining the data schema, ensuring referential integrity, and performing efficient CRUD (Create, Read, Update, Delete) operations on the large dataset of user profiles, dietary histories, and the AI-generated meal plan outputs.

HTML & CSS: Form the basis of the web page structure and presentation. The use of Tailwind CSS abstracted much of the raw CSS, but the fundamental structure was maintained using JSX (a syntax extension for JavaScript) which compiles to standard HTML elements.

TASKS

4.1 PROJECT OVERVIEW:

The NutriWell platform was conceived and developed as a comprehensive digital solution to address the critical gaps in nutrition awareness and personalization. Our approach was to create an AI-driven, adaptive meal planning and health guidance system built on a robust, modern technology stack. The primary goal is to empower users to effortlessly transition towards healthier dietary patterns by providing recommendations that are highly accurate and easily integrated into their daily lives.

Key elements of the proposed solution include:

Alignment with Global Health Standards: The project actively supports the United Nations Sustainable Development Goal 3 (SDG 3): Good Health and Well-being, by focusing on preventative health measures and informed dietary choices.

Personalized Indian Diet Focus: Moving beyond Westernized models, the platform specifically curates content, recipes, and recommendations that are

relevant to the diverse ingredients and traditional meal structures found in Indian cuisine.

Technological Integration: The solution integrates advanced Artificial Intelligence and Machine Learning algorithms with user biometrics (e.g., BMI) and user input to generate and store custom, 7-day meal plans, ensuring maximum adherence and effectiveness. The resulting platform is designed to be highly accessible, engaging, and a persistent source of reliable nutritional advice.

The pervasive nature of the modern, fast-paced lifestyle has created a significant disconnect between individuals and their nutritional needs. This challenge is evidenced by the alarming global rise in lifestyle diseases such as type 2 diabetes, hypertension, and obesity, all stemming from poor dietary habits and a lack of awareness. Malnutrition, in the form of both under- and over-nutrition, has become a critical public health concern. The core issue lies in the inaccessibility of personalized, expert nutritional guidance tailored to the individual's specific biological metrics, health objectives, and cultural context. Generic dietary advice often proves ineffective because it fails to account for the immense diversity in food habits, especially within the vast and varied landscape of Indian dietary preferences. Making healthy, informed choices requires more than just general knowledge; it demands a hyper-personalized digital solution that can interpret

complex user data and translate it into practical, culturally appropriate, and easy-to-follow meal plans. This deficit in effective, scalable, and personalized guidance underscores the vital necessity of the NutriWell project.

The architectural foundation of NutriWell is a Monorepo structure, an organizational choice that allows for simplified code sharing between the frontend and backend while maintaining distinct project boundaries for superior maintainability and consistent dependency management. Security and scalability were prioritized through the implementation of a JWT (JSON Web Token) stateless authentication system, which is vital for modern, distributed web applications.

The true innovation of NutriWell lies in its sophisticated AI and Machine Learning (ML) integration. The system is engineered to function as an adaptive personal health assistant:

Data Ingestion and Analysis: It continuously ingests and analyzes user-provided data, including biometric input (BMI, weight, height), stated goals, and implicit behavioral patterns.

Dynamic Personalization: ML algorithms continuously refine their meal suggestions over time. They track user adherence to previous plans and assess the

effectiveness of recommendations, ensuring the dietary guidance becomes progressively more accurate and aligned with the user's specific biological and behavioral response.

Predictive Insights: The AI engine moves beyond mere reaction by offering Predictive Nutritional Insights. It tracks emerging dietary patterns, identifies potential long-term nutritional deficiencies or health risks, and proactively suggests adjustments to the meal plans, thereby promoting preventative care and sustainable long-term healthy eating habits. The persistence of this data, including the generated meal plan outputs, is securely handled by the Supabase/PostgreSQL database.

