



COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY

Caraga State University Cabadbaran Campus Gym Reservation System

Mabras, Jelyn

Ytac, Jenalyn

Caraga State University Cabadbaran Campus – College of Engineering and Information Technology

Bachelor of Science in Information Technology

Adviser

Ms. Agnes Hempasao

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ABSTRACT

This study aims to design and develop a web-based platform that automates the reservation of gym facilities and equipment for faculty members at Caraga State University, Cabadbaran Campus (CSUCC). The existing manual process often leads to scheduling conflicts, inefficiencies, and limited accountability. The proposed system, *CSUCC Gym Reservation*, allows faculty members to make reservations and report lost or damaged equipment online, while administrators manage approvals, inventory, and reports efficiently.

The project follows a developmental research design using the System Development Life Cycle (SDLC) framework, which includes planning, analysis, design, implementation, and evaluation phases. Web technologies such as HTML, CSS, JavaScript, PHP, and MySQL will be utilized to ensure functionality, accessibility, and reliability.

Upon completion, *CSUCC Gym Reservation* is expected to improve transparency, streamline gym operations, and reduce administrative workload through automated processes and data-driven management.

Keywords: Gym Reservation System, Web-Based System, Inventory Management, Faculty Reservation, System Automation

CHAPTER I

Introduction

1.1 Background of the Study

Gym Reservation is a web-based system created by CSUCC to simplify the reservation of gym facilities and equipment for faculty members. Currently, the booking and monitoring of gym facilities are handled manually, resulting in inefficiencies, scheduling mistakes, and a lack of accountability. Faculty members often find it challenging to assess the current availability of equipment, while administrators face obstacles in overseeing reservations and tracking equipment status.

This study aims to address these issues by providing a structured, user-friendly, and centralized system that allows faculty members to book gym equipment and facilities efficiently. The platform enables users to view available equipment, submit reservation requests, and report issues such as damage or loss. It offers administrators tools for managing equipment inventory, overseeing faculty accounts, processing requests, and generating analytical reports to support decision-making. By enabling real-time reservation tracking, inventory management, and automated reporting, Gym Reservation improves transparency, accessibility, and accountability while reducing administrative workload burdens.

1.2 Statement of the Problem

This study aims to address the inefficiencies in the current manual reservation process for gym facilities and equipment at Caraga State University, Cabadbaran Campus (CSUCC). Specifically, it seeks to answer the following questions:

General Problem:

1. How can a web-based gym reservation system be developed to enhance efficiency, transparency, and accountability in managing gym facilities and equipment at CSUCC?

Specific Problems:

1. How can the system allow faculty members to quickly verify the current availability of gym equipment and facilities?

2. How can the system promote accountability by providing a formal mechanism for reporting damaged or lost equipment?
3. How can the system reduce the administrative workload by automating reservation verification, record management, and inventory tracking?
4. How can the system provide administrators with analytics and reports on equipment usage, peak reservation times, and inventory needs?
5. How can the integration of a real-time chatbox feature enhance communication and responsiveness between faculty members and administrators regarding equipment concerns, availability, and reservation updates?

1.3 Objectives of the Study

General Objective:

To develop a web-based CSUCC Gym Reservation System that simplifies and automates the reservation process, ensuring efficient resource management, transparency, accountability, and enhanced communication between faculty members and administrators.

Specific Objectives:

Specifically, this study aims to:

1. **Develop** an organized online platform for faculty members to reserve gym equipment and facilities.
2. **Enable** administrators to manage equipment inventory, faculty accounts, and reservation requests efficiently.
3. **Provide** faculty members with a real-time chatbox feature to communicate directly with administrators regarding equipment damage, reservation status, or gym availability.
4. **Generate** analytics and reports that support effective planning, monitoring, and resource allocation.
5. **Minimize** manual errors and administrative workload through automation of tracking, approval, and reporting processes.

1.4 Scope and Delimitation

The study focuses on developing a web-based gym reservation system exclusively for the faculty members and administrators of Caraga State University, Cabadbaran Campus (CSUCC). The system allows faculty members to reserve gym facilities and equipment, while administrators are given control over managing reservations, inventory, and reports. The system's primary functions include real-time reservation tracking, user account management, and report generation.

However, the system is limited to internal use within CSUCC and does not cater to external users or students. It will not include features such as mobile app integration, third-party authentication, or online payment systems. The system's database is also limited to gym equipment and facilities managed by the university's gym administration.

