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Development of A Web-Based Gym Information System at Nahaga Sabu Seba

Achyar Fadil Alboneh[1]*, Menhya Snae[2]

[1,2]STIKOM Uyelindo Kupang
albonehahyar623@gmail.com[1]*, menhyasnae@gmail.com[2]

Abstract

In the digital era, the need for efficient and accurate data management in fitness centers is increasing. Nahaga Gym Sabu Seba previously relied on manual systems that hindered administrative processes such as member registration, payment verification, and membership tracking. This study aims to develop a web-based information system to automate and streamline these processes. Using the Agile development method, the system was designed with key features including online member registration, package selection, digital payments, downloadable membership cards, and real-time administrative dashboards for monitoring members and revenue. The implementation of this system, built with React.js, Node.js, and MySQL, enhances user experience and operational efficiency, enabling remote access and improving overall service quality at Nahaga Gym.

Keywords: *Gym management system, Agile method, web-based application, member registration, digital services.*

1. Introduction

In this rapidly evolving digital era, information technology has had a significant impact on various sectors, including the fitness industry. One striking example is in fitness centers or gyms, which are increasingly in demand by the public as a place to support a healthy and fit lifestyle. Personal training, to support regular physical activity. Gyms play an important role in supporting a healthy lifestyle by helping to improve cardiovascular fitness, muscle strength, weight management, and overall physical and mental health.[1].
Nahaga Gym in Sabu Seba has difficulty managing member data because it still uses a manual system such as recording in books or tables. This method is inefficient, slows down the administration process, is prone to errors, and makes it difficult to register, pay, report, and manage membership status. Making member cards also takes a long time, thus hampering services.

The development of this web-based application aims to improve efficiency in managing various aspects of administration, such as the registration process, membership package selection, payment, and digital download of member cards. The solution is designed to optimize real-time data management, allowing gym managers to access an interactive dashboard that displays information on the number of registered members and revenue from membership package purchases. In addition, this application also makes it easier for managers to update membership and payment status instantly, ensuring faster, more accurate, and efficient operations through a web-based system [2].

Based on the problems faced by Nahaga Gym Sabu Seba, the development of web-based applications is the main focus in automating member data management, member package selection, and payment. This application will also provide a digital member card download feature and display the number of registered members and financial information on the admin dashboard to improve efficiency and service quality.

2. Methodology

The Agile method is an incremental development method that focuses on rapid development, incrementally released software, reducing process overhead, and producing high-quality code. The process also involves the customer directly. An important point in Agile is the interaction between team members to ensure the development process goes according to plan. The main focus of Agile Software Development is teamwork and collaboration between team members.[3].

The Agile method consists of five main stages, starting with an evaluation of the company's processes and structure to understand current conditions and business needs. Next, the team provides suggestions for process improvement and optimization based on the evaluation results. The next stage is to collaboratively design the application with the client to ensure the solution meets the needs. Then the

application development, construction, and implementation are carried out based on the agreed design. Finally, evaluation and monitoring of the implementation is done to review performance, identify improvements, and gather feedback for continuous development.[4].

3. Result and Discussion

3.1. Analysis system

This system is designed to develop a web-based application that can facilitate the process of member registration, package selection, payment, and member card download at Nahaga Gym Sabu Seba, with the aim of increasing the efficiency of remote access and saving time for members without requiring physical presence at the gym location.
The output of this application development provides significant benefits for both parties, both managers and Nahaga Gym members. as For managers, the application makes it easier to monitor and manage member data in a structured manner, reduce the risk of errors due to manual recording, and provide real-time access to financial information, including the number of registered members and revenue from package sales through the dashboard. Meanwhile, for members, this application simplifies the registration process, package selection, online payments, and allows the download of digital member cards, thus saving time and allowing access to services without having to come directly to the gym location.

3.2. Design

3.2.1. Use case diagram

The picture above is a use case diagram that describes the interaction between admin actors and the system in managing various data at Nahaga Gym. Admin has four main functions such as managing profile data, viewing dashboards, managing tool data, managing promo data, verifying administrative data, and managing package data. Each of these functions has a dependency on the login process, which is indicated by the include relationship. This means that before the admin can perform data management or verification actions, he must first log in to the system. This diagram shows that the main features can only be accessed after successful authentication, ensuring that only authorized admins can make changes to gym data.

