FITNESS TRACKING SYSTEM

A MINI-PROJECT REPORT

Submitted by

DEEKSHA R 2116220701056
DHARSHINI P 2116220701065

in partial fulfilment of the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING COLLEGE

AUTONOMOUS, CHENNAI

NOV/DEC, 2024

BONAFIDE CERTIFICATE

Certified that this mini project **"Fitness Tracking System"** is the bonafide work of **"DEEKSHA R (2116220701056) & DHARSHINI P (2116220701065)"** who carried out the project work under my supervision.

SIGNATURE

Dr. N. Duraimurugan,

Associate Professor,

Computer Science & Engineering

Rajalakshmi Engineering College

Thandalam, Chennai -602105.

Submitted for the End semester practical examination to be held on

INTERNAL EXAMINER **EXTERNAL EXAMINER**

ACKNOWLEDGEMENT

I express my sincere thanks to my beloved and honorable chairman **MR. S. MEGANATHAN** and the chairperson **DR. M. THANGAM MEGANATHAN** for their timely support and encouragement.

I am greatly indebted to my respected and honorable principal **Dr. S. N. MURUGESAN** for his able support and guidance.

No words of gratitude will suffice for the unquestioning support extended to us by my Head of the Department **Dr. P. KUMAR,** and my Academic Head **Dr. R. SABITHA,** for being ever supporting force during my project work.

I also extend my sincere and hearty thanks to my internal guide **Dr. N. DURAIMURUGAN** for his valuable guidance and motivation during the completion of this project.

My sincere thanks to my family members, friends and other staff members of Computer Science and Engineering.

DEEKSHA R (2116220701056)
DHARSHINI P (2116220701065)

ABSTRACT

The **Fitness Tracking System** is a full-stack web application designed to support users in achieving their fitness goals through personalized planning and manual activity tracking. The platform enables users to create and manage custom fitness plans or choose from predesigned programs tailored to their individual needs. Users can log daily fitness activities and dietary information, such as workout duration, calories burned, and meals consumed. The system provides personalized diet recommendations and real-time feedback to help users make informed choices and maintain consistency. Regular reminders and motivational messages further enhance user commitment to their fitness journey. With a secure back-end for data management and a responsive front-end for seamless operation across devices, the system ensures a user-friendly experience. This application serves as a comprehensive solution for fitness tracking and goal management, promoting a healthier lifestyle.

TABLE OF CONTENTS

CHAPTER 1

1.1 INTRODUCTION

The **Fitness Tracking System** is a full-stack web application developed to simplify and enhance fitness management for users. Traditional methods of fitness tracking often rely on manual record-keeping, which can be tedious, prone to inaccuracies, and challenging to maintain. This system addresses these limitations by providing an intuitive, digital platform where users can create personalized fitness plans, log daily activities, and track their progress over time. It integrates modern web technologies to deliver a seamless experience, allowing users to log workout details, calories burned, and dietary intake effortlessly. Additionally, the system supports personalized recommendations and motivational messages, encouraging users to stay committed to their fitness goals. By offering secure data management and a responsive interface, the application ensures a userfriendly experience that promotes healthier living.

1.2 SCOPE OF THE WORK

The scope of this project is to provide a comprehensive solution for fitness management by integrating personalized planning, manual activity tracking, and dietary guidance into a single platform. The system enables users to create and manage customized fitness plans or choose from pre-designed programs, log fitness activities such as workout duration, calories burned, and meals consumed, and receive personalized diet recommendations based on their logged data to support informed decision-making. With a responsive design, the platform ensures seamless operation across various devices, including desktops and mobile phones, while also enhancing user engagement through regular reminders and motivational messages. Designed for scalability, the system can be further enriched with advanced features such as integration with wearable fitness devices, detailed analytics for tracking activity trends, and social sharing options to foster community engagement.

1.3 PROBLEM STATEMENT

Managing fitness goals often involves challenges like inconsistent tracking, lack of personalized guidance, and insufficient motivation. Traditional methods, such as pen-andpaper logs or fragmented digital tools, fail to provide a holistic solution for planning, tracking, and monitoring progress. Users often struggle to maintain consistency due to the absence of reminders and tailored feedback. Furthermore, the inability to analyze trends and make data-driven decisions impedes effective goal achievement.

To overcome these challenges, there is a need for a centralized, web-based fitness tracking system that integrates personalized planning, manual tracking, and dietary recommendations. Such a platform will simplify the process, provide actionable insights, and promote healthier living through consistent tracking and motivational support.

1.4 AIM AND OBJECTIVES OF THE PROJECT

The aim of this project is to develop a comprehensive **Fitness Tracking System** that empowers users to effectively manage their fitness journey and achieve their goals. The system provides a platform for users to create and manage personalized fitness plans or select from predefined programs, log fitness activities and dietary information in an organized manner, and receive personalized diet recommendations based on their logged data to support informed decision-making. It ensures a responsive and user-friendly interface for seamless operation across all devices, while also enhancing user engagement through regular reminders and motivational messages. By addressing these objectives, the system promotes healthier lifestyles, improves user satisfaction, and delivers an efficient fitness management solution tailored to individual needs.

