Mount Kenya University

SCHOOL OF COMPUTING AND INFORMATICS

DEPARTMENT OF INFORMATION TECHNOLOGY

PROJECT TITLE:

FITIGYM MANAGEMENT SYSTEM

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THIS PROJECT IS SUBMITTED IN PARTIAL FULFILLMENT OF THE BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY OFFERED IN THE DEPARTMENT OF INFORMATION TECHNOLOGY OF MOUNT KENYA UNIVERSITY.

DECLARATION

I hereby state that everything in this project report, apart from citations and quotations that have been properly recognized, is my original work. I further affirm that it was not previously and concurrently submitted for any other degree.

ACKNOWLEDGEMENT

First and foremost, I would like to thank God for giving me the gift of life, health and being with me every step of the way throughout this academic journey, my parents for being there when I needed them, for giving me spiritual, moral and financial support, my friends for their academic and also moral support and all my lecturers especially Madam Catherine Kiarie for guiding me through this project.

Abstract

The FitiGym Management System is a lightweight, web-based platform designed to meet the needs of small and medium-scale gyms in Kenya. Many of these gyms rely on manual registers or basic spreadsheets to manage members, attendance, and payments. This often leads to inefficiencies, record losses, delayed renewals, and limited visibility for both gym owners and clients.

FitiGym Management System provides a simple yet effective solution by digitizing member registration, attendance tracking, plan subscriptions, and payment processing through M-Pesa. Unlike bulky enterprise systems that are costly and complex, FitiGym is tailored for affordability, ease of use, and low maintenance making it accessible to local gyms with limited resources.

The system offers role-based dashboards for administrators, trainers and members, enabling clear visibility of membership status, attendance history, and payments. By streamlining daily operations, FitiGym Management System reduces administrative workload, minimizes errors, and improves transparency.

Ultimately, FitiGym Management System empowers small-scale gyms to grow sustainably by providing a scalable, secure, and user-friendly system that strengthens relationships with members while modernizing their operations.

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CHAPTER ONE: INTRODUCTION

Chapter Summary

This chapter introduces the background and origin of the study, outlining the challenges faced by a small-scale gym. It also presents the problem statement, proposed solution, objectives, scope, and justification for developing the FitiGym Management System.

1.1 Background Study

6-ten fitness gym is a small community gym located in Juja, Kenya. Like many small-scale gyms in the country, it has traditionally relied on manual registers and receipt books to manage member registrations, attendance, and payments. Members sign in on paper sheets during entry, and administrators manually track subscriptions using notebooks. Payments are often recorded in cash receipt books or noted down in exercise books.

This manual approach has created several challenges; members cannot track their memberships, records frequently get lost or damaged, trainers have a hard time tracking their members, expired subscriptions are not updated promptly, and attendance records are inconsistent. In some cases, members have disputed claims of missed payments or attendance, citing a lack of transparency.

Although there are advanced gym management systems in the market, they tend to be expensive, complex, and designed for large fitness chains. Such systems are often beyond the financial and technical reach of small gyms like 6 ten fitness gym, which only require reliable features for member management, trainer roles, and administrative oversight.

The limitations of manual systems and the inaccessibility of costly enterprise solutions highlight the need for a tailored system that small-scale gyms can easily adopt affordable, easy to maintain, and efficient in handling everyday gym operations.

1.2 Problem Statement

At 6-ten fitness gym Juja, reliance on manual registers and receipt books has resulted in recurring issues:

- **Record Loss & Errors:** Paper attendance and payment records are often lost, incomplete, or miscalculated.
- **No trainer accessibility:** Being a small scale gym, having a trainer from the same system is not guaranteed.
- **Fraud & Manipulation:** Manual entries are susceptible to tampering, allowing dishonest practices such as fake check-ins or altered payment records.
- **Disputes & Lack of Transparency:** Members frequently question the payment tracking, and don’t get attendance tracking leading to conflicts with gym management.
- **Inefficient Administration:** Monthly reconciliations take long, and trainers have no structured way of monitoring member progress.

- **Barrier to Growth:** Complex commercial systems exist but are too costly and feature-heavy for small gyms that simply need basic yet effective management.

1.3 Proposed Solution

To address these issues, the **FitiGym Management System** is proposed. FitiGym management system is a lightweight, web-based system tailored for small gyms like 6-Ten Fitness gym Juja, focusing on simplicity, affordability, and reliability.

The system will:

- Digitize **membership registration, renewals, and attendance tracking**.
- Allow members to log in and view **their subscriptions, attendance history, and their profile information**.
- Provide trainers the ability to see members assigned to them for easier interaction.
- Equip administrators with dashboards to **manage plans, process payments, manage trainers and generate reports**.
- Integrate with **M-Pesa option** for flexible yet traceable payment handling.

By implementing FitiGym management system, small gyms will benefit from real-time updates, data for precise decision making, reduced fraud, streamlined operations, and enhanced trust between members, trainers, and administrators.

1.4 Project Objectives

The objectives of the FitiGym Management System are:

- **Provide real-time access to member records**

Both members and admins will be able to view their records through their respective dashboards. This will allow management to focus more on strategic growth and member satisfaction.

- **Reduce fraud and increase data safety**

  This will be accomplished by replacing manual registers with a secure, digital platform.

- **Simplify membership renewal and payment processing**

  Through the M-Pesa integration, payment and membership records can be clearly retrieved.

- **Enhance transparency and accessibility**

  This will by allowing members to view their own attendance history to ease their progress in the gym journey.

- **Improve efficiency**

  Fitigym management system enables this small scale gym to centralize member, trainer, and admin roles in one system.

1.5 Project Scope

The Fitigym Management System will cover various functional areas, ensuring that all major activities are digitized and optimized:

- A **web-based platform**:

  Accessible to members, trainers, and administrators.

- **Role-based access**:

  According to the authorization users login as Members and view their data, trainers, and track members assigned, and administrators to manage plans, trainers, members and finances.

- **Payment handling**:

  The system has the Integration of M-Pesa for digital transactions.

- **Reporting features**:

  Admin dashboards contain membership statistics, and financial reports.

- **Security protocols**:

  Encrypted authentication for logins, secure databases with hashed passwords, and role-based permissions.

1.6 Project Justification

The FitiGym Management System is justified as a practical solution for small-scale gyms in Kenya such as 6-Ten Fitness Gym Juja, because of the following:

- **Transparency:** Members will have access to real-time personal attendance and payment records, making it easier to track their gym progress and reduce conflicts between admins and members.
- **Efficiency:** Digitalized operations eliminate manual record-keeping errors and save administrative time. Staff can redirect their efforts from tedious record-keeping tasks to more productive activities to better the fitness organization.
- **Security**: Digital records prevent unauthorized manipulation: Digitalization brings with it robust security frameworks that protect

against record tampering and fraudulent activities. Secure user authentication and encrypted databases ensure that only authorized individuals can access or modify critical information.

- **Affordability:** Unlike large enterprise gym systems, FitiGym Management System is designed to be low-cost and easy to maintain built in favor of the small scale fitness organizations.
- **Scalability:** The system can grow with the gym. Its architecture will be flexible and scalable, meaning it can easily accommodate an increase in the number of members, trainers, and services in the future.

1.7 PROPOSED BUDGET

Hardware:	Software	Human Resources	Other costs

- Desktop computer: KES 30,000	- Operating system: KES 5,000	- Project manager: KES 4,000	- Training and certification: KES 2,000
- External hard drives: KES 5,000	- Database software: KES 1,000	- Software developer: KES 20,000	- Office supplies: KES 3,000
- Server: KES 6,000	- Data reduplication software: KES 2,000	- Quality assurance specialist: KES 5,000	- Contingency: KES 10,000
- Network equipment: KES 5,000	- Security software: KES 5,000	- Technical writer: KES 5,000	**Total Project Budget: KES 108,000**

1.8 PROJECT SCHEDULE

Duration week **Task**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
Project Planning and Research																					
System Design and Development																					
System Integration and Deployment																					
Performance Evaluation and Optimization																					

Documentation and Reporting																				
Implementation																				
Maintenance																				
Presentation																				

CHAPTER TWO: LITERATURE REVIEW

CHAPTER SUMMARY

This chapter explores existing gym management systems, analyzing their strengths and weaknesses to provide insights into the development of the FitiGym Management System.

This chapter reviews existing literature on gym management practices, digital management systems, and related technologies. It compares manual methods and automated systems, highlights existing solutions, and identifies gaps that the FitiGym Management System aims to fill at **6-Ten Fitness Gym Juja**

2.1 LITERATURE REVIEW

1. Manual Gym Management Systems

2. Mindbody (international)

3. Glofox

2.1.1 Manual Gym Management Systems

Description:

Small gyms, like the particular **6-Ten Fitness Gym Juja**, still rely on manual methods for managing members, trainers, and finances. These methods typically include:

- **Attendance Registers:** Paper sheets for members to sign when they attend sessions.
- **Receipt Books:** Cash transactions recorded manually with handwritten receipts.
- **Exercise Books/Notebooks:** Used to track subscriptions and expiry dates.

Critique:

- High risk of data loss due to damaged or misplaced records.
- Lack of real-time updates, making it difficult to track membership status.
- Increased fraud and manipulation, e.g., fake check-ins or altered records.
- Time-consuming reconciliations, as administrators must manually calculate subscriptions and attendance.

Solution:

The FitiGym Management System eliminates manual methods use by digitizing member record collection. All entries are made through a secure application in

real time, preventing data loss, reducing errors, and improving transparency for all stakeholders.

2.1.2 Mindbody (international)

Description:

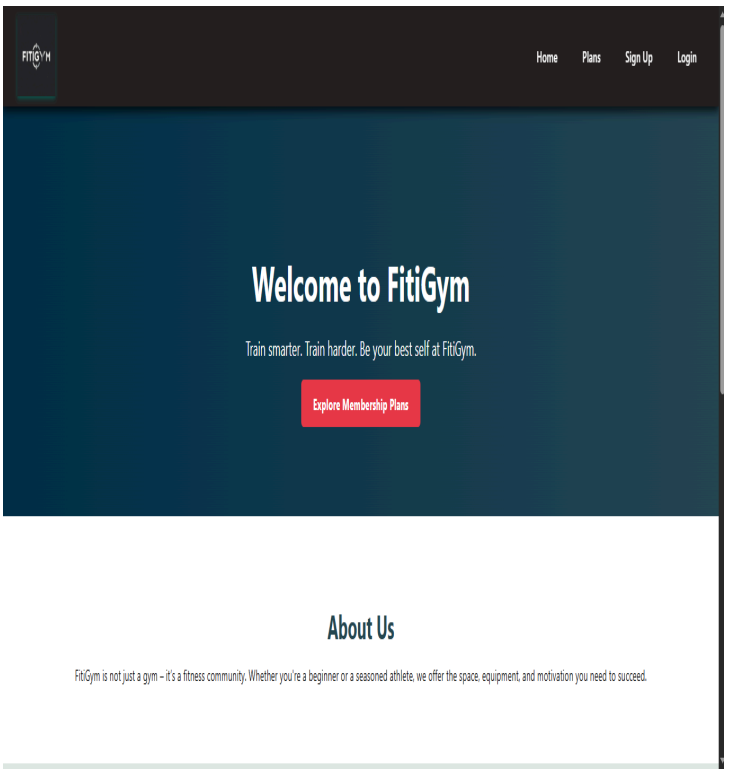
Mindbody is a widely used fitness and wellness business management platform. It helps gyms, fitness studios, spas, and salons manage class schedules, client bookings, payments, memberships, and staff roles.

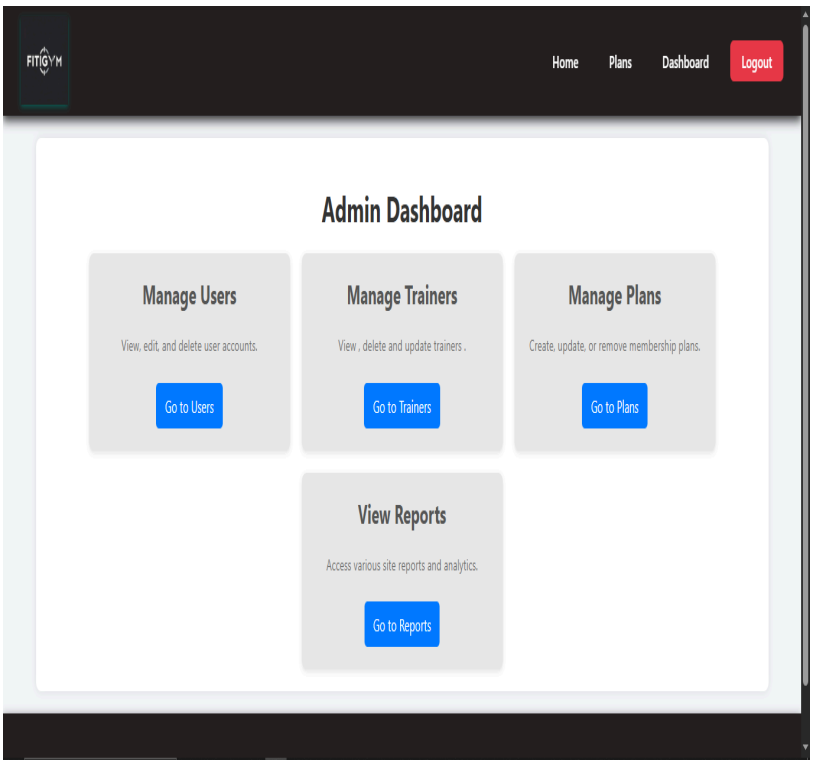
Critique:

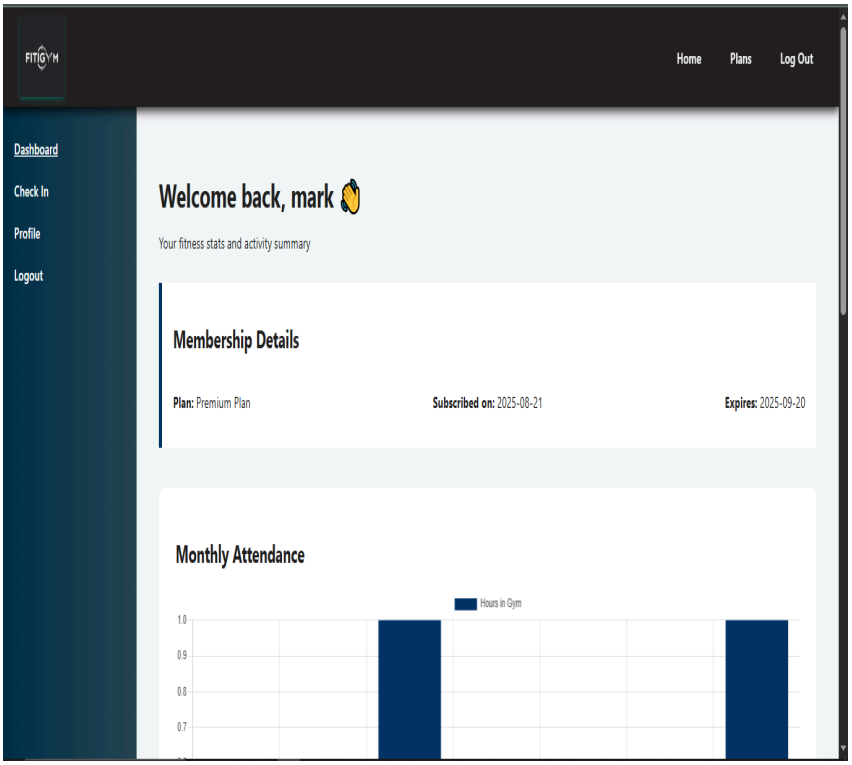
- Primarily designed for medium to large fitness studios and wellness businesses; can be overwhelming for small gyms with simpler needs.
- Pricing can be high for startups or community gyms
- Focuses heavily on client-side booking and marketing integrations, while offering limited customization for smaller gyms with unique workflows.