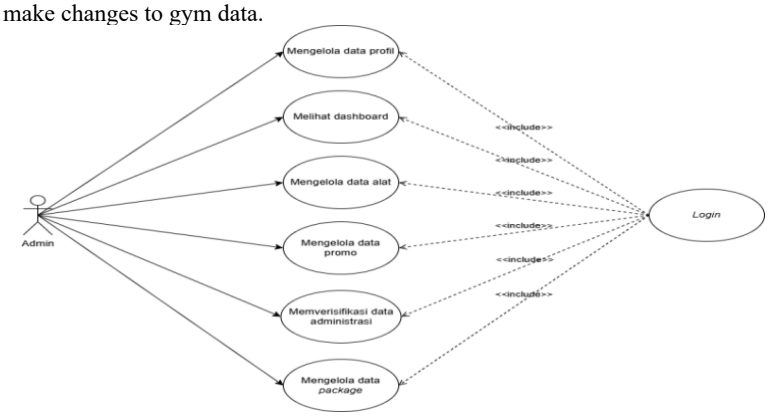

Fig. 1: Use case diagram admin

This picture illustrates the interaction between members and the system on the Nahaga Gym website. members can view tool data, view promos, view notifications, and view profiles after logging in. In addition, members can register to create an account and purchase packages, which also includes the login process as part of user verification. After purchasing a package, members can download a member card as proof of membership. The include relation on “Buying a package” and “Downloading a member card” shows that both activities require a login process first before they can be performed.

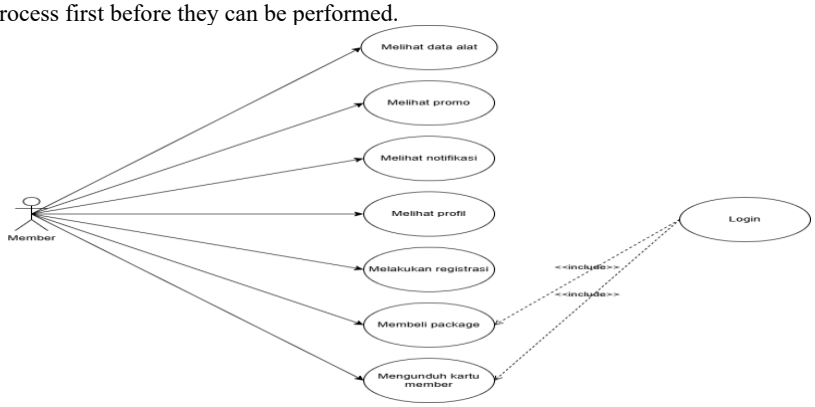

Fig. 2: Use case diagram member

3.2.1. Entity relation diagram

Entity-Relationship Diagram (ERD) is a diagram that visually models the structure of data in a database system. ERDs describe entities (main tables), attributes (data details), and relationships between entities. This diagram is used to understand and design the logical structure of data before it is implemented into the database, thus ensuring the data is well organized and interconnected.