CHAPTER 2

SYSTEM SPECIFICATIONS

2.1 HARDWARE SPECIFICATIONS

Processor	:	Intel Core i3 or Higher
Memory Size	:	8 GB (Minimum)
HDD	:	256 GB (Minimum)

2.2 SOFTWARE SPECIFICATIONS

Operating System	:	Windows 10 or Higher/Linux
Front – End	:	HTML, CSS, BOOTSTRAP, JAVASCRIPT
Back – End	:	Node.js, MYSQL

CHAPTER 3

ARCHITECTURE DIAGRAM

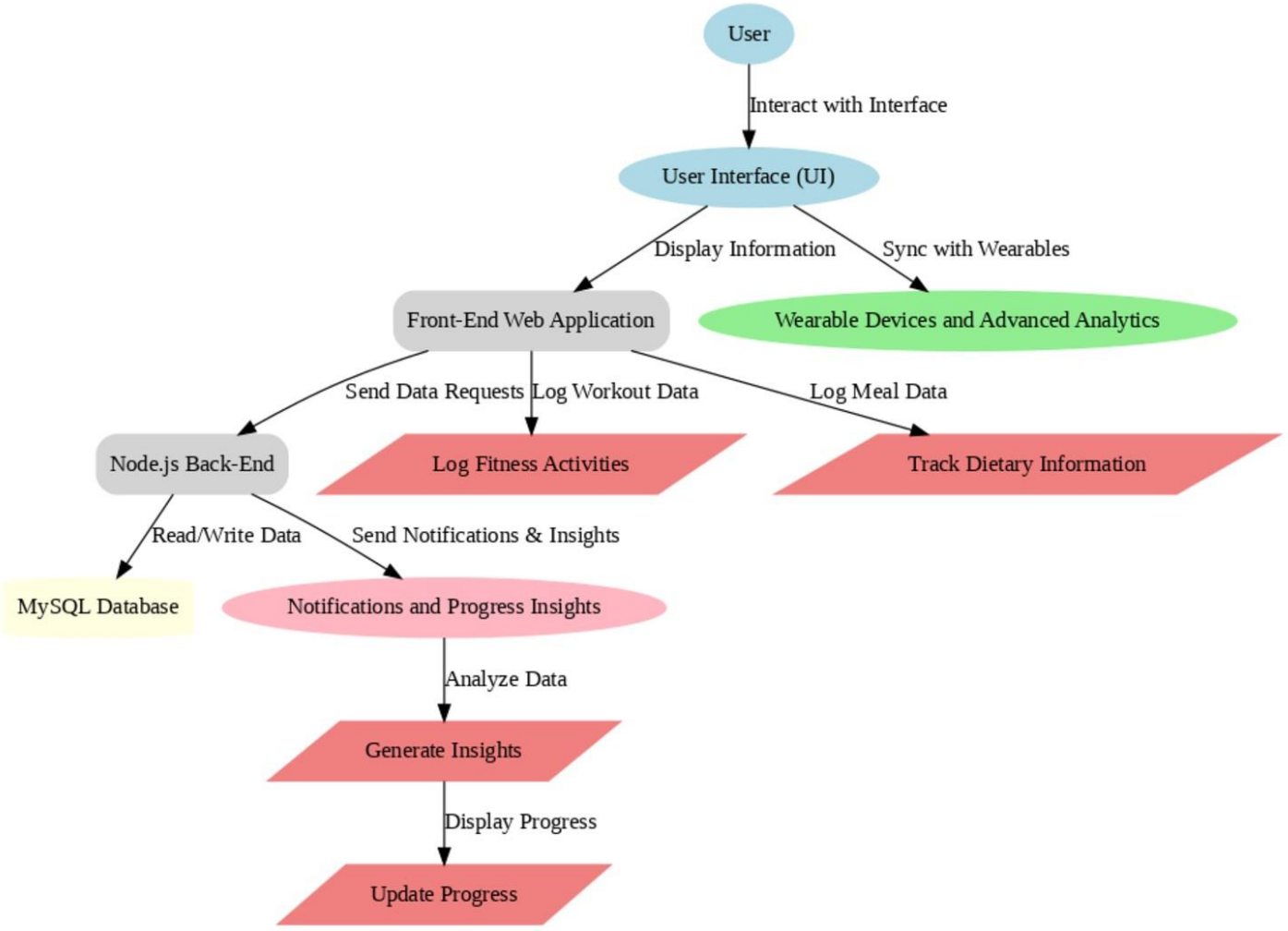


Fig. 3.1. Architecture Diagram

The **Fitness Tracking System** allows users to create personalized fitness plans, log activities, and receive diet recommendations. Users can sign in, track workouts, and log meals, with data securely stored and updated in real -time. The system provides progress insights through charts and sends notifications to keep users engaged. Powered by Node.js and MySQL, the back -end handles authentication and data management, ensuring smooth front -end interactions. The system is scalable, supporting future integrations with wearable devices and advanced analytics.

CHAPTER 4

MODULE DESCRIPTION

The Fitness Tracking System is divided into several modules, each designed to facilitate different aspects of fitness management for users. These modules include functionalities for users to manage their fitness plans, log activities, and receive personalized recommendations, as well as features for administrators to manage the system's operations.

4.1 User Module

The User Module is focused on providing a seamless experience for users to manage their fitness journey. This module allows users to register, log in, create fitness plans, track activities, and receive diet recommendations.

