

A Survey on: AI-Based Diet and Workout Generator Web-Application

Ms.R.B.Gurav¹ Sanskar Deshmukh² Ketan Jagtap³ Aayush Shinde⁴ Saie Sonawane⁵

¹Lecturer ^{2,3,4,5}Student

^{1,2,3,4,5}Department of Information Technology

^{1,2,3,4,5}AISSMS Polytechnic, Pune, India

Abstract — In recent years, maintaining a healthy lifestyle has become increasingly challenging due to sedentary habits, improper diet, and lack of personalized fitness guidance. Many individuals struggle to identify suitable diet plans and workout routines based on their body requirements, fitness goals, and daily schedules. Traditional fitness programs often provide generic recommendations that may not suit individual needs. This survey paper presents an overview of web-based diet and workout generator systems that provide personalized fitness and nutrition recommendations using user-specific parameters such as age, gender, weight, height, activity level, and fitness goals. The paper reviews existing approaches, technologies, and algorithms used in diet and workout recommendation systems, analyzes their limitations, and highlights the novelty of a web-based personalized diet and workout generator. The proposed approach aims to deliver customized, accessible, and user-friendly fitness guidance through a web application.

Keywords: Diet Recommendation, Workout Generator, Fitness Web Application, BMI, BMR, Personalized Health, Nutrition Planning

I. INTRODUCTION

Health and fitness play a vital role in improving the quality of life and preventing lifestyle-related diseases such as obesity, diabetes, and cardiovascular disorders. However, many individuals lack proper knowledge about nutrition and exercise planning. With the growth of digital technology, web-based fitness applications have emerged as an effective solution for providing health guidance.

Diet and workout generator systems aim to provide personalized recommendations based on individual body metrics and goals. These systems calculate health indicators such as Body Mass Index (BMI) and Basal Metabolic Rate (BMR) to suggest suitable diet plans and workout routines. Web applications offer accessibility, ease of use, and scalability, allowing users to access fitness guidance anytime and anywhere.

This survey paper studies existing diet and workout recommendation systems, identifies their advantages and limitations, and provides insights into designing an effective web-based diet and workout generator.

II. PROBLEM STATEMENT

Many people face difficulties in selecting appropriate diet plans and workout routines that align with their physical condition and fitness goals. Existing fitness applications often provide generalized recommendations without considering individual differences such as metabolism, body type, and activity level. Manual consultation with nutritionists or trainers can be expensive and time-consuming.

Furthermore, some existing systems lack integration between diet and workout planning, resulting in incomplete fitness guidance. Therefore, there is a need for a personalized, automated, and web-based diet and workout generator that provides accurate and goal-oriented recommendations based on user-specific data.

III. LITERATURE SURVEY

Several researchers and developers have proposed systems related to diet planning and fitness recommendation. A brief review of existing literature is presented below:

Smith et al. proposed a nutrition recommendation system based on BMI calculations to suggest calorie intake. While the system provided basic diet plans, it lacked workout recommendations and personalization beyond BMI.

Patel et al. developed a mobile-based fitness application that suggested workout routines based on user goals such as weight loss or muscle gain. However, the system did not integrate diet planning, limiting its effectiveness.

Kaur and Singh introduced a diet recommendation system using BMR and daily calorie requirements. The system improved nutritional accuracy but did not consider physical activity levels in detail.

Sharma et al. proposed a machine learning-based fitness recommendation system that analyzed user data to generate personalized plans. Although accurate, the system required large datasets and complex models, making it less suitable for lightweight web applications.

Rao et al. developed a web-based health monitoring system that calculated BMI and suggested lifestyle changes. The system provided general advice but lacked detailed workout schedules and diet charts.

Jain et al. presented a fitness chatbot that answered user queries related to diet and exercise. While interactive, the chatbot did not generate structured weekly plans.

From the survey, it is evident that most existing systems focus on either diet or workout planning, lack personalization, or require complex implementation.

IV. COMPARISON WITH EXISTING SYSTEMS AND NOVELTY OF PROPOSED WORK

Existing diet and workout systems suffer from several limitations such as generic recommendations, lack of integration between diet and exercise, and poor user customization. Some systems rely heavily on manual inputs or advanced machine learning models, increasing complexity and reducing usability.

