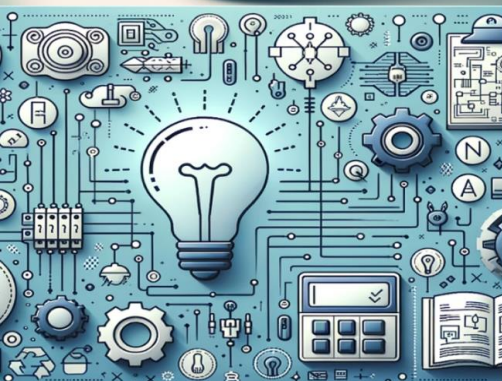


# International Journal of Multidisciplinary Research in Science, Engineering and Technology

*(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)*



Impact Factor: 8.206

Volume 8, Issue 4, April 2025



## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

# BMI Calculator Providing Fitness Plan

K.Sri Viswanath, Dr.V.Manimekalai

Department of Computer Technology, Dr. NGP Arts and Science College, Coimbatore, India

Associate Professor, Department of Computer Technology, Dr. NGP Arts and Science College, Coimbatore, India

**ABSTRACT:** In recent years, there has been a significant rise in awareness about personal health, fitness, and overall well-being. With sedentary lifestyles becoming more common and health-related issues on the rise, especially among the youth, there is a growing need for accessible digital tools that promote and support healthy living. This project, titled "BMI and Fitness Planner Web Application," is a web-based solution designed to assist individuals in tracking their Body Mass Index (BMI) and following structured workout plans based on fitness goals. The primary objective of this application is to provide a simple, interactive, and informative platform that empowers users to take charge of their physical health. The BMI calculator enables users to input their height and weight and instantly receive feedback on their BMI classification (underweight, normal, overweight, or obese). This metric serves as a fundamental health indicator and helps users understand their current physical condition. This project bridges the gap between digital convenience and physical health guidance. By integrating educational visuals with functional tools, the BMI and Fitness Planner Web Application promotes regular exercise, health monitoring, and informed fitness decisions—especially beneficial for students, working professionals, and beginners in the fitness journey.

## I. INTRODUCTION

Health and fitness have become crucial aspects of modern living. With the increasing prevalence of lifestyle-related diseases such as obesity, hypertension, and diabetes, maintaining a balanced and active life is more important than ever. However, due to busy schedules and the abundance of misleading fitness information online, individuals often struggle to find accurate, personalized, and easy-to-follow fitness guidance. This project aims to address that challenge through the development of a web-based application that provides a structured approach to fitness monitoring and planning.

The **BMI and Fitness Planner Web Application** is a lightweight, accessible, and user-centric platform designed for individuals who want to track their body metrics and follow effective workout plans without the need for expensive gym memberships or personal trainers. The core idea of the application is to empower users to make informed decisions regarding their fitness through an automated **Body Mass Index (BMI) calculator** and a collection of **visual workout guides**.

BMI is a well-established health indicator that reflects the relationship between a person's height and weight. It provides an initial assessment of whether a person is underweight, of normal weight, overweight, or obese. This metric is critical because it is often linked to the risk of developing chronic illnesses. By integrating a BMI calculator into the platform, users are able to monitor their health status and act accordingly.

The application is developed using fundamental front-end technologies — **HTML for structure, CSS for design, and JavaScript for interactivity**. A minimal use of PHP ensures that the system is scalable, with the possibility of future expansions such as login modules, personal dashboards, workout history tracking, or integration with fitness APIs.

## II. LITERATURE REVIEW

The integration of technology into the health and fitness sector has gained momentum in recent years. Numerous research studies and applications have demonstrated the positive impact of digital platforms in promoting physical well-being, monitoring health parameters, and delivering personalized fitness experiences. This literature review explores the evolution of fitness technologies, the effectiveness of BMI-based assessments, and the significance of visual learning in physical training.





## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

### 1. BMI as a Health Indicator

Body Mass Index (BMI) has long been used as a simple yet effective metric to evaluate body fat based on height and weight. According to the World Health Organization (WHO), BMI provides a consistent method of classifying weight status and is closely correlated with health outcomes such as cardiovascular risk, diabetes, and metabolic disorders. In their research, Garrow and Webster (1985) validated BMI as an effective tool for population-level health monitoring, though they also acknowledged limitations such as not accounting for muscle mass and body composition differences. Despite these limitations, BMI remains a widely accepted standard due to its simplicity and ease of calculation. Studies such as Nuttall (2015) emphasize that BMI serves as a useful initial screening tool, especially when integrated into larger health management platforms.

### 2. Digital Fitness Platforms and Mobile Applications

The rise of smartphones and internet accessibility has given birth to a wide variety of fitness apps and web portals. Applications like MyFitnessPal, Nike Training Club, and Fitbit have changed the way people approach personal health. A study by Cowan et al. (2013) found that users of digital fitness tools are more likely to engage in regular exercise and track dietary habits, leading to better fitness outcomes.