- **Registration:**

  Users can create an account by providing essential information such as their name, email address, and password. This ensures each user has a unique profile, and the system prevents duplicate registrations.

- **Login:**

  Registered users can log in using their email and password to access their personalized fitness dashboard.

- **Create Fitness Plan:**

  Users can choose or customize a fitness plan based on their goals (e.g., weight loss, muscle gain) and track their progress over time

- **Log Activities:** Users can log daily fitness activities such as workouts and meals. This information is used to offer personalized diet and exercise recommendations.

- **Progress Tracking:** Users can view their activity history and see progress towards their fitness goals through real-time updates.

4.2 Admin Module

The Admin Module provides administrators with the necessary tools to manage users, monitor system performance, and ensure data integrity.

- **User Management:**

  Administrators can view and manage user accounts, including their personal details and activity logs.

- **System Monitoring:**

  Administrators can monitor system usage, track user activities, and ensure smooth operation.

- **Content Management:**

  Admins can manage predefined fitness plans and diet recommendations available for users, updating the system with new content as needed.

4.3 Fitness Tracking System

The Fitness Tracking System handles the core functions of the application, including logging activities, generating fitness plans, and providing personalized diet recommendations.

- **Plan Generation:**

The system allows users to generate and customize fitness plans based on their goals and preferences.

- **Activity Logging:**

Users can manually log their workout sessions and meals. The system stores this information securely and uses it to offer tailored recommendations.

- **Diet Recommendations:**

Based on logged data, the system generates personalized diet plans to complement the user's fitness goals.

- **Progress Updates:**

The system tracks user progress and provides insights into activity trends,helping users stay on track with their goals.

- **Real-Time Feedback:**

  The system offers real-time feedback and updates, ensuring that users receive timely advice to enhance their fitness journey.

  By dividing the system into these key modules, the Fitness Tracking System ensures smooth functionality for both users and administrators, promoting a structured approach to fitness management.