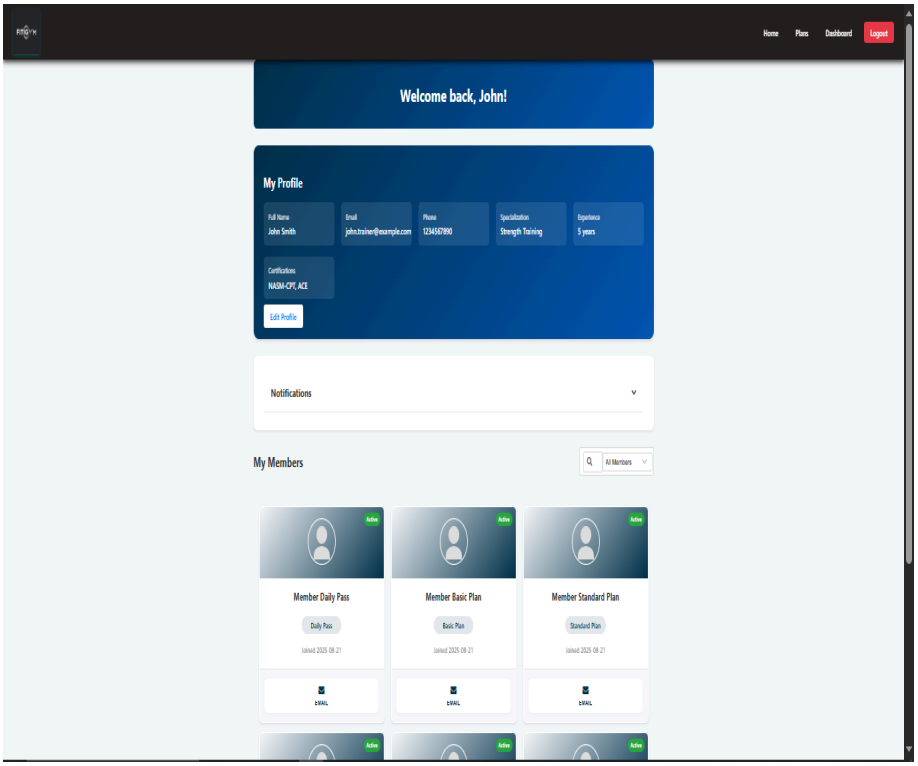
Solution:

The FitiGym Management System is developed specifically for small to mid-sized gyms like *6-Ten Fitness Gym Juja*. It simplifies membership management, trainer and admin roles, and attendance tracking without unnecessary complexity. Unlike Mindbody, FitiGym is affordable, lightweight, and customizable, ensuring gyms with limited resources can still manage members, check-ins, and payments effectively. Like seen below:


FITIGYM
Home
Plans
Sign Up
Login
Welcome to FitiGym
Train smarter. Train harder. Be your best self at FitiGym.
Explore Membership Plans
About Us
FitiGym is not just a gym – it's a fitness community. Whether you're a beginner or a seasoned athlete, we offer the space, equipment, and motivation you need to succeed.


FITIGYM
Home
Plans
Dashboard
Logout
Admin Dashboard
Manage Users
View, edit, and delete user accounts.
Go to Users
Manage Trainers
View , delete and update trainers .
Go to Trainers
Manage Plans
Create, update, or remove membership plans.
Go to Plans
View Reports
Access various site reports and analytics.
Go to Reports


FITGYM
Home
Plans
Log Out
Dashboard
Check In
Profile
Logout
Welcome back, mark
Your fitness stats and activity summary
Membership Details
Plan: Premium Plan
Subscribed on: 2025-08-21
Expires: 2025-09-20
Monthly Attendance
Hours in Gym
1.0
0.9
0.8
0.7


Home
Plans
Dashboard
Logout
Welcome back, John!
My Profile
Full Name
John Smith
Email
john.trainer@example.com
Phone
1234567890
Specialization
Strength Training
Experience
5 years
Certifications
NASM-CPT, ACE
Edit Profile
Notifications
My Members
All Members
Member Daily Pass
Member Basic Plan
Member Standard Plan
Daily Pass
Basic Plan
Standard Plan
Active

2.1.3 Glofox

Description:

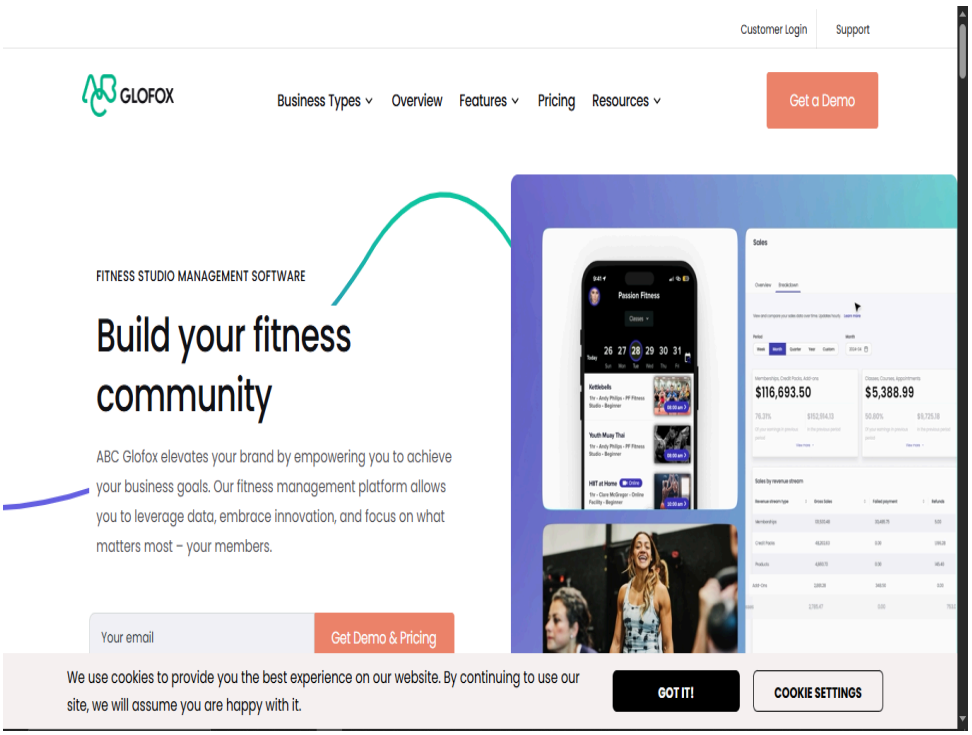
Glofox is also a fitness business management platform designed for gyms, studios, and fitness clubs. It provides tools for class scheduling, member check-ins, mobile app bookings, payment processing, and marketing automation.

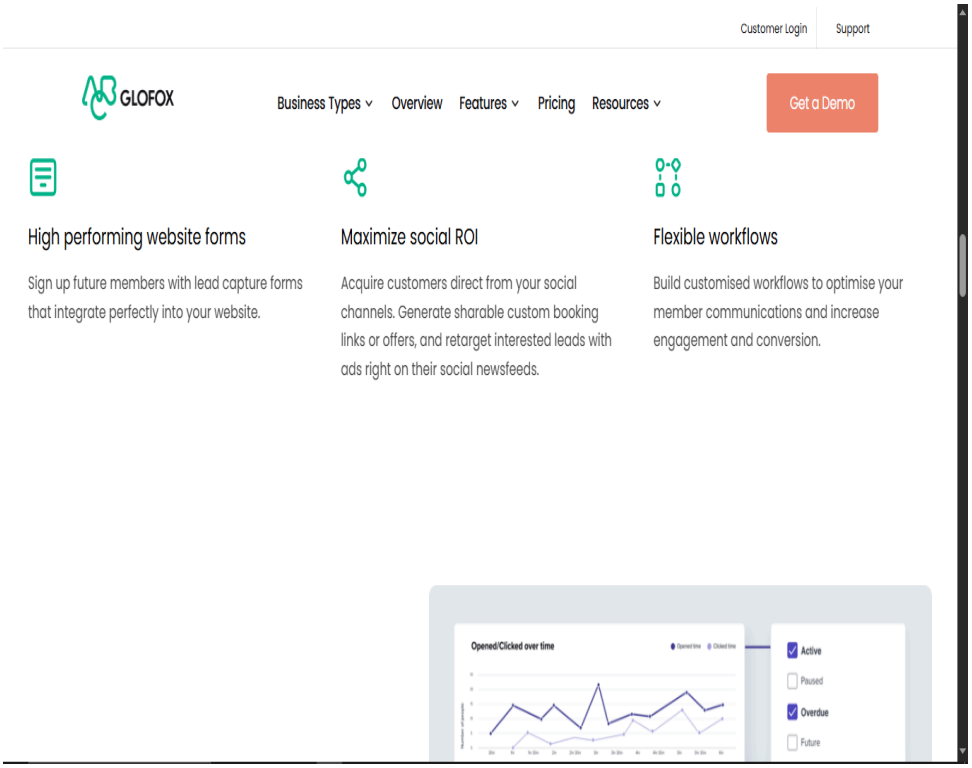
Critique:

- Best suited for boutique studios and branded fitness clubs rather than small, independent gyms.
- Relies heavily on mobile app integration, which may be unnecessary or complex for gyms with walk-in members.
- Subscription pricing is relatively high for small gyms with limited budgets.

Solution:

The **FitiGym Management System** is specifically designed for gyms such as *6-Ten Fitness Gym Juja*. It provides simple yet essential features like membership tracking, trainer and admin role management, attendance monitoring, and payment processing. Unlike Glofox, it avoids unnecessary reliance on advanced mobile apps and costly marketing tools, offering a more affordable, straightforward, and adaptable solution for gyms with limited resources and technical capacity.





2.2 GAP IDENTIFICATION

From the review above, the key gaps identified in existing systems are:

- **Manual Systems**: Inefficient, prone to fraud, lack transparency.
- **Enterprise Systems**: Too complex and costly for small gyms.
- **Local Relevance**: Most international systems do not integrate with M-Pesa or cater to Kenyan gyms.
- **Role Separation**: Small gyms like **6-Ten Fitness Gym Juja** need systems with clear roles for members, trainers, and administrators.

The FitiGym Management System is designed to fill these gaps efficiently.

CHAPTER THREE: METHODOLOGY

Chapter Summary

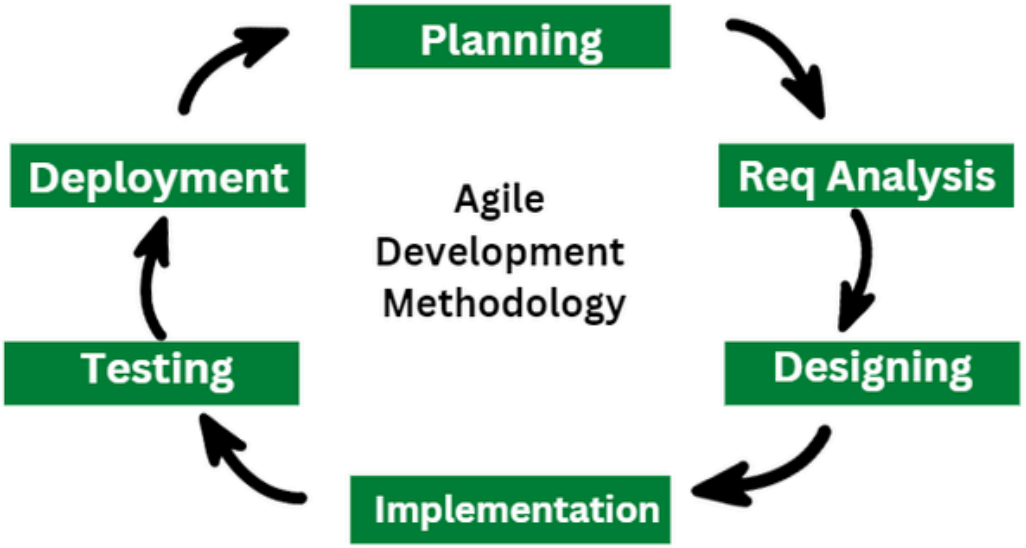
This chapter presents the methodology applied in the design and development of the FitiGym Management System. It discusses the research design, data collection methods, system development approach, and tools used to implement the solution for **6-Ten Fitness Gym Juja**.

3.1 RESEARCH METHODOLOGY

In my proposed FitiGym Management System, an agile software methodology was embraced, a dynamic and iterative approach that aligns seamlessly with the vision to create a transparent and secure system. At the core of this methodology is a commitment to delivering a user-centric and continuously evolving system for efficiently managing the fitness entity records and transactions.

This approach prioritizes iterative development cycles, acknowledging that the fitness management landscape evolves and user preferences shift over time. Through incremental releases, FitiGym management System remains responsive to emerging trends, regulatory requirements, and user feedback, ensuring the platform grows and adapts to meet the needs of the fitness entity.

The Agile Model will consist of the following systematic steps.



1. Planning Phase

In the Planning phase, the project team collaborated with stakeholders such as 6-Ten fitness gym managers, members, and trainers to define the project scope and objectives. Key deliverables identified included functionalities like membership record management, trainer assignment, payment calculation modules, and record management. The planning phase ensured the system's vision aligned with the gym's goal of improving transparency, reducing record manipulation, and enhancing operational efficiency.

2. Requirement Analysis Phase

During the Requirement Analysis phase, detailed information was gathered regarding system needs. Functional requirements included member subscription recording, member registration, the fitness entity's transactions, and payment calculation. Non-functional requirements focused on system security, usability (considering normal users), and scalability to support the gym's growth.

Stakeholder feedback was critical in shaping these specifications to ensure all needs were adequately addressed.

3. Designing Phase

In the Designing phase, the system architecture was developed with modules such as the member dashboard, the trainer dashboard, the admin panel and creating the database schema. User-friendly interfaces were designed for different roles to ensure ease of use, especially for members with minimal digital literacy. Wireframes and mock-ups were created to visualize workflows and user journeys, which were reviewed with stakeholders before moving to implementation.

4. Implementation Phase

System development followed an iterative approach using Agile methodology. Key features such as member attendance record entry, member subscription, user management, trainer management, plan management and payment records were developed in phases. GitHub was used for version control, enabling collaborative development. Frontend development was done using HTML, CSS, JavaScript, while backend APIs were built with Flask (Python) framework and MYSQL for the database.