1.5 Significance of the Study

The development of the CSUCC Gym Reservation System is significant to the following stakeholders:

- **Faculty Members:** The system provides a reliable and convenient platform for reserving gym equipment and facilities, checking availability, and reporting issues anytime and anywhere.
- **Administrators:** Through automation, the system reduces manual workload, simplifies approval processes, and ensures accurate inventory and reservation records.
- **Institution (CSUCC):** Implementing the system enhances accountability and transparency, ensuring efficient use of university resources and improving operational management.
- **Future Researchers/Developers:** The study serves as a useful reference or baseline for future research and development of similar reservation and inventory systems.

Additionally, the system contributes to environmental sustainability by minimizing the use of paper-based documentation and promoting digital recordkeeping.

1.6 Definition of Terms

Reservation System: A digital platform used to book, manage, and track the availability of facilities or resources.

Inventory Management: The process of monitoring and controlling equipment or resource stocks to ensure accurate tracking and efficient use.

Analytics: The use of data and statistical analysis to gain insights into system performance, resource utilization, and user behavior.

Accountability: The responsibility of users and administrators to ensure proper use, reporting, and management of gym equipment and facilities.

Automation: The use of technology to perform repetitive tasks with minimal human intervention, improving efficiency and accuracy.

CHAPTER II

Review of Related Literature and Studies

This chapter reviews literature and studies related to the development of the CSUCC Gym Reservation System, a web-based platform designed to automate and streamline the process of reserving gym facilities and equipment. These references provide insights into existing systems, approaches, and findings that serve as the foundation for the proposed project.

Ebrahimi, Gutti, Singh, and Gupta developed Gym Scheduler: A Gym Equipment Reservation System to reduce long waiting times for gym equipment during peak hours at Northeastern University. Their system allowed users to reserve equipment for specific times, resulting in better time management and improved user satisfaction. Findings revealed that users preferred online platforms that provided convenience and motivation in organizing workouts.

Similarly, Giunchi (2018) created Gimify: Development of a Progressive Web App to Reserve Gym Assets, which highlighted the growing reliance on digital tools for daily services, including gym reservations. The mobile-friendly app enabled users to book equipment before arriving, minimizing delays and promoting consistent workout routines. The study emphasized how technology enhances user satisfaction and efficient facility management.

Löthman and Liljeblad's Committed to Exercise: A Qualitative Study on the Persuasive Effect and Potential of a Gym's Online Booking System explored how booking systems affect users' motivation to exercise. Results showed that structured online reservations foster accountability and consistency, as users felt more committed to their exercise schedules.

Guo, Zhang, and Wang (2024) introduced the Design and Implementation of Gymnasium Venue Reservation System Based on SpringBoot and Vue Framework, which provided separate user and administrator modules for managing venue availability, data, and notifications. Utilizing Java, SpringBoot, and MySQL, the system ensured reliable and real-time performance, highlighting how automation improves sports facility operations.

Additionally, Lakshitha and Sirisuriya designed an *Automated Platform to Manage Customer Relationships in a Gymnasium*, integrating features such as member tracking, trainer assignments, and payment monitoring. Their study found that automation reduces errors, improves accuracy, and simplifies management tasks, resulting in more efficient gym operations.

Ahmad, Julaihi, Sakawi, Stephen, Dzulkifli, and Soosay Nathan (2024) developed the Sports Facility Reservation System (STFS) for Universiti Tun Hussein Onn Malaysia (UTHM) to address the uneven usage of university sports facilities, including stadiums, football fields, gyms, and squash courts. Their system incorporated features such as user registration, login, facility booking, and database management, using MySQL, XAMPP, CSS, and PHP. Expert evaluations conducted via questionnaires indicated that the STFS effectively fulfilled its goals, providing an organized and accessible platform for reserving university sports facilities, thereby supporting community engagement initiatives.

Similarly, Liu Hu (2023) explored the Construction of a Mobile Intelligent Service System for Urban Gymnasiums based on the Simulated Annealing Algorithm. This system integrated technologies such as the Internet of Things, cloud computing, and intelligent data mining to optimize the management and scheduling of urban sports facilities. The study demonstrated that algorithm-based intelligent systems can improve competition fairness, enhance user participation, and increase the overall value of sports venues by providing efficient spatial analysis and reservation functionalities.

Galyńska and Zhao Binsyuy (2024) analyzed the operation and management strategies of smart university gymnasiums in China. Their study highlighted the importance of advanced technical solutions and management approaches in enhancing operational efficiency, user experience, and sustainable development of sports venues. By implementing smart systems, gymnasiums can collect accurate data on public fitness activities, consumption patterns, and health metrics, which can then be shared with relevant sports organizations and authorities for improved decision-making and resource allocation.