CHAPTER 5

SYSTEM DESIGN

5.1 USE CASE DIAGRAM

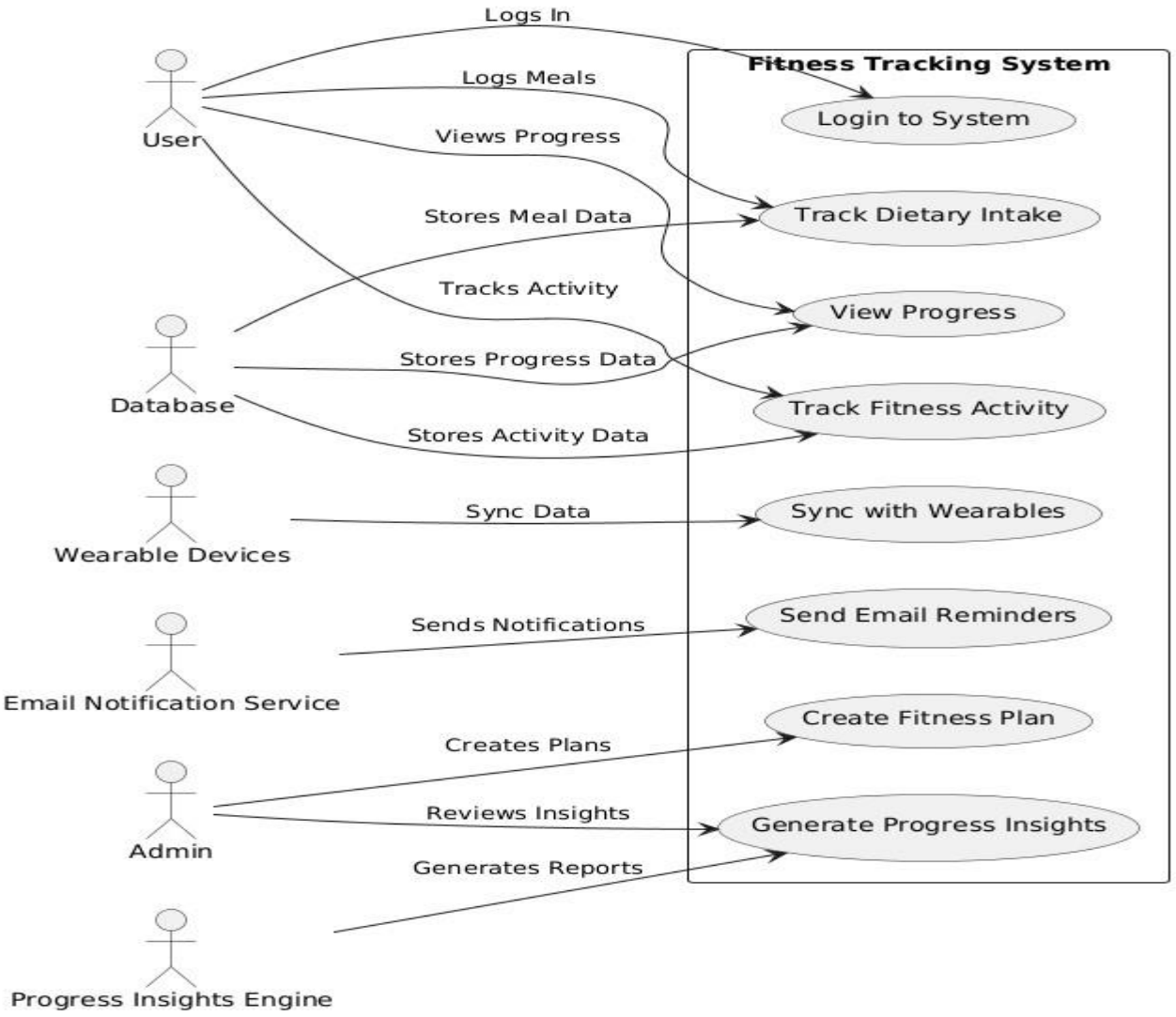


Fig. 5.1. Use Case Diagram

A **Use Case Diagram** for the **Fitness Tracking System** illustrates the interaction between users (students) and admins with the system. It highlights key functions such as creating fitness plans, logging