5. Testing Phase

The system underwent rigorous testing to validate all components. Unit tests ensured individual functions, like member attendance entries, worked correctly. Integration tests validate those modules like membership plan transactions correctly linked with payment calculations, all user dashboards worked correctly, from the editing profiles options to the log out sessions. Usability testing involved members and trainers using the system to identify issues in real-world conditions. Security audits were also conducted to ensure data protection standards were met.

6. Deployment Phase

The system was deployed as a Minimum Viable Product (MVP) featuring essential modules: member attendance collection records, transactions recording, trainer member management options, user, membership plans and trainer management. A phased rollout strategy was adopted, starting with a small group of members and trainers. Feedback from early users informed improvements and future feature enhancements.

7. Feedback Loop and Maintenance Phase

Continuous feedback was collected from members, trainers, and admins to refine the system. Regular updates were rolled out to fix bugs, improve performance, and add requested features. The support team handled user queries, ensuring the platform remained reliable and responsive to 6-Ten fitness gym needs.

Consequently, the development approach had the following drawbacks:

1. Scope Creep

Stakeholder demands occasionally led to the addition of new features, like additional features like BMI calculation and personalized membership options, which required careful management to avoid project delays.

2. Collaboration Challenges

Engaging members and trainers consistently during design feedback sessions was difficult, especially during weekdays when they were extremely busy.

3. Time-Consuming Planning and Reviews

Frequent sprint reviews and planning meetings took time, which occasionally delayed actual development work if not properly managed.

4. Dependency on Skilled Teams

Successful system development heavily depended on having developers skilled in both frontend development and backend systems. Gaps in expertise risked delays in feature completion.

5. Documentation Gaps

Due to the focus on functional delivery, comprehensive documentation (especially user manuals) was sometimes reprioritized, requiring post-launch documentation efforts.

3.2 Target Population and Sampling Techniques

Target Population

The FitiGym Management System targets small scale community gyms like 6-Ten fitness gym in juja that rely on manual record keeping and can't grow due to high cost of complex systems made for larger fitness entities. The broader community includes members who require attendance record management, transparent payment systems, and access to core gym features without having to incur extra costs.

Sampling Technique

Stratified random sampling was used to ensure representation across all critical groups:

- Members (long-term and short-term gym members)
- Trainers (new and experienced) and Fitness gym administrators

Each group was treated as a distinct stratum, and random samples were selected from each group to ensure diverse and representative feedback.

3.3 Data Collection Tools and Techniques

1. Surveys

Online and paper-based surveys were conducted with gym members, trainers and managers to gather feedback on fitness entity management practices, payment concerns, and user management.

2. Interviews

Structured interviews were held with the Gym management, selected members, and trainers to gather in-depth insights about current challenges and expectations for the new system.

3. Focus Groups

Focus group discussions with different member groups and trainer teams provided qualitative insights into system usability expectations and payment transparency concerns. This helped reshape the design of the system into a more user-friendly style.

4. System Usage Analytics

Post-deployment, system analytics tracked how gym members and trainers interacted with the system and admin dashboard to identify areas needing improvement, such as common navigation errors or underutilized features.

3.4 System Implementation and Testing Tools

- GitHub: Used for version control and collaborative code management.
- Visual Studio Code: Used as the primary Integrated Development Environment (IDE).
- HTML, CSS, JavaScript: Frontend application framework.
- Flask (python) framework: Backend interaction framework.
- MYSQL: Database management system and authentication system.
- M-Pesa Daraja API: Integrated for payment processes.

3.5 Time Schedule and Project Cost

Time Schedule

The project was divided into sprints of two to three weeks each, with the entire project spanning approximately 10 months from planning to final deployment.

Phase Duration

Planning and Requirement Gathering: 1 month

System Design: 1 month

Implementation: 5 months

Testing and Feedback Incorporation:| 2 months

Deployment and Training: 1 month

Project Cost Estimate

Item	Estimated Cost (KES)
Personnel (developers, testers)	40,000
Hardware and Networking	30,000
Software Licenses and APIs	10,000

Training and User Support 5,000

Miscellaneous (Transport, Internet, Supplies) 5,000

Total 90,000 KES

CHAPTER FOUR

SYSTEM ANALYSIS AND REQUIREMENT MODELING

4.0 INTRODUCTION

System analysis is the procedure for gathering and analyzing data, determining issues, and breaking down a system into its constituent parts. It is mainly conducted to study the system or its parts to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose. Therefore, this chapter will cover all the system analysis and design needs of the project.

4.1 Detailed analysis of the current system

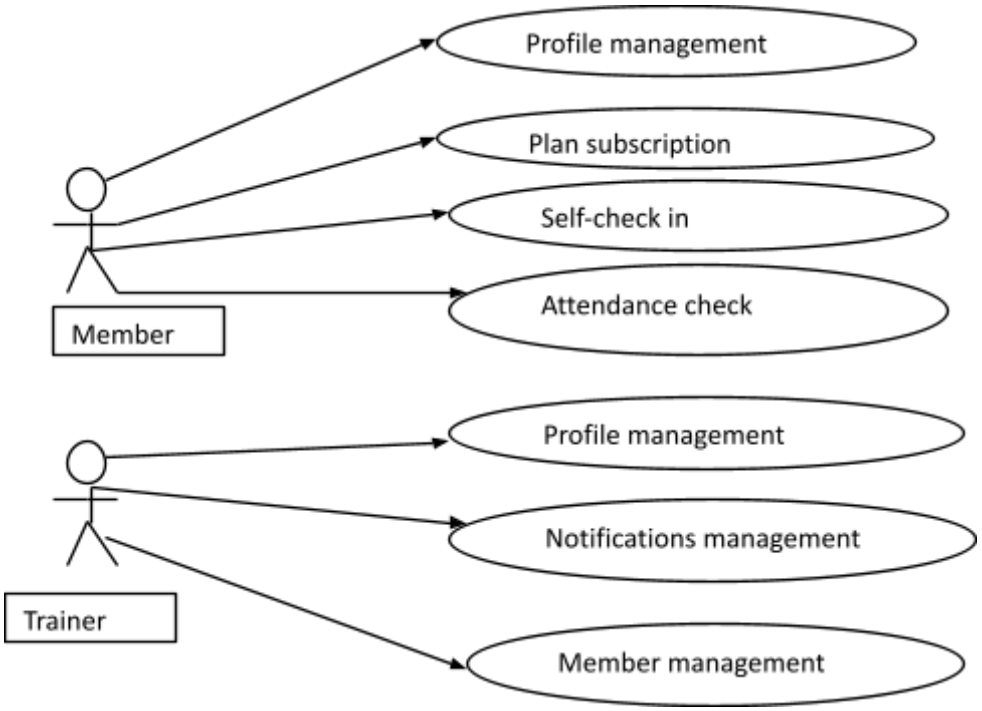
In this section, we delve into the existing system of the FitiGym Management System, employing various analysis tools to comprehend its structure and functionalities. The FitiGym management systems' process data, processing, and organized design and working flow were visualized using the diagrams below.

4.2 Use Case Diagram

At its most basic level, a use case diagram illustrates how customers interact with the FitiGym management system, depicting the relationship between users

and the various use cases they are involved in. It identifies different types of system users and the ways they engage with the platform. In a use case diagram for fitigym management system, use cases are typically represented as circles or ellipses.

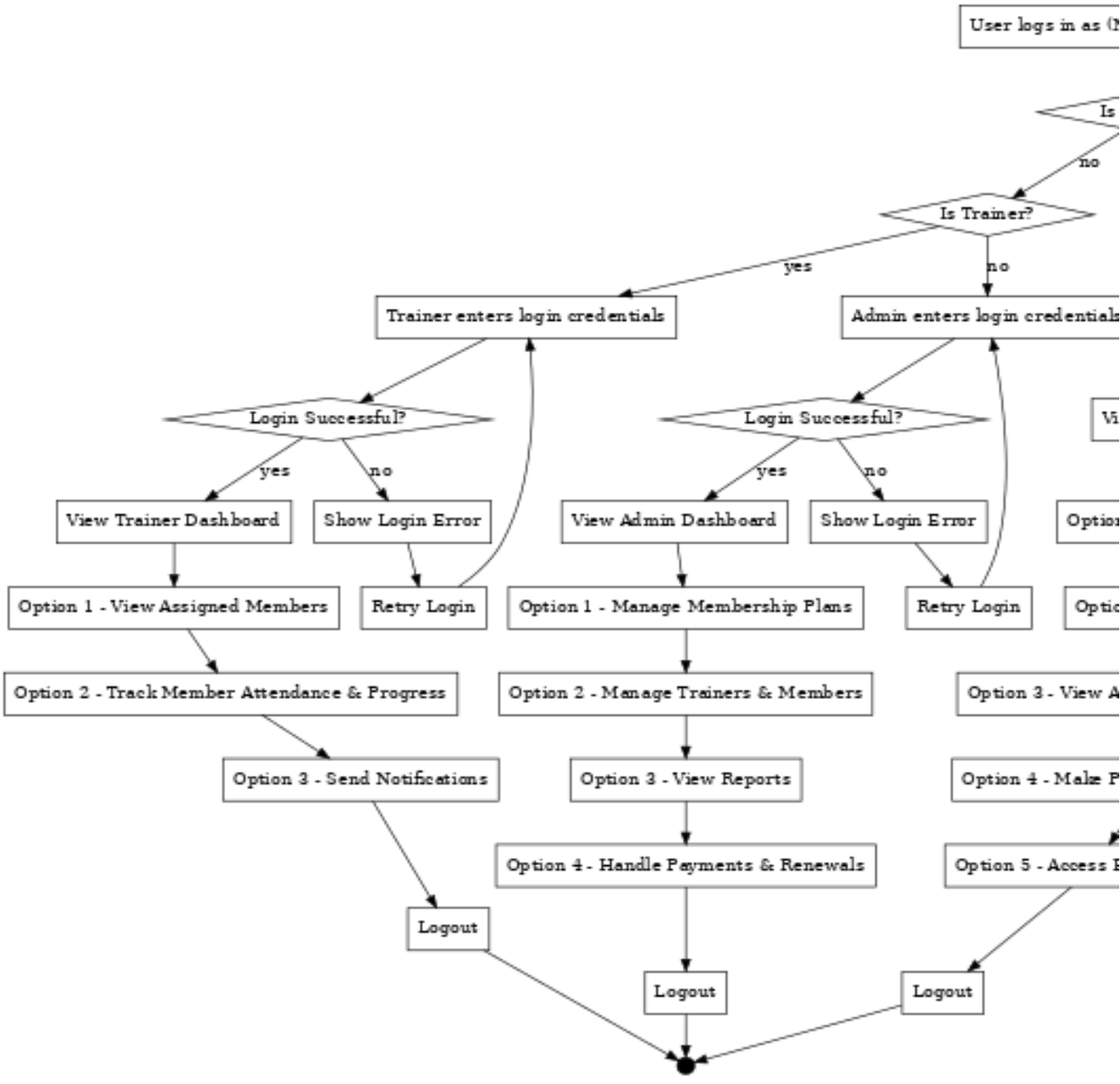
Figure 1 Use case diagram



4.3 Flowchart

At its core, a flowchart visually represents the sequence of steps in a process, using standardized symbols like rectangles for actions, diamonds for decisions, and ovals for start/end points. Arrows show the flow of the process. For the FitiGym management system, a flowchart would map out detailed steps, such as a member subscription, from plan selection to payment completion, highlighting the task flow and decision points.

Figure 2 system flowchart

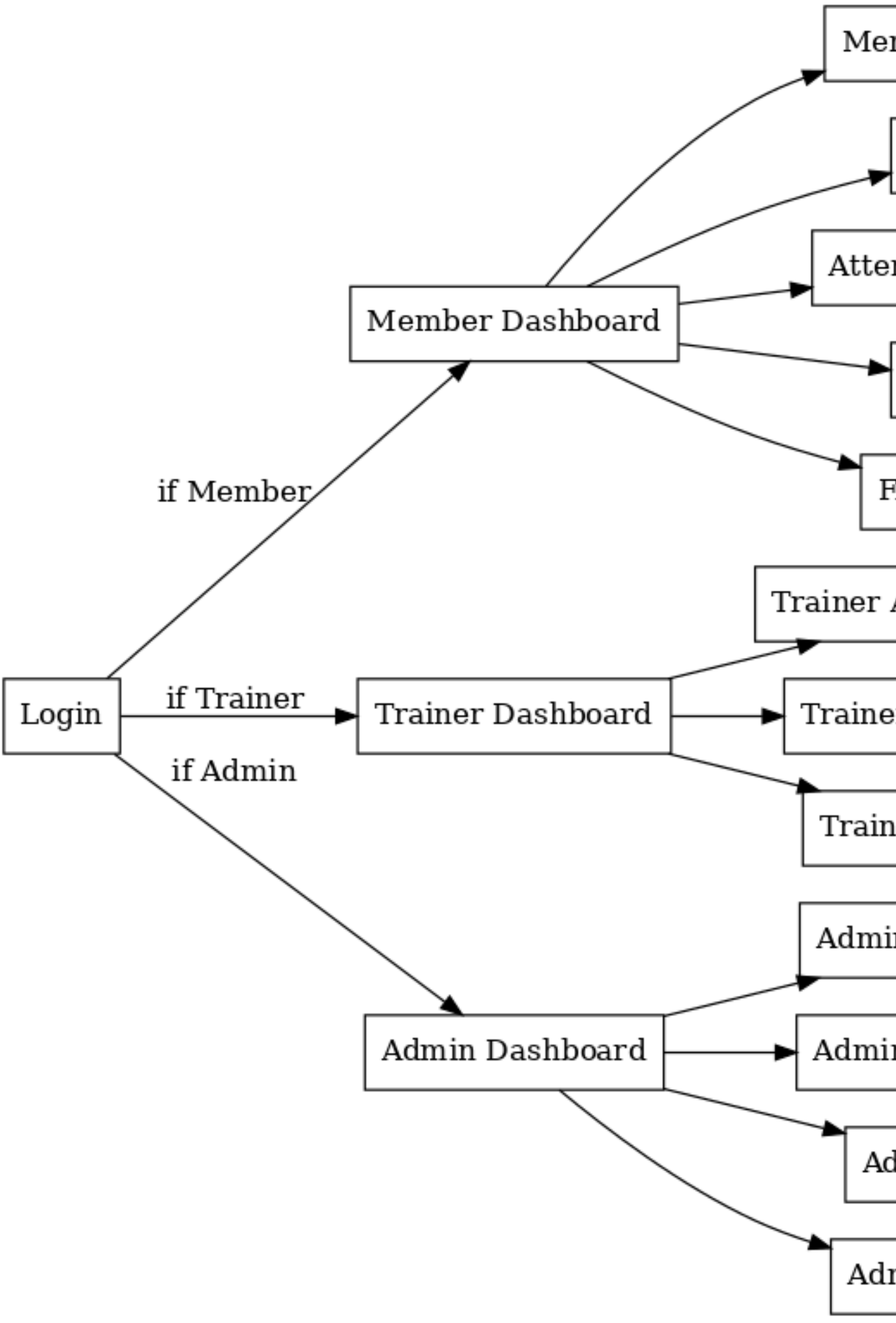


4.4 Data Flow Diagram

A data flow diagram (DFD) shows how data moves through a system, using symbols like circles for processes, arrows for data flows, rectangles for data stores, and squares for external entities. For the fitigym Management System, a DFD would illustrate how customer, product, and order data flow between payment systems, and user accounts.