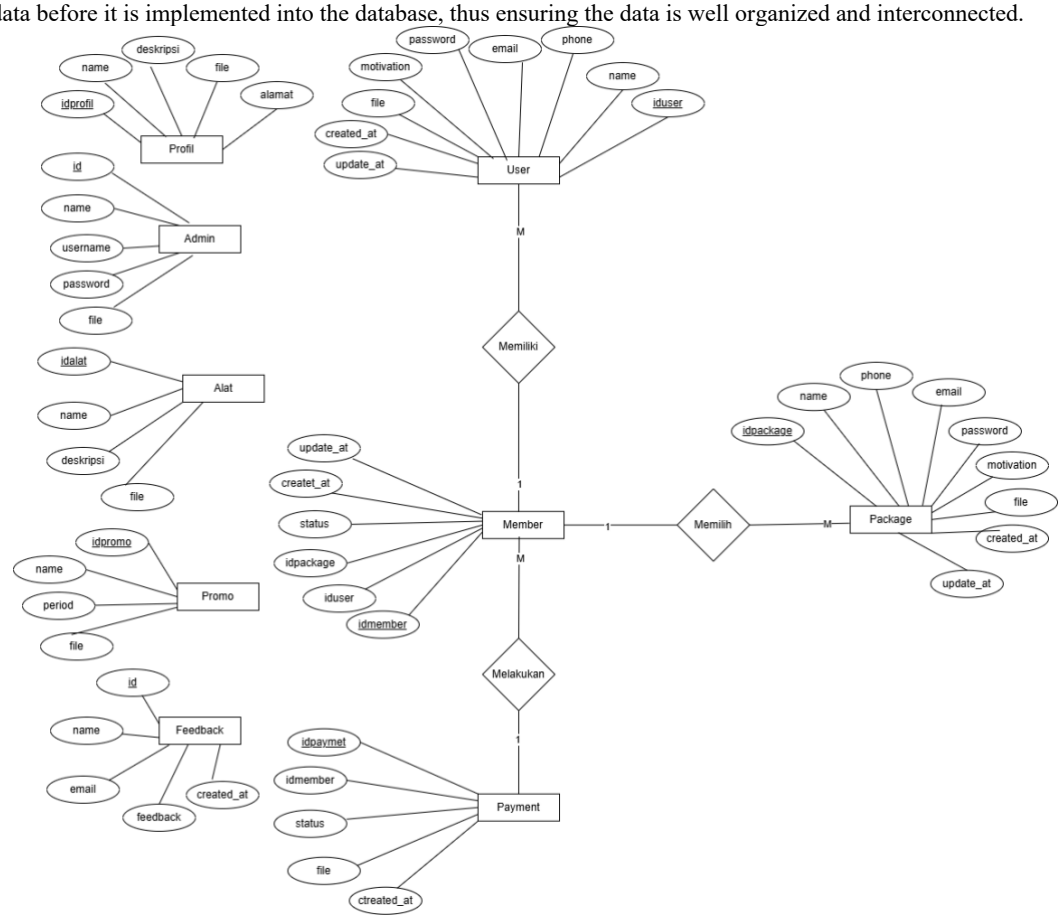

Fig. 3: Entity relation diagram

3.3. System Implementation

The implementation of a web-based information system at Nahaga Gym Sabu Seba aims to replace manual records with an integrated digital system. The system includes features for member registration, package selection, payment, member card download, and package expiration notification via email. Members can register and make transactions online, while admins can verify payments and manage data in real-time through a dashboard that displays the number of members and total revenue. The system is built using React.js, Node.js, and MySQL, which is expected to improve the efficiency, accuracy, and overall service quality of Nahaga Gym.

1. Homepage member

The homepage serves as the main page that welcomes visitors with initial information about the gym. It features navigation to Home, Profile, Equipment, and Promo, and displays the logo, gym name, and "Sign In" and "Sign Up" buttons. In addition, there are fitness-themed motivational quotes in the form of images to encourage and inspire visitors.

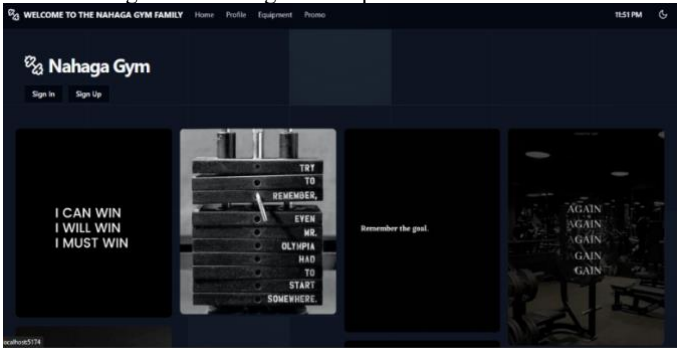

Fig. 4: Homepage member

2. Form regist

This registration form serves as an interface for new users to create an account in the application or service called “Nahaga Gym”. Users are asked to fill in information such as name, fitness goals, email, and password as a condition of registration. This form allows the system to recognize users, store their preferences or goals, and provide access to features that may only be available to registered users. There is also a link to log in for users who already have an account, as well as a promotional message at the bottom to encourage registration.