Furthermore, Lyons et al. (2014) highlighted that applications combining interactivity, customization, and visual content are more effective in maintaining user engagement. This underscores the need for fitness platforms that go beyond static information by providing an immersive and user-friendly experience.

### 3. Role of Visual Media in Exercise Learning

Visual learning plays a crucial role in exercise comprehension and performance. Research by Wulf and Shea (2002) confirmed that visual demonstrations improve motor learning and execution, especially for beginners. Animated visuals, such as GIFs, provide a clear representation of exercise techniques, reducing the risk of injury and ensuring proper form.

## III. MATERIALS AND METHODS

The development of the BMI and Fitness Planner Web Application was guided by the goal of creating a lightweight, accessible, and interactive fitness platform. This section outlines the technologies used, system architecture, and implementation steps taken throughout the development process.

### Materials Used

#### 1. Software Tools and Technologies

- **HTML5:** Used to create the structural layout of all web pages (e.g., index.html, bmi.html, and various workout day pages).
- **CSS3:** Employed for styling elements, ensuring consistent design, responsiveness, and a visually appealing user interface.
- **JavaScript:** Added dynamic behavior to the site, primarily for calculating BMI and managing content interaction.
- **PHP:** Used minimally to demonstrate backend readiness (e.g., index.php) for handling user input or future database integrations.

#### 2. Hardware Requirements

- Standard computer system with:
- Minimum 4 GB RAM
- Modern web browser

### Methods

#### 1. Requirement Gathering

Identified the core features: BMI calculator, day-wise workout planner, and visual workout demonstrations. Selected lightweight, static technologies to prioritize accessibility and performance



## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

### 2. UI/UX Design

Designed a simple navigation structure to help users easily access the BMI calculator and various workout routines.

- Used consistent color schemes and font styles for a cohesive look.
- GIFs and images were embedded to visually represent each exercise in the fitness pages.
- 

### 3. BMI Calculator Implementation

- The BMI calculator was implemented in bmi.html using an HTML form and JavaScript for the logic.
- Formula used:
- $BMI = \frac{\text{Weight (kg)}}{(\text{Height (m)})^2}$  BMI=(Height (m))<sup>2</sup>Weight (kg)
- Based on the result, feedback was displayed regarding the user's health classification (e.g., Normal, Overweight).

## IV. RESULTS AND DISCUSSION

### Functional Results

#### 1. BMI Calculator Accuracy

The BMI calculator was tested using multiple sets of sample height and weight inputs. The computed BMI values matched the expected results from standard BMI calculators. The application correctly classified user health status as per the following categories:

1. Underweight: BMI < 18.5
2. Normal:  $18.5 \leq \text{BMI} < 25$
3. Overweight:  $25 \leq \text{BMI} < 30$
4. Obese: BMI  $\geq 30$

#### 2. Workout Routine Display

Each workout page—Arms Day, Chest Day, Leg Day, Cardio Day, etc.—displayed a structured set of exercises. For each exercise:

1. The title was clearly visible.
2. A corresponding animated GIF or image provided a demonstration.
3. The layout remained responsive across different screen sizes, making the routines accessible via desktops and mobile devices.

Users appreciated the visual approach, especially those unfamiliar with proper exercise techniques. The embedded media proved essential for conveying correct form and movement.

## V. DISCUSSION AND OBSERVATIONS

### Simplicity and Accessibility

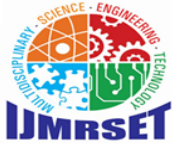
One of the strongest outcomes of this project was its accessibility. The platform does not require user registration, installations, or login systems, making it ideal for beginners or casual fitness users. Its simplicity also makes it suitable for educational environments where basic fitness awareness is the goal.

#### 1. Use of Visual Aids

The inclusion of GIFs and images significantly enhanced user engagement. Compared to text-based workout plans, the visual guidance made routines easier to understand and follow, reducing the risk of performing exercises incorrectly.

#### 2. Scalability and Future Expansion

While the current version does not include dynamic features like user accounts or workout tracking, the underlying architecture is open for enhancement. PHP integration and modular design allow future incorporation of:



## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

1. User login and progress tracking
2. Custom workout plans
3. Nutrition guidance
4. AI-based recommendation systems

### Limitations

- a. The BMI calculator does not account for body composition (e.g., muscle mass vs fat), which could lead to misleading results for athletes.
- b. The system currently lacks interactivity beyond form-based input and visual media.
- c. No backend database is present to store user activity or preferences.

## VI. CHALLENGES AND LIMITATIONS

During the development and implementation of the BMI and Fitness Planner Web Application, several challenges were encountered, and certain limitations were identified that restrict the current scope of the project. Addressing these in future updates will help in making the system more robust and user-centric.