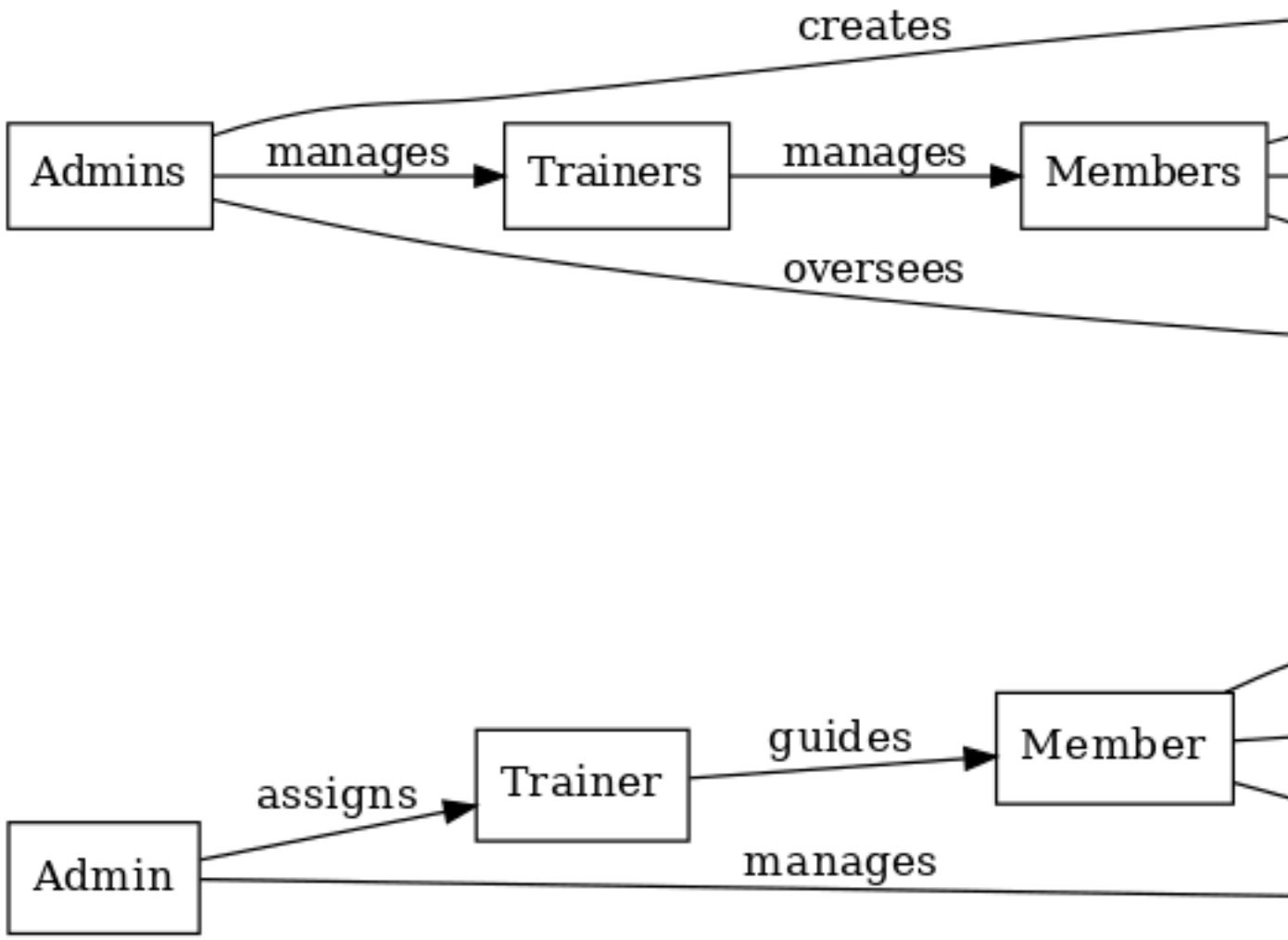
Level 0 DFD

Figure 3 Level 0 data flow diagram


Login
if Member
if Trainer
if Admin
Member Dashboard
Trainer Dashboard
Admin Dashboard

Level 1 DFD

Figure 4 Level 1 data flow diagram



4.5 System Requirements

This section outlines the functional and non-functional requirements of the Fitigym management system to meet the user needs and ensure the system operates effectively.

Functional Requirements

- **Management:** Admin should be able to manage users, plans and trainers by adding, updating, and removing any needed information from the system.
- **Payment processing:** The system should be able to process a payment transaction to completion
- **Reporting:** The system should provide the admin with detailed reports on membership and financial transactions.
- **User management:** The admin must have the ability to manage user accounts by adding or removing them.
- **plan Management:** The system should be able to store and allow admin to membership plans in the system

Non-functional Requirements

- **Security:** The system should restrict unauthorized access to sensitive data, ensuring that only authorized users can access private information. This is made possible by the use of authentication.
- **Data Protection**: User data, including payment and personal details, must be encrypted and securely stored to maintain privacy and confidentiality.
- **Availability**: The system should ensure high availability, allowing users to access the platform seamlessly at all times.
- **User Permissions**: The platform should implement role-based access control, regulating permissions based on user roles such as admins, members and trainers.
- **Performance**: The system should prioritize high performance, ensuring quick response times and smooth operation even under heavy user load.

CHAPTER FIVE

SYSTEM DESIGN

5.1 Introduction

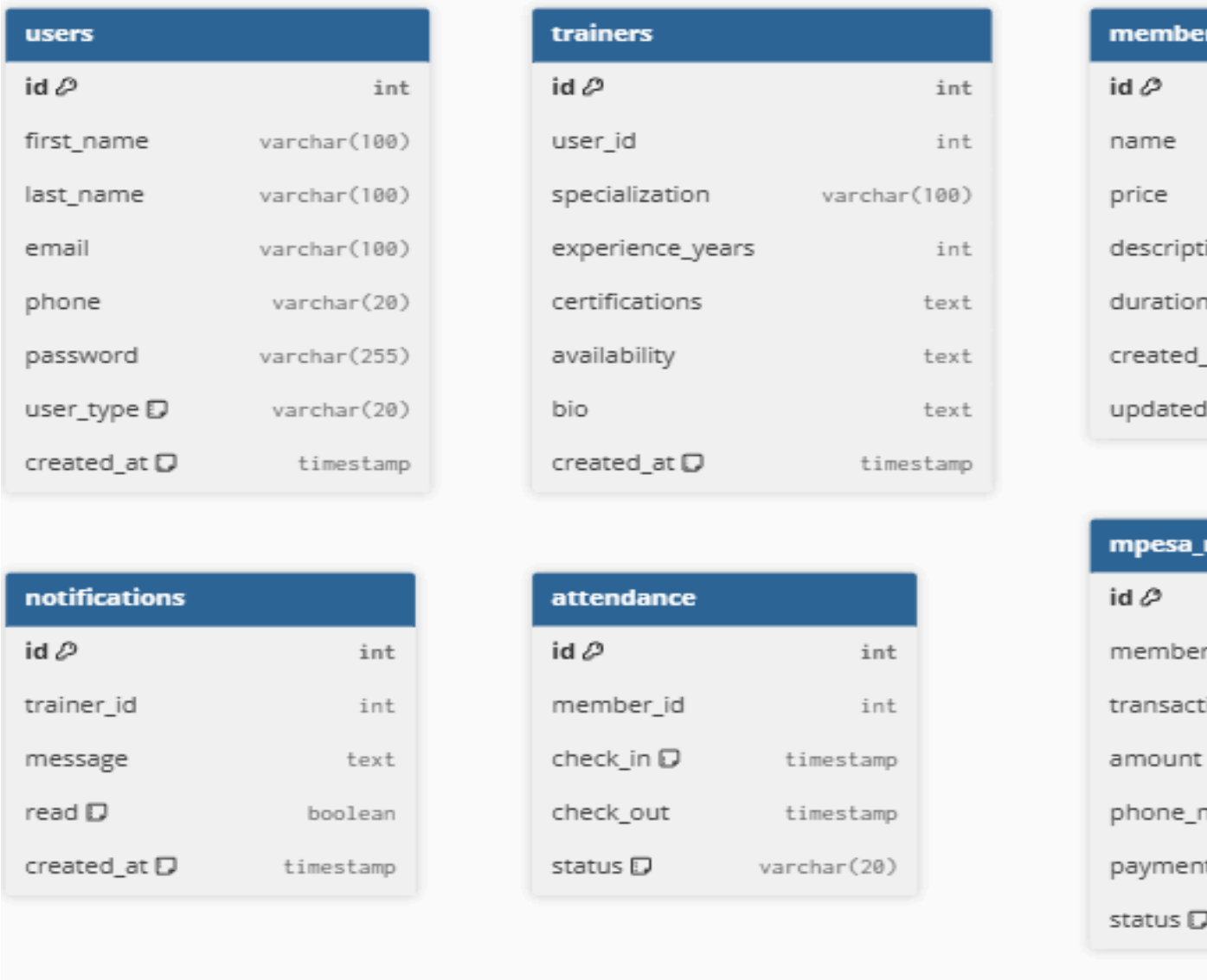
System Design is one of the tasking sections of programming. In this section of the project, many previews are going to be seen, and we are gradually getting close to the new system. System design is a transition from a user-oriented document to a document oriented to programmers or database personnel.

5.2 Database design

A database is a file composed of records, each containing fields, together with a set of operations that help in organizing data in a logical order for reference.

The database below contains data that is organized together in a group consisting of an object, a table, and a file. In this project, a conceptual database concept will be used.

Figure 6 database design diagram

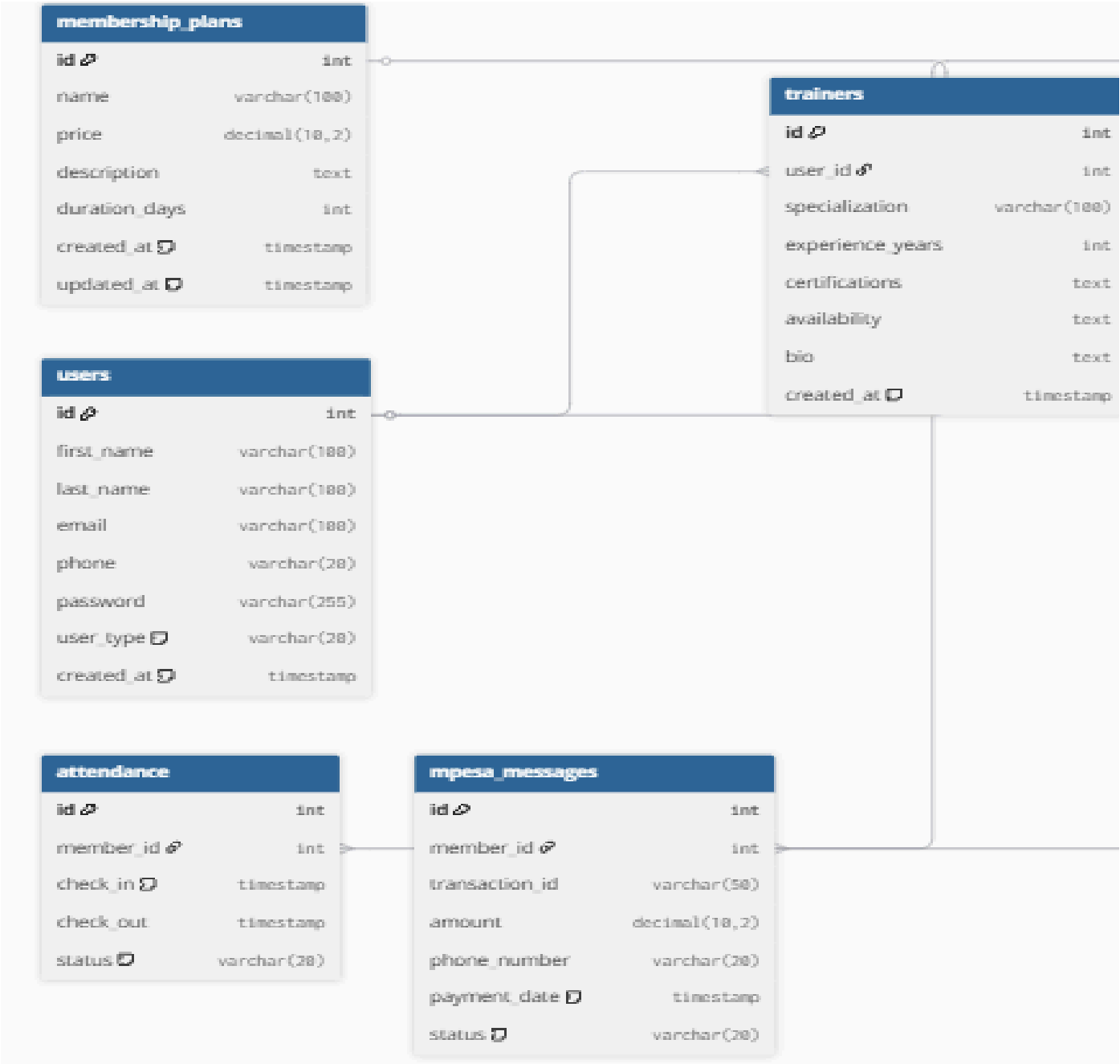


5.3 Entity Relationship Diagram

A graphical representation that shows relationships between individuals, things, locations, concepts, or events within an information technology (IT) system is

called an entity relationship diagram (ERD), also known as an entity relationship model.

Figure 7 entity relationship diagram



CHAPTER SIX: SYSTEM IMPLEMENTATION

6.1 IMPLEMENTATION

CHAPTER SUMMARY

This chapter delves into the practical implementation of the system, outlining the steps taken from initial setup to the final deployment. It provides detailed insights into the methods, tools, and frameworks used, ensuring a clear understanding of the system's architecture and functionality. The focus is on translating the system design into a working solution while addressing potential challenges and their resolutions.

6.2 Technologies used

In the development of the FitiGym Management System, various technologies have been used to ensure the effectiveness of the system. The technologies have been divided into the following categories: hardware platform, software platform, programming language, programming integrated development environment (IDE), and framework.

6.3 Hardware Platform

The hardware platform used in the development of the system is an HP laptop 840 G3, with an Intel(R) Core i7-6600U CPU, 2.60GHz processor, 16GB RAM, and a 64-bit operating system of Windows 10.

6.4 Programming Language

The implementation of the Fitigym Management System utilized the following

- **Frontend**: HTML, JAVASCRIPT and CSS.
- **Backend**: flask (python).
- **Database**: MYSQL
- **Payment Integration**: M-Pesa API

6.5 Programming Tools

Programming IDE

An Integrated Development Environment (IDE) is a software application designed to help programmers efficiently write, test, and debug code. The IDE used to develop the System is Visual Studio Code, which enhances productivity by offering an all-in-one platform for editing, building, testing, and packaging applications. The one used in this case is VISUAL STUDIO CODE.

