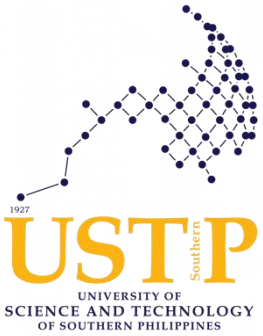


Sonier's Fitness Gym

(A Web Application)

Cobrado, Luke

Lopena, Angelbert

Lumigue, Ralph Rhey

Ortiz, Zynnah Marie

Yecyec, Marian Ivy

In Partial Fulfillment of the Requirements

for the Fundamentals of Database Systems

Department of Computer Science

College of Information Technology and Computing

University of Science and Technology of Southern Philippines

Cagayan de Oro City, 9000

January 2024

TABLE OF CONTENTS

ORGANIZATION BACKGROUND

Sonier's Fitness Gym, with two branches located at Purok 4A Hillside Gusa and Pimentel Street, Lapasan in Cagayan de Oro, was established in 2022. The current registration system at Sonier's Fitness Gym relies on a manual process for recording customer memberships. Whether customers choose session-based or monthly memberships, their information is logged in a manual register without requiring any form of identification.

This manual registration process poses a challenge as it does not guarantee that individuals using the gym equipment hold valid memberships. Introducing an application for membership registration would not only bring convenience but also enhance the security measures for both customers and the business owner.

Sonier's Fitness Gym, known for its commitment to fitness and training, including specialized boxing sessions, recognizes the importance of upgrading its system. By implementing an web application-based system, the gym aims to provide a seamless and secure experience for its members.

STATEMENT OF THE PROBLEM

The current system at the gym relies on manual input, where members write their name and signature in a logbook for membership verification. This manual process poses a security risk and allows access to gym equipment without proper authentication. Additionally, notifying members about expiring monthly memberships by posting on a board is not effective, as members may overlook it, leading to unintentional membership expiration.

To address these issues, we propose to develop a secure and user-friendly web application that requires members to log in using specific identification credentials. This approach ensures proper access control and enhances the overall security of the system.

By transitioning from a manual ledger to a web application, the gym aims to overcome the current challenges and enhance its services. The digital platform will eliminate the risk of losing or misplacing records, significantly reducing errors. This improvement in data management will lead to more accurate and immediate access to membership records, facilitating proper verification.

OBJECTIVES OF THE PROJECT

Our main goal for this project is to create a web app for the Sonier's Fitness Gym. The proposed web application aims to improve operational efficiency, enhance data security, and elevate the quality of services provided by the gym to its members.

We're placing a strong emphasis on ensuring the security of users' personal information and payment details as this web application will only authorize the admins and staff of their organization to easily add and manage their gym members.

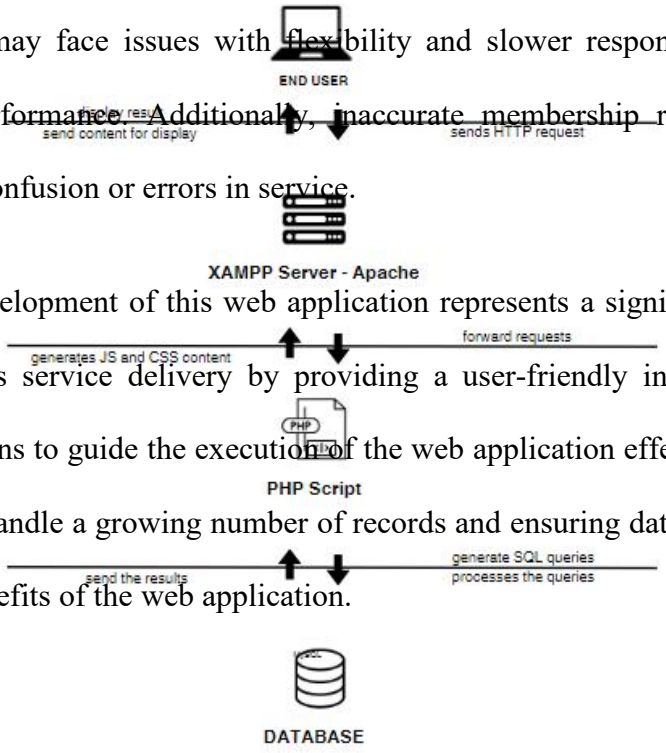
We aim to enhance the overall quality of their organization’s services and elevate the member experience. We believe that embracing modern database technologies and structured data management practices will result in significant benefits which could lead to positive transformations within the gym's operational framework.

