**Final Project Report**

**<<**Fitness Club Website/Membership Management System**>>**



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**CERTIFICATE**

This is to certify that <<Hassan khan>> (<<BC190402690>>) have worked on and completed their Software Project at Software & Research Projects Section, Department of Computer Sciences, Virtual University of Pakistan in partial fulfillment of the requirement for the degree of BS in Computer Sciences under my guidance and supervision.

In our opinion, it is satisfactory and up to the mark and therefore fulfills the requirements of BS in Computer Sciences.

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\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**External Examiner/Subject Specialist**

<<External Supervisor Name>>

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Signature)

**Accepted By:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_**

(For office use)

**EXORDIUM**

**In the name of Allah, the Compassionate, the Merciful.**

**Praise be to Allah, Lord of Creation,**

**The Compassionate, the Merciful,**

**King of Judgment-day!**

**You alone we worship, and to You alone we pray for help,**

**Guide us to the straight path**

**The path of those who You have favored,**

**Not of those who have incurred Your wrath,**

**Nor of those who have gone astray.**

**DEDICATION**

I dedicate this project to my **parents**, **whose unwavering support and encouragement** have been the keystone of my academic journey. Their belief in my skills has been a constant source of motivation, guiding me through challenges and milestones.

**ACKNOWLEDGEMENT**

I give my heartfelt thankfulness to my supervisor, **Mr. Abdullah Qamar,** whose guidance and invaluable insights significantly funded to the success of this project. His mentorship and constructive feedback have been instrumental in shaping my understanding and approach towards developing this **Fitness Club Website/Membership Management System.**

I would also like to express my gratitude to the faculty members at the **Virtual University of Pakistan** for their dedication to imparting knowledge and development an environment of learning.

Furthermore, I am immensely thankful to my friends and peers whose encouragement and teamwork added depth and viewpoint to this endeavor.

**PREFACE**

The **Fitness Club Website/Membership Management System** presented in this report represents the culmination of extensive research, meticulous planning, and dedicated implementation. This project was conceived with the aim of addressing the evolving needs of fitness clubs and enhancing the overall experience for club members.

Through this system, my endeavor was to combine technological innovation with the complicated requirements of fitness club management. This preface serves as an introductory note, setting the stage for the detailed exploration and documentation of the system's functionalities, tools employed, and the underlying methodology adopted in its development.

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**CHAPTER 1**

Gathering & Analyzing Info

1) gathering & Analyzing info

**1.1) Introduction:**

The initial phase of the project involved a comprehensive exploration of the existing challenges faced by **fitness clubs in membership management**. It aimed to identify inefficiencies in membership processes, attendance tracking, and member engagement, leading to the conceptualization of a system that addresses these pain points.

**1.2) Purpose:**

The purpose was to develop a **Fitness Club Membership Management System** that streamlines membership sign-ups, renewals, and enhances member experience through personalized dashboards, attendance tracking, and progress monitoring tools.

**1.3) Scope:**

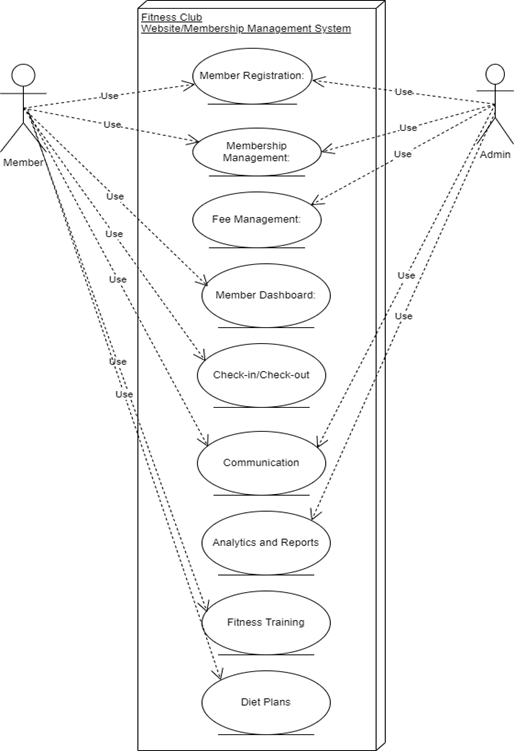
The scope encompassed the functionalities essential for effective club management, including membership sign-up, fee management, personalized member dashboards, integration QR code systems, analytics for member engagement, communication tools, automated notifications, fitness training routines, and personalized diet plans.

**1.4) Definitions, Acronyms, and Abbreviations:**

Throughout the project, various terms, acronyms, and abbreviations were defined to ensure a shared understanding among project stakeholders. These definitions helped in clarity and precision during discussions and documentation.

**1.5) Use Cases and Usage Scenarios:**

**1.5.1 Use Case Diagram**



**1.5.2 Usage Scenarios**

**Use Case: Member Registration (UC001)**

| Use Case Title | Member Registration (UC001) |
| --- | --- |
| Actions | 1. New Member signs up for membership online. |
| Description | A new member provides required details and selects a membership level and pay for it to after the online sign-up process. After successful payment member redirect to their dashboard |
| Alternative Paths | - New Member signs up through the registration page |
| Pre-conditions | - The system allows new member registration. |
| Post-conditions | The new member's account is created |
| Author | Member |
| Exceptions | - Invalid or incomplete information provided during sign-up.  - Administrator rejects the registration due to insufficient information or eligibility issues. |

**Use Case: Membership Management (UC002)**

| Use Case Title | **Membership Management (UC002)** |
| --- | --- |
| Actions | 1. Member renew their membership by selecting new plan directly. |
| Description | A member initiates the membership renewal process, either online.  Member see their Account details Admin also can see all the details of member memberships |
| Alternative Paths | None |
| Pre-conditions | - The member's account is active  - The member's account is active and the membership change is valid. |
| Post-conditions | - The member's membership is renewed and the account is updated accordingly. |
| Author | -Member, Admin |
| Exceptions | - Member decides not to renew their membership |

**Use Case: Fee Management (UC003)**

| Use Case Title | **Fee Management (UC003)** |
| --- | --- |
| Actions | 1. Administrator sets membership fees and discounts.  2. Member pays the membership fee. |
| Description | An administrator defines the membership fees for different levels and configures any available discounts or payment options. A member selects a payment method and submits the membership fee either online or at the gym's front desk. |
| Alternative Paths | None |
| Pre-conditions | - The administrator has the necessary privileges to manage membership fees.  - The member has an active account and the membership fee has not been paid. |
| Post-conditions | - The membership fees and discounts are configured in the system.  - The member's payment is recorded, and their account reflects the updated payment status. |
| Author | admin |
| Exceptions | - Administrator applies incorrect fees or discounts.  - Member encounters an issue during the payment process. |

**Use Case: Member Dashboard (UC004)**

| Use Case Title | **Member Dashboard (UC004)** |
| --- | --- |
| Actions | 1. Member logs in to their account.  2. Member views account details and updates information. |
| Description | A member enters their login credentials to access their personalized dashboard. After logging in, a member can view their account details, update personal information, and make necessary changes to their profile. |
| Alternative Paths | None |
| Pre-conditions | - The member has a registered account.  - The member enters the correct login credentials. |
| Post-conditions | - The member is successfully logged into their account and can view/update their information. |
| Author | Member |
| Exceptions | - Member enters incorrect login credentials.  - Member encounters an error while updating their information. |

**Use Case: Check-in/Check-out (UC005)**

| Use Case Title | **Check-in/Check-out (UC005)** |
| --- | --- |
| Actions | 1. Member checks in at the gym.  2. Member checks out from the gym. |
| Description | A member uses their QR code to check-in upon arriving at the gym and check-out when leaving. The system records the member's check-in and check-out times and provides access to the gym facilities accordingly. |
| Alternative Paths | - Member upload image of QR code |
| Pre-conditions | - The member has an active account and is physically present at the gym  The member has an active account and has previously checked in. |
| Post-conditions | - The member's check-in/check-out time is recorded, and they gain/lose access to the gym facilities. |
| Author | member |
| Exceptions | - Member encounters issues with the check-out process  Member loses their QR code |

**Use Case: Analytics and Reports (UC007)**

| Use Case Title | **Analytics and Reports (UC007)** |
| --- | --- |
| Actions | 1. Administrator generates analytics.  2. Administrator generates reports. |
| Description | An administrator can see charts analytics and reports to track member engagement, retention, and other key metrics. The analytics provide insights for decision-making and improving services, while the reports summarize the club's performance, member attendance, and other relevant information.  Member can also see their Attendance report |
| Alternative Paths | None |
| Pre-conditions | - The administrator has the necessary privileges to generate analytics and reports. |
| Post-conditions | - Analytics and reports are generated based on the selected parameters and displayed for analysis. |
| Author | Admin, member |
| Exceptions | - Administrator encounters issues while see analytics and reports. |

**Use Case: Fitness Training (UC008)**

| Use Case Title | **Fitness Training (UC008)** |
| --- | --- |
| Actions | 1. Member views personalized fitness training routines.  2. Member tracks workout progress. |
| Description | A member can access their personalized dashboard to view fitness training routines recommended based on their fitness goals and abilities. They can track their workout progress, record sets and repetitions, and monitor their overall performance. |
| Alternative Paths | None |
| Pre-conditions | - The member has an active account and is logged in.  - The member's fitness goals and abilities are recorded in the system. |
| Post-conditions | - The member can view and follow the recommended fitness training routines.  - The member can track and record their workout progress. |
| Author | Admin, member |
| Exceptions | - Member encounters issues while viewing fitness training routines or tracking workout progress. |

**Use Case: Customer Diet Plans (UC009)**

| Use Case Title | **Customer Diet Plans (UC009)** |
| --- | --- |
| Actions | 1. Member views personalized diet plans. |
| Description | A member can access their personalized dashboard to view diet plans tailored to their fitness goals and dietary preferences. The system provides diet plans that align with the member's goals and take into account their dietary restrictions or preferences. |
| Alternative Paths | None |
| Pre-conditions | - The member has an active account and is logged in.  - The member's fitness goals and dietary preferences are recorded in the system. |
| Post-conditions | - The member can view and follow the recommended diet plans.  - The member can make necessary adjustments to accommodate their preferences or restrictions. |
| Author | Member |
| Exceptions | - Member experiences issues while viewing the diet plans or encounters errors. |

**1.6) Supplementary Requirements:**

### 1.6.1 Usability

Usability requirements were gathered to ensure an intuitive and user-friendly interface for both members and administrative users. This included easy navigation, clear information display, and efficient interaction flows

### 1.6.2 Reliability

Reliability standards were established to ensure system stability, consistent performance, and data accuracy. Measures were taken to minimize system downtime and ensure the secure handling of member data.