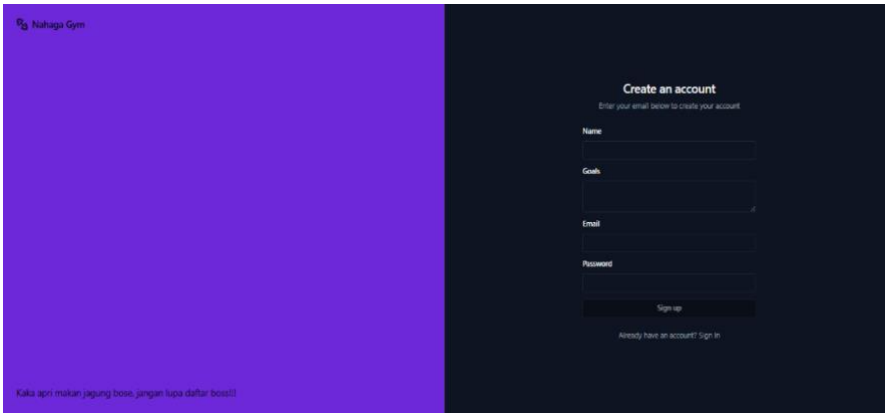

Fig 5: Form Regist

3. Display of the login page for member

This login form serves as a secure gateway for registered members to access their personal accounts, where they can enjoy exclusive features and services offered by the platform or app after successfully authenticating their identity through a valid email and password.

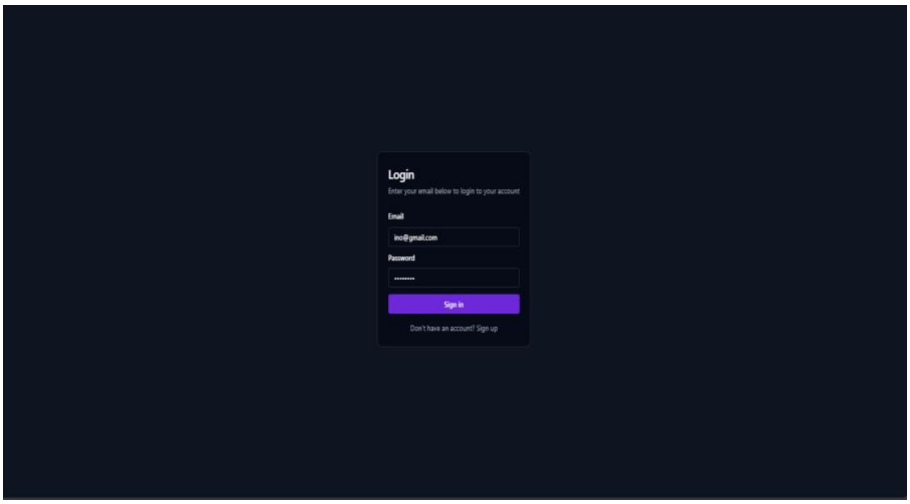

Fig. 6: Display of the login page for member

4. Buy package

This page serves as a place for gym members to select and purchase membership packages at promo prices. There are several package options based on user category (Student or General) and duration (1 month or 2 months), each with a 20% discount valid for 7 days. Users can view the price details before and after the discount, then choose the package according to their needs. At the bottom, there is also a purchase history, although in this example no transactions have been recorded.

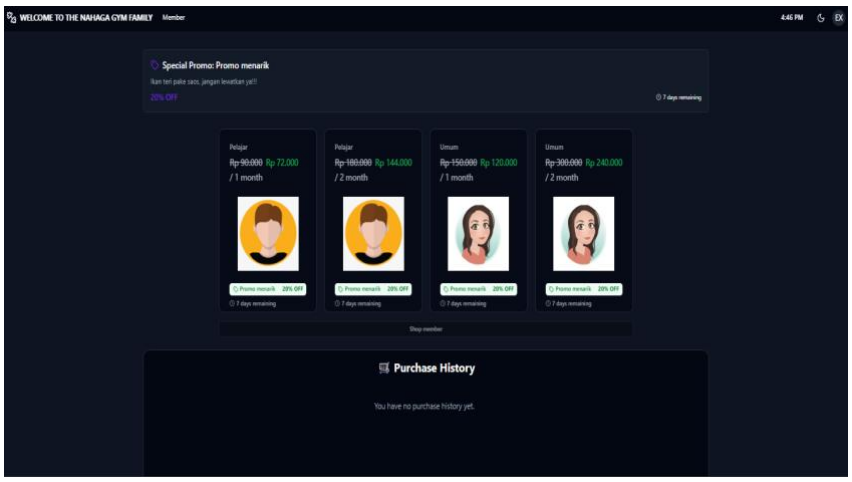

Fig. 7: Buy package

5. Download card member

This page serves to display member information at Nahaga Gym, including member status, package type (e.g. “Student”), fees, and validity period. In this section, members can download their digital identity card that contains a QR code for verification purposes or access to gym facilities. In addition, this page also lists the purchase history although in this screenshot, no transactions have been recorded. This page helps members monitor their membership status independently with ease and speed.