SCOPE AND LIMITATION

The web application project for Sonier's Fitness Gym aims to modernise the current manual process for managing gym memberships, with a focus on efficient data management for quick access to membership records.

The primary objective of the web application is to enhance the efficiency of managing gym members, ultimately improving the overall operational services provided by the company. It will ensure easy access to membership details and maintain reliable and accurate information.

However, there are some potential limitations to consider. As the number of records increases, the web application may face issues with flexibility and slower responses for larger clients, impacting overall performance. Additionally, inaccurate membership records or registration details could lead to confusion or errors in service.



In conclusion, the development of this web application represents a significant improvement in Sonier's Fitness Gyms service delivery by providing a user-friendly interface. It's crucial to address these limitations to guide the execution of the web application effectively. Implementing scalable solutions to handle a growing number of records and ensuring data accuracy will be key in maximizing the benefits of the web application.

DATABASE SYSTEM ARCHITECTURE

Figure 1: Database Architecture of the proposed system.

Our web application's architecture relies on three fundamental components: the end user, the web server, and the database. Users can interact with the system through a web interface and submit queries without needing to understand the underlying database operations. With the web server, Apache, it efficiently handles incoming requests and directs them to the appropriate PHP scripts for processing. Then, the PHP script interprets requests and manipulates data. It interacts with the MySQL database, using structured SQL queries to retrieve or modify information. MySQL ensures data integrity and security through established protocols and user management mechanisms. PHP then uses the retrieved data, along with its internal logic, to create dynamic content with CSS, and JavaScript. This content dynamically shapes the web pages to reflect user actions. Finally, Apache sends this generated content back to the user's browser for interpretation and rendering, delivering an updated and responsive web page.

During development and testing, XAMPP, a comprehensive development environment, provides a unified platform by bundling Apache, MySQL, PHP, and other essential components into a cohesive ecosystem, fostering efficient workflows.

DATABASE MODELLING

I. BUSINESS RULE

Admin:

- Each admin must have a unique user ID (primary key).
- Admins must have a username, password, and a name.
- The admins have full control over all gym functions and system configurations.

Customers:

- Each customer must have a unique user ID (primary key).
- Customers must have a fullname, username, password, gender, date of registration (dor), services, amount paid, paid date, plan details, address, contact, status, attendance count, initial weight, current weight, initial body type, current body type, progress date, and a reminder indicator.

Staffs:

- Each staff member must have a unique user ID (primary key).
- Staff members must have a username, password, email, fullname, address, designation, gender, and contact details.

Announcements:

- Each announcement must have a unique ID (primary key).
- Announcements must have a message and a date.

Attendance:

- Each attendance entry must have a unique ID (primary key).
- Attendance entries must be associated with a user (foreign key).
- Each entry should have a user ID, date, time, and a present indicator.

Equipment:

- Each equipment item must have a unique ID (primary key).
- Equipment items must have a name, amount, quantity, vendor, description, address, contact, and a date.
- The amount should represent the cost of the equipment.

Payment:

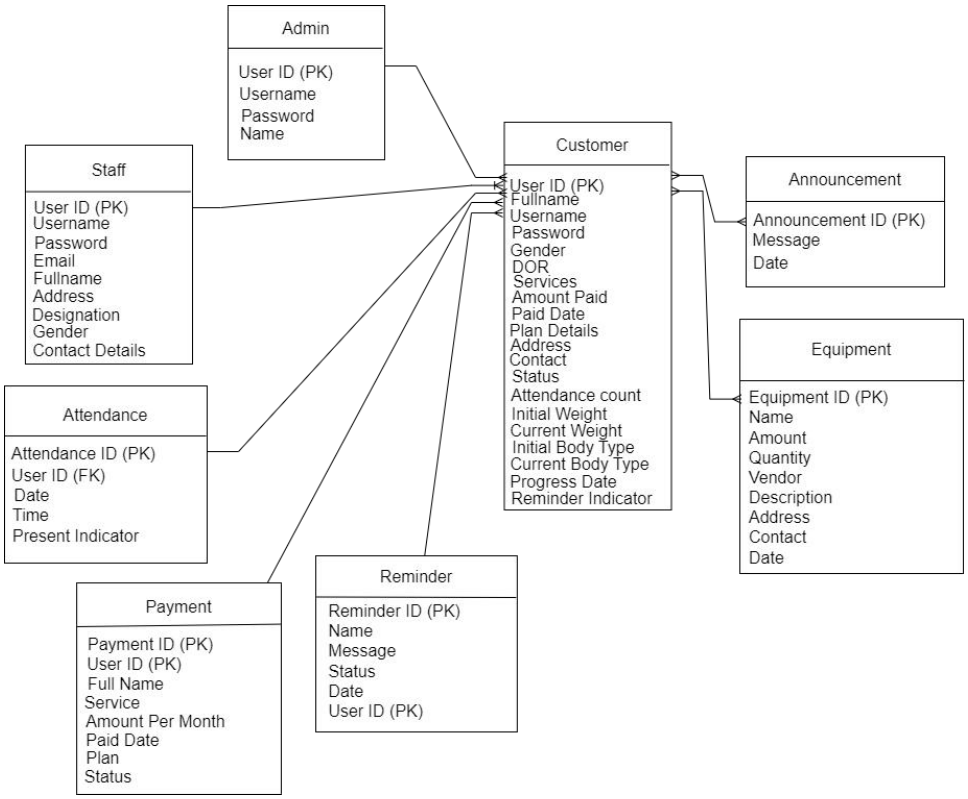
- Each payment must be associated with a unique ID (primary key).
- A payment must be linked to a member (foreign key).
- The payment form should include fields for the member's full name, service, amount per month, paid date, plan, and status.

- The amount field should be dynamically set based on the selected service (Fitness, Cardio).
- The plan field should allow the selection of membership plans.
- The status field should allow the selection of either "Active" or "Expired."

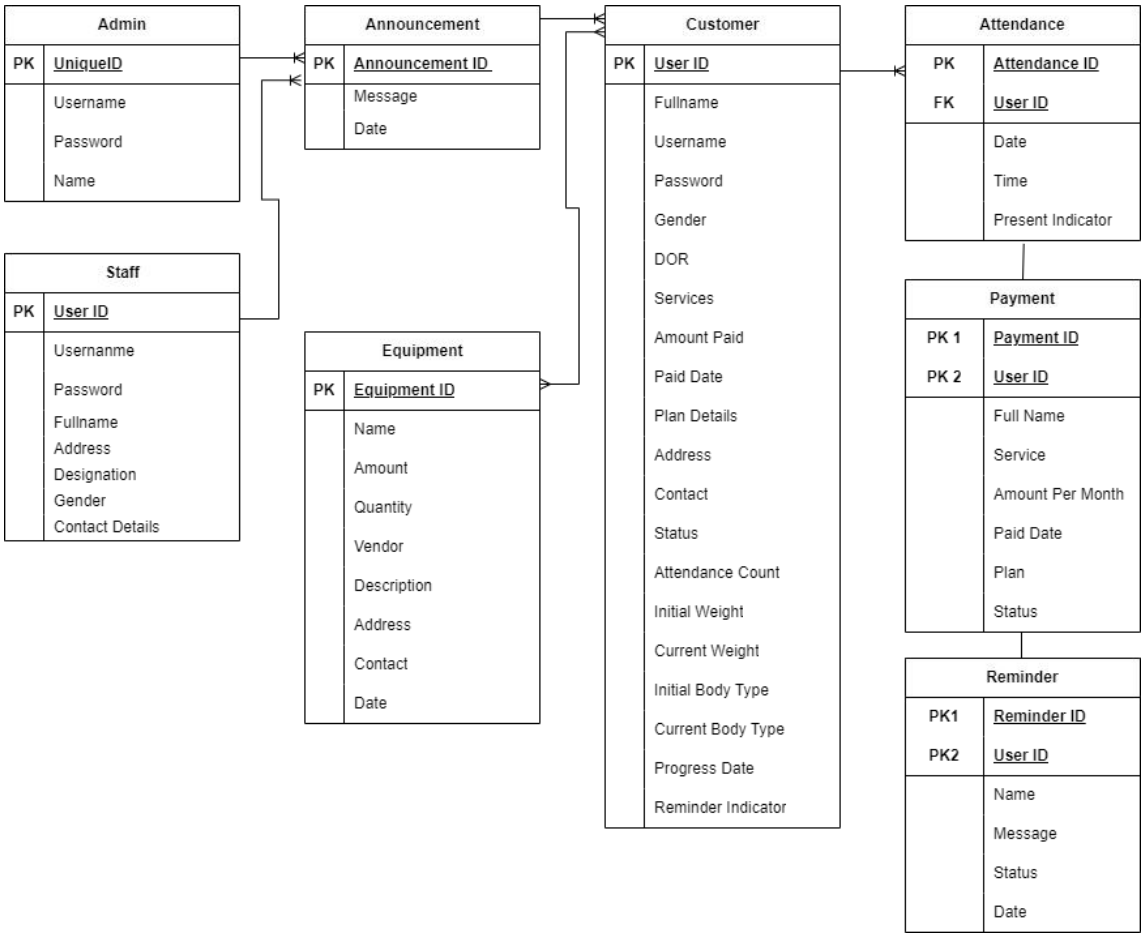
Reminder:

- Each reminder must have a unique ID (primary key).
- Reminders must have a name, message, status, date, and a user ID (foreign key).
- The status indicates whether the reminder has been read or is unread.

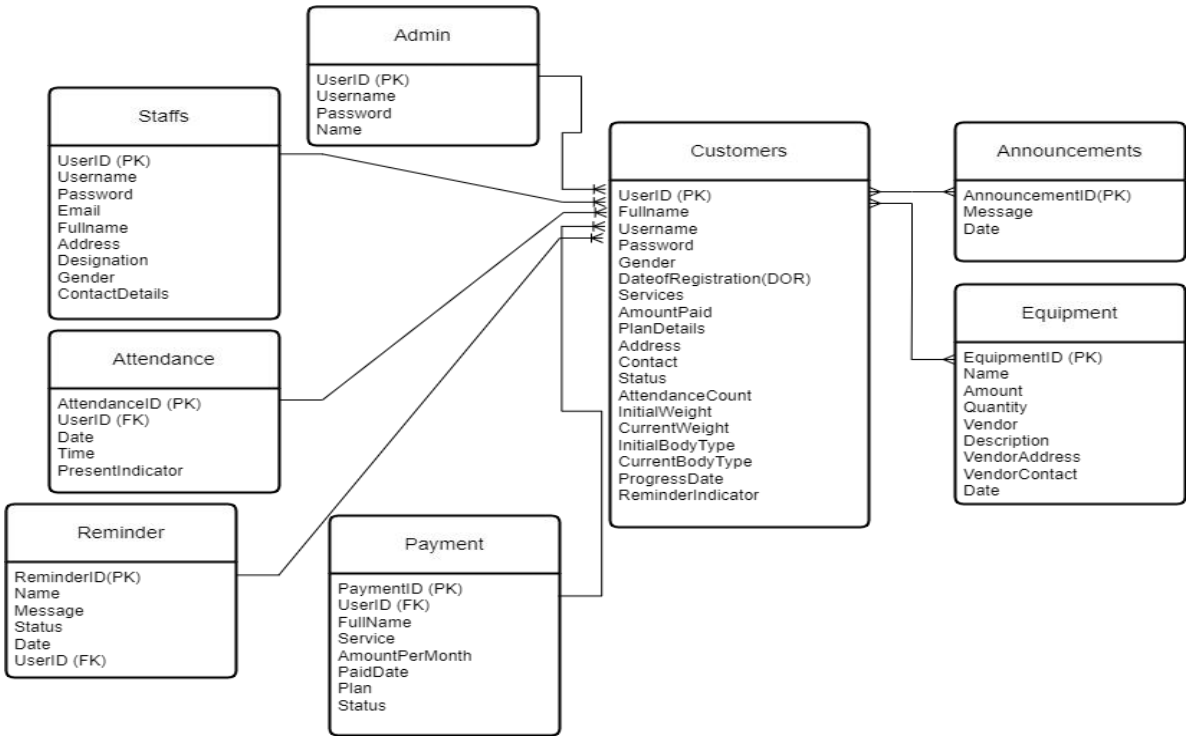
II. CONCEPTUAL DESIGN



III. LOGICAL DESIGN



IV. PHYSICAL DESIGN



UI DESIGN AND FEATURES

Figure 1: Login Page