activities, tracking progress, and receiving diet recommendations. The diagram shows the roles and actions of both users and admins, focusing on managing accounts, viewing progress, and generating personalized fitness and diet plans.

5.2 ER DIAGRAM

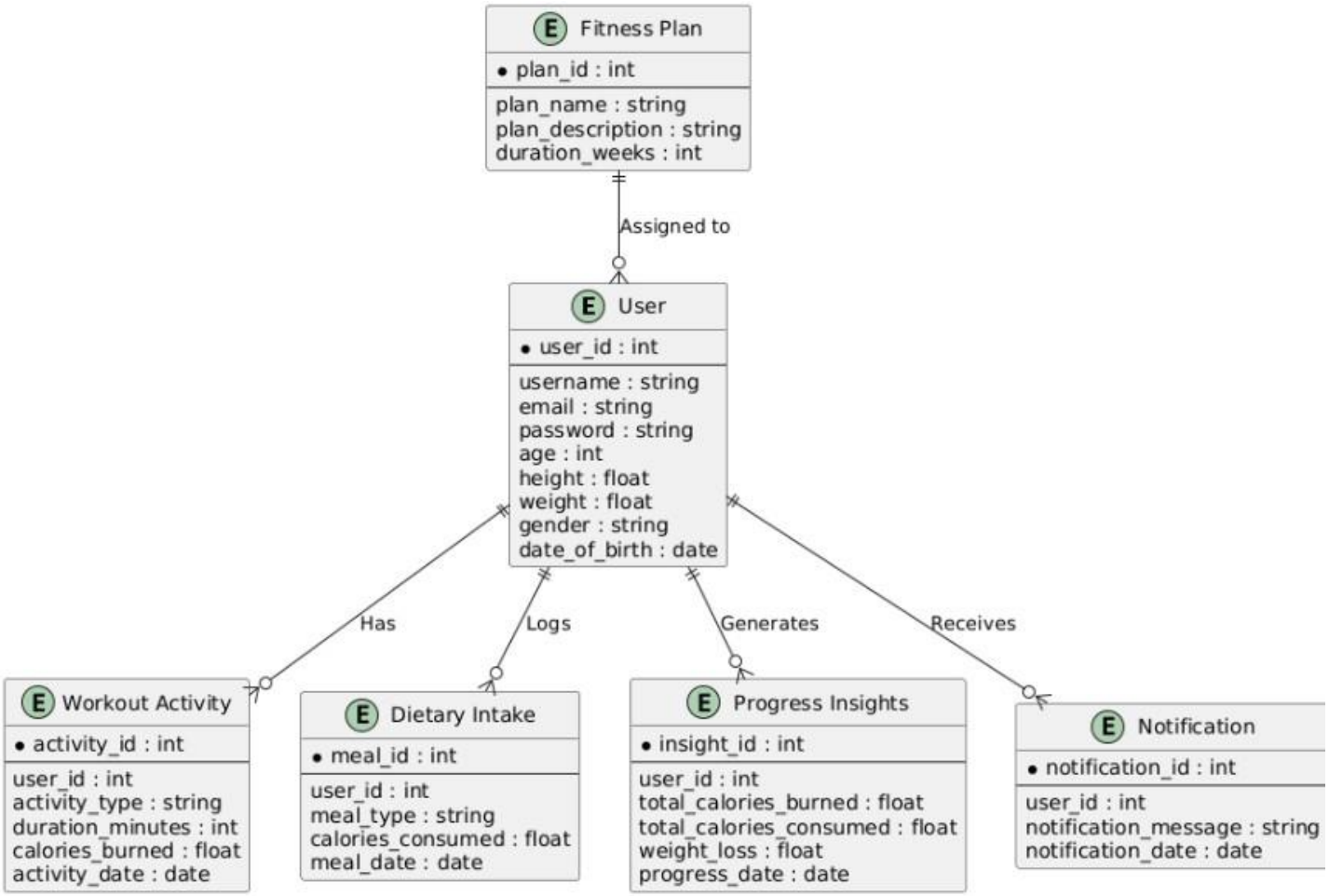
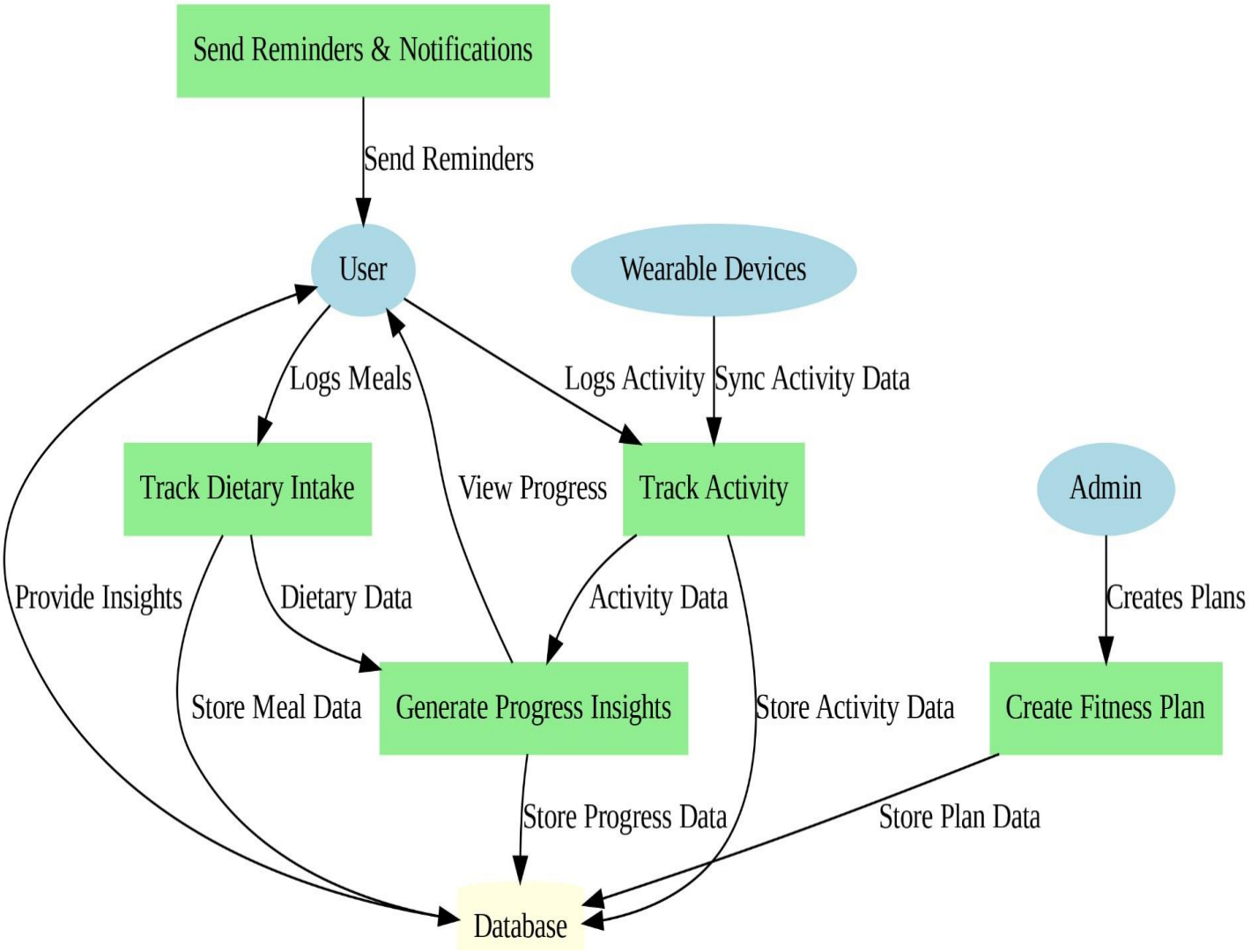