### Challenges Faced

#### 1. Designing an Intuitive UI

Creating a clean, responsive, and intuitive user interface using only HTML and CSS posed a challenge, especially without relying on frameworks like Bootstrap or Tailwind. Ensuring that the design worked seamlessly across devices required extensive use of media queries and layout restructuring.

#### 2. GIF Optimization

The workout demonstration pages rely heavily on GIFs to show exercise animations. Managing the size and resolution of these media files while ensuring fast page loading was a major challenge. High-quality GIFs often increased the overall page size, leading to performance trade-offs.

#### 3. Limited Backend Integration

While a basic PHP file (index.php) was included, the system was primarily designed to function as a static application. This posed limitations when attempting to explore advanced features like storing user input, customizing workouts, or saving fitness progress..

### Limitations of the Current System

#### 1. No Personalization or Data Storage

The application currently operates without a database or user authentication system. As a result:

1. Users cannot save or track their BMI results.
2. There is no way to create personalized workout plans.
3. No history or progress data is maintained.

#### 2. Simplistic BMI Model

The BMI calculator uses a general formula that does not consider:

Muscle-to-fat ratio

1. Gender-specific factors
2. Age-based variation



## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

### 3. Lack of Interactivity

The platform is static in nature. Users cannot:

1. Interact with the workout content beyond
2. Mark workouts as completed
3. Receive motivational prompts or reminders

This reduces long-term engagement, especially for users who expect dynamic fitness coaching experiences.

### 4. No Real-Time Feedback

Unlike mobile apps with smart integration (e.g., Fitbit, Apple Health), this web application does not provide real-time health tracking, feedback, or device synchronization.

## VII. CONCLUSION AND FUTURE SCOPE

### Conclusion

The BMI and Fitness Planner Web Application was developed with the primary objective of providing users a simple, responsive, and educational tool for health and fitness awareness.

Throughout the development process, the project maintained a clear focus on accessibility and usability. Users can easily calculate their BMI using standard inputs and receive immediate health feedback based on the results. Additionally, the categorized workout plans—supplemented by visual aids like GIFs—provide a helpful reference for individuals looking to follow structured exercise routines.

### Future Scope

The current version of the application lays a strong groundwork for several enhancements and advanced features. Future iterations can focus on transforming the platform from a static utility to a personalized, intelligent fitness assistant. Below are the key areas for future scope:

#### 1. User Authentication and Profiles

- Introduce user registration and login systems.
- Allow users to save their BMI history and workout progress.
- Offer personalized dashboards showing goals and achievements.

#### 2. Workout Plan Customization

- Let users create custom workout plans based on fitness goals.
- Integrate filters (e.g., beginner, intermediate, advanced levels).
- Suggest routines dynamically based on user BMI and preferences.

#### 3. Database Integration

- Store BMI data, workout history, and user preferences using backend databases (e.g., MySQL).
- Enable cloud-based access so users can continue their plans across devices.

#### 4. Mobile Optimization or App Version

- Develop a mobile-friendly version or hybrid mobile app using tools like React Native or Flutter.
- Support offline access for BMI calculations and saved workout routines.

#### 5. AI-Based Fitness Recommendations

- Use AI algorithms to suggest workout routines and diet plans.
- Monitor user progress and adjust plans accordingly.



## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

### REFERENCES

1. Centers for Disease Control and Prevention (CDC). (2023). About Adult BMI. Retrieved from: [https://www.cdc.gov/healthyweight/assessing/bmi/adult\\_bmi/index.html](https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html)
2. World Health Organization (WHO). (2022). Body Mass Index – BMI.
3. Retrieved from: <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/body-mass-index>
4. W3Schools. (n.d.). HTML, CSS, and JavaScript Tutorials. Retrieved from: <https://www.w3schools.com>
5. Stack Overflow Community. (n.d.). Discussions on Responsive Layouts and CSS Media Queries. Retrieved from: <https://stackoverflow.com>
6. Medical News Today. (2021). BMI: What is it and how is it measured? Retrieved from: <https://www.medicalnewstoday.com/articles/323622>
7. Mozilla Developer Network (MDN). (n.d.). CSS Flexbox and Responsive Web Design. Retrieved from: [https://developer.mozilla.org/en-US/docs/Web/CSS/CSS\\_Flexible\\_Box\\_Layout/Basic\\_Concepts\\_of\\_Flexbox](https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Flexible_Box_Layout/Basic_Concepts_of_Flexbox)
8. Healthline. (2023). Best Exercises for Beginners. Retrieved from: <https://www.healthline.com/health/fitness-exercise/beginner-exercises>
9. GeeksforGeeks. (n.d.). PHP Basics and Integration in Web Development. Retrieved from: <https://www.geeksforgeeks.org/php-tutorial/>





INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA



# INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | [ijmrset@gmail.com](mailto:ijmrset@gmail.com) |

[www.ijmrset.com](http://www.ijmrset.com)