Programming Framework

A programming framework provides ready-made components or solutions to expedite development. The framework used for this system is Flask, a popular python framework. This framework was essential in building a fast, responsive, and native-like user experience for the Fitigym Management System while significantly reducing development time and resources.

6.6 Software Platform

Database Platform

The FitiGym management system utilizes python for backend development. This technology provides an efficient runtime environment and framework for building scalable web applications;

MYSQL Database

For database management the Fitigym Management System used a MYSQL database. MYSQL stores data in flexible, table-oriented structures, allowing for efficient handling of dynamic and evolving data such as membership logs, plan inventories, and transaction histories. It also supports real-time data updates, enabling seamless synchronization of information for members, trainers, and administrators.

WEB Application Development

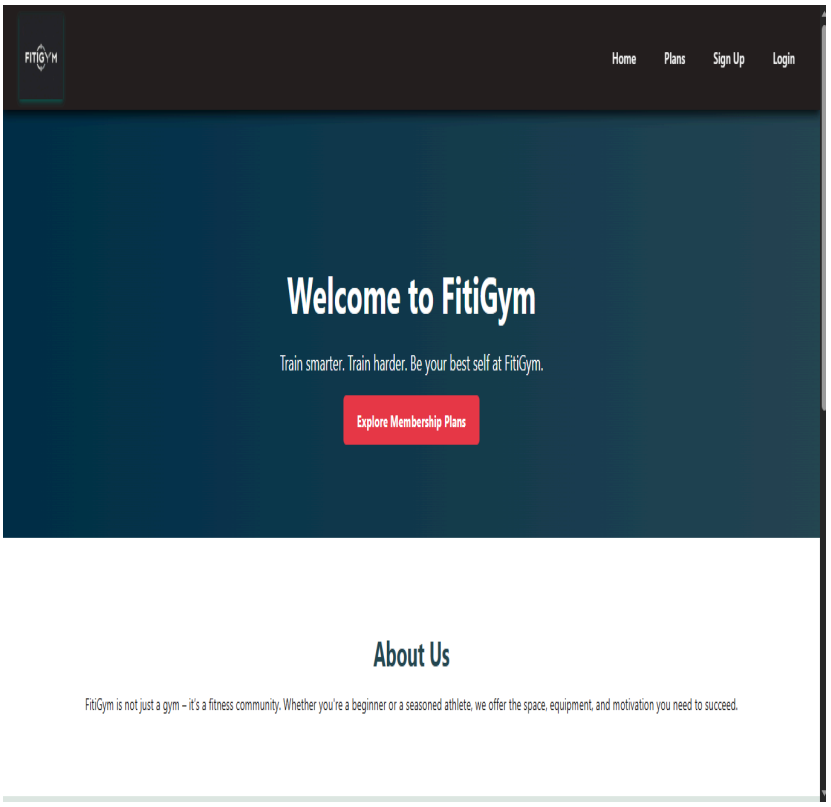
The web application for the Fitgym Management System is developed using **HTML, CSS AND JAVASCRIPT**. These allow building high-performance systems. It enables the creation of responsive systems, ensuring a smooth and intuitive user experience. The python allows for seamless real-time updates, secure authentication, and efficient data handling within the system. This framework significantly reduced development time while maintaining high standards of performance and scalability as the system's user base grows.

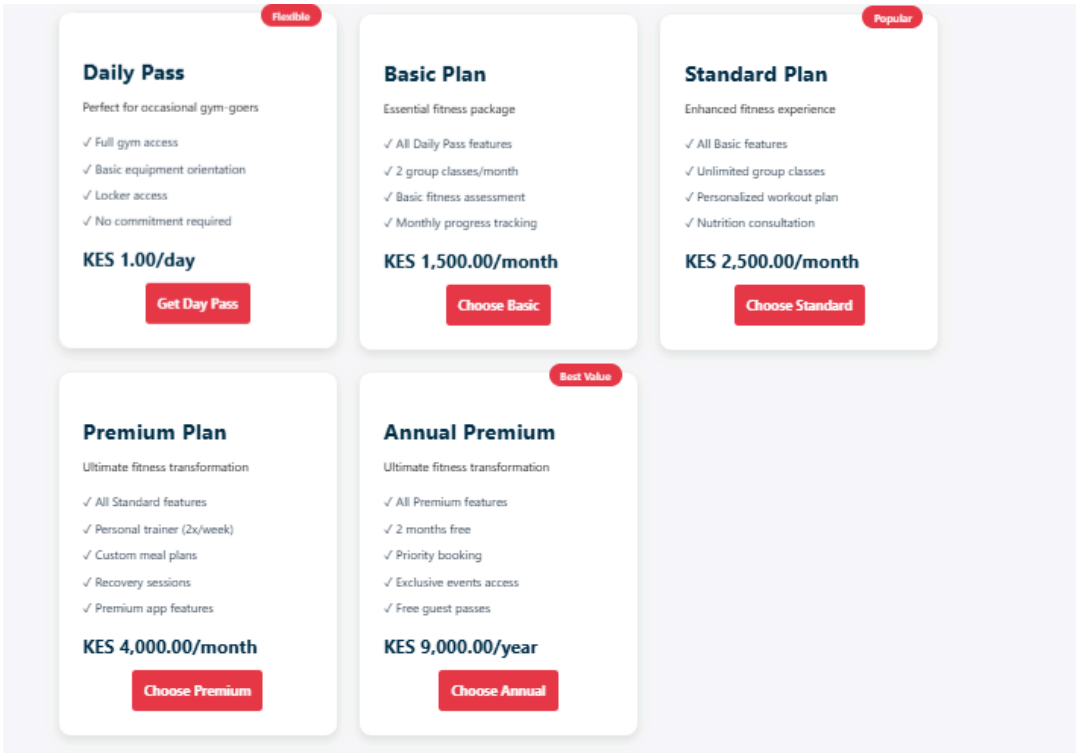
6.7 Technical Manual Screenshots

Dashboard/Landing page:

The landing page of the FitiGym Management System serves as an information page. It has a dashboard that shows what the members needs to see at a glance depending on the organization, which involves the information concerning the fitness entity and the plans available.

Figure 8: homepage

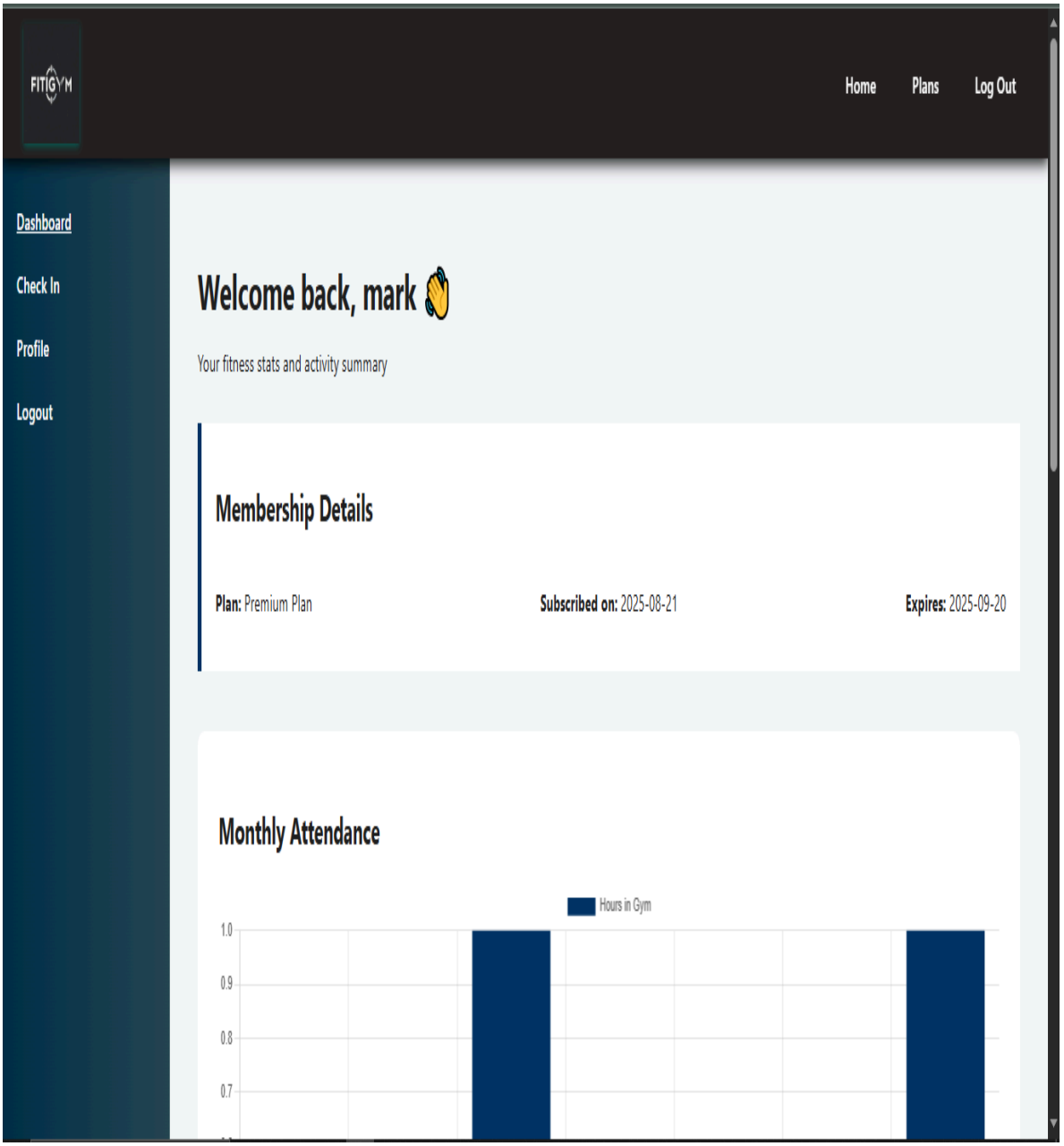


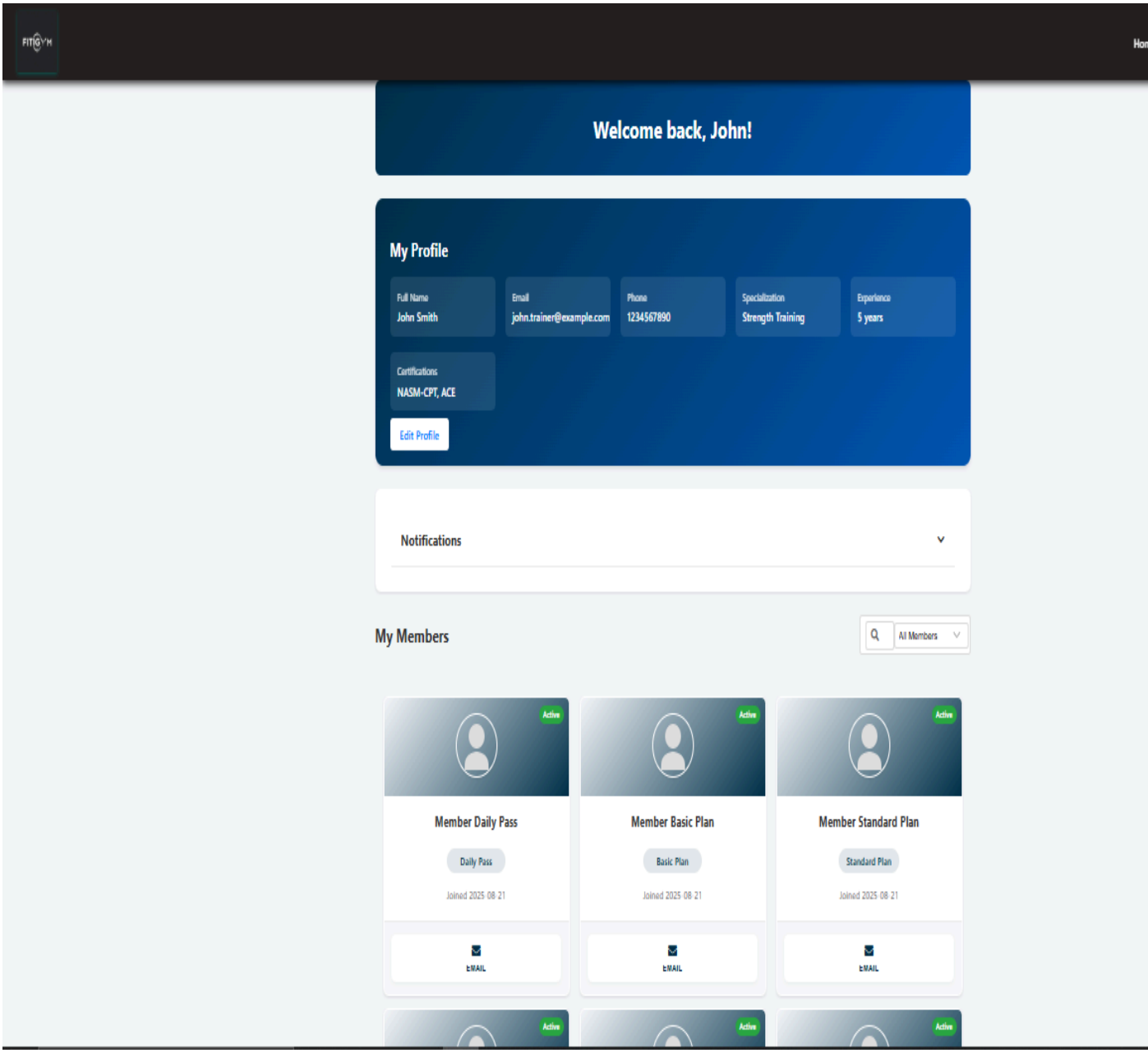


Member and trainer dashboard page.

This allows the member to view records according to the date and time and manage their profiles and check-ins. For trainers this is where they check members assigned to them and also manage their profiles.