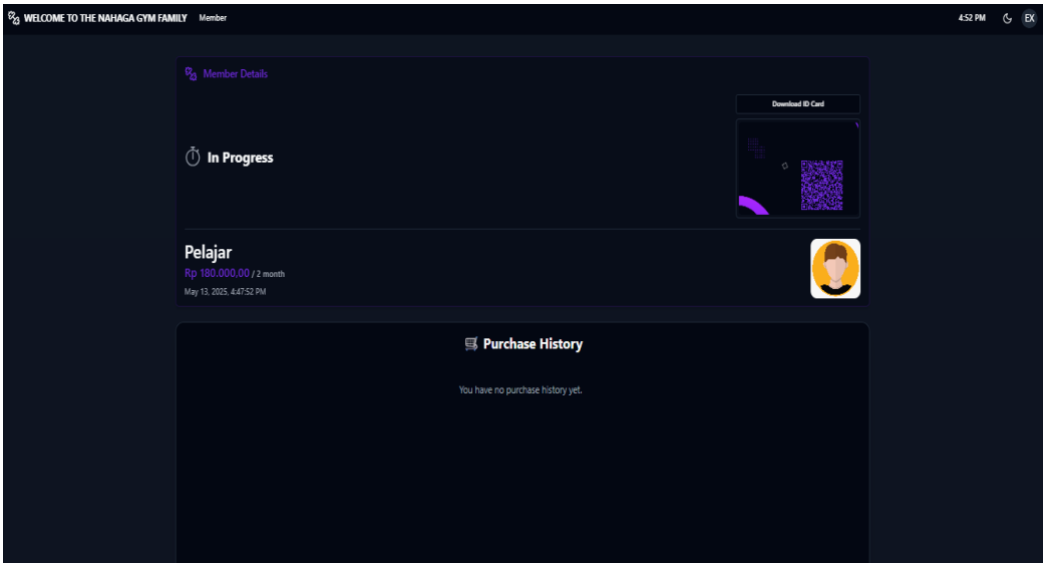

Fig. 8: Download Card Member

6. Form payment

This payment form serves to facilitate Nahaga Gym members in uploading proof of payment after making a transfer to the account listed. This form displays the details of the package purchased, including the type of package, the price after discount, and the promo applied. Members are asked to upload the proof of payment file via the upload feature provided, then click the “Submit Payment” button so that the proof can be verified by the admin. Once this process is complete, the payment status will be recorded, and the member's purchase history will be updated in the “Purchase History” section.