### 1.6.3 Supportability

Supportability aspects were considered for system maintenance and updates. Strategies were devised to provide ongoing support, address potential issues, and incorporate future enhancements.

### 1.6.4 System Requirements

The system requirements were collated, encompassing the technological stack needed for development, including backend tools (PHP Laravel 9, MySQL), front-end technologies (React), database structure, IDE (Visual Studio Code), and communication protocols (SMTP and Trello for SMS).

**CHAPTER 2**

Planning the Project

2 planning the project

## 2.1 Introduction:

The project planning phase served as a crucial foundation for the systematic development of the **Fitness Club Website/Membership Management System**. This chapter delineates the methodologies, strategies, and structural framework established for project execution.

## 2.2 Methodology:

Various methodologies were evaluated to determine the most suitable approach for the project's execution. These methodologies encompassed agile, waterfall, and hybrid models, each offering distinct advantages and drawbacks.

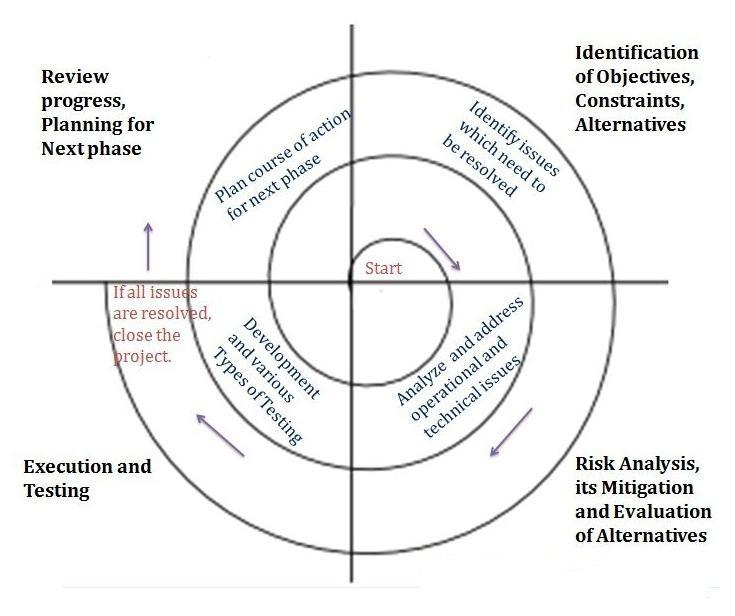
## 2.3 Available Methodologies:

An exploration of available methodologies involved an in-depth analysis of agile methodologies, Spiral methodologies, risk management, emphasizing iterative development, flexibility, and responsiveness to changes. The waterfall model's structured approach and the hybrid models amalgamation of agile and waterfall principles were also considered.

## 2.4 Chosen Methodology:

The adopted methodology for the project is the VU Process Model, which is a combination of the waterfall and spiral models. The VU Process Model is an iterative and incremental approach that incorporates the strengths of both waterfall and spiral models to effectively manage software development projects. It aims to provide a structured and systematic approach while allowing flexibility for iterations and risk management.

Diagram



## 2.5 Reasons for Chosen Methodology:

The VU Process Model combines the sequential and structured approach of the waterfall model with the iterative and risk-driven approach of the spiral model. It allows for a systematic progression through project phases while accommodating iterations, risk assessment, and mitigation. The model promotes stakeholder involvement, clear documentation, and effective communication throughout the project lifecycle.

By adopting the VU Process Model, the project team can ensure a well-defined development process, manage risks effectively, and deliver a high-quality software solution that meets the specified requirements.

## 2.6 Work Plan:

A comprehensive work plan was devised, outlining the project's phases, tasks, timelines, and resource allocation. This plan facilitated a structured approach to development, ensuring systematic progression and efficient utilization of resources.

## 2.7 Project Structure:

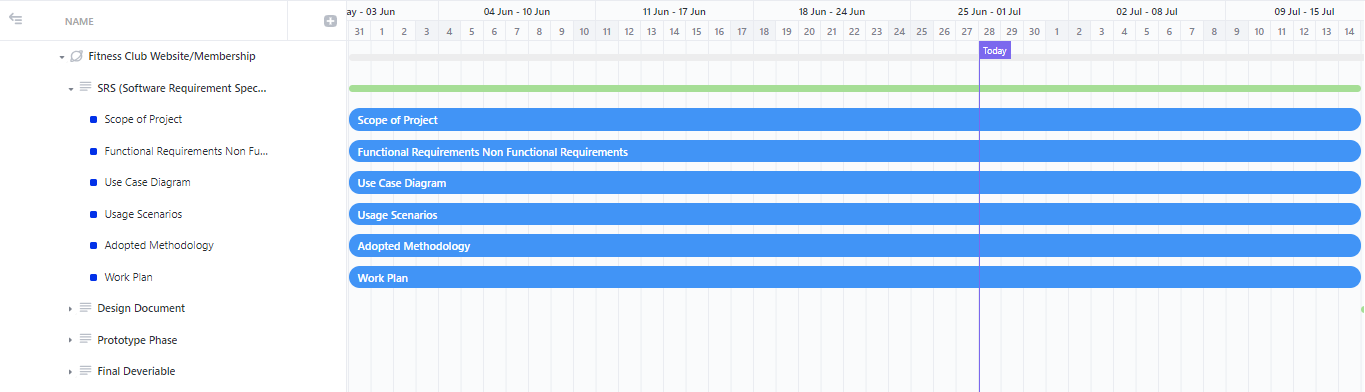
### 2.7.1 Team Structure:

The project team structure was established, delineating roles, responsibilities, and skill sets required for successful system development. This included developers, designers, database administrators, and quality assurance personnel.

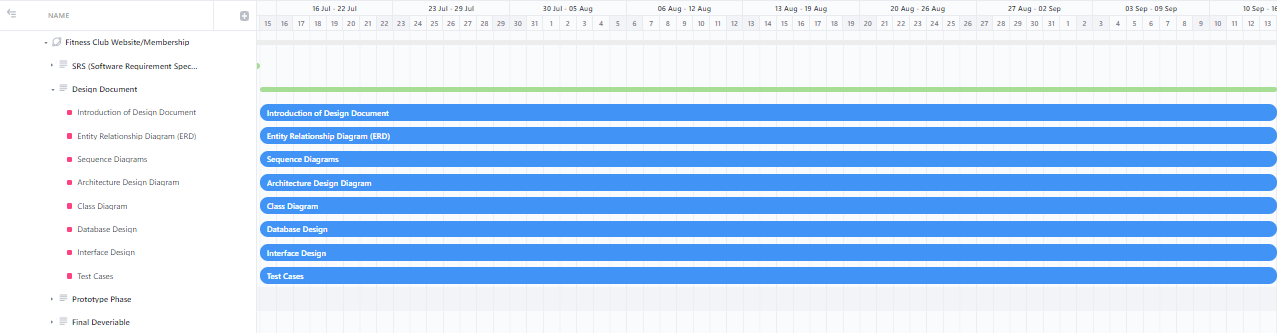
### Project Schedule (Submission Calendar):

A detailed project schedule, represented in a submission calendar, depicted milestones, deliverables, and submission deadlines for each phase of the project. This schedule ensured adherence to timelines and guided the project's progression.

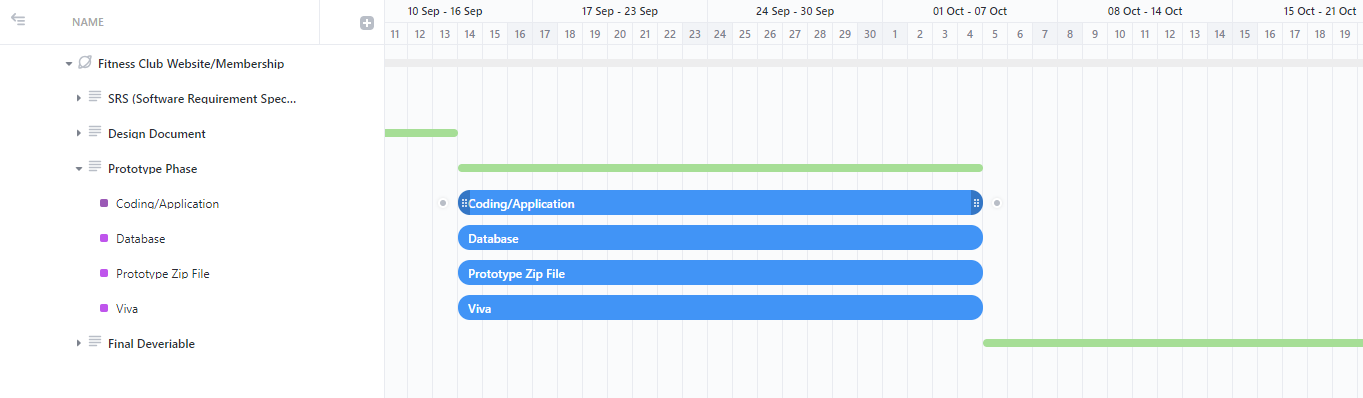
Screen Short for SRS



Screen Short for Design Phase



Screen Shot for Prototype Phase



Screen Shoot for final Deliverable



**CHAPTER 3**

Designing the Project

3 designing the project

## 3.1 Introduction:

The design phase initiated with a focus on conceptualizing a robust and user-centric **Fitness Club Website/Membership Management System**. This phase aimed to lay the foundation for an intuitive, efficient, and comprehensive platform.

## 3.2 Purpose:

The primary goal was to craft a system design that streamlines membership management, attendance tracking, and member engagement while ensuring scalability and adaptability to evolving club needs.

## 3.3 Scope:

Design considerations encompassed the architectural framework, user interface design, and database structure tailored to the specific requirements of fitness club operations and member interactions.