Figure 9: member dashboard and trainer dashboard page


FITIGYM
Home
Plans
Log Out
Dashboard
Check In
Profile
Logout
Welcome back, mark
Your fitness stats and activity summary
Membership Details
Plan: Premium Plan
Subscribed on: 2025-08-21
Expires: 2025-09-20
Monthly Attendance
Hours in Gym
1.0
0.9
0.8
0.7

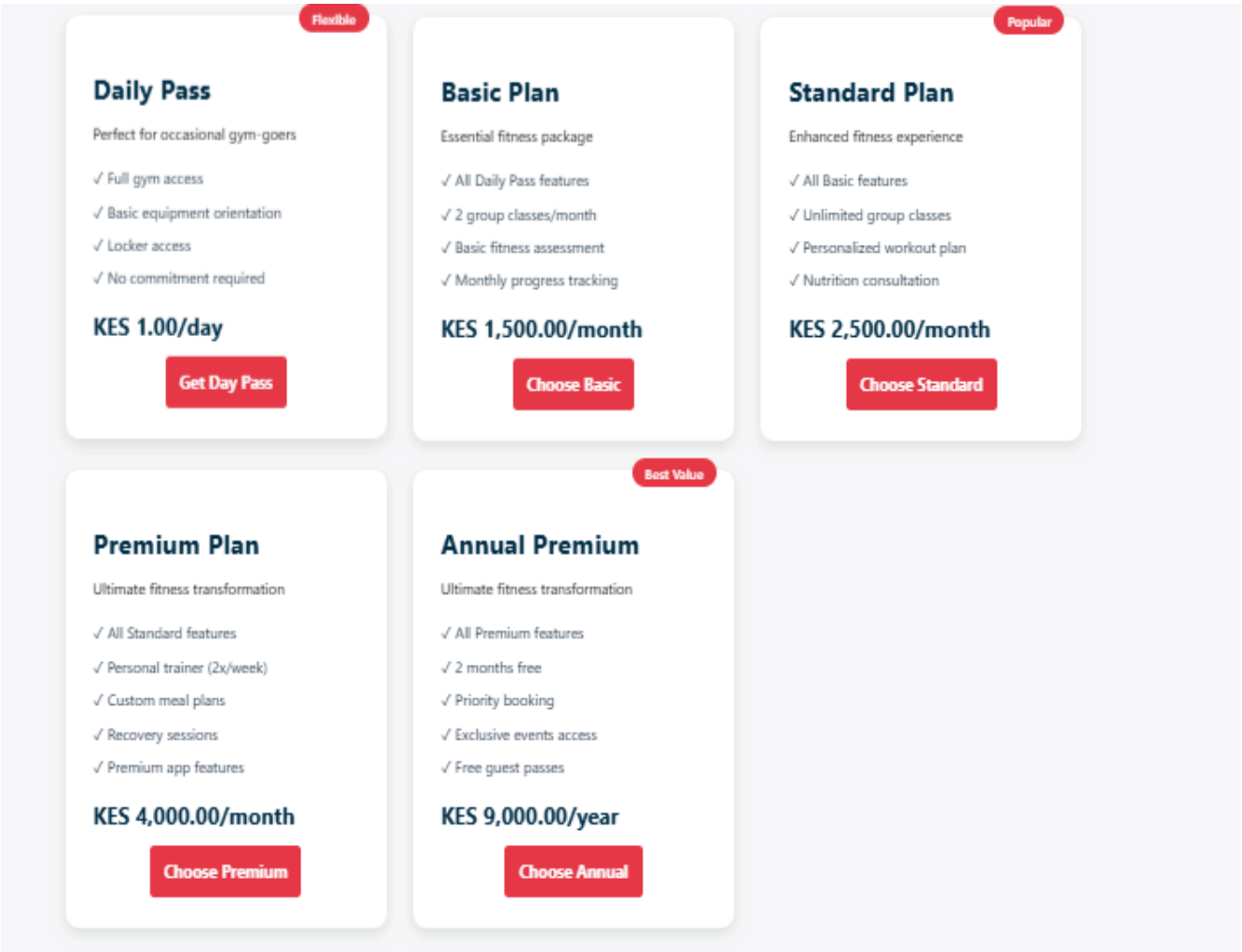

Welcome back, John!
My Profile
Full Name
John Smith
Email
john.trainer@example.com
Phone
1234567890
Specialization
Strength Training
Experience
5 years
Certifications
NASM-CPT, ACE
Edit Profile
Notifications
My Members
All Members
Active
Member Daily Pass
Daily Pass
Joined 2025-08-21
EMAIL
Member Basic Plan
Basic Plan
Joined 2025-08-21
EMAIL
Member Standard Plan
Standard Plan
Joined 2025-08-21
EMAIL

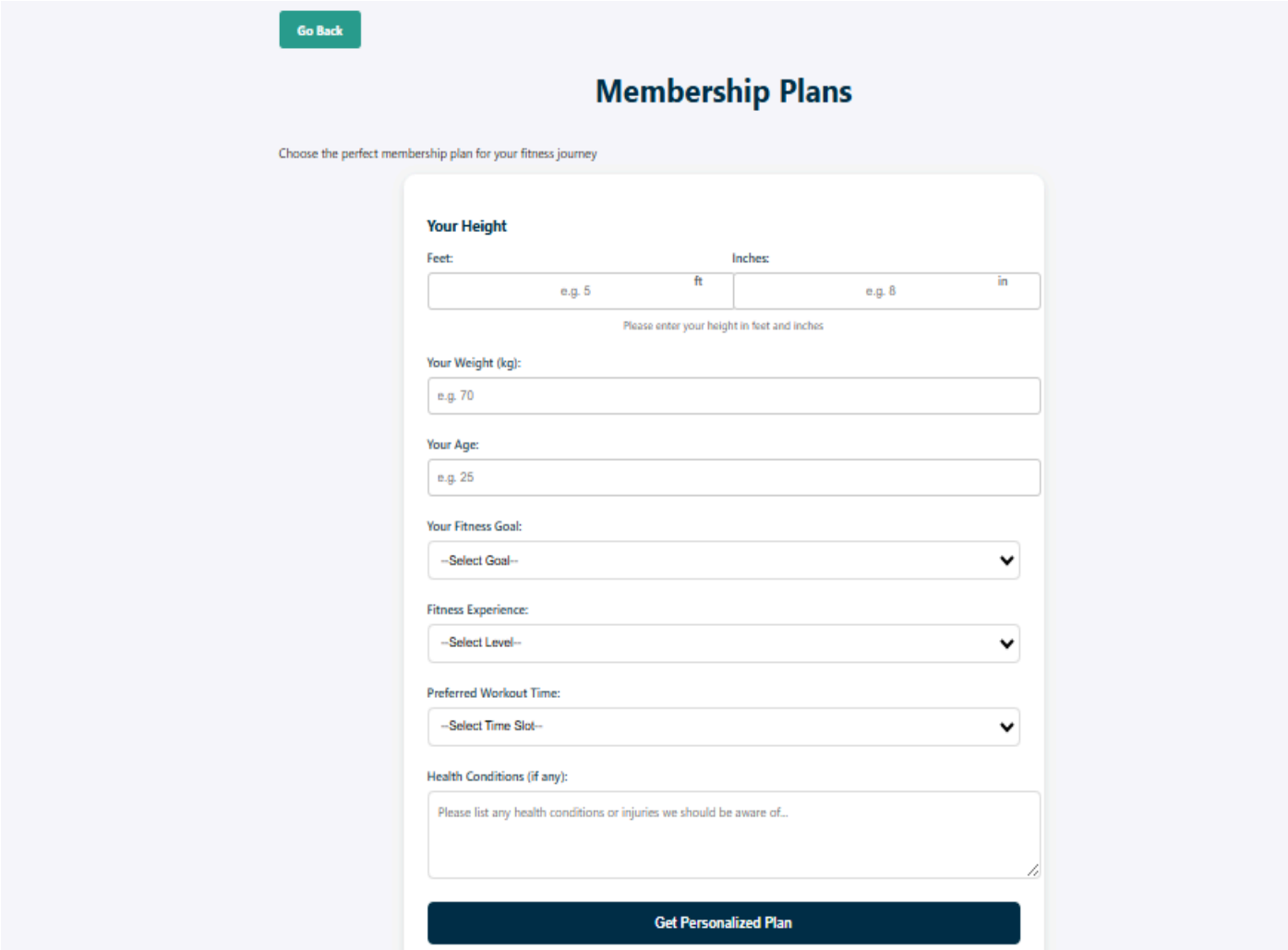
Membership plans page

On the plans page, the user can access the products that the system offers for the members which are different plans. The users can view detailed information about the products through the product description.

The system also offers a personalized plan recommendation based on user statistics collected like BMI(Body Mass Index) which is a calculation that uses your height and weight to provide an indication of your body fat and screen for potential health risks, placing you into categories such as underweight, normal weight, overweight, or obese.

Figure 10: plans page

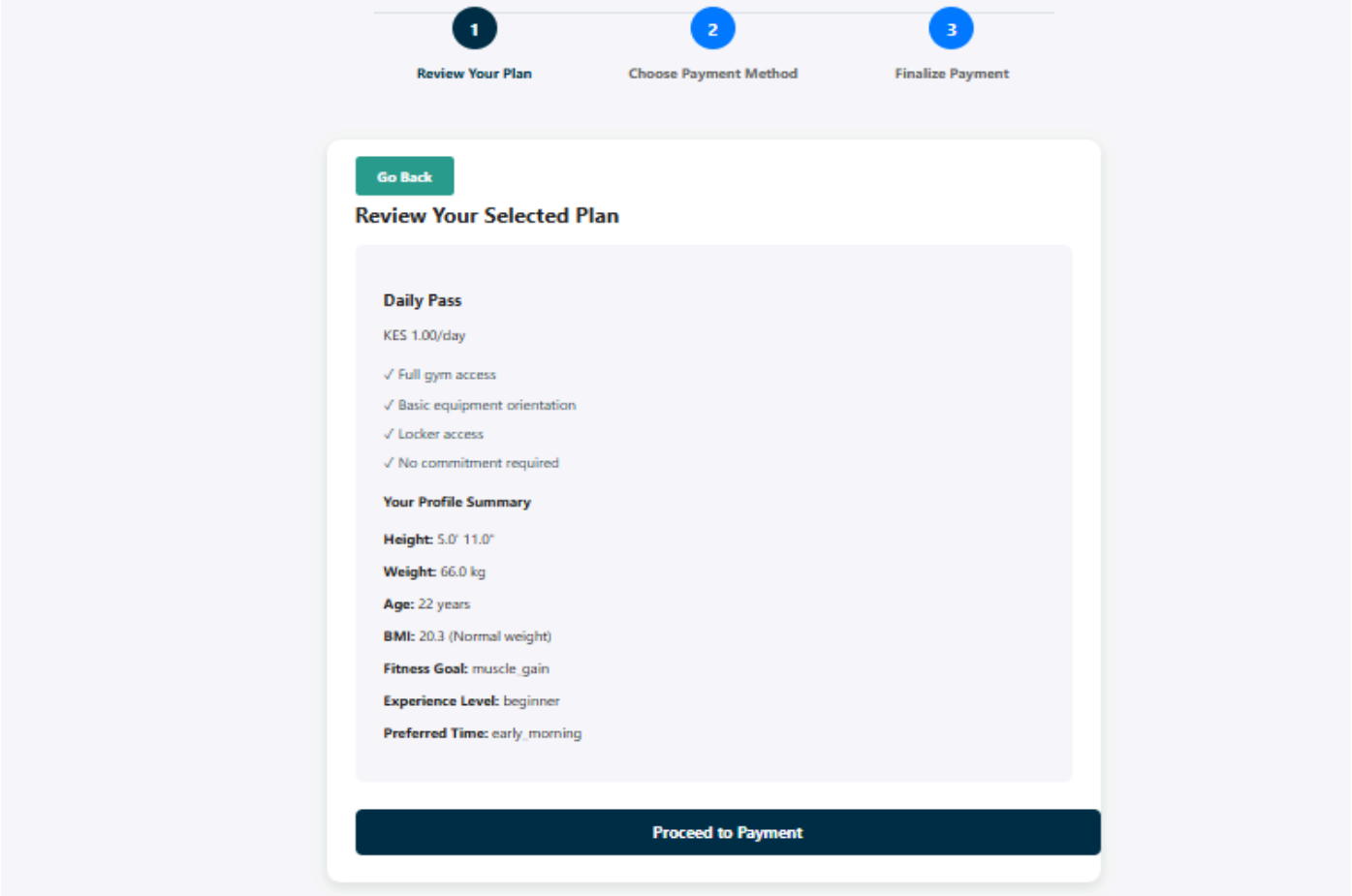

Flexible
Daily Pass
Perfect for occasional gym-goers
✓ Full gym access
✓ Basic equipment orientation
✓ Locker access
✓ No commitment required
KES 1.00/day
Get Day Pass
Basic Plan
Essential fitness package
✓ All Daily Pass features
✓ 2 group classes/month
✓ Basic fitness assessment
✓ Monthly progress tracking
KES 1,500.00/month
Choose Basic
Popular
Standard Plan
Enhanced fitness experience
✓ All Basic features
✓ Unlimited group classes
✓ Personalized workout plan
✓ Nutrition consultation
KES 2,500.00/month
Choose Standard
Premium Plan
Ultimate fitness transformation
✓ All Standard features
✓ Personal trainer (2x/week)
✓ Custom meal plans
✓ Recovery sessions
✓ Premium app features
KES 4,000.00/month
Choose Premium
Best Value
Annual Premium
Ultimate fitness transformation
✓ All Premium features
✓ 2 months free
✓ Priority booking
✓ Exclusive events access
✓ Free guest passes
KES 9,000.00/year
Choose Annual



Review page

After the user has selected what they want, they are directed to the review page with their profile summary, where they check to see if that was the desired plan and proceed to payment

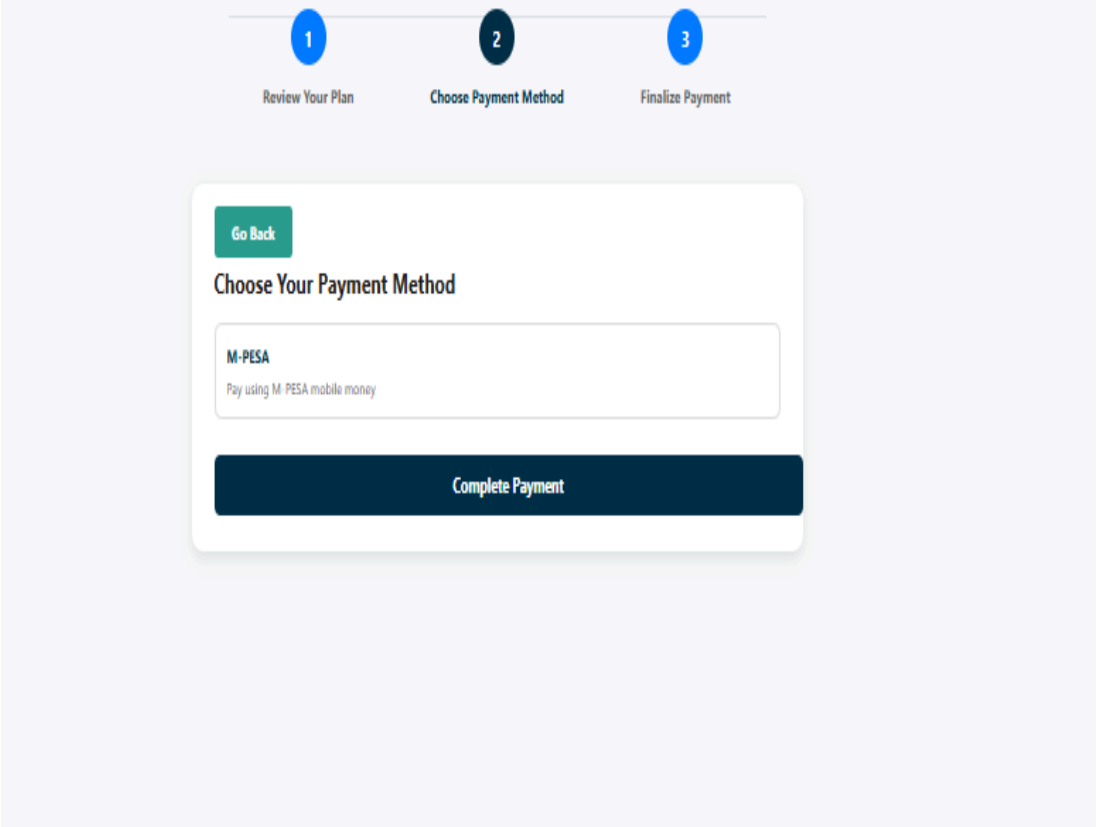
Figure 11 review payment page



Choosing payment method page

After proceeding to payment they choose the select mode of payment which in this case is the M-PESA integrated with the system.