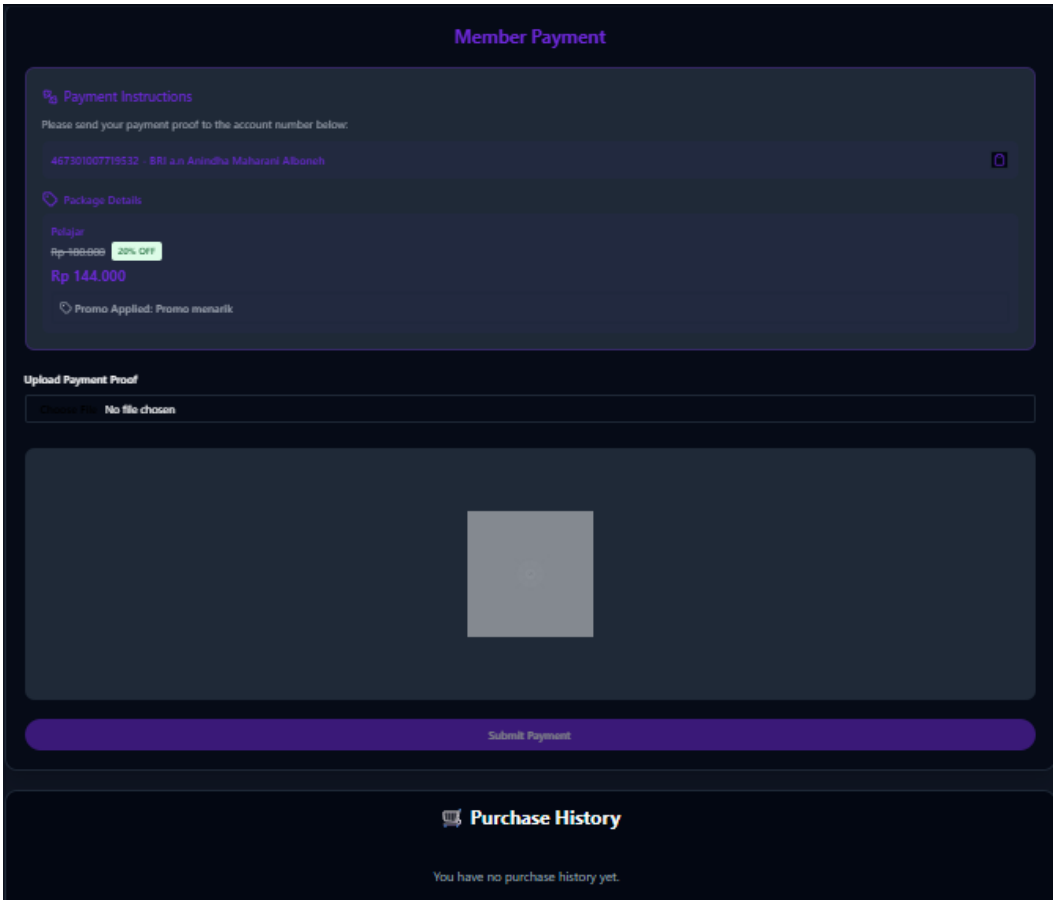

Fig. 9: Form payment

7. Login admin

The login form is the initial page used to authenticate the admin before accessing the system. In this form, the admin is asked to enter the Username and Password that has been registered in the database. If the data entered is correct, then the admin can enter the system and use the available features.

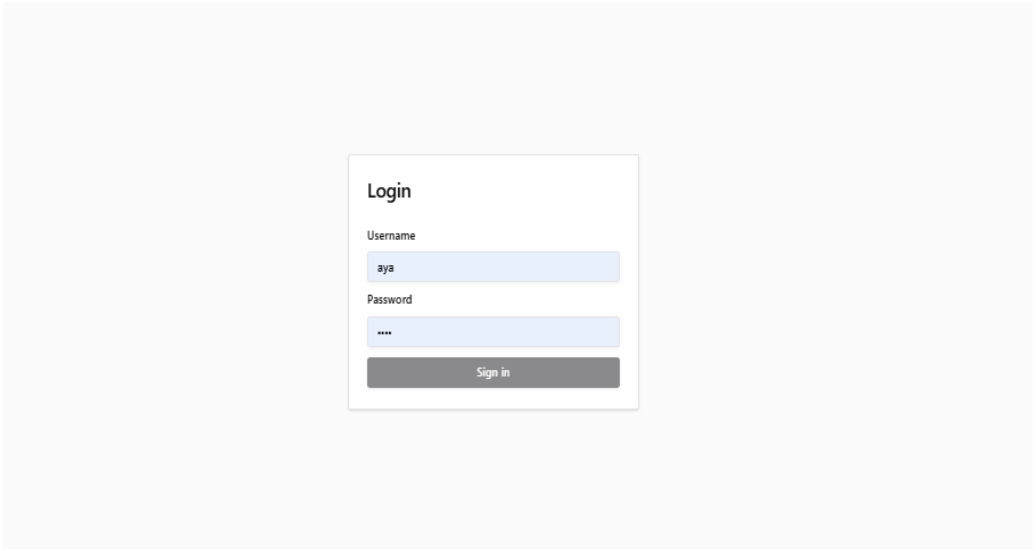

Fig. 10: Login Member

8. Dasboard admin

This dashboard serves as a monitoring center for member and financial data on the Nahaga Gym web system. On the left there is a "Registered Users Chart" which displays the number of new member registrations per month throughout 2024, with a total registration of 2 members. Meanwhile, the right section displays the total revenue from package purchases by members, which is displayed in rupiah currency format and can be filtered by year, month, and week. This feature helps the admin to monitor the development of the number of members and income in an efficient and organized manner.