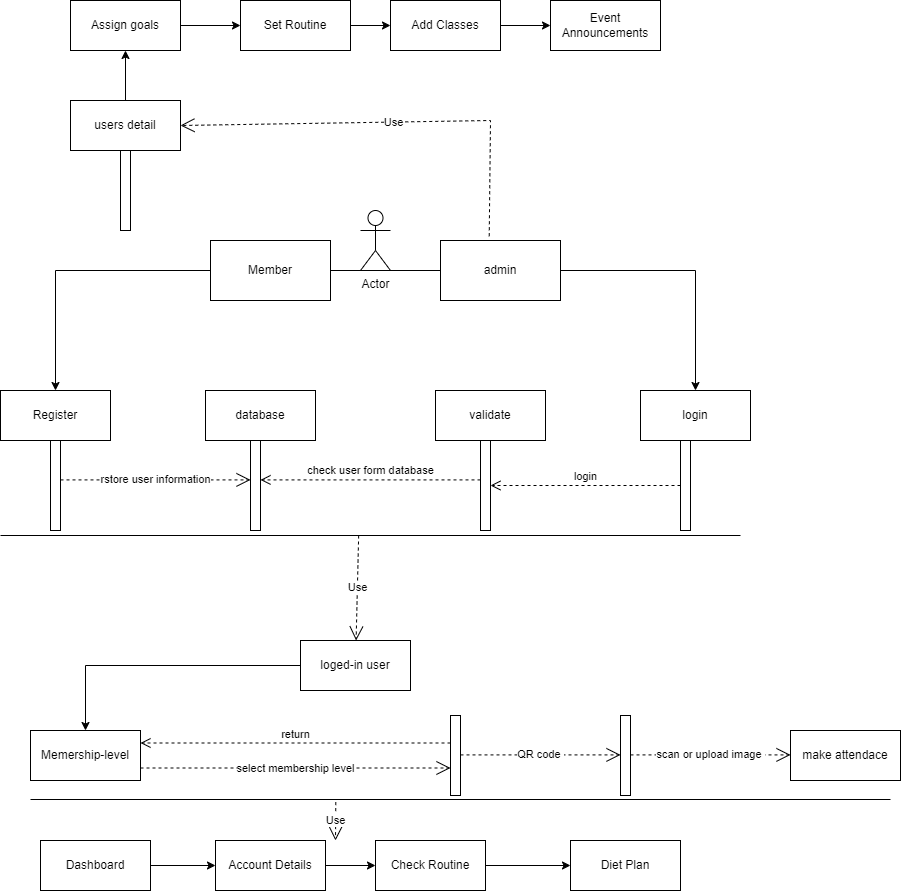
## 3.4 Definitions, Acronyms, and Abbreviations:

Comprehensive documentation of technical terms, acronyms, and abbreviations specific to the design phase was created to facilitate clarity and coherence during discussions and documentation.

## 3.5 Dynamic Model: Sequence Diagrams:

Sequence diagrams were developed to depict the dynamic interactions between system components, showcasing scenarios such as member sign-ups, fee management, and attendance tracking processes.

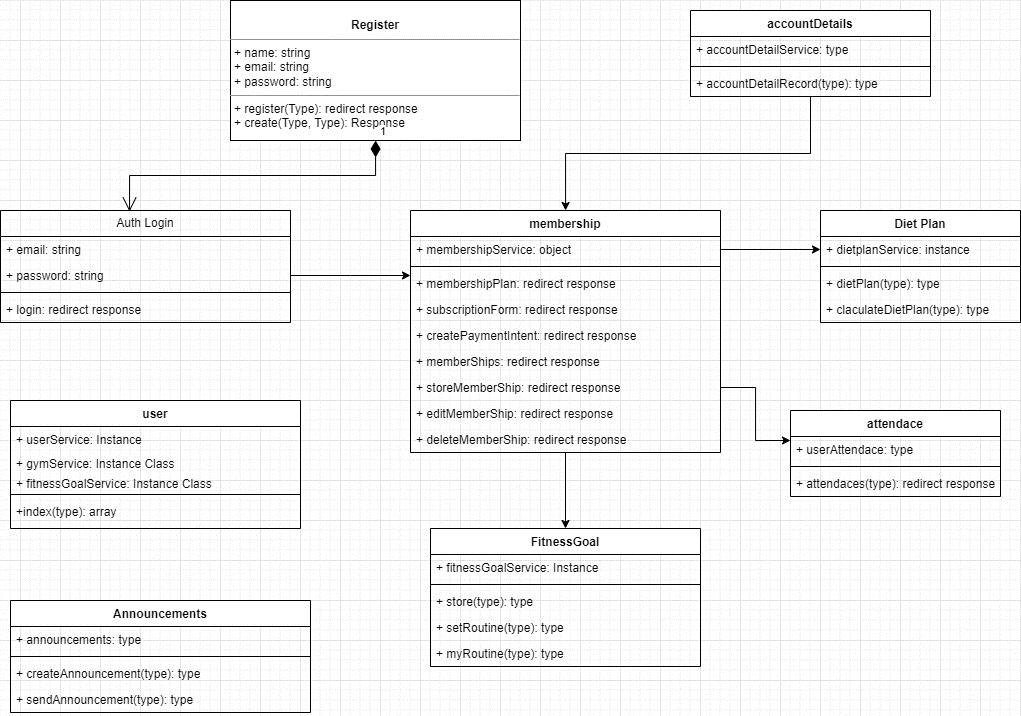
Diagram



## 3.6 Object Model/Logical Model: Class Diagram:

The class diagram delineated the system's object-oriented structure, illustrating the classes, attributes, and relationships among system entities, facilitating a comprehensive understanding of the system's architecture.