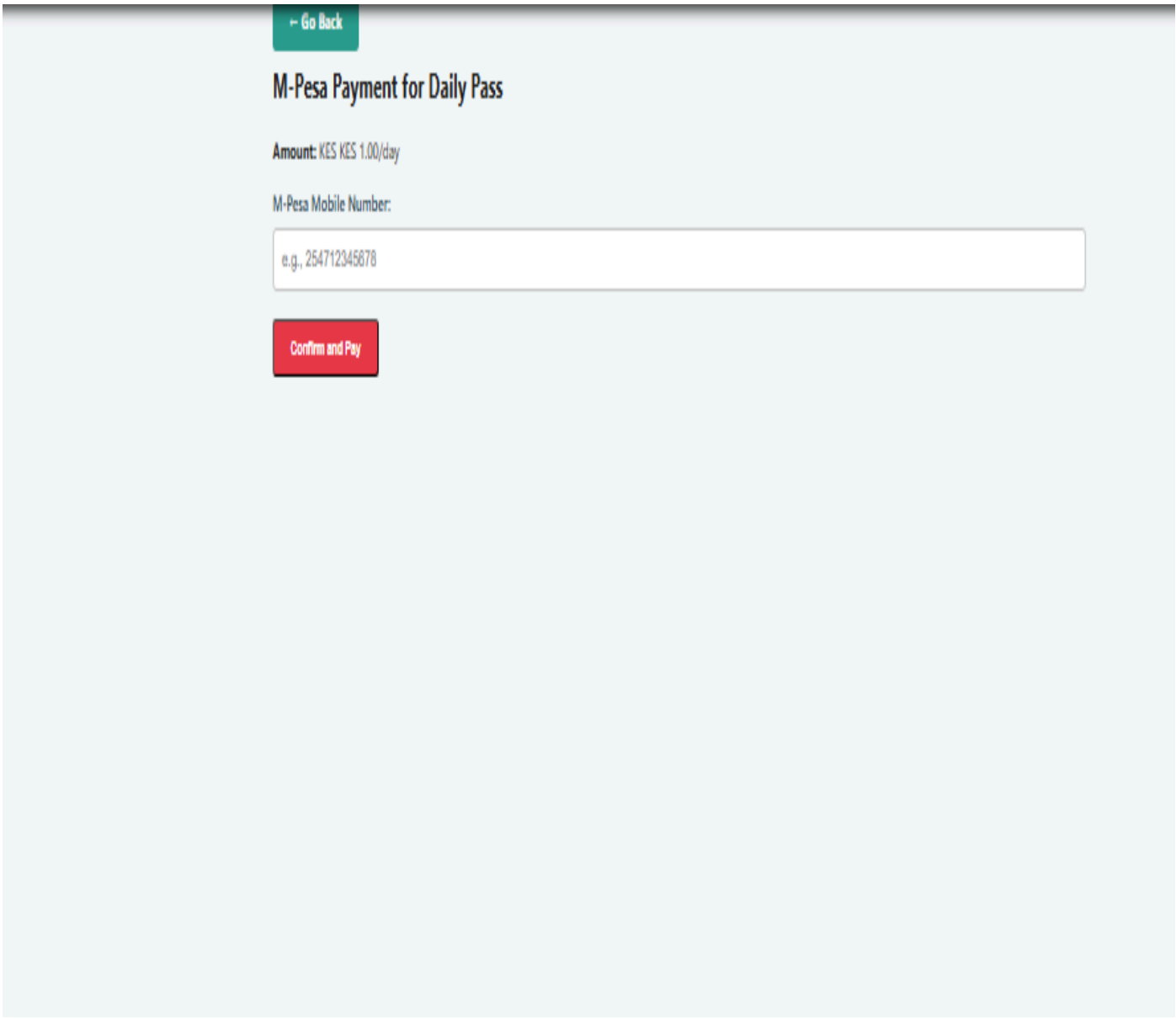
Figure 12 mode of transaction page



M-Pesa Number entry

Next, the user enters an M-pesa number to be used for the stk push payment.

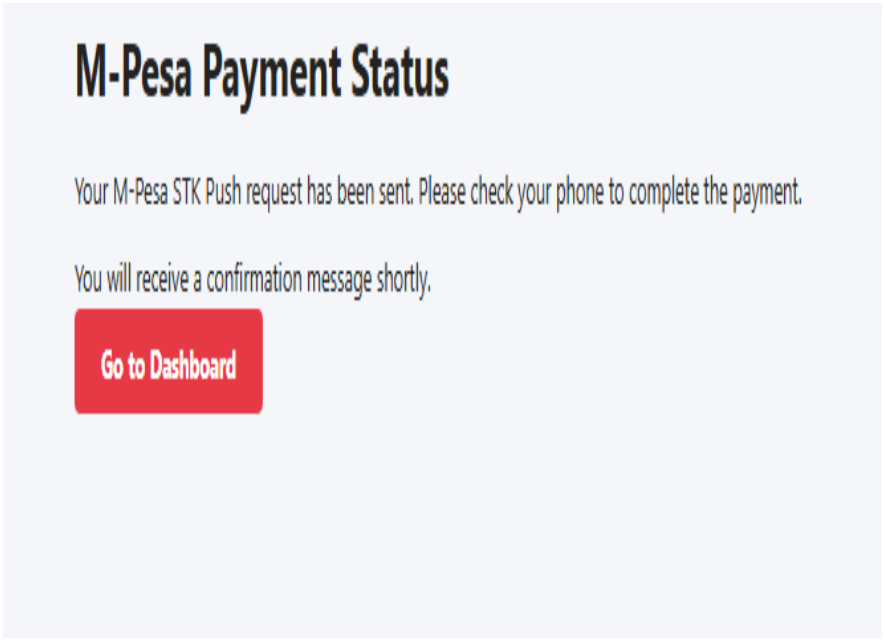
Figure 13 M-Pesa number confirmation

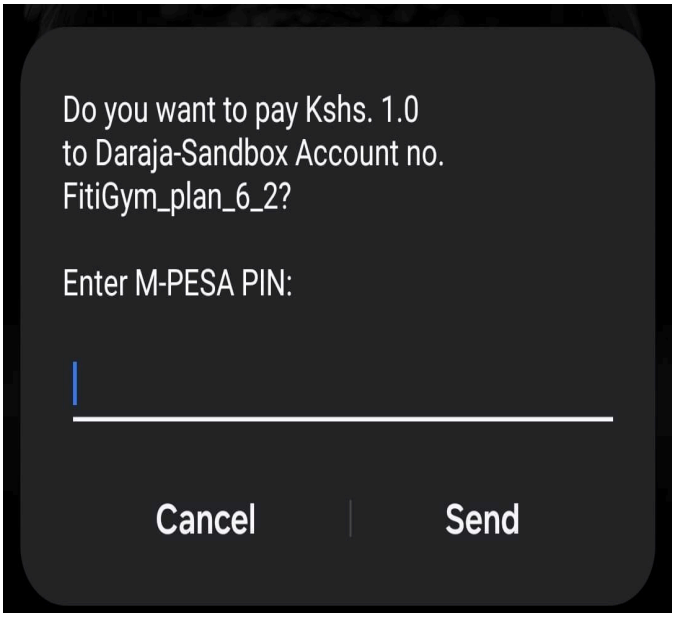


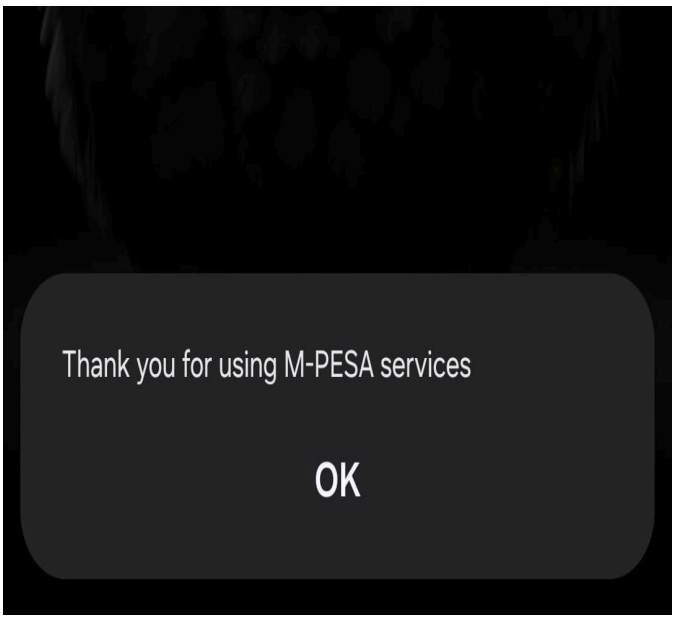
Stk push page

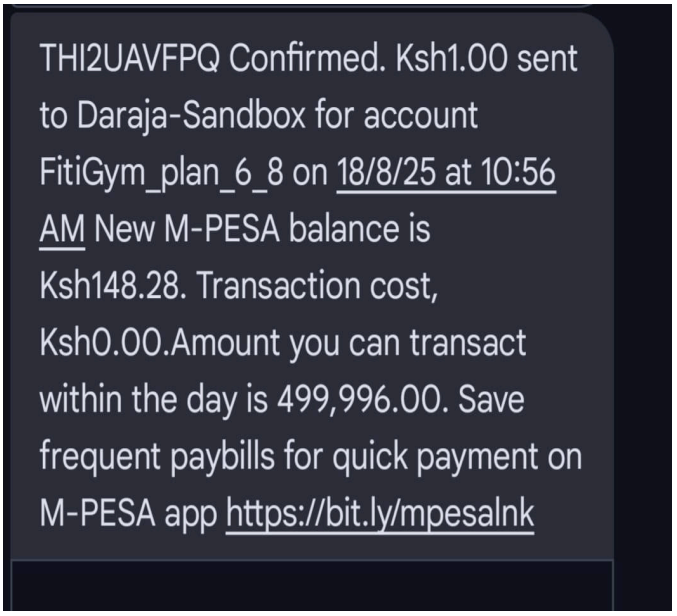
After successful stk initiation and payment is made, the member is given the option to go back to the member dashboard where the payment details are updated now. The member gets a confirmation message like the one below according to the payment made.

Figure 14 successful payment initiation page





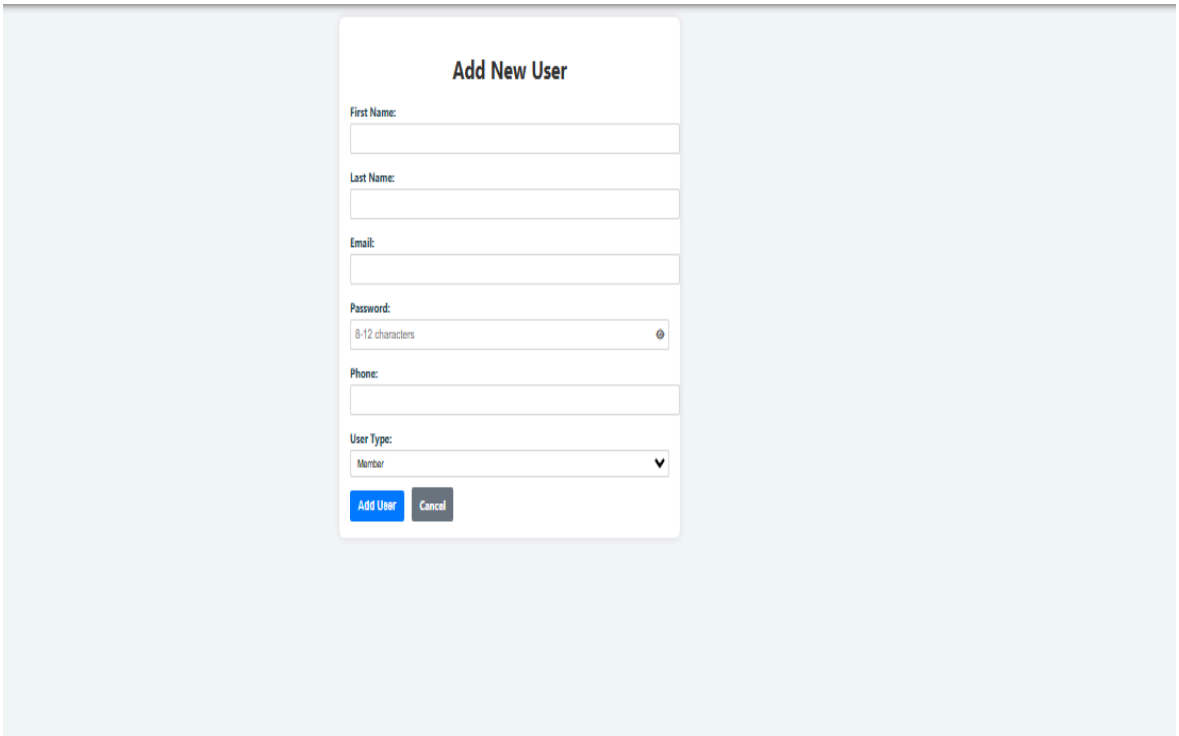


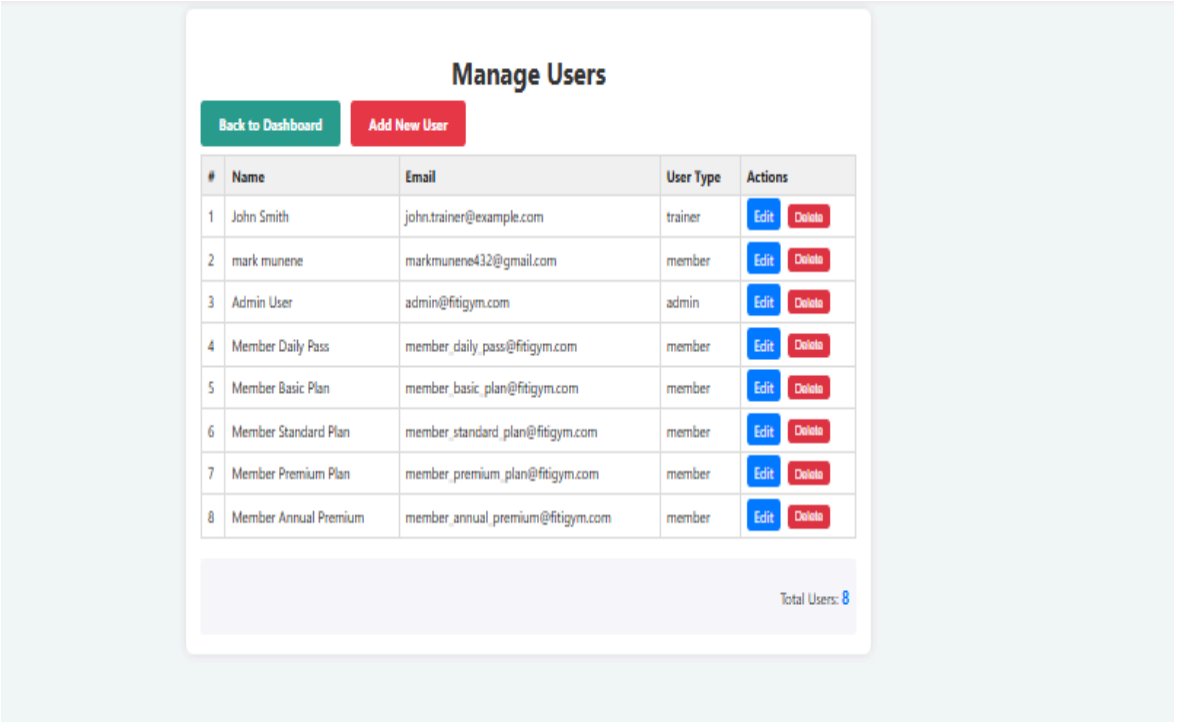


Add and edit user page

This allows the admin to add new users to the system.

