FIT FLOW

A PROJECT REPORT
for
Full Stack Development (ID201B)
Session (2024-25)

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Submitted in partial fulfilment of the
Requirements for the Degree of

MASTER OF COMPUTER APPLICATION

Under the Supervision of
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Submitted to

DEPARTMENT OF COMPUTER APPLICATIONS
KIET GROUP OF INSTITUTIONS, DELHI-NCR,
GHAZIABAD-201206
MAY 2025

CERTIFICATE

Certified that **Tanya Singh 202410116100222, Subhash Kumar 202410116100211,** has/ have carried out the project work having "**Fit Flow**" (**Mini Project-II, ID201B**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU) (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

This is to clarify that the above statement made by the candidate is correct to the best of my knowledge.

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Fit Flow

ABSTRACT

A **Fit Flow** is a software solution designed to automate and streamline the operations of a fitness centre. This project aims to develop an efficient system that manages **membership registration, attendance tracking, payment processing, workout schedules, and staff management**. By reducing manual efforts, the system enhances overall efficiency and provides a seamless experience for both gym members and administrators.

The system enables members to **register online, renew memberships, book fitness sessions, and track their progress**. It also facilitates secure payment transactions and automated notifications for membership renewals, class schedules, and promotions. Gym trainers can create personalized fitness plans and monitor members' progress, ensuring structured and goal-oriented workouts.

For administrators, the system provides **real-time data analysis, attendance tracking, and financial reporting**. Security features such as **RFID-based access control or biometric authentication** help prevent unauthorized access and enhance safety. Additionally, a web-based or mobile interface ensures remote accessibility for both members and staff.

By integrating automation into gym management, this system optimizes resource utilization, minimizes operational errors, and enhances customer satisfaction. It is a comprehensive solution that contributes to the effective management of fitness centre while improving business growth and client engagement.

Keywords: Gym Management, Membership Tracking, Payment Automation, Fitness

Monitoring, Attendance System

ACKNOWLEDGEMENTS

Success in life is never attained single-handedly. My deepest gratitude goes to my project supervisor, **Ms. Neelam Rawat** for her guidance, help, and encouragement throughout my project work. Their enlightening ideas, comments, and suggestions.

Words are not enough to express my gratitude to **Dr. Akash Rajak**, Professor and Dean, Department of Computer Applications, for his insightful comments and administrative help on various occasions.

Fortunately, I have many understanding friends, who have helped me a lot on many critical conditions.

Finally, my sincere thanks go to my family members and all those who have directly and indirectly provided me with moral support and other kind of help. Without their support, completion of this work would not have been possible in time. They keep my life filled with enjoyment and happiness.

Tanya Singh

Subhash Kumar

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INTRODUCTION

1.1 PROJECT DESCRIPTION

Fit Flow is an advanced Gym Management System designed to automate and streamline the operations of fitness centre, gyms, and health clubs. This project provides a user-friendly and efficient platform for managing membership registrations, attendance tracking, workout scheduling, payment processing, and staff coordination. By integrating technology into gym management, Fit Flow enhances both member experience and administrative efficiency. The system offers a web-based and mobile-friendly interface, enabling members to register online, book fitness sessions, monitor their workout progress, and receive automated reminders for renewals and upcoming classes. Trainers can create personalized workout plans and track member progress, ensuring a structured fitness journey.

For gym administrators, Fit Flow provides real-time analytics, financial reporting, and automated attendance tracking, reducing manual workload and enhancing operational efficiency. Additionally, RFID-based access control and biometric authentication ensure security and prevent unauthorized access.

By leveraging digital automation, Fit Flow optimizes resource management, minimizes administrative challenges, and boosts member engagement. This system serves as a comprehensive solution for modern fitness centre, helping them deliver superior services while maximizing business growth and operational effectiveness

1.2 PROJECT SCOPE

1.Member Management

- Add, update, delete member details.
- View member profiles and membership status.

2.Membership Plan Management

- Create and manage different membership types (Monthly, Quarterly, Yearly, etc.)
- Track start and expiry dates.

3.Trainer Management

- Add, update, delete trainer details.
- Assign trainers to members.

4.Attendance Tracking

- Record daily attendance for members and trainers.
- View attendance reports.

5.Payment Management

- Record payments for memberships.
- Track payment due dates and pending fees.

6.Schedule Management

- Create and manage workout schedules for members.
- Allocate timings for trainers and sessions.