Figure 2: Admin Interface

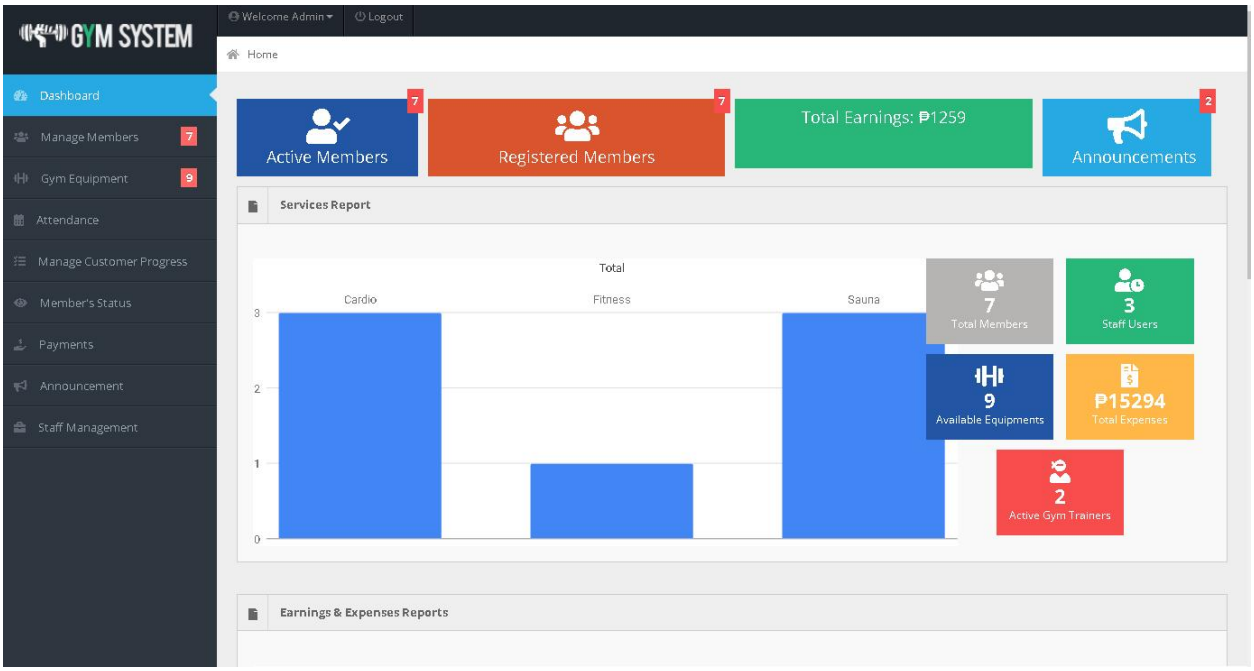


Figure 3: Staff Interface

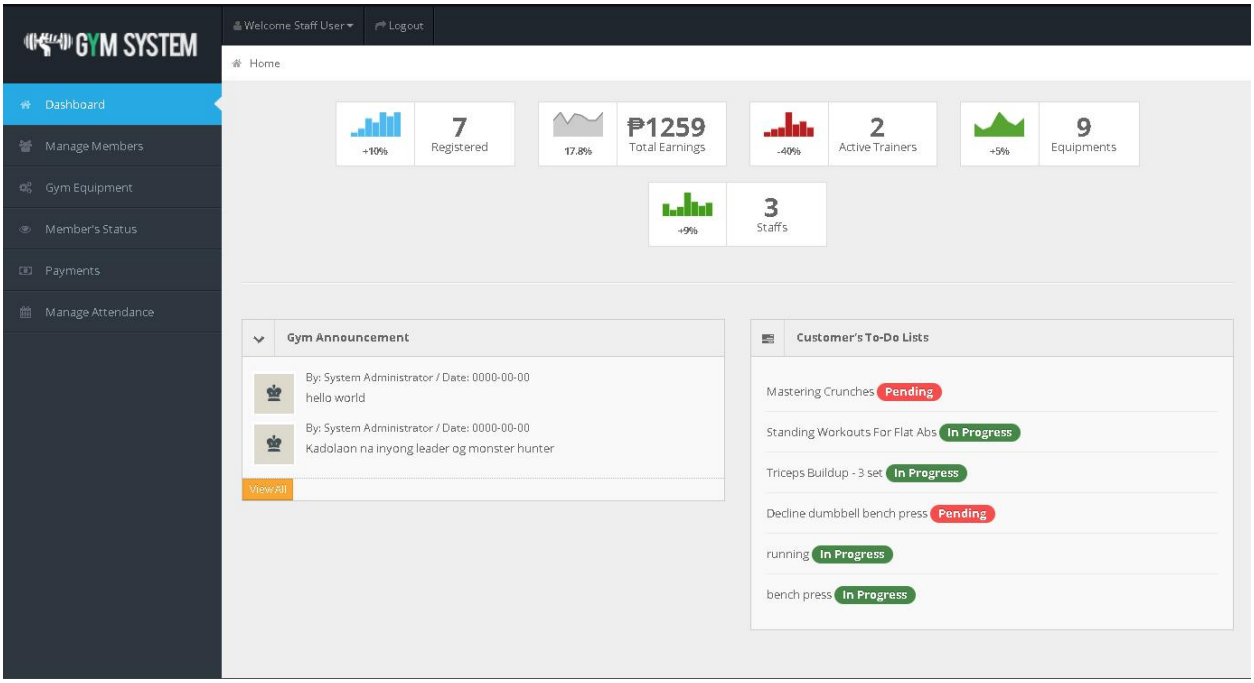
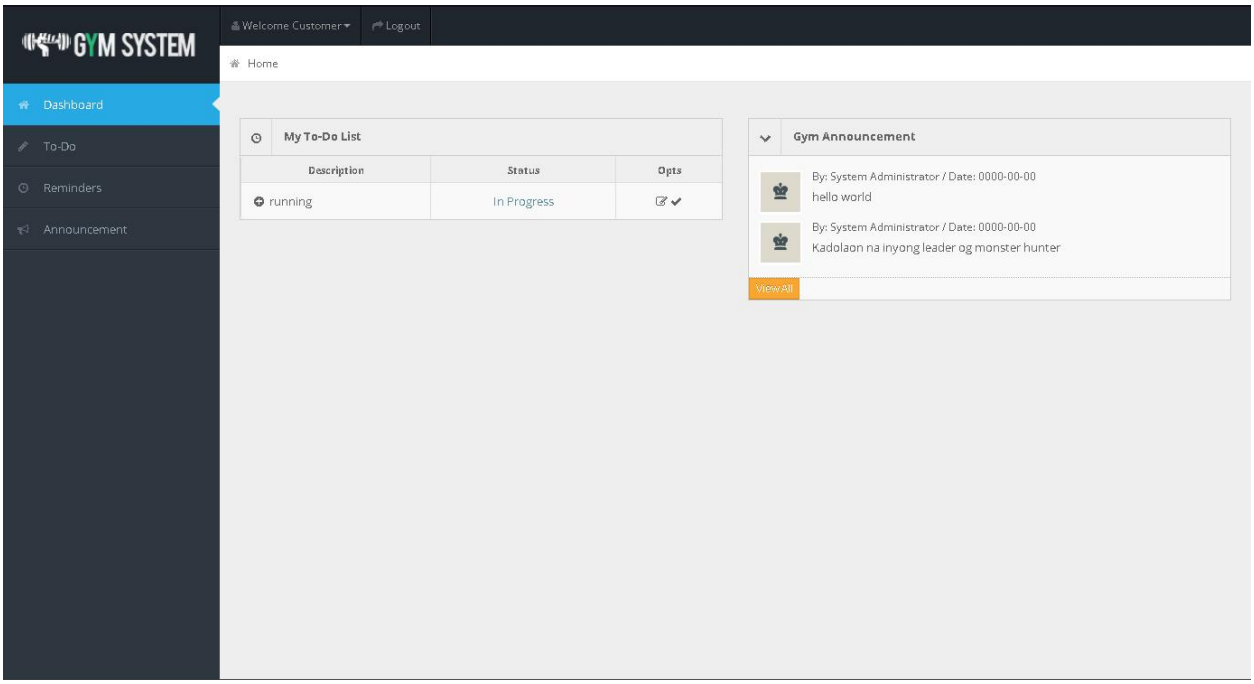