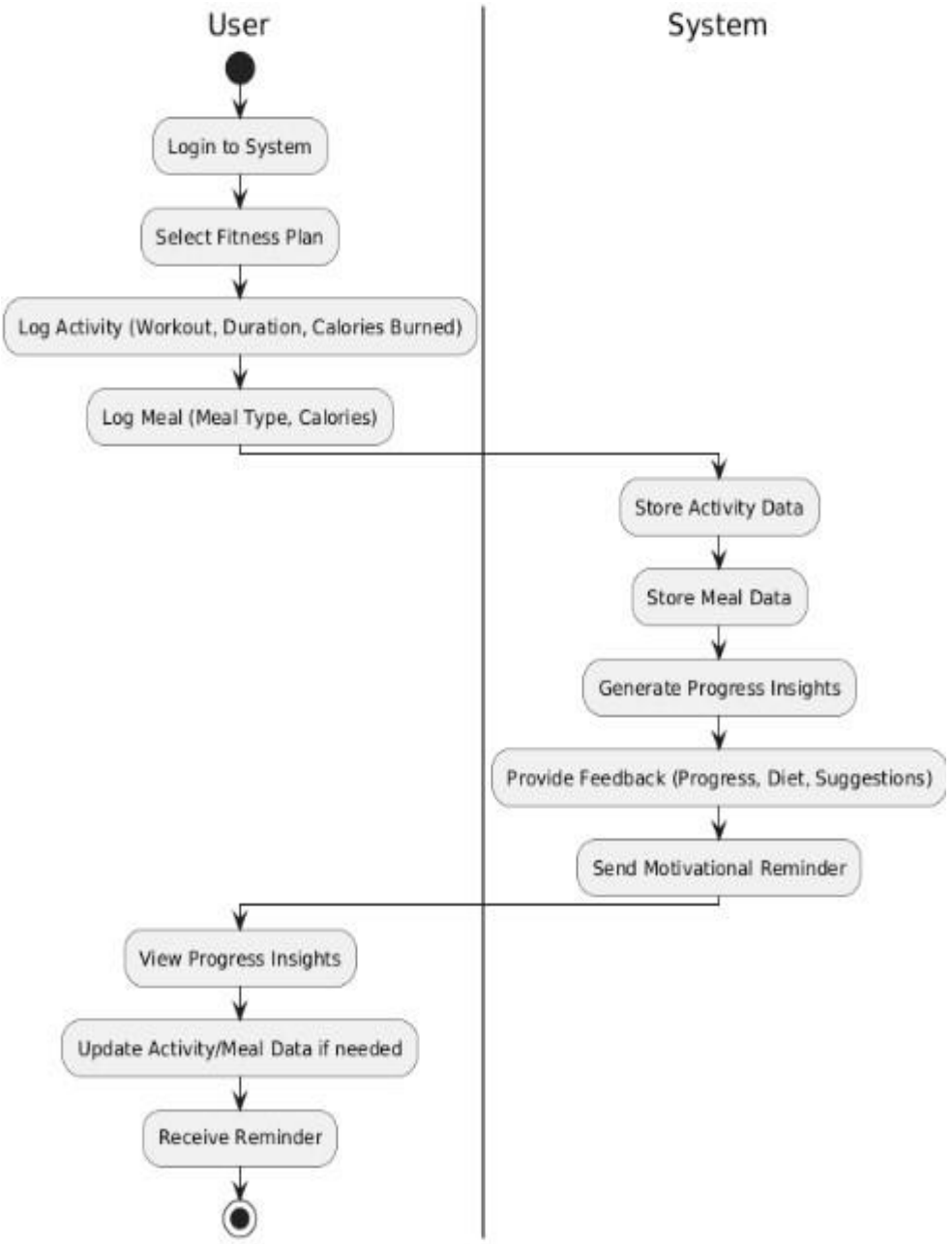
Fig. 5.2. Entity Relationship Diagram

The ER diagram represents the relationships between users and Admin

5.3 DFD DIAGRAM



5.4 ACTIVITY DIAGRAM



CHAPTER 6

SCREEN SHOTS

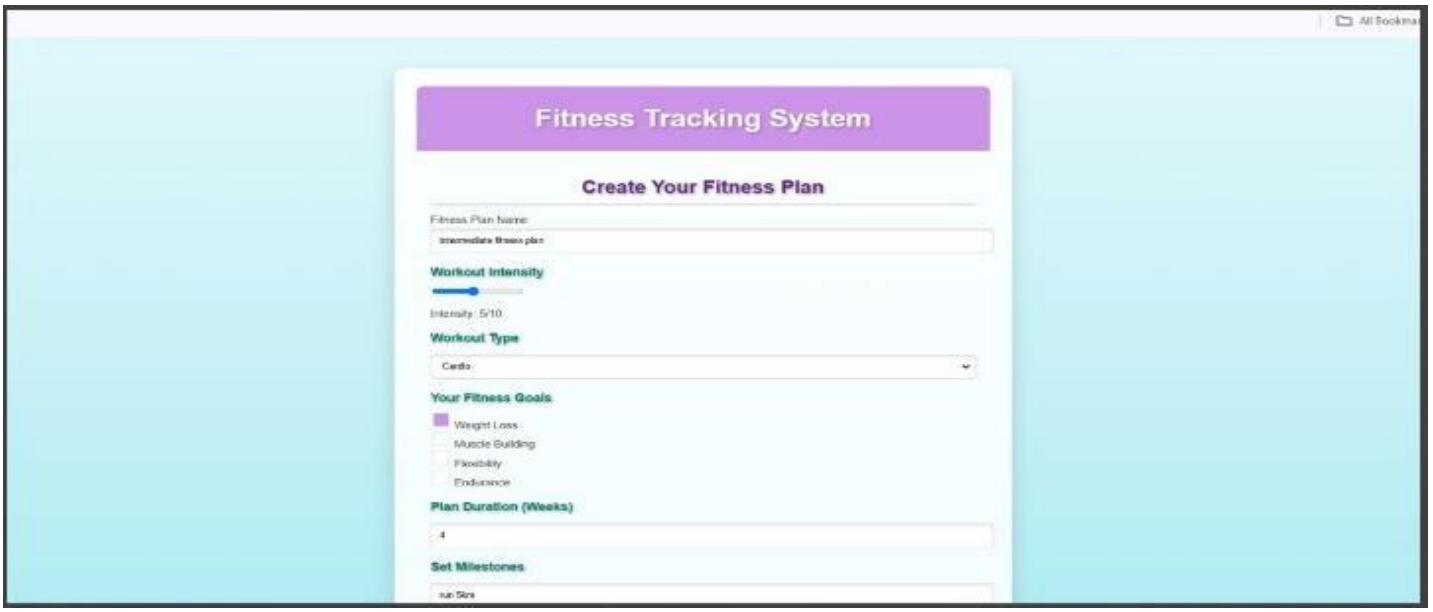


Fig. 7.1. Login Page

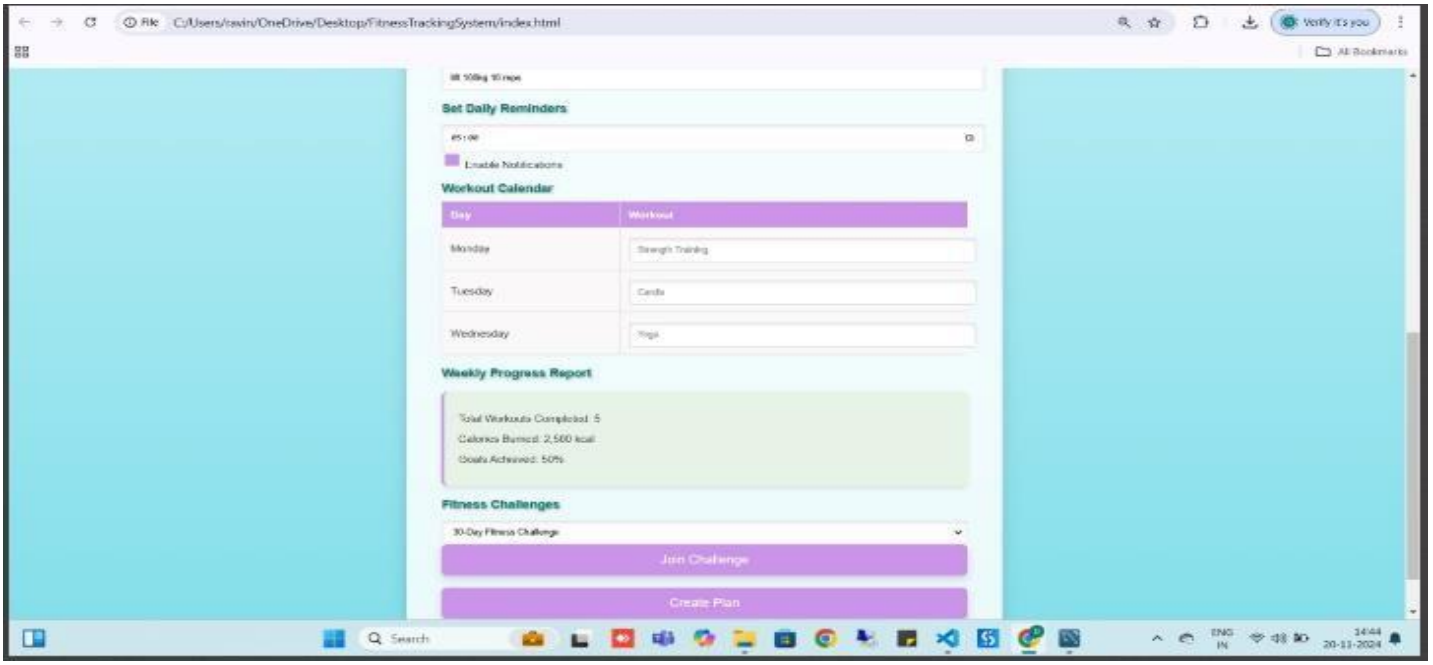


Fig. 7.2. Login page Section with Workout Calendar

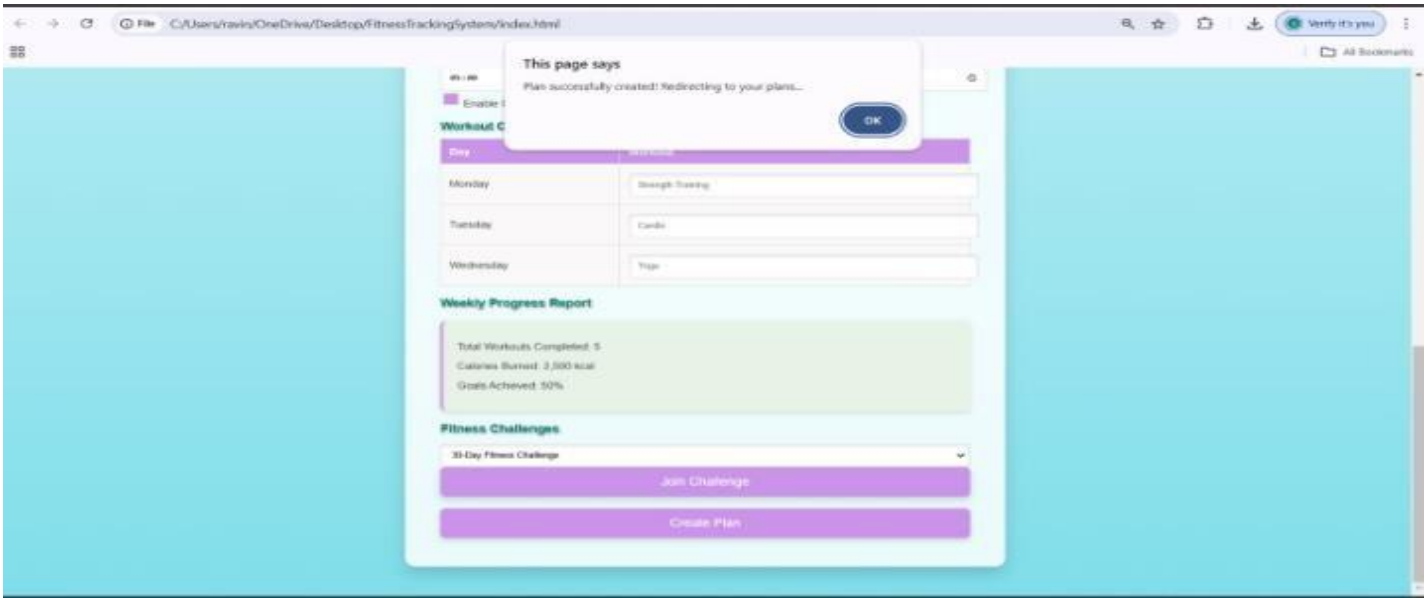


Fig. 7.3. Create Plan Page Section

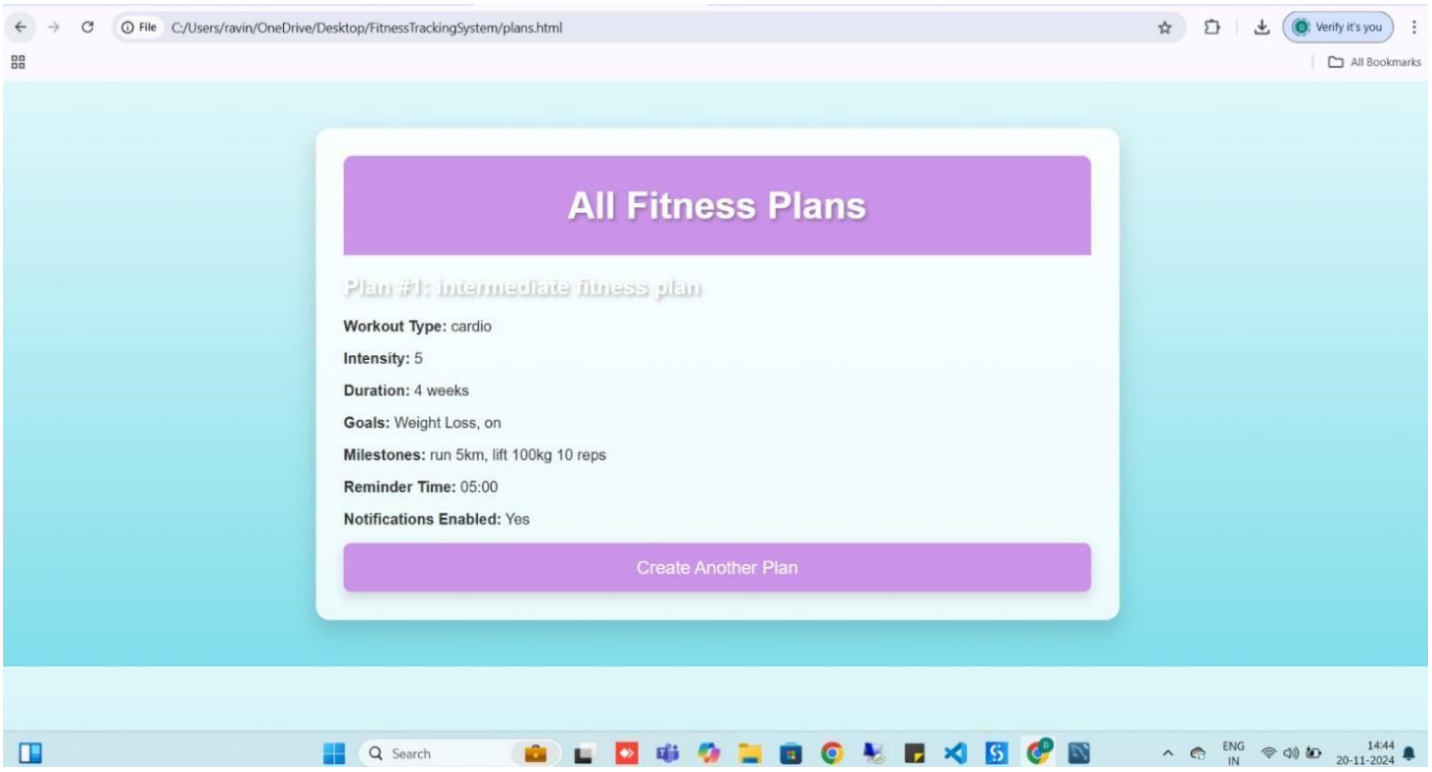


Fig. 7.4. Plan Created Page

CHAPTER 7

CONCLUSION

In conclusion, the **Fitness Tracking System** is an essential tool for individuals seeking to manage and improve their fitness journey. It simplifies activity tracking, provides personalized fitness plans, and offers tailored diet recommendations, ultimately enhancing user engagement and motivation.

By implementing this system, users can effectively track their progress, stay committed to their fitness goals, and make informed decisions about their health. With advancements in technology, it is crucial for fitness platforms to adapt and incorporate the latest tools to provide an optimal user experience.

In the future, the **Fitness Tracking System** can be further enhanced by integrating wearable devices, incorporating machine learning for personalized insights, and utilizing artificial intelligence for real-time fitness recommendations. These innovations would not only improve the system's efficiency but also provide a more comprehensive and personalized fitness experience for users, supporting them in achieving long-term health and wellness goals.

REFERENCES

[1] HTML, CSS, JS – W3Schools

[2] Node.js, MySQL – YouTube

[3] Carousel Slider – Bootstrap Carousel

[4] Icons – Boxicons

[5] Bootstrap – Bootstrap Framework