Figure 15 Add and edit user page

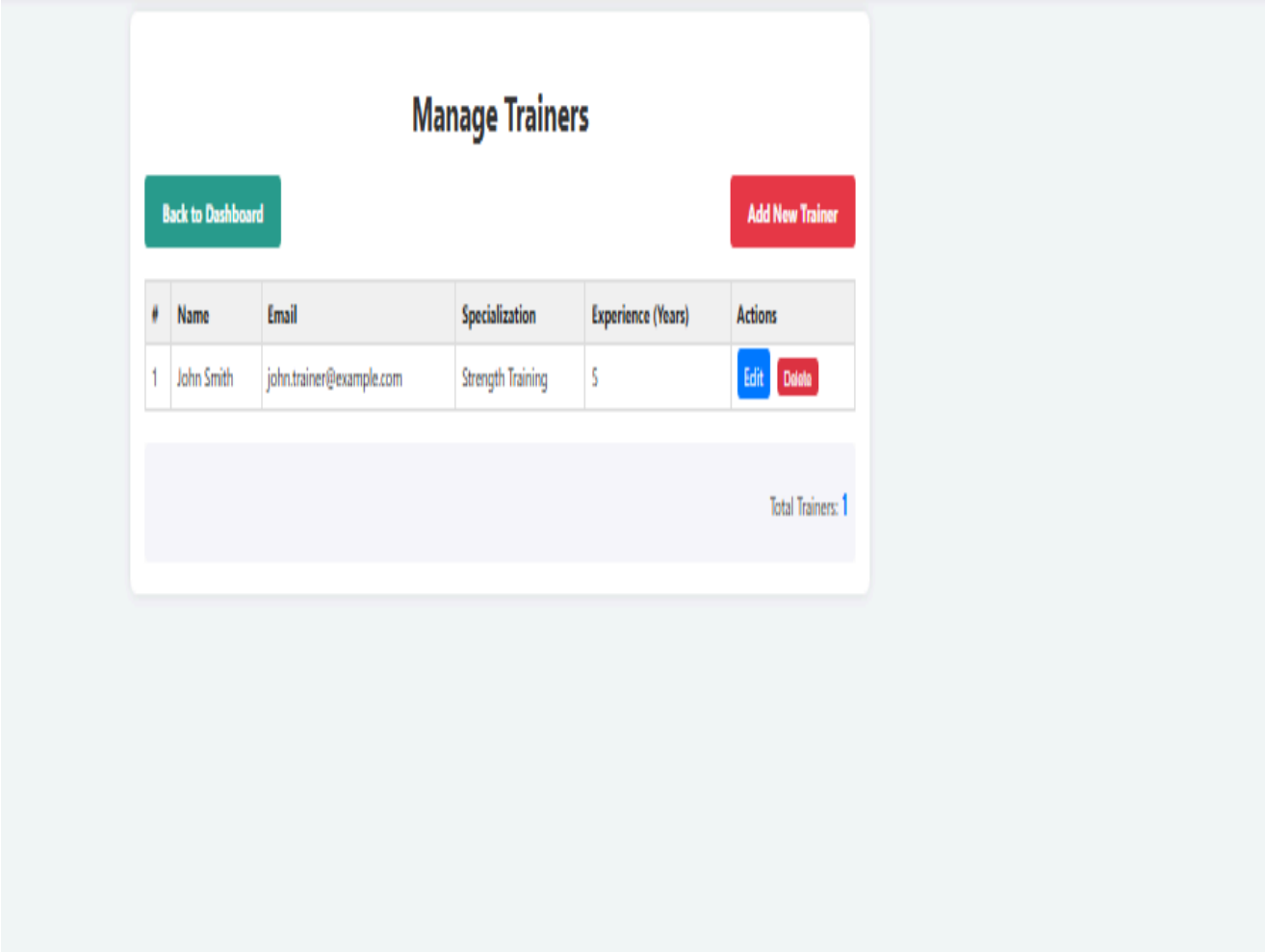




Add trainer and edit page

The administrator can add trainers and edit their info.

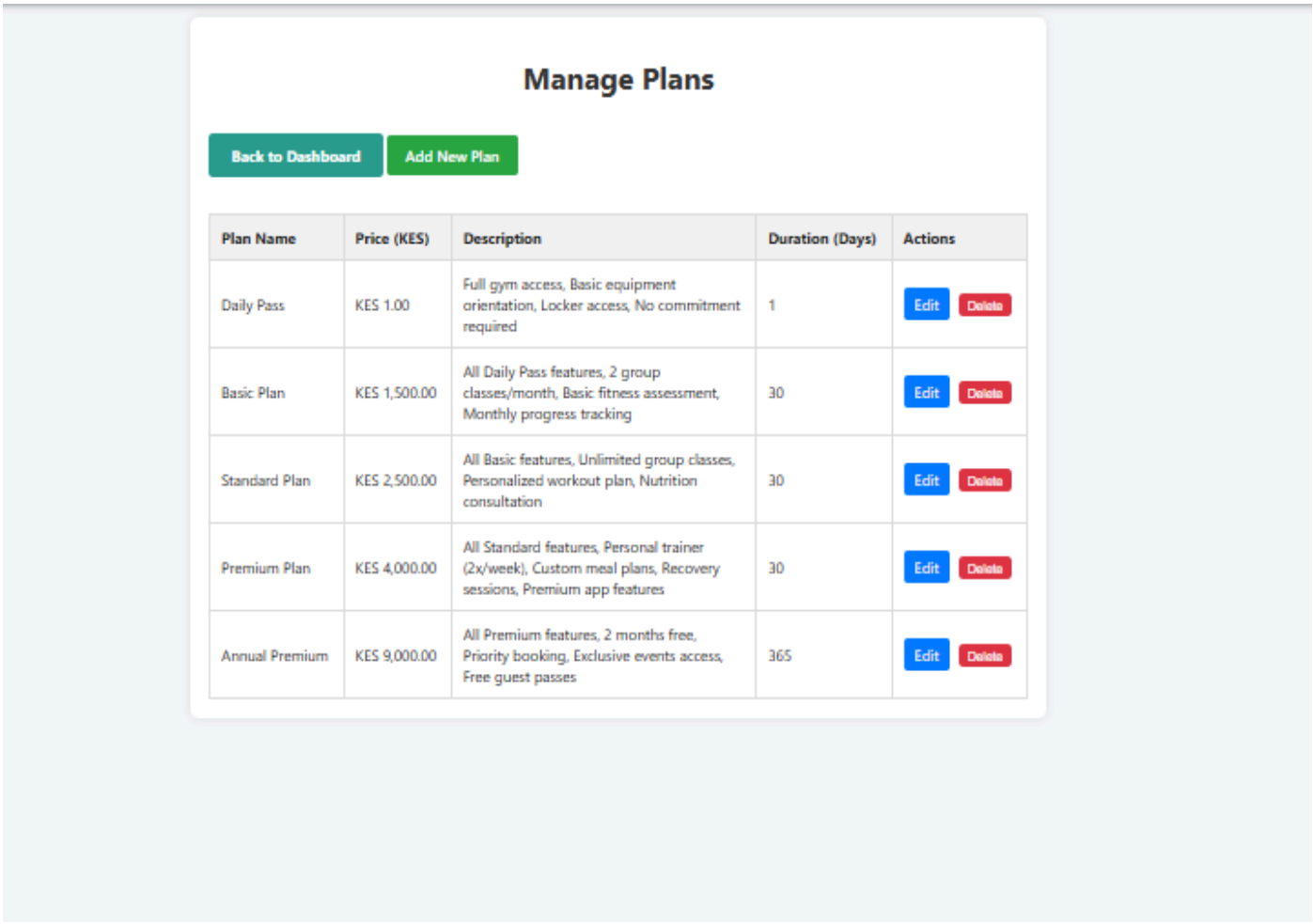
Figure 16 Add trainer page



Add plan page.

This allows the admin to add or drop obsolete plans from the entity.

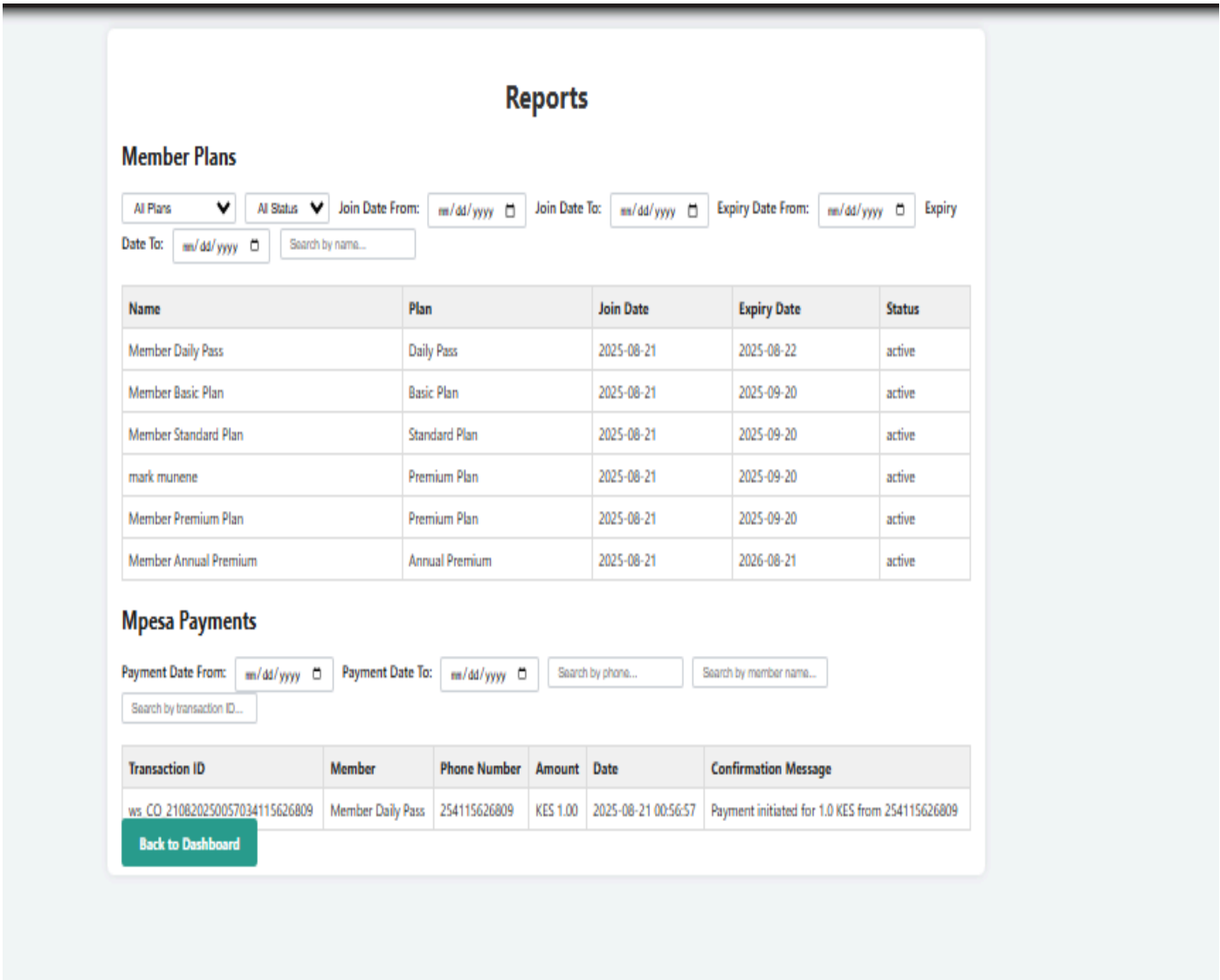
Figure 17 Add or drop plan page.



reports page

This is where the admin can view membership reports and financial history.

Figure 18 reports page



CHAPTER SEVEN LIMITATIONS AND RECOMMENDATIONS

7.1 Limitations

Although the FitiGym Management System addresses many of the challenges faced at **6-Ten Fitness Gym Juja**, certain limitations remain due to constraints in technology, resources, and time. Recognizing these limitations allows for strategic recommendations that will improve system performance and ensure long-term usability.

I. The system currently integrates only with **M-Pesa**. Members without M-Pesa accounts must rely on cash payments, which are recorded manually by administrators.

II. The system is web-based and mobile-responsive, but there is no dedicated Android/iOS application. This limits accessibility for users who prefer mobile apps

III. While the system generates reports on attendance, payments, and active memberships, it lacks advanced analytics such as predictive attendance trends or trainer performance comparisons.

IV. The system currently integrates only with **M-Pesa**. Members without M-Pesa accounts must rely on cash payments, which are recorded manually by administrators.

V. The system is web-based and mobile-responsive, but there is no dedicated Android/iOS application. This limits accessibility for users who prefer mobile apps

VI. While the system generates reports on attendance, payments, and active memberships, it lacks advanced analytics such as predictive attendance trends or trainer performance comparisons.

7.2 Recommendations

- **Expand Payment Integration:** Integrate additional payment platforms such as Airtel Money, bank cards, and PayPal to provide flexibility for members.
- **Develop a Mobile Application:** Build a lightweight Android/iOS mobile app for easier access, push notifications, and offline check-in capabilities.
- **Enhance Reporting and Analytics:** Incorporate advanced analytics dashboards with data visualization (attendance heatmaps, revenue forecasting, churn analysis).

7.3 Conclusions

The FitiGym Management System has significantly improved operations at 6-Ten Fitness Gym Juja, but it is not without limitations. By implementing the recommended improvements, the system can evolve into a more robust, scalable, and user-friendly solution capable of serving not only small gyms but also larger fitness centers in Kenya and beyond.

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