Li Li and Ke Ning (2022) proposed an intelligent operation model for university gymnasiums in Shaanxi Province, addressing challenges such as low utilization rates, traditional management inefficiencies, and low revenue. Their system enabled app-based venue reservations, time adjustments, and detailed record-keeping, while also recommending a market-oriented operational mechanism to balance public welfare and revenue generation. The study emphasized that intelligent operations can optimize facility usage and reduce labor and maintenance costs.

Rahul Babu, Zhixiang Jin, and Azmir Ahmad (2019) developed an *Information Management System for Sports Gymnasiums in Colleges and Universities*, integrating functions such as employee, customer, site, cost, and system management. The system facilitated data sharing and process optimization, enhancing the efficiency of gymnasium operations. Findings demonstrated that the system provided practical application value by streamlining management tasks and supporting open, accessible management of daily gymnasium activities.

In summary, existing literature collectively highlights the significance of integrating automation, intelligent algorithms, and information management systems in the operation of sports and gymnasium facilities. The findings demonstrate that digital solutions enhance efficiency, accessibility, user satisfaction, accountability, and data-driven decision-making. Guided by these insights, the proposed CSUCC Gym Reservation System aims to address the limitations of the current manual process by providing a centralized, intelligent, and user-friendly platform for managing reservations and tracking gym resources.

CHAPTER III

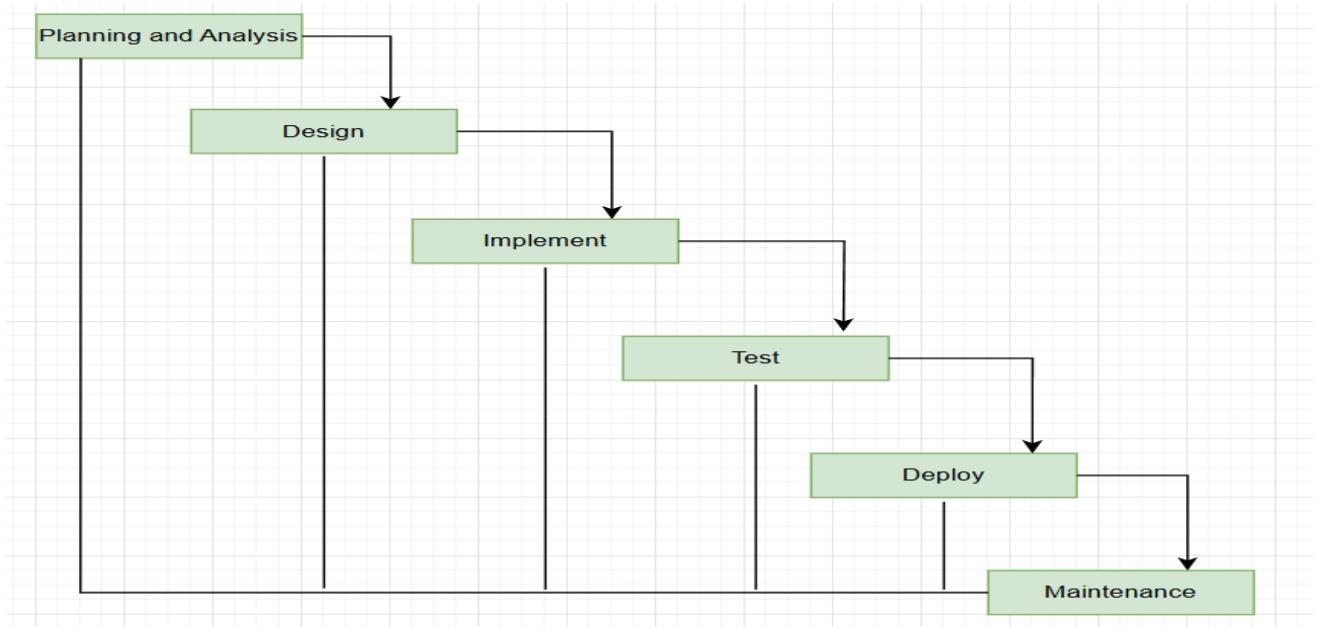
Methodology

3.1 Research Design

This study utilized a developmental research design since it focuses on the creation and implementation of a web-based system that automates the gym reservation process at Caraga State University, Cabadbaran Campus (CSUCC). The developmental approach was chosen because the primary goal of the project is to design, develop, and evaluate a functional system that addresses the challenges of manual gym equipment reservations. The research process involved analyzing user requirements, developing a prototype system, testing its performance, and evaluating its effectiveness in improving efficiency, transparency, and accountability within the gym management process.

3.2 System Design and Development

The development of the **CSUCC Gym Reservation System** followed the **System Development Life Cycle (SDLC)**, specifically the **Waterfall Model**, as it provides a structured and systematic approach to system creation. The model includes