Figure 4: Customer Interface



AUTHORIZATION RULES

In our Sonier Fitness Gym Web Application powered by XAMPP, the admin and staff interface play a crucial role in managing the application effectively and safeguarding sensitive information in the system. To keep things secure, we set up clear rules for who can access the app.

User Specific Roles:

- Administrator
  - Full control over all gym functions and system configurations. For example, managing members, managing staff, managing gym equipment, handling payments, generating reports, creating and editing announcements.
- Staff
  - Staff members have more limited access tailored to their roles. They can access selected gym functions. Namely, managing members, managing gym equipment, viewing members status, handling payments, and managing attendance. They cannot generate reports and create or edit announcements.
- Costumer
  - Can only view certain gym functions. They can edit and add to-do lists, view reminders and announcements.

Access Control:

- Administrators
  - Complete access to modify and view all gym data.
- Staff
  - Can access selected gym functions. Namely, managing members, managing gym equipment, viewing members status, handling payments, and managing attendance.

- Customer
    - Restricted to personal profiles, to-do lists, and limited personal information updates.

Authentication:

- Only authorized personnel can log in the admin and staff interface.
- To add layers of protection, each user must log in using their valid username and password.

Data Modification:

- Administrators have exclusive modification rights for user, staff, and system settings.
- Customers are only limited to updating the to-do lists and viewing reminders and announcements.

DATABASE MAINTENANCE SCHEDULE

Weekly:

- Review User Accounts
    - Conduct a review of user accounts to identify and deactivate any inactive or unauthorised accounts.
    - Ensure proper access levels for administrators and regular users.
- Check Data Consistency
    - Verify the consistency of data across different tables to ensure accurate and reliable information for users.

Monthly Tasks:

- Backup Database
    - Perform a full backup of the database to prevent data loss in case of any unforeseen issues.

    - Store the backup in a secure location separate from the primary database server.
- Optimise Database Performance
    - Analyse database performance metrics and optimise queries or indexes as needed.
    - Ensure efficient and speedy retrieval of information for application users.
- Update Security Measures
    - Review and update security protocols to protect user information and payment details.
    - Implement any necessary patches or security updates for the database system.

Quarterly Tasks:

- Conduct Database Health Check
    - Perform a comprehensive health check of the database to identify and rectify any potential issues.
    - Check for database fragmentation and optimise storage.
- Evaluate Backup and Recovery Procedures
    - Test the effectiveness of backup and recovery procedures to ensure a quick and reliable recovery in case of a data loss event.
- Review Data Retention Policies
    - Review and update data retention policies, ensuring compliance with privacy regulations.
    - Remove any unnecessary or outdated data to free up storage space

DATABASE RECOVERY POLICY

- **Backup Retention**
  - We make sure to retain our complete backups for at least a month, ensuring we have comprehensive snapshots of our data. Additionally, incremental backups, capturing changes over time, are stored for a week, striking a balance between historical data preservation and storage efficiency.
- **Disaster Recovery Plan**
  - Disaster recovery plan is put in place, outlining step-by-step procedures to restore our system in case of data loss or system failure.
- **Regular Testing**
  - Annual testing is conducted simulating potential harm scenarios to maintain the reliability of the disaster recovery plan.
- **Point-in-Time Recovery**
  - Implementation of point-in-time recovery features, allowing us to precisely restore our database to specific moments.
- **Data Integrity Checks**
  - Regularly conduct data integrity checks to ensure the accuracy and reliability of our stored information.