7.Reports & Notifications

- Generate reports for membership, payments, attendance.
- Alert notifications for membership expiry or pending payments

1.3 FUNCTIONAL REQUIREMENTS

1. Member Management

- The system shall allow the admin to add new members.
- The system shall allow editing and deleting of existing member details.
- The system shall display a list of all active and inactive members.
- The system shall allow searching for members by name, ID, or contact number.

2. Membership Plan Management

- The system shall allow the admin to create, update, and delete membership plans (e.g., Monthly, Quarterly, Yearly).
- The system shall record the membership start date and expiry date for each member.
- The system shall display membership status (active, expired, pending renewal).

3. Trainer Management

- The system shall allow the admin to add, update, and delete trainer profiles.
- The system shall allow assigning trainers to members.
- The system shall display the list of members under each trainer.

4. Attendance Management

- The system shall record daily attendance for members and trainers.
- The system shall display attendance history for each member and trainer.
- The system shall allow generating attendance reports.

5. Payment Management

- The system shall record payments made by members for their memberships.
- The system shall display payment history and pending dues.
- The system shall notify the admin when a payment is due or overdue**.**

1.4 NON- FONCTIONAL REQUIREMENTS

1. Performance Requirements

- The system should respond to user actions within 2 seconds for standard operations like login, member registration, and attendance marking.
- The system should handle at least 50 concurrent users without performance degradation.

2. Reliability Requirements

- The system should be available and operational 99% of the time during working hours.
- The system should automatically save data updates in the database to prevent data loss.

3. Usability Requirements

- The system should have an easy-to-use and intuitive interface for admins, trainers, and members.
- The system should provide clear navigation and error messages for invalid inputs.
- The system should use consistent icons, labels, and layout across all screens.

4. Security Requirements

- The system should require username and password authentication for admin and trainer logins.
- Passwords should be stored securely (e.g., hashed in the database).
- The system should prevent unauthorized access to sensitive data like payment details and member personal information.

5. Maintainability Requirements

- The system should have well-structured and documented code to allow easy updates and maintenance.
- The system should support adding new features like diet plans, mobile notifications, or online payments in future versions.

CHAPTER 2

FEASIBILITY STUDY

2.1 TECHNICAL FEASIBILITY

Technical feasibility assesses whether the proposed system can be developed using the existing available technology, tools, skills, and resources within the defined constraints like budget, time, and technical expertise.

2.1.1 Availability of Technology:

- The system will be developed using widely available and free technologies like:
    - Frontend: HTML, CSS, JavaScript, react.js, yarn
    - Backend: Java, Spring Boots
    - Database: MySQL / Oracle
- All these technologies are open-source or free for educational use and require no additional licensing.

2.1.2 Developer Skills:

- The required skills to develop this system are basic to intermediate-level knowledge of:
    - Frontend: HTML, CSS, JavaScript
    - Backend: Java / PHP / Python
    - Database: SQL / MySQL

CHAPTER 3

PROJECT OBJECTIVES

3.1. Facilitate Student Engagement

The objective of **Fit Flow** is to develop a **comprehensive and user-friendly gym management system** that streamlines administrative tasks, enhances member experience, and optimizes gym operations.

Key Goals:

1**.Membership Management**

- Automate member registration, renewals, and cancellations to ensure seamless operations.

2**.Class Scheduling & Bookings**

- Provide an intuitive system for scheduling classes, managing trainer availability, and allowing members to book sessions.

3.Billing & Payments

- Enable secure and automated payment processing, invoice generation, and subscription management.

4**.Attendance Tracking**

- Implement check-in/check-out systems using QR codes, biometrics, or RFID for accurate attendance tracking.

5.**Trainer & Staff Management**

- Organize trainer schedules, payroll, and performance tracking.

6.**Workout & Nutrition Plans**

- Offer personalized workout and diet plans for members, integrating with fitness tracking apps.

7.**Reports & Analytics**

- Generate insightful reports on member engagement, financials, and gym usage for data-driven decision-making.

By implementing **Fit Flow**, gyms and fitness centres can **increase efficiency, improve customer satisfaction, and drive business growth** through a modern, technology-driven approach.

CHAPTER 4

PROJECT OUTCOMES

1. Enhanced Member Experience

- Seamless registration and check-in process using digital authentication.
- Convenient online class booking and workout tracking for members.
- Personalized workout and diet plans to improve fitness goals.
- Automated reminders and notifications for upcoming sessions and renewals.