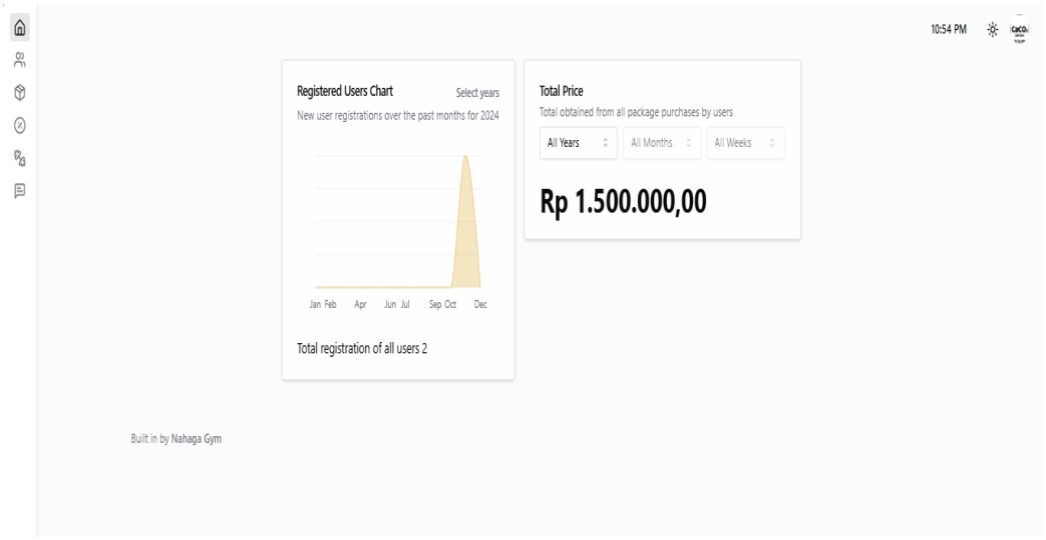

Fig. 11: Dasboard admin

9. User list

This page serves to display user data that has been registered in the Nahaga Gym system. The information displayed includes profile picture, full name, email address, registration time (created at), and last updated time (updated at). The search feature makes it easy for admins to search for users by name, while the checkbox allows the selection of multiple users at once for certain actions. This display helps admins manage user data efficiently and in an organized manner in a web-based system.

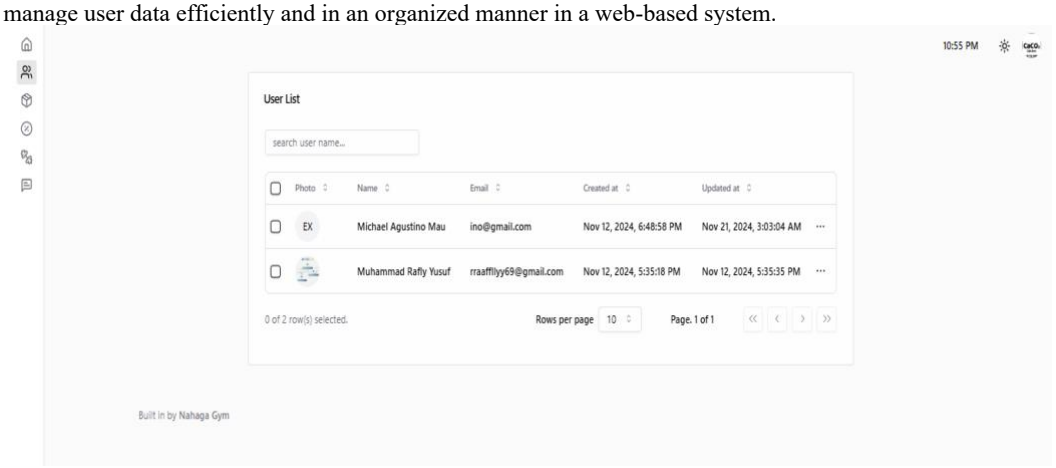

Fig. 12: User list

10. Verification of administrative data

This page serves as an administrative interface to manage the status of members and payment members in a system. On the left side, it displays member details such as name, email, registration time, and member status including the package taken. Admins can update member status through the “Edit Member” panel on the top right side, and manage payment status in the “Edit Payment” panel below it. There are also buttons to reset and update the status, which facilitates efficient data management. This view is commonly used to verify and archive member administration processes.