4.2 WEBSITE FEATURES:

The NutriWell platform is defined by a suite of interconnected features that deliver a comprehensive and engaging health management experience:

BMI Calculator and Intelligent Integration: This feature provides immediate, objective feedback by calculating the user's Body Mass Index (BMI) and classifying them into standard categories (Underweight, Healthy Weight, Overweight, Obese). Crucially, it provides Personal Notes and Recommendations, which are contextualized health tips inferred directly from the BMI result. The

calculated BMI data is automatically integrated into the AI Meal Planner, serving as a primary variable for hyper-personalizing the calorie goals and macronutrient distribution of the meal plan.

AI Meal Planner Chatbot (NutriAI): Utilizing advanced Natural Language Processing (NLP), the chatbot interacts conversationally with the user to gather highly detailed information about preferences, allergies, and daily schedules. Based on this input and the integrated BMI data, the chatbot generates a sophisticated, custom 7-day meal plan. This complete plan, the core AI output, is then securely stored in Supabase for user retrieval. The output includes not only the recipes but also Pro Tips for You, which are actionable, personalized health notes designed to boost adherence and reinforce healthy behavior (e.g., hydration reminders, specific supplement suggestions).

Interactive Food Pyramid (Indian Focus): This is a highly visual, educational tool designed to clearly communicate the principles of a balanced diet. It is specifically tailored to the Indian food landscape, emphasizing common staples like whole grains and cereals, and highlighting protein sources like paneer, lentils, and pulses. The pyramid visually displays recommended daily serving range for

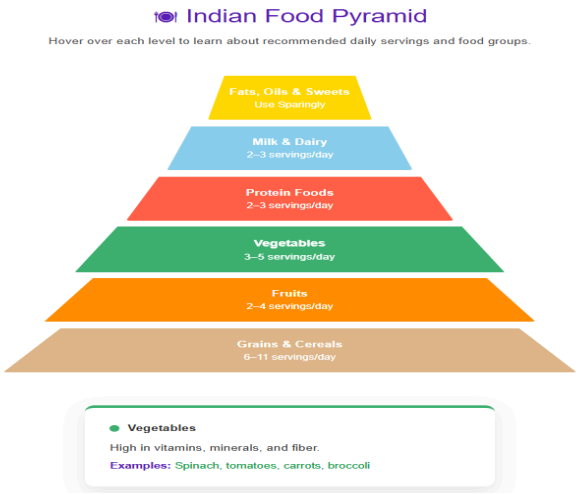
each food group (e.g., Vegetables: 3-5 servings/day), promoting the critical concepts of variety, moderation, and the ideal proportions for Indian meals.

Recipe Database and User Engagement: An extensive, curated database of delicious and nutritious Indian recipes serves as a powerful motivational feature. Recipes are categorized strategically, including sections like Quick & Easy Weeknight Dinners, Low-Calorie Regional Delicacies, and Protein-Rich Vegetarian Options, to cater to diverse needs. Each recipe listing provides detailed nutritional breakdowns, ingredient lists, and step-by-step cooking instructions, transforming health goals into achievable and enjoyable culinary outcomes.