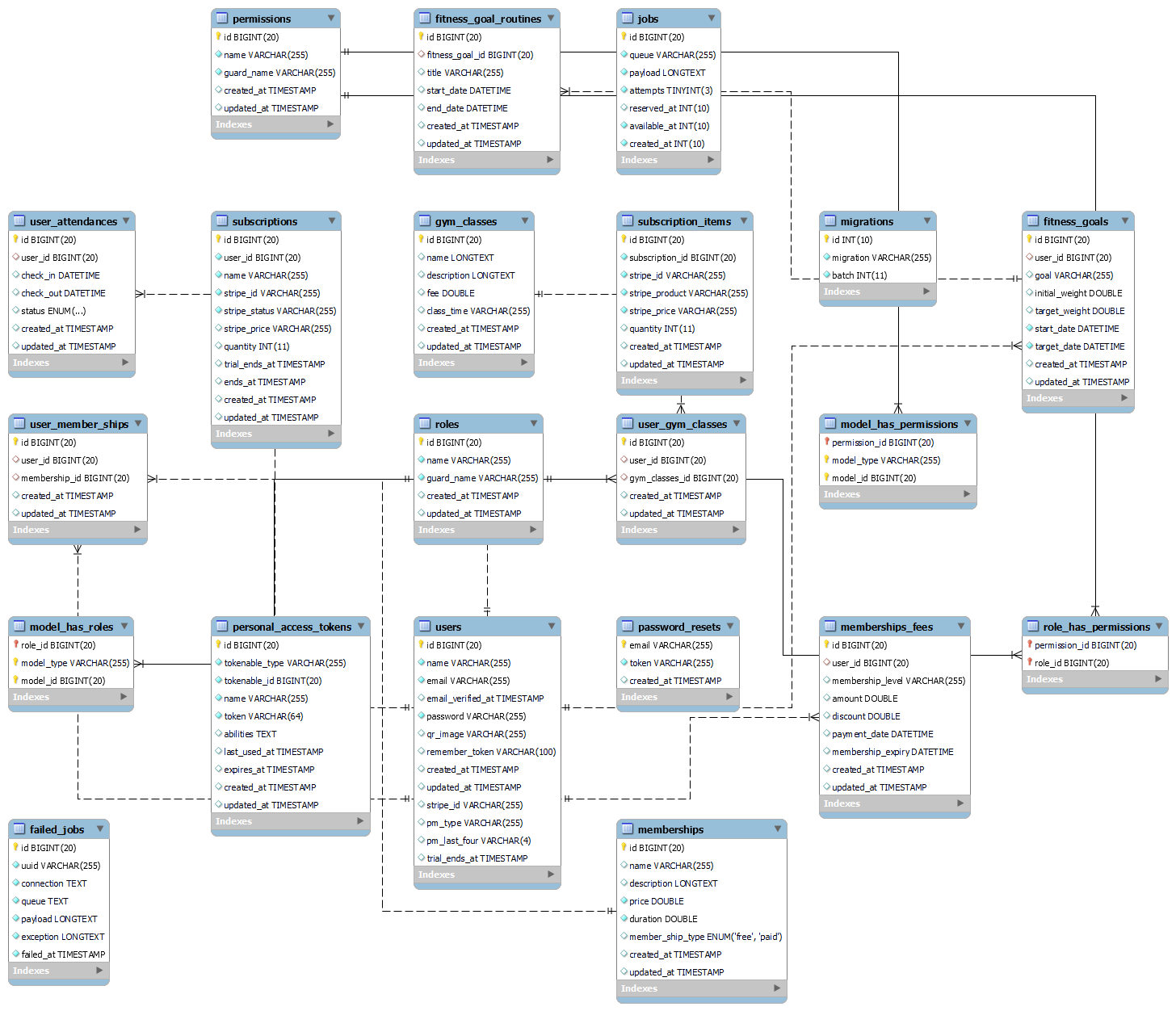
**Diagram:**



## 3.7 Database Model (Database Diagram):

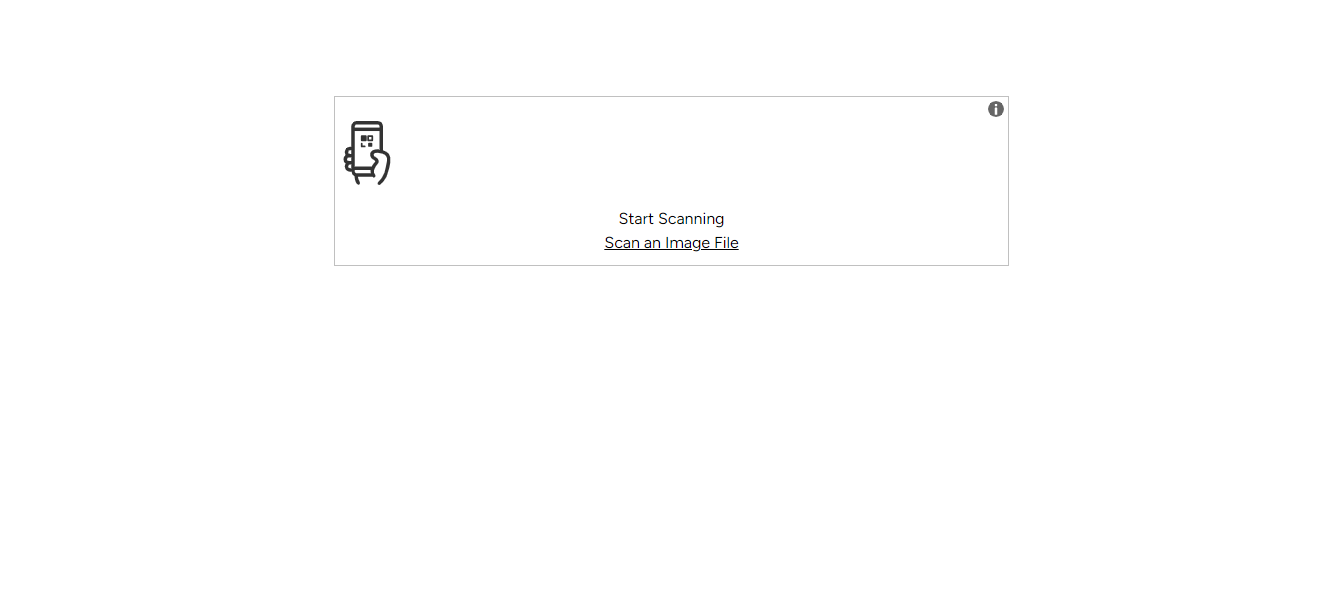
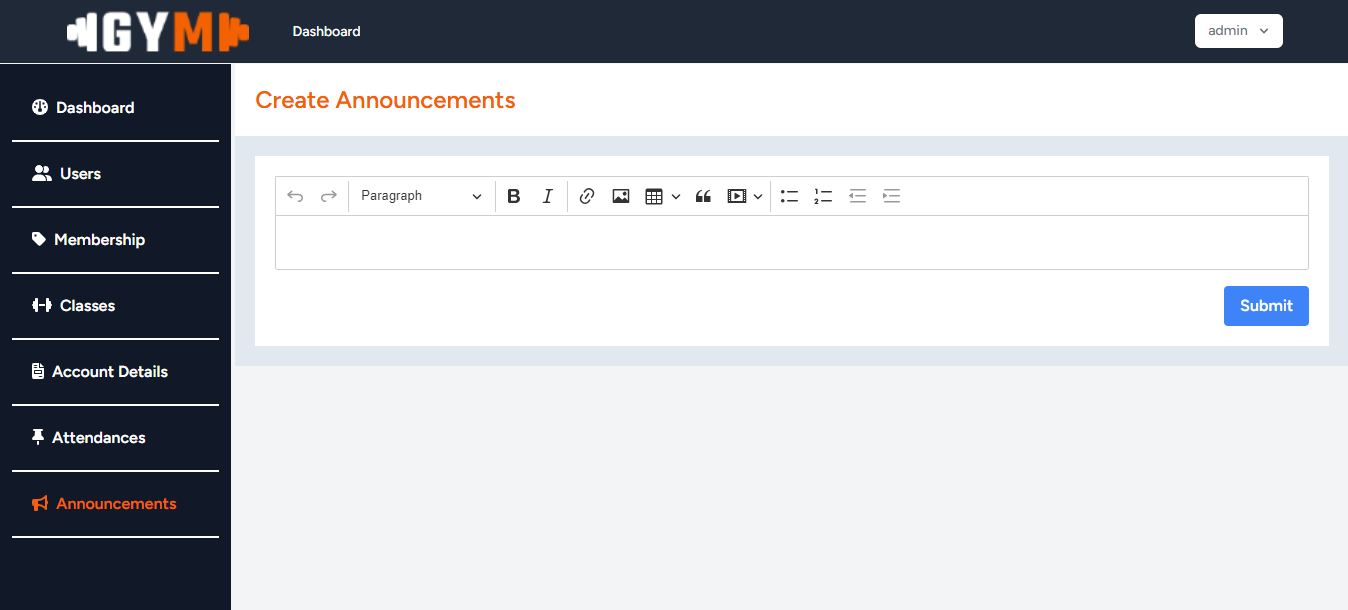
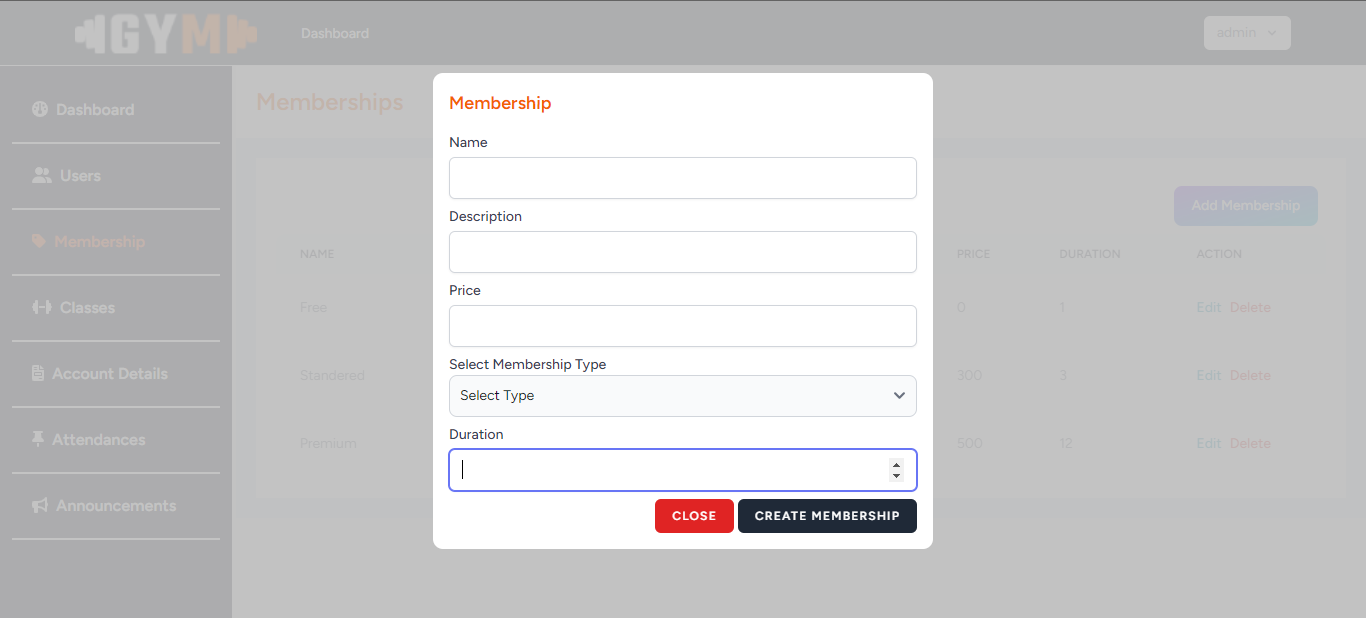
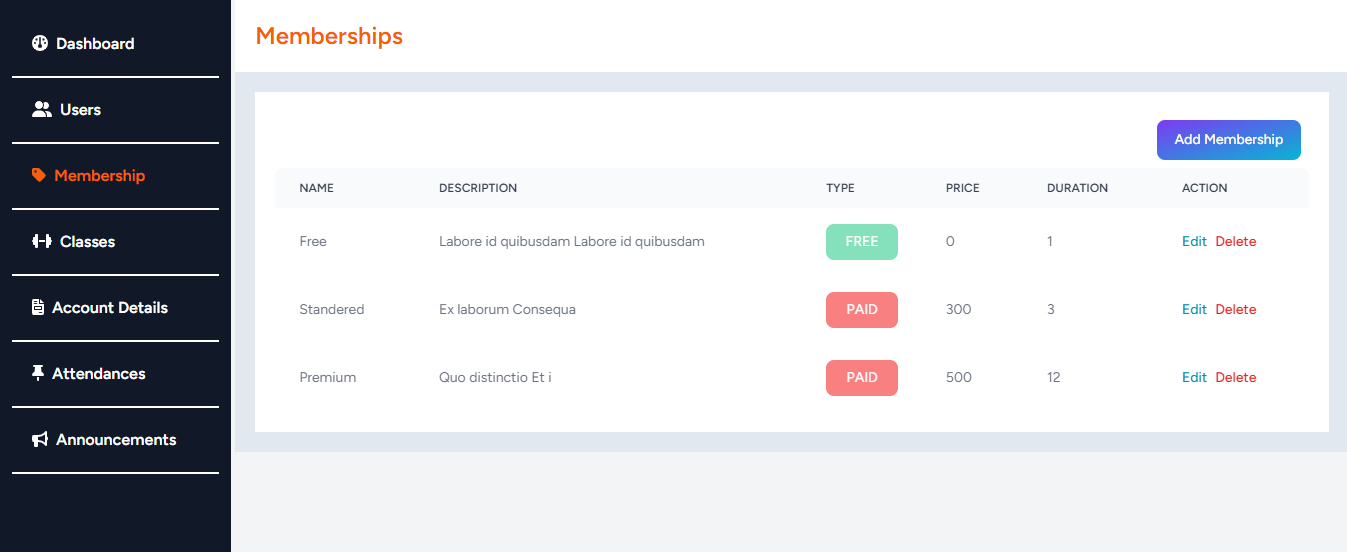
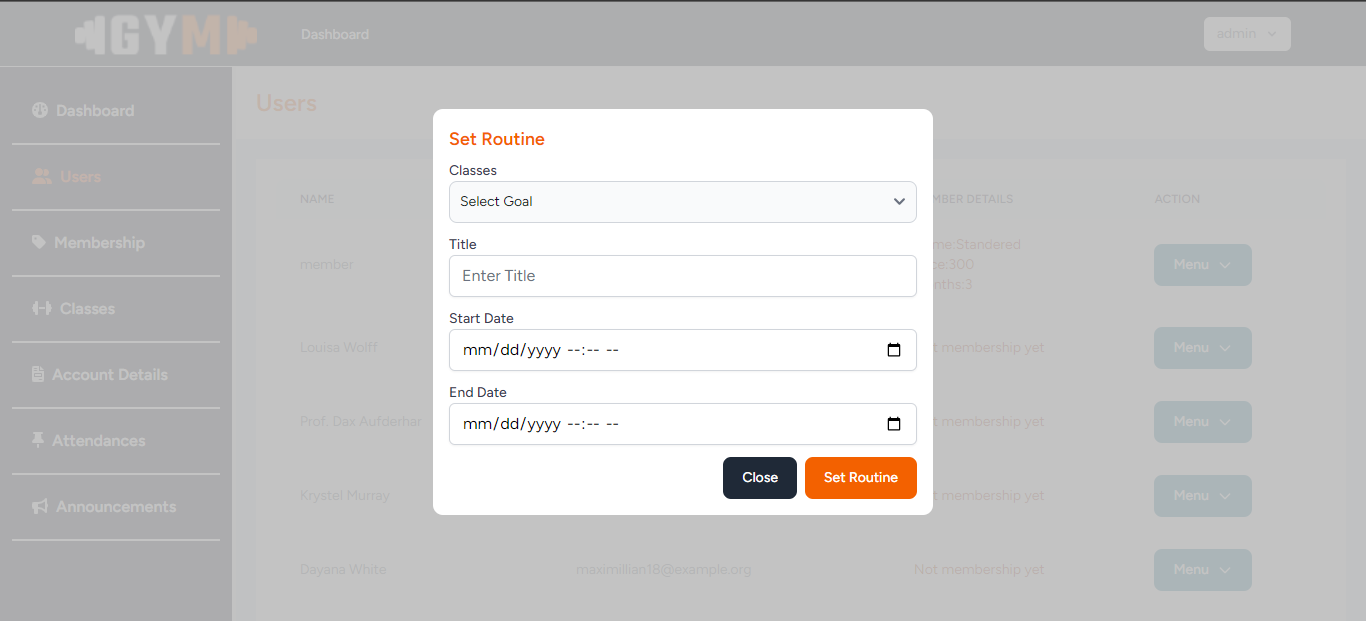