2. Efficient Gym Operations

- Automated membership management, reducing manual workload.
- Digital billing and payment processing, minimizing errors.
- Trainer scheduling and session tracking for better staff management.
- Real-time attendance tracking using QR codes, biometrics, or RFID.

3. Improved Financial Management

- Automated invoicing and payment tracking for faster revenue collection.
- Detailed financial reports to help owners track income and expenses.
- Reduced administrative costs with a centralized, paperless system.

4. Data-Driven Decision Making

- Comprehensive reports and analytics on member engagement and gym usage.
- Insights on peak hours and popular services to optimize scheduling.
- Data security and privacy compliance to protect member information.

5. Increased Member Retention & Growth

- Automated membership renewal reminders to reduce churn rates.
- Better engagement through personalized workout experiences.
- Referral programs and loyalty rewards to attract new members.

4.1 USER INTERFACE DESIGN

4.1.1. Fit Flow Landing Page

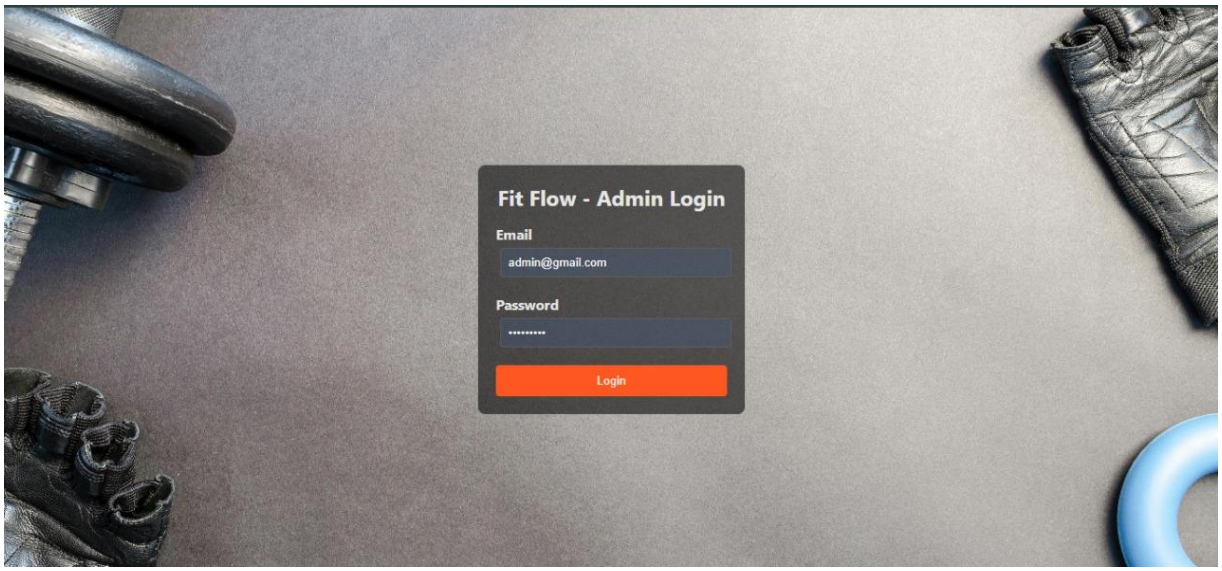

Fig. 4.1.1: Fit Flow Landing page

4.1.2 Fit Flow membership page

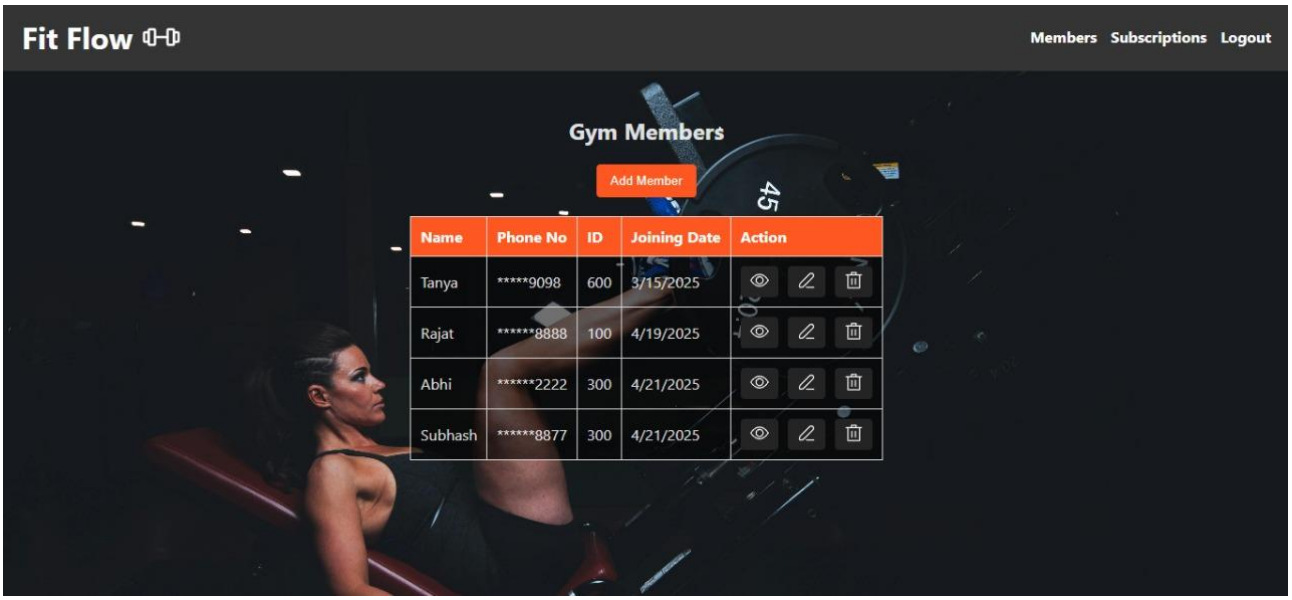

Fig.4.1.2: Fit Flow Member page

4.1.3. Fit Flow Subscription page

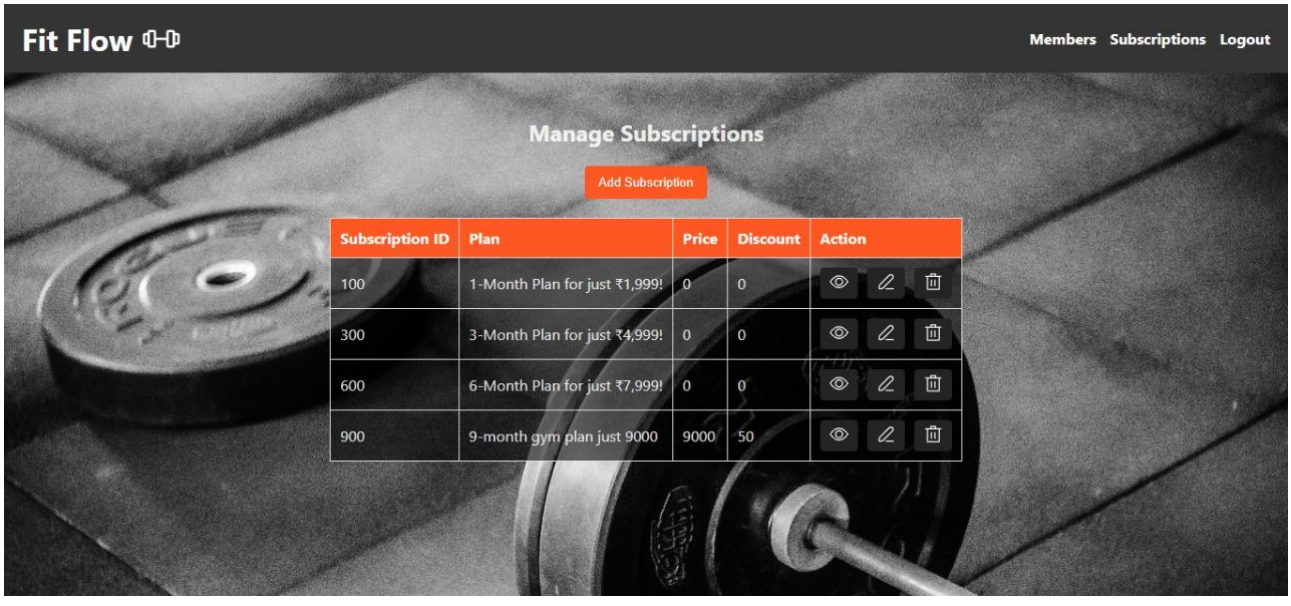

Fig. 4.1.3: Fit Flow Subscription page

4.1.4. Fit flow Dashboard

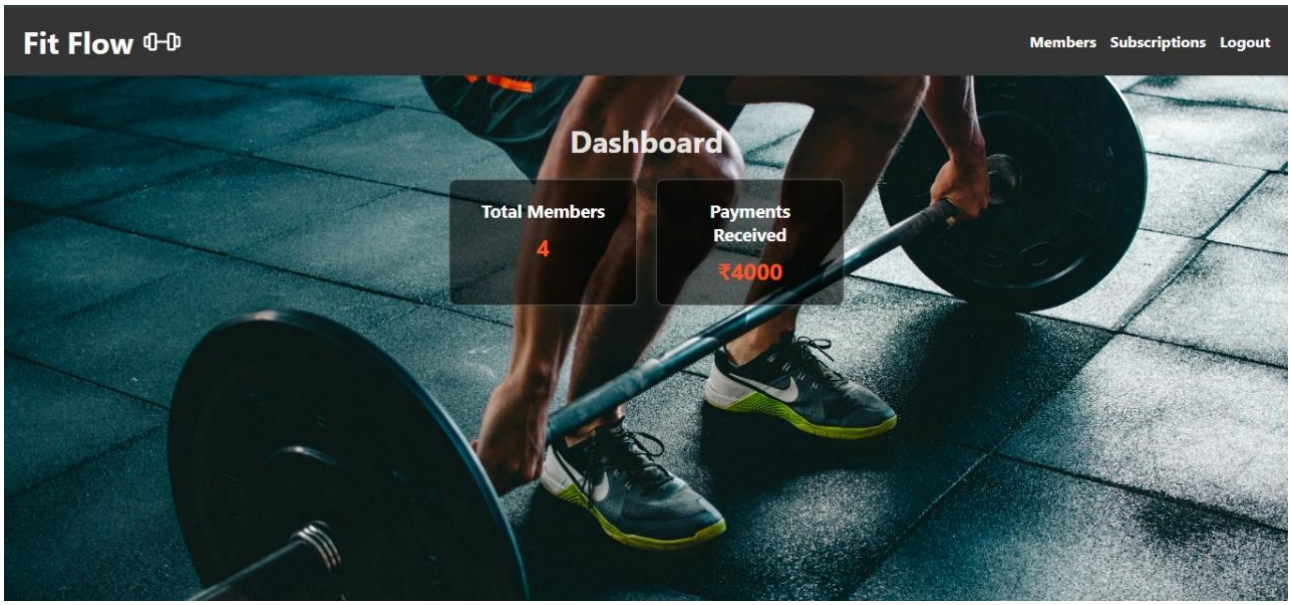

Fig. 4.1.4: Fit flow Dashboard

4.2 MODULE DESCRIPTION

Module 1: Landing Page

Purpose:
The Landing Page is the home or entry page of the Gym Management System. It's the first thing a user sees when they visit the website.

Features:

- Welcome message and gym introduction.
- Navigation links to Login, Subscription Plans, and Contact.
- Quick highlights of services, benefits, and offers.
- Option for visitors to learn more about the gym before signing up.
- Clean and attractive layout with images and branding**.**

Module 2: Subscription

Purpose:
The Subscription Page displays the available **membership plans** for users to choose from.

Features:

- List of subscription plans (e.g., **Monthly, Quarterly, Yearly**).
- Details of each plan like price, duration, benefits, and facilities (gym access, trainer availability, diet chart, etc.).
- Option for users to **select and subscribe to a plan**.
- Secure payment option or instructions (in this case maybe offline or marked as pending).

Module 3: Dashboard

Purpose:
The Dashboard is the **central control panel** for users (Admin, Trainers, or Members) after logging in.

Features:

- **Welcome message** with the user's name.
- Quick view of important info:
    - Active membership plan and expiry date.
    - Payment status.
    - Attendance summary.

    - Upcoming sessions or trainer allocation.
- Shortcuts/links to manage:
    - **Profile**
    - **Workout Schedule**
    - **Payment History**
    - **Logout**

Module 4: Membership

Purpose:
The Membership Page shows the **details of the member's subscription** and its current status.