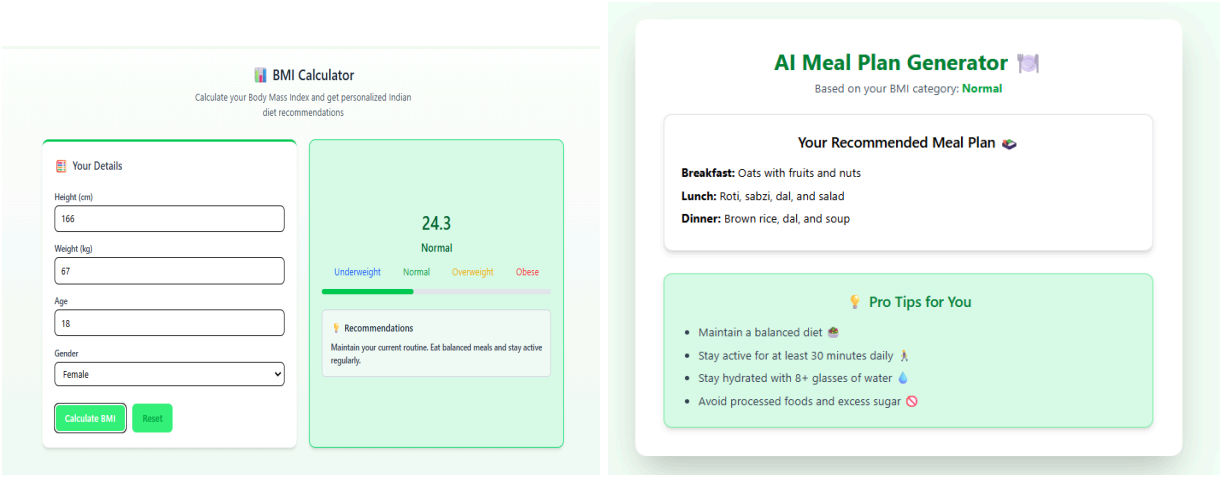
Systemic Feedback Loops: The platform includes an Interactive Health Quiz with personalized questionnaires to guide users toward suitable dietary plans based on their unique lifestyles. A Comprehensive FAQ Section provides an accessible knowledge base for self-service support. A Direct Feedback System is also included to allow users to submit suggestions and report issues seamlessly, ensuring the platform remains continuously refined and aligned with user expectations.

4.3 PHOTO GALLERY:

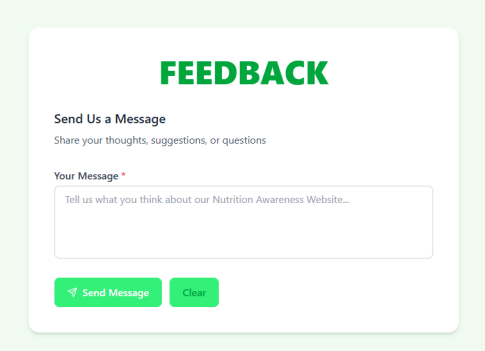
4.3.1 INTERACTIVE FOOD PYRAMID :

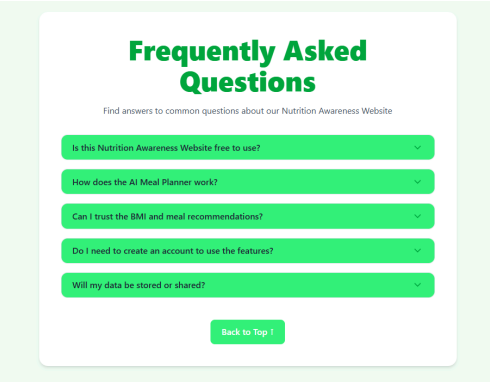


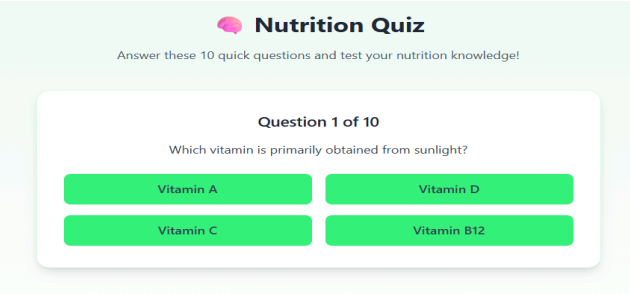
4.3.2 BMI CALCULATOR:



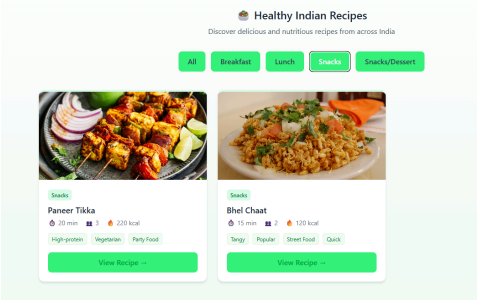
4.3.3 INTERACTIVE QUIZ AND FEEDBACK FORM

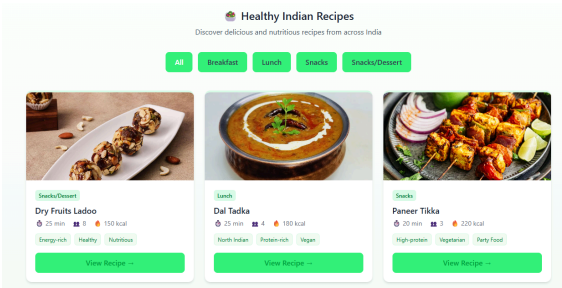


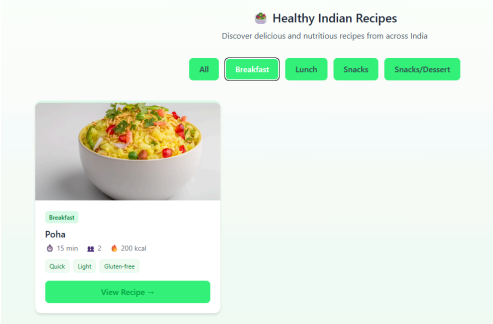




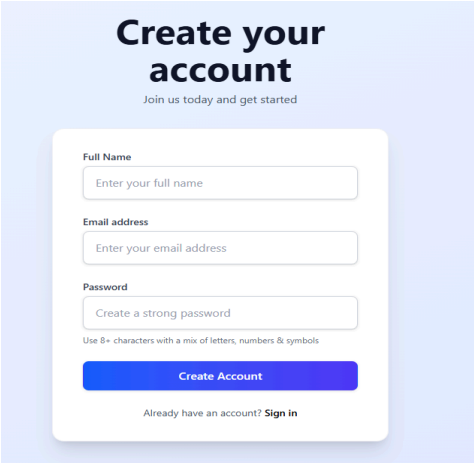
4.3.4 FOOD RECIPES

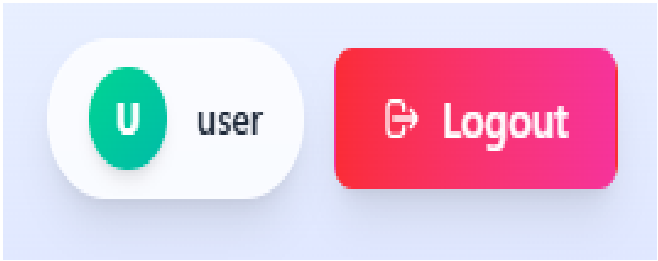


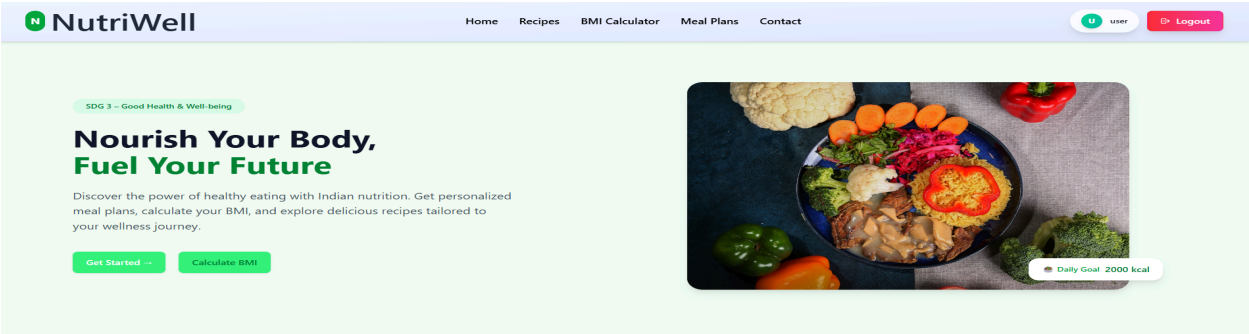




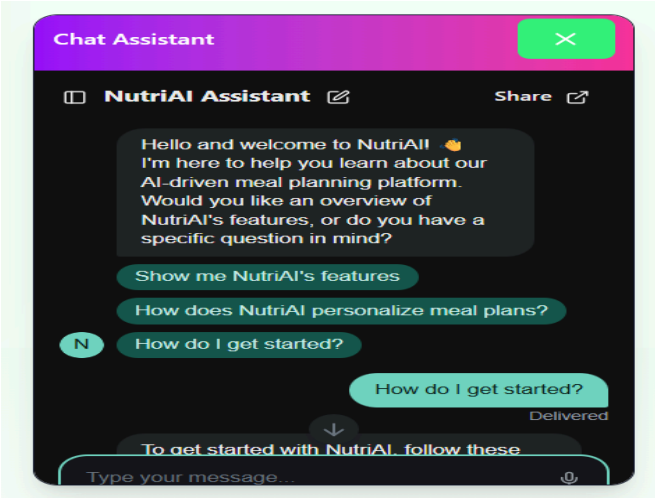
4.3.5 LOGIN PAGES







4.3.5 AI CHATBOT



4.4 FUTURE DEVELOPMENT

To ensure the NutriWell platform maintains its position as a leading-edge nutrition solution, the following strategic future developments are planned:

1. **Wearable Device Synchronization:** The highest priority is integrating with major health APIs (e.g., Apple HealthKit, Google Fit). This will allow the system to receive real-time data on physical activity, energy expenditure, and sleep patterns. This granular data will empower the ML models to make minute, highly accurate adjustments to daily calorie budgets and macronutrient ratios, moving the system towards a truly dynamic health coach.

2. **Enhanced ML Predictive Analytics:** Investing in training more sophisticated deep learning models will enable the platform to offer even more precise Proactive Health Risk Assessments. The models will analyze long-term dietary logs to detect nutrient deficiencies or pathological consumption patterns before they manifest as chronic conditions, providing early warning signals and preventative dietary adjustments.

3. **Community and Social Engagement Features:** Development will focus on a secure in-app community forum. This will include features for users to share

progress, exchange user-modified healthy recipes, and participate in friendly, diet-based gamification challenges, fostering a supportive environment and boosting long-term motivation and adherence.

4. **Multi-Linguistic Support:** To maximize national impact and accessibility, the entire platform, including the NutriAI chatbot responses and recipe instructions, will be localized to support several major regional Indian languages.

CONCLUSION