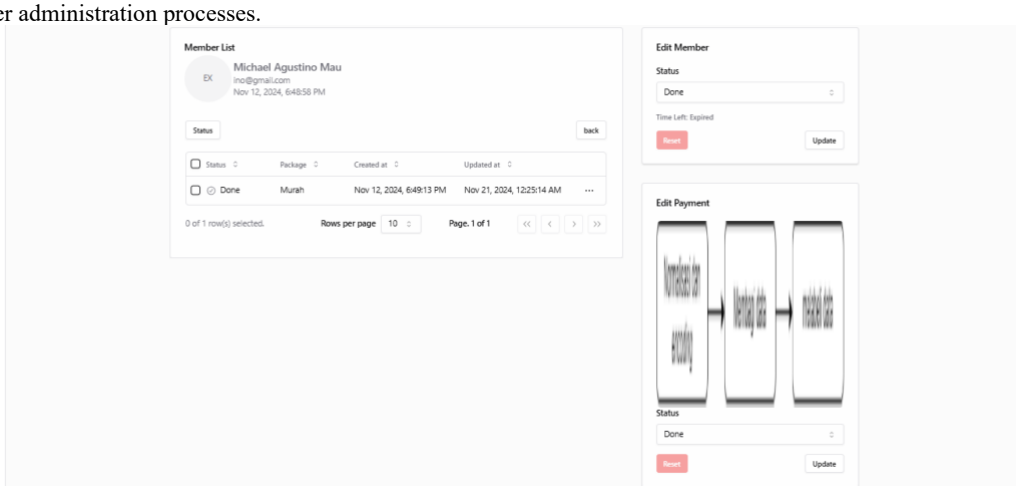

Fig. 13: Verification of administrative data

11. Manage gym profile

This form is used to manage and update basic information about a gym, such as gym name, description, and address. Admins can fill in or change the data provided in the fields, then press the “Update profile” button to save the changes. On the right side, a gym profile image (logo or representative photo) can be uploaded via the “Choose File” feature and the “Upload” button, allowing for a more professional and recognizable visualization for members or visitors.

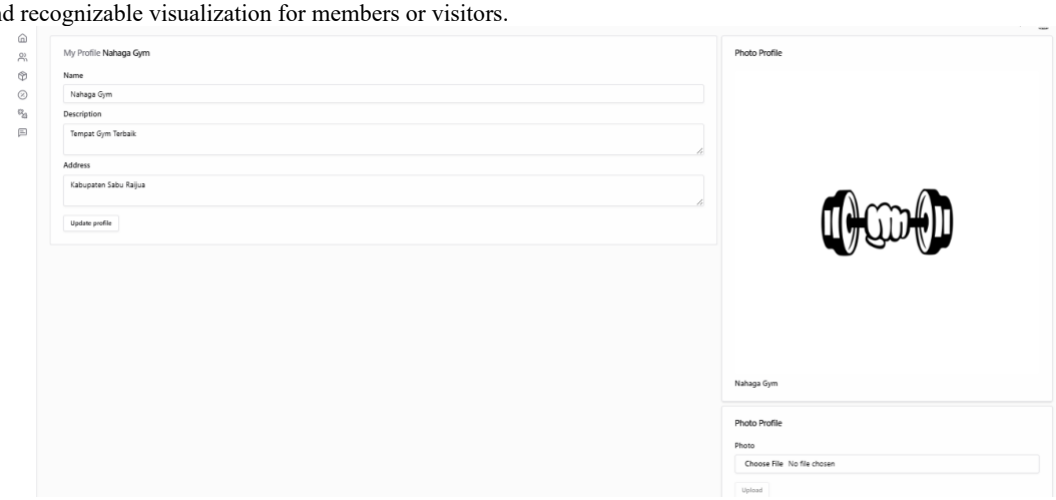

Fig. 14: Manage gym profile

4. Conclusion

Based on research that has been conducted by the author in developing a website-based information system at Nahaga Gym Sabu which was built to facilitate the member registration process, member package selection, payment process, and member card download digitally. Therefore, this system was developed to answer the needs in accessing Gym services that are more efficient, optimal, fast and can be accessed in real time. The development was carried out using the Agile method which allows an iterative and collaborative process, as well as customization of features according to user needs. An admin dashboard is also provided to monitor the number of active members and total revenue in real-time, thus supporting internal management more effectively. With these features, this website becomes a modern and integrated solution in gym service management.

5. Acknowledgement

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