Features:

- Membership start and expiry date.
- Type of membership (Monthly, Quarterly, Yearly).
- Assigned trainer (if any).
- Remaining days of subscription.
- Option to **renew, upgrade, or cancel membership**.
- View payment history and receipts.

4.3 DATABASE DESIGN

4.3.1. Use Case Diagram

- **Main Actors:**
- **Admin**
- **Trainer**
- **Member**
- **Use Cases:**
- **For Admin:**
- Manage Members
- Manage Membership Plans
- Manage Trainers
- Record Payments
- View Reports
- Manage Attendance
- **For Trainer:**
- View Assigned Members
- Mark Member Attendance
- Create Workout Plans
- View Schedule
- **For Member:**
- View/Update Profile
- View Membership Details
- View Workout Schedule
- Mark Attendance
- Make Payment
- Renew Membership
- Handle Notifications

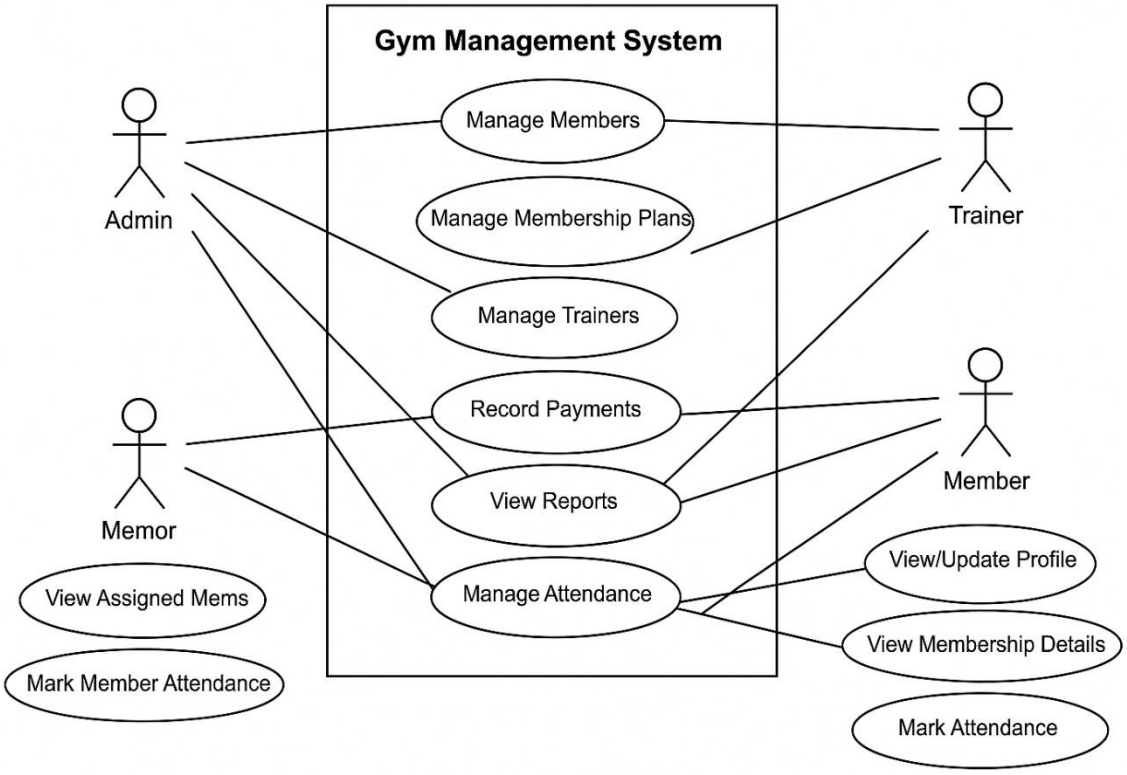

Fig 4.3.1: Use case diagram of fit flow

4.3.2. Entity Relationship Diagram

- ER model stands for an Entity-Relationship model. It is a high-level data model. This model is used to define the data elements and relationship for a specified system.
- It develops a conceptual design for the database. It also develops a very simple and easy to design view of data.
- In ER modelling, the database structure is portrayed as a diagram called an entity relationship diagram.