The NutriWell project successfully achieved its ambitious goal of creating a highly personalized and technologically advanced platform to combat the pervasive issue of poor nutrition awareness. By combining the strengths of a modern MERN-adjacent stack with sophisticated Artificial Intelligence and Machine Learning algorithms, the platform delivers guidance that is not only scientifically sound but also culturally relevant to the complex Indian diet. The successful implementation of the synergistic features—specifically the AI Meal Planner and the BMI integration, with their generated outputs securely persisted in the database—validates the project's core hypothesis: that personalized, data-driven nutrition advice is the most effective catalyst for sustainable healthy behavioral change. The NutriWell platform is a tangible and impactful contribution toward achieving the objectives of SDG 3: Good Health and Well-being, establishing a scalable model for accessible public health intervention through technology.

We have understood the different aspects of Full Stack Development through this project and have been able to implement most of our knowledge into the project.

REFERENCES

Technical Documentation & Frameworks

- **React.js Official Documentation:** react.dev/learn - Core principles and advanced concepts for frontend development.
- **Node.js & Express.js Documentation:** nodejs.org/en/docs, expressjs.com - Backend API development and server-side logic.
- **PostgreSQL Documentation:** postgresql.org/docs - Comprehensive guide for relational database management.
- **Supabase Documentation:** supabase.com/docs - Utilized for PostgreSQL hosting, authentication, and real-time capabilities.
- **Vercel Documentation:** vercel.com/docs - Frontend deployment, serverless functions, and global content delivery.

Online Resources & Standards

- **United Nations Sustainable Development Goals (SDGs):** sdgs.un.org/goals/goal3 - Specifically Goal 3: Good Health and Well-being, guiding our project's impact.
- **MDN Web Docs:** developer.mozilla.org/en-US/docs/Web - General web development best practices and references.
- **OpenAI API Documentation:** platform.openai.com/docs/api-reference - For integrating AI language models into personalized meal planning.