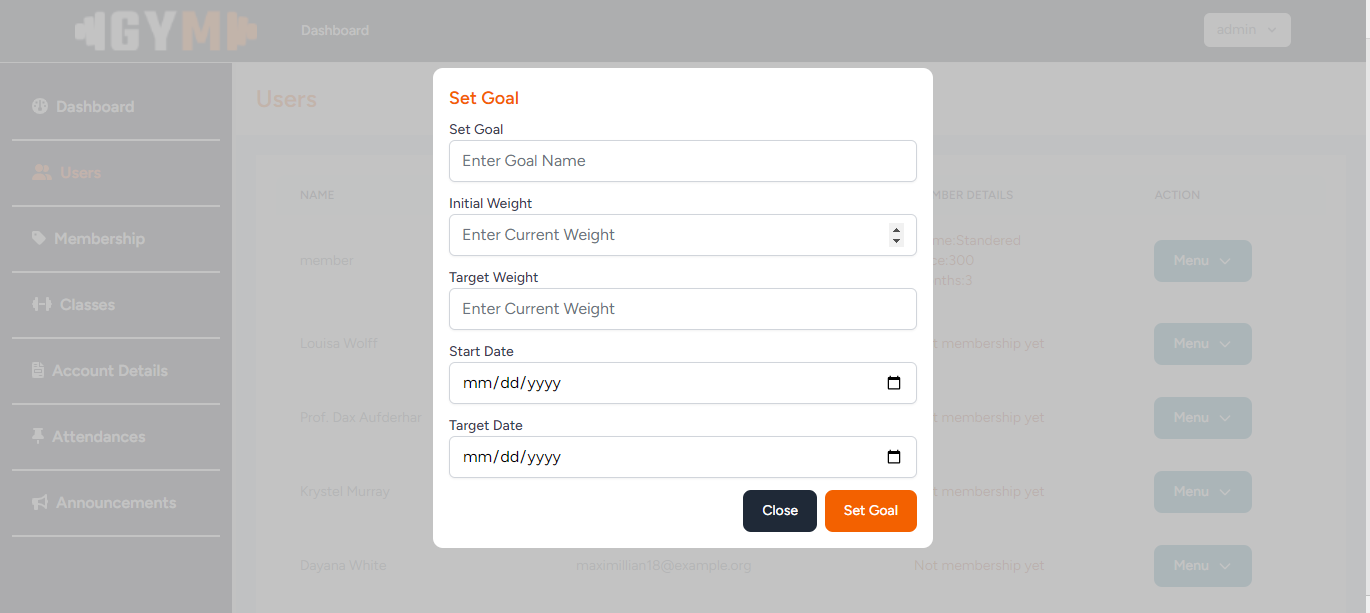
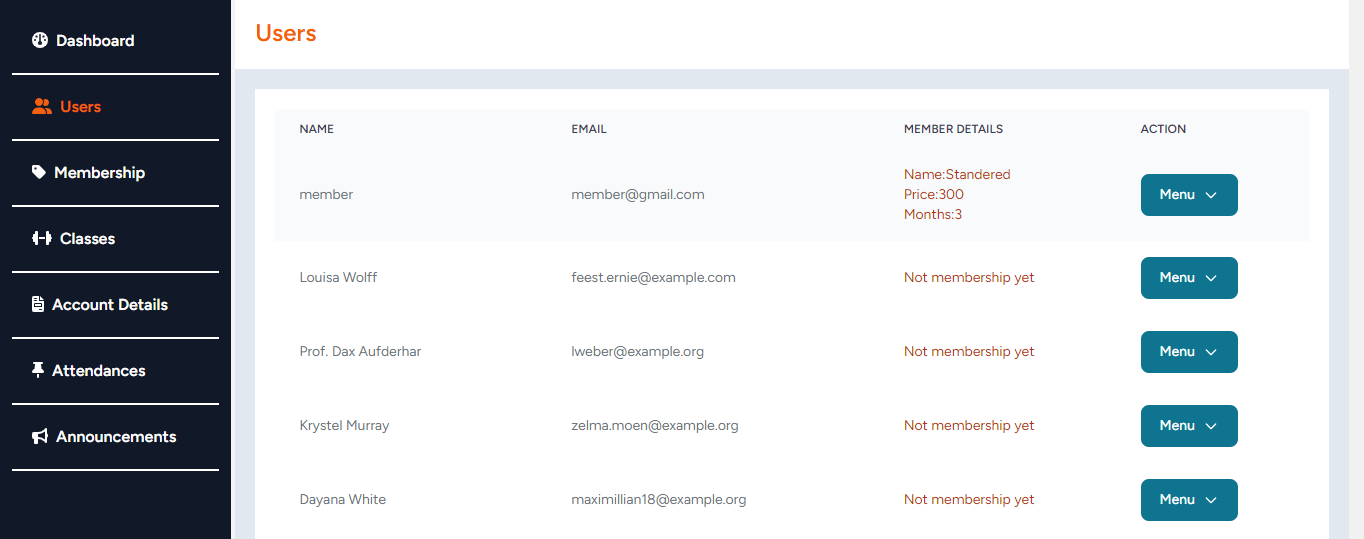
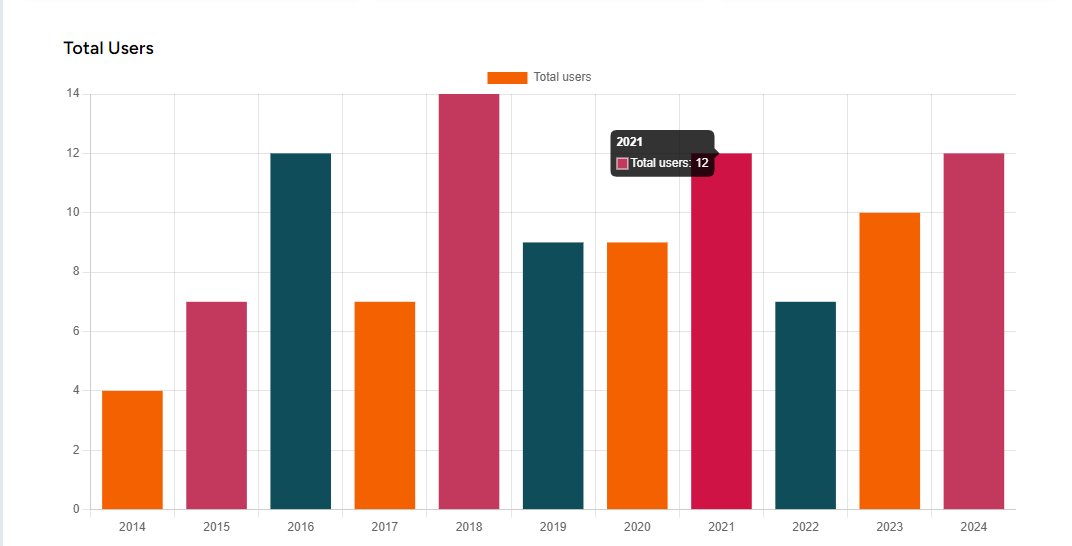
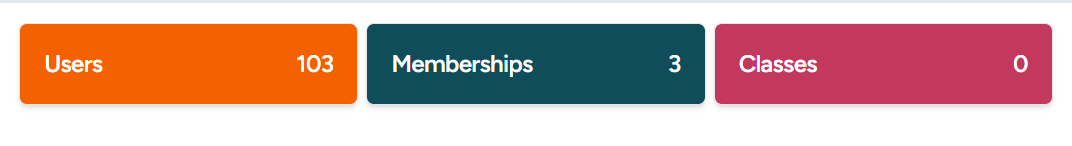
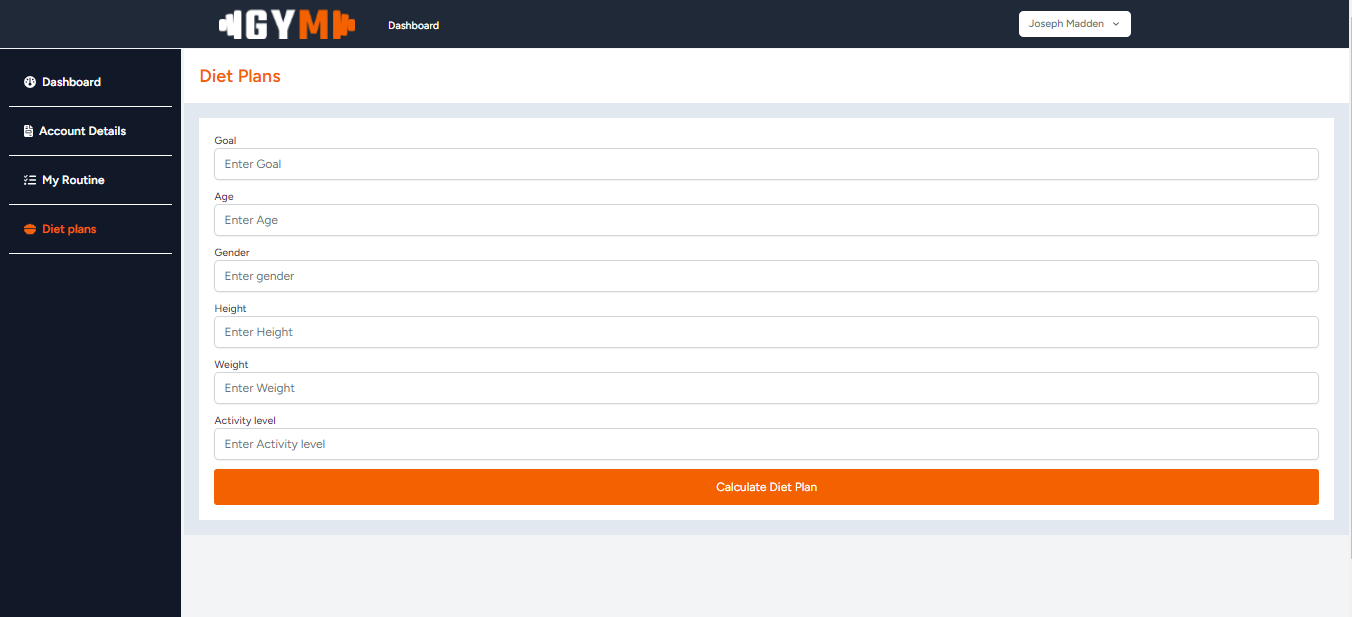
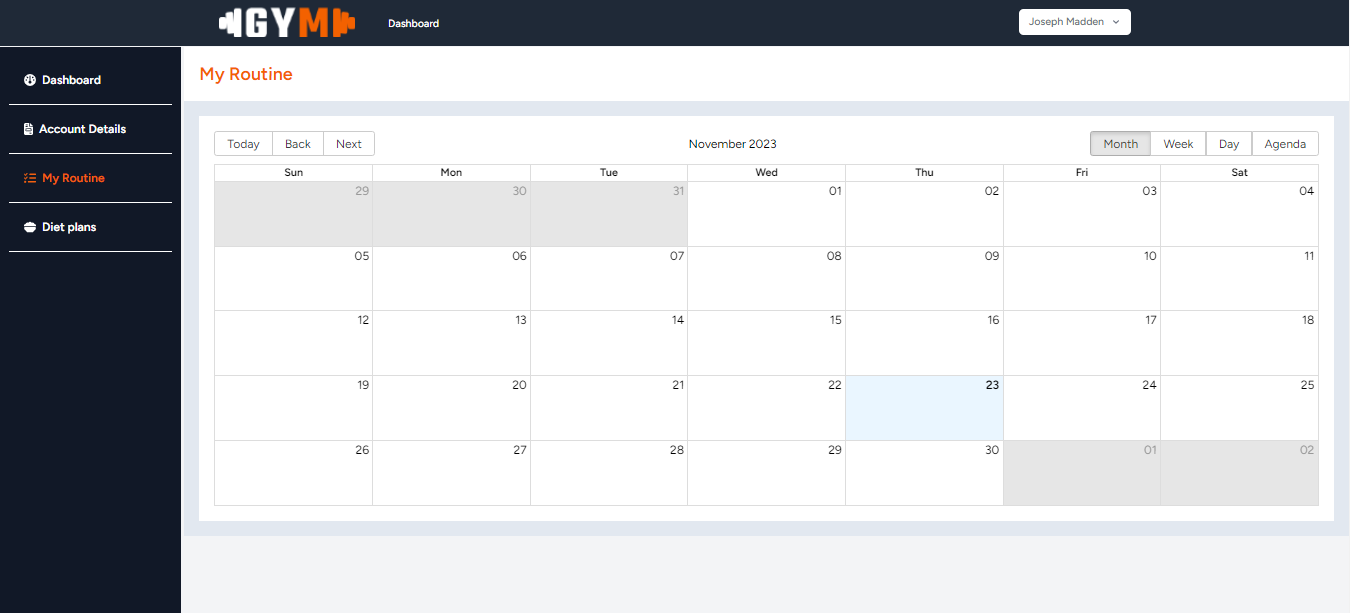
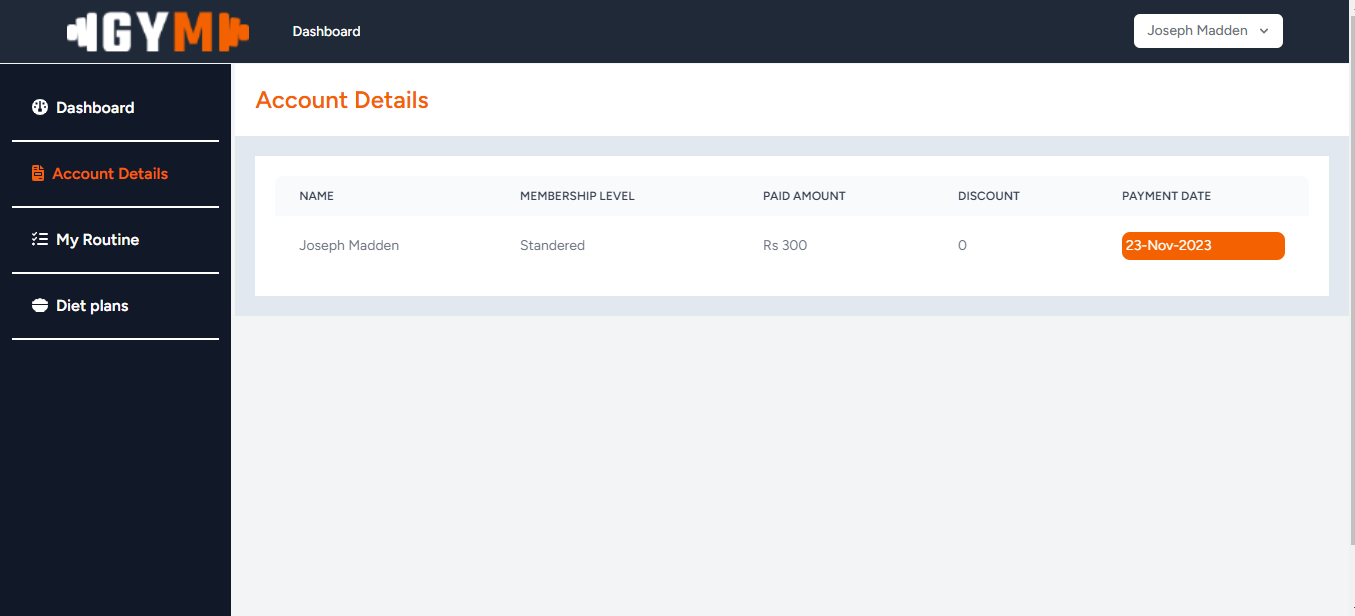