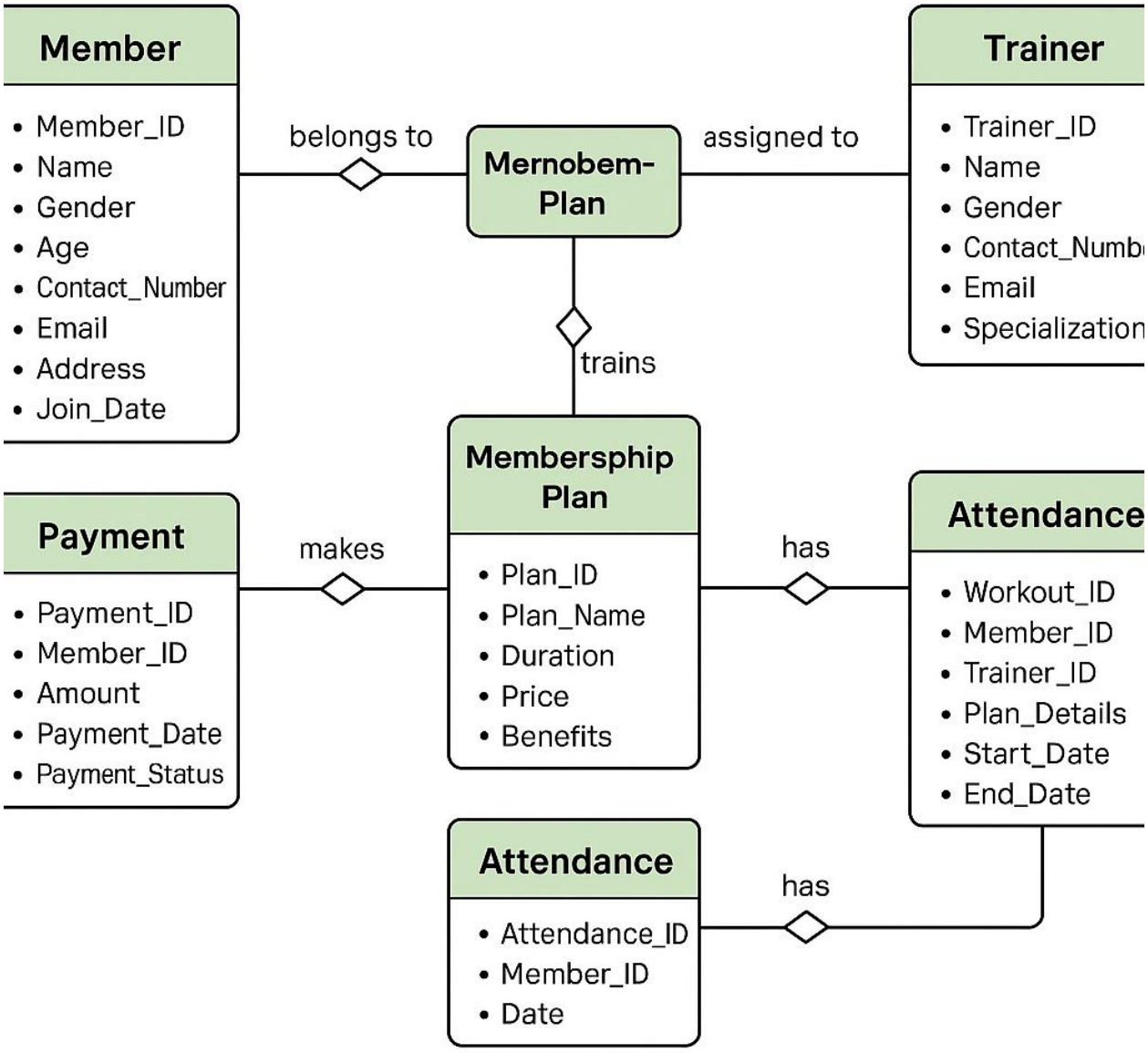

Fig. 4.3.2: Fit Flow E-R diagram

CHAPTER 5

HARDWARE AND SOFTWARE REQUIREMENTS

5.1 Hardware Requirements:

- The system can run on standard desktop or laptop computers with:
    - Minimum 4 GB RAM
    - Dual-core processor
    - Windows / Linux / macOS operating system
    - Modern web browsers (for web-based system)
- No need for additional or special hardware.

5.2 Software Requirements:

- Operating System: Windows 10 / 11, Linux, or macOS
- Web Browser: Google Chrome / Mozilla Firefox / Edge
- Database Server: MySQL / Oracle
- Web Server: Postman / Swagger / Apache Tomcat
- Development Tools: VS Code / IntelliJ Idea/Eclipse

CHAPTER 6
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