The proposed web-based diet and workout generator overcomes these limitations by providing a unified platform that generates both diet plans and workout routines based on user-specific parameters. The system uses simple yet effective calculations such as BMI and BMR to determine

calorie requirements and fitness categories. Unlike traditional systems, the proposed application focuses on simplicity, accuracy, and accessibility without requiring advanced hardware or complex datasets.

The novelty of the proposed system lies in its personalized, integrated, and user-friendly approach, making fitness guidance accessible to a broader audience.

V. SYSTEM ARCHITECTURE

The system architecture of the diet and workout generator consists of three main components:

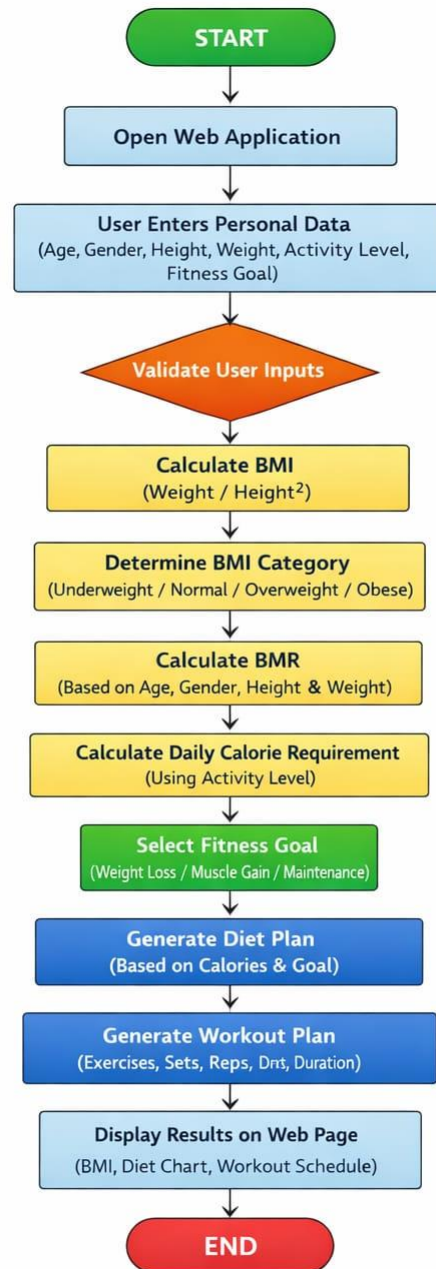
- 1) User Interface Module
This module allows users to enter personal details such as age, gender, height, weight, activity level, and fitness goals through a web interface.
- 2) Processing Module
The backend processes user inputs and calculates BMI, BMR, and daily calorie requirements. Based on these values, suitable diet plans and workout routines are selected.
- 3) Recommendation Module
This module generates personalized diet charts and workout schedules and displays them to the user.

The system is implemented using web technologies such as HTML, CSS, JavaScript, and backend scripting for data processing.

VI. METHODOLOGY

The working of the diet and workout generator system follows these steps:

- Step 1: User Registration and Input
The user enters personal information such as age, gender, height, weight, and fitness goal.
- Step 2: BMI Calculation
BMI is calculated using height and weight to determine the user's fitness category.
- Step 3: BMR and Calorie Calculation
BMR is calculated based on age, gender, height, and weight. Daily calorie needs are determined using activity level.
- Step 4: Diet Plan Generation
Based on calorie requirements, a suitable diet plan is generated.
- Step 5: Workout Plan Generation
Workout routines are suggested according to fitness goals such as weight loss, muscle gain, or maintenance.
- Step 6: Result Display
The personalized diet and workout plan is displayed to the user through the web interface.



Flowchart of Diet and Workout Generator System

VII. RESULT AND DISCUSSION

The proposed system provides accurate and personalized diet and workout recommendations based on user input. It effectively categorizes users according to BMI and generates goal-oriented fitness plans. The web-based approach ensures easy accessibility and quick response time.

Compared to existing systems, the proposed application offers better integration of diet and workout planning. The simplicity of calculations ensures reliability while maintaining ease of implementation.

VIII. CONCLUSION

This survey paper reviewed existing diet and workout recommendation systems and identified key challenges in

personalization and integration. A web-based diet and workout generator system was discussed as an effective solution to provide customized fitness guidance. By using user-specific data and simple health calculations, the system delivers accurate and accessible diet and workout plans. The proposed approach can help individuals maintain a healthy lifestyle and serves as a strong foundation for further enhancements using advanced analytics or machine learning.

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