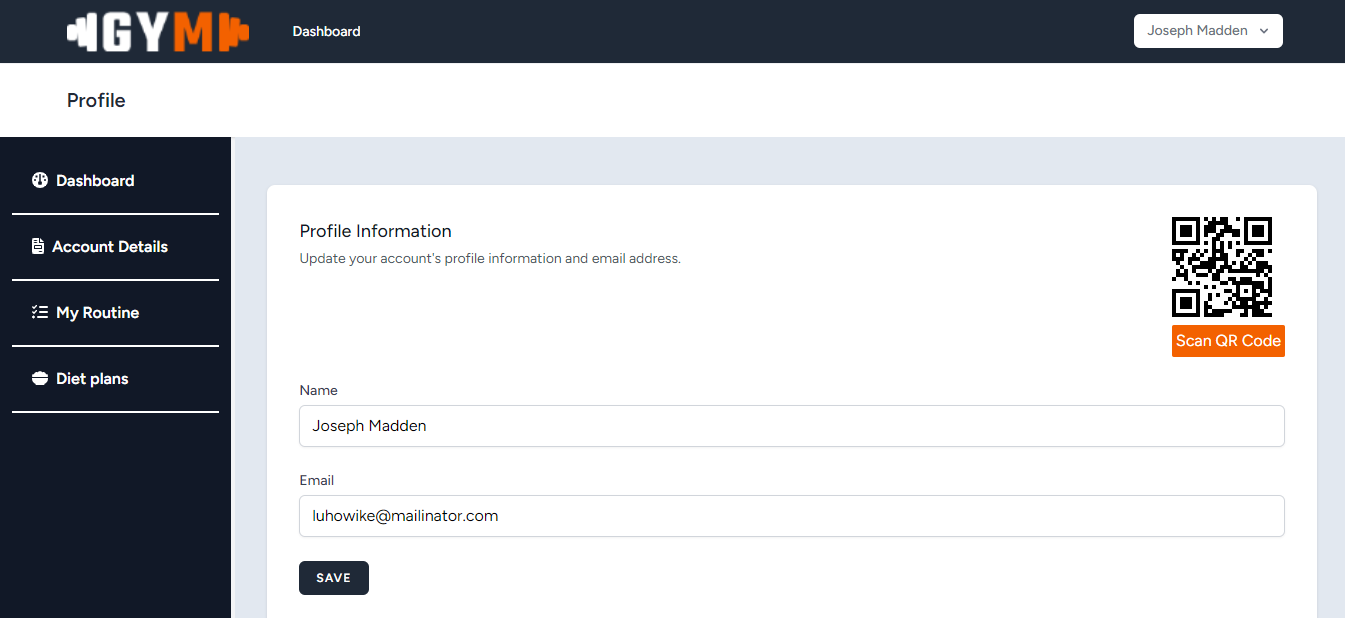
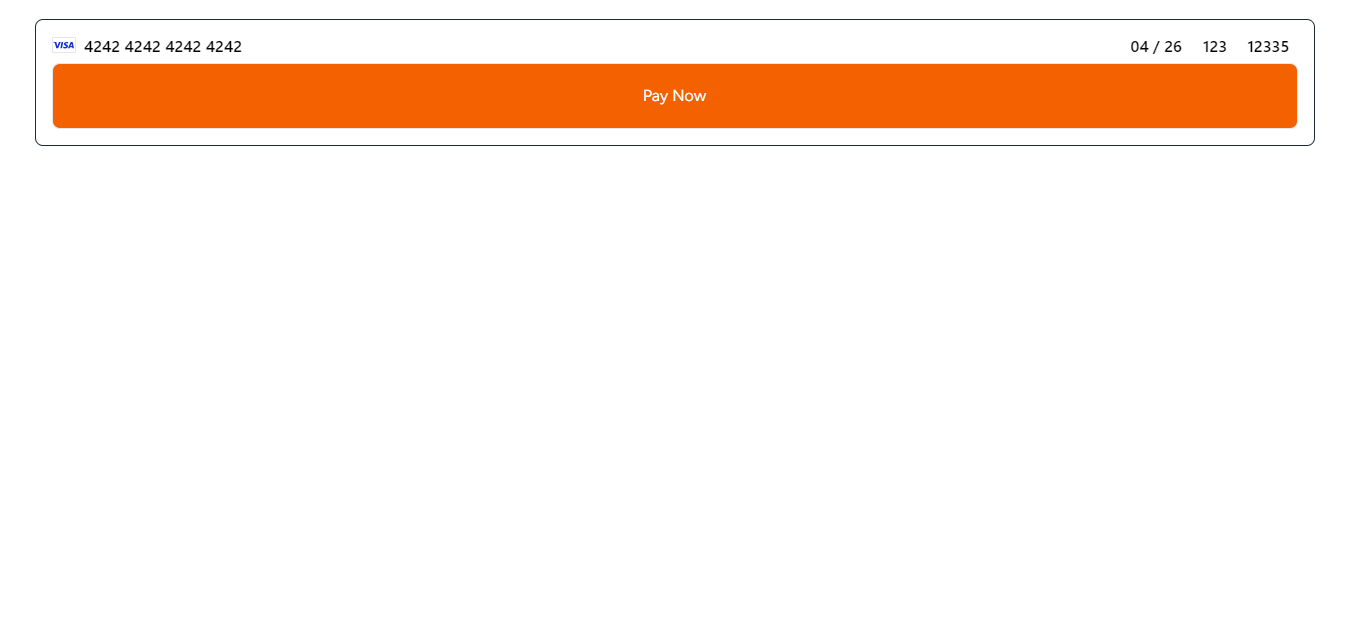
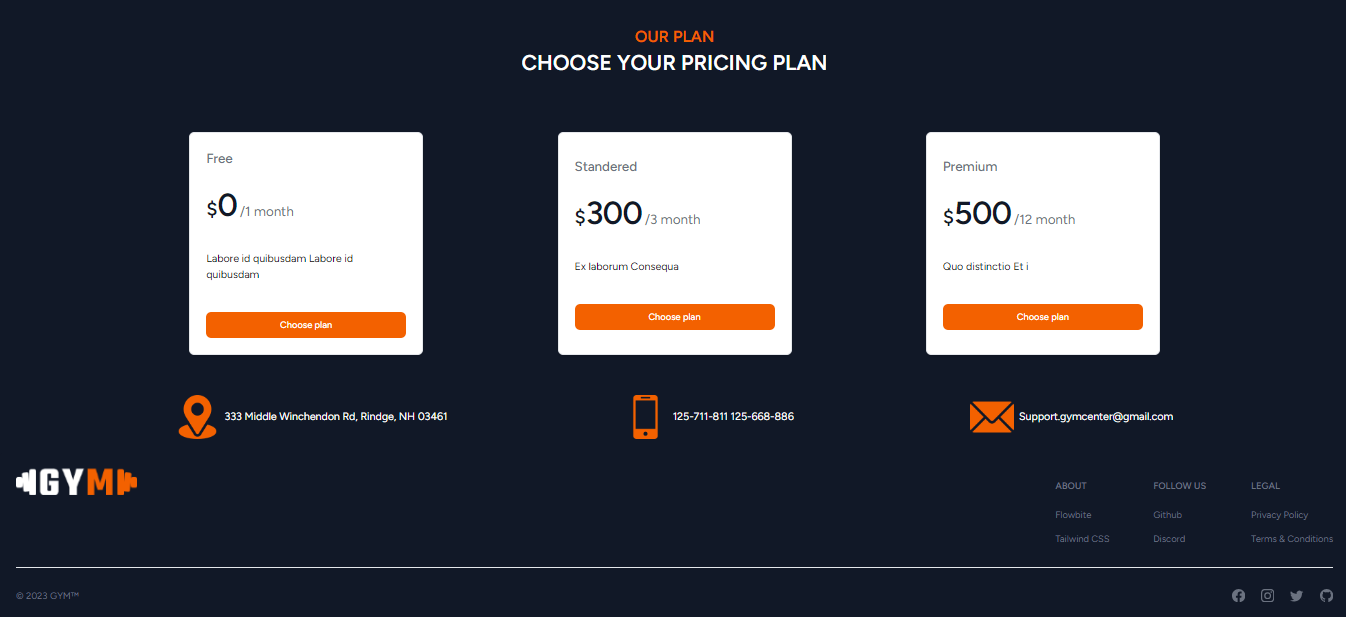
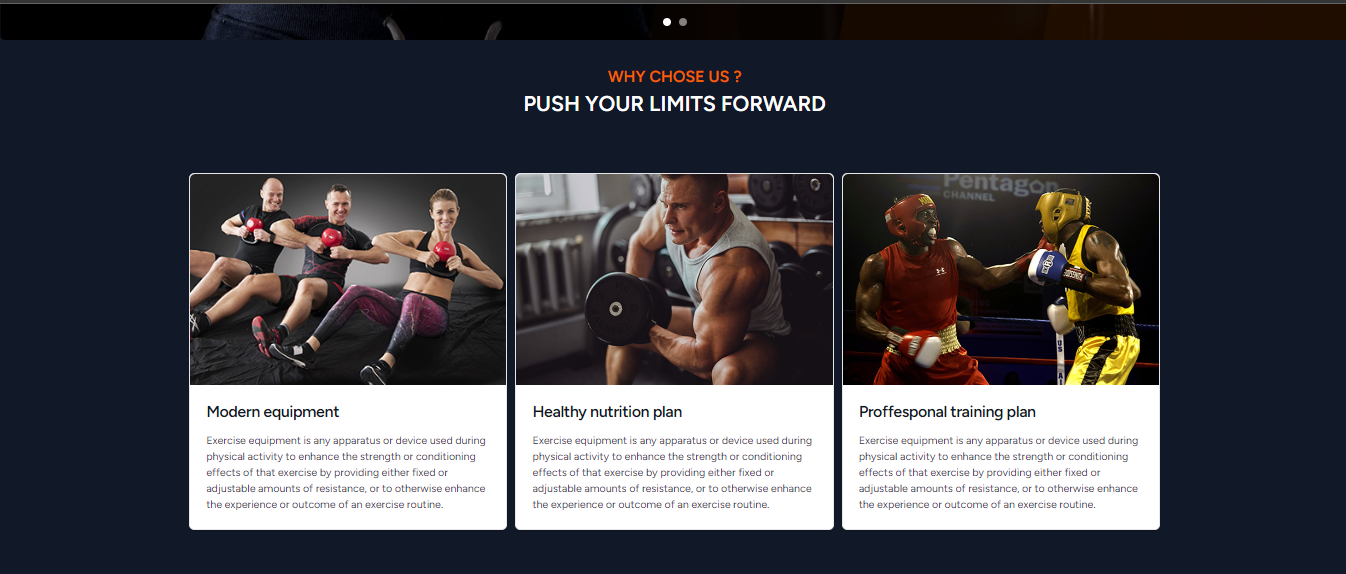
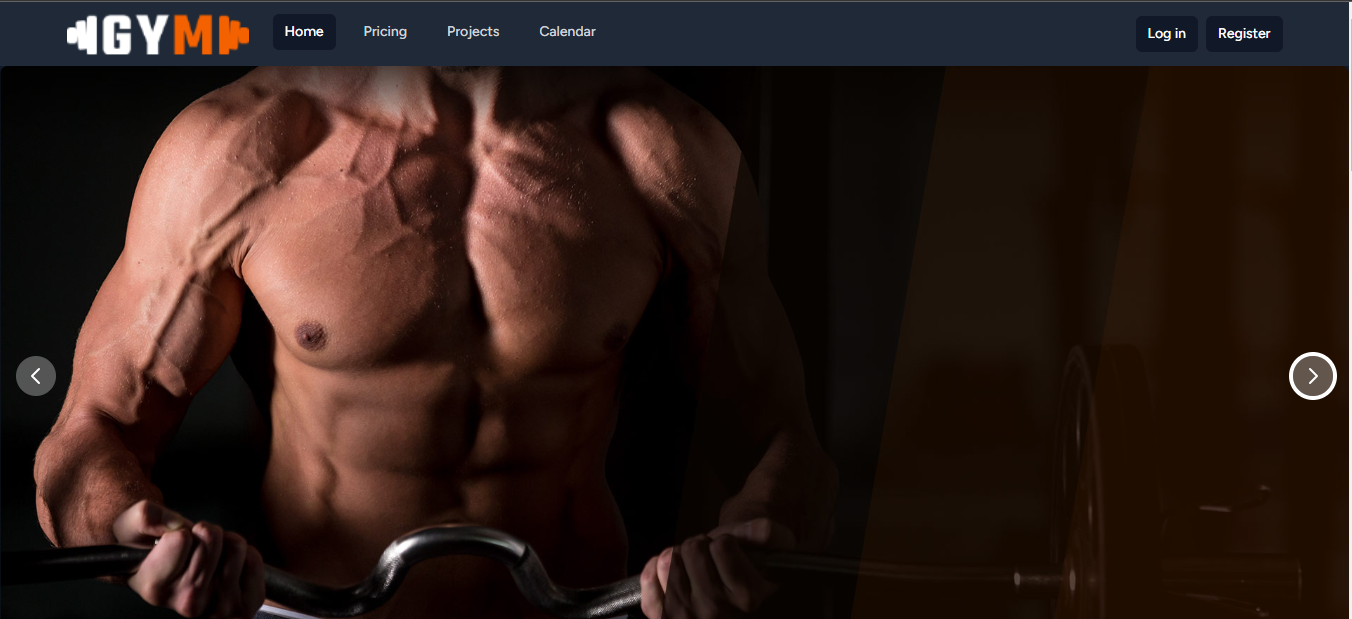
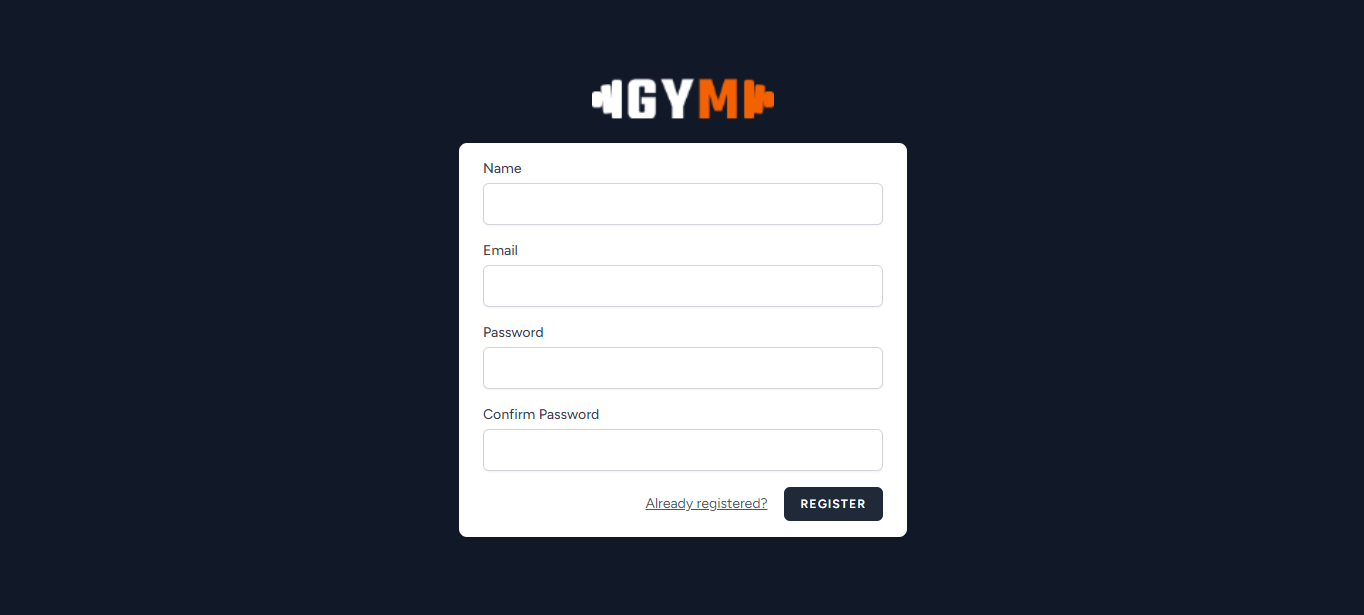
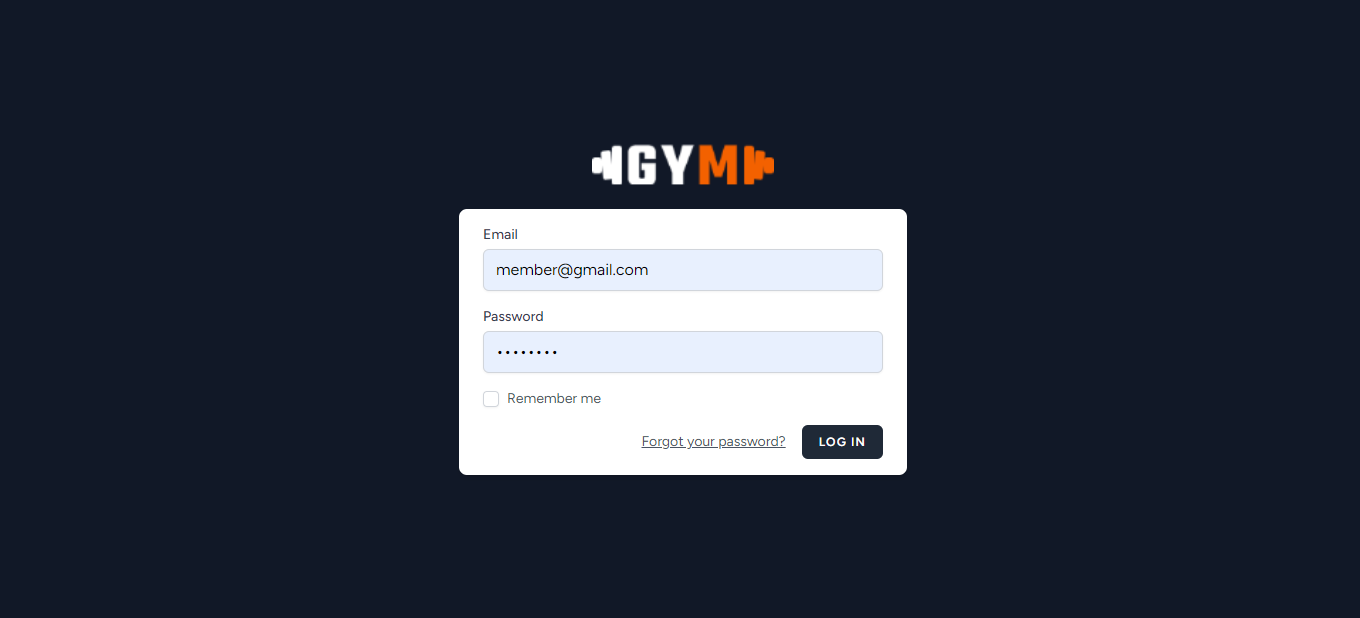
A detailed database diagram was formulated, highlighting the entity-relationship model, database tables, their attributes, and connections. This design ensured efficient data storage and retrieval for member profiles, attendance records, payment details, and system configurations.

**Diagram**



## Graphical User Interfaces:

Graphical user interfaces (GUIs) were designed to offer an intuitive and user-friendly experience. Wireframes or mockups were crafted to visualize the layout, navigation, and functionalities of the member dashboard, sign-up interfaces, and administrative panels.



**CHAPTER 4**

Development

4 DEvelopment

4.1 Development plan (Architecture Diagram):

The development plan delineated the architectural blueprint for the Fitness Club Website/Membership Management System. The architecture diagram served as a visual representation of the system's structural design, showcasing the arrangement of components, modules, and their interactions.

**The architecture diagram outlined:**

**System Component:** Identification and classification of major system modules and components, including membership management, attendance tracking, communication interfaces, and analytics.

**Component Interactions:** Illustration of how different system modules interact and communicate with each other, depicting the flow of data and functionalities across the system.

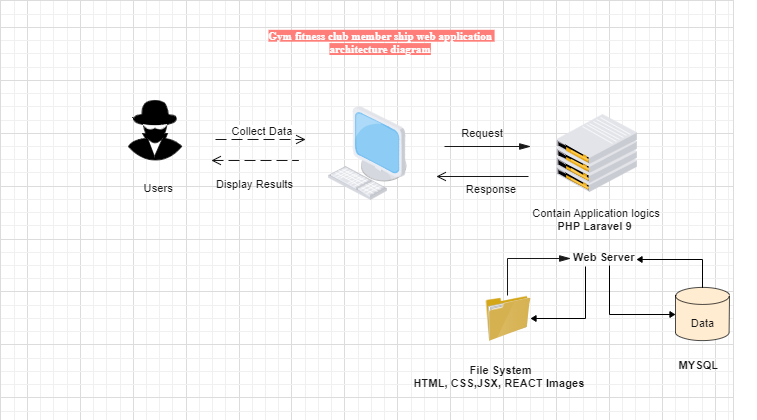
**Technological Stack:** Specification of the technological tools and frameworks employed in system development, including the backend (PHP Laravel 9), frontend (React), database (MySQL), and communication protocols (SMTP and Trello for SMS).

**Scalability and Flexibility:** Design considerations ensuring the system's scalability to accommodate future enhancements and its flexibility to adapt to evolving requirements.

**Security Measures:** Incorporation of security measures and protocols to safeguard member data, ensuring compliance with data protection standards.

**Performance Considerations:** Planning for system performance optimization to ensure efficient operation, responsiveness, and minimal downtime.

**Diagram:**



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   2. Reference**:** <https://themewagon.com/themes/free-bootstrap-4-html5-gym-website-template-gymlife/>
2. Laravel Authentication:
   1. Author name: **Breeze**
   2. Reference: <https://github.com/laravel/breeze>
3. Components:
   1. Author name: **Flowbite**
   2. Reference: <https://flowbite.com/docs/getting-started/introduction/>
4. Technology front-end:
   1. Author name: **React**
   2. Reference: <https://react.dev/>
5. Technology back-end:
   1. Author name: **Laravel**
   2. Reference: <https://laravel.com/>
6. Single Page Application:
   1. Author name: **Inertiajs**
   2. Reference: <https://inertiajs.com/>

**APPENDIX**

## Appendix A: Survey Questionnaire

### Membership Satisfaction Survey

1. How satisfied are you with the current membership sign-up process?
   1. Satisfied
   2. Very Satisfied
   3. Neutral
   4. Dissatisfied
   5. Very Dissatisfied
2. Are you aware of the various membership levels offered by the club? (Yes/No)
3. How often do you use the personalized member dashboard? (Daily/Weekly/Monthly/Never)
4. What features would you like to see added to the membership dashboard? (Open-ended)

## Appendix B: Code Snippets

 public function store(Request $request): RedirectResponse

    {

        $request->validate([

            'name' => 'required|string|max:255',

            'email' => 'required|string|email|max:255|unique:' . User::class,

            'password' => ['required', 'confirmed', Rules\Password::defaults()],

        ]);

        $user = User::create([

            'name' => $request->name,

            'email' => $request->email,

            'password' => Hash::make($request->password),

        ]);

        $user->assignRole('member');

        event(new Registered($user));

        Auth::login($user);

        $email = $user->email;

        $qrCode = QrCode::size(300)->generate($email);

        $path = 'qr\_code/' . $user->email . '.svg';

        Storage::put('public/' . $path, $qrCode);

        $user->qr\_image = $path;

        $user->save();

        return redirect(RouteServiceProvider::HOME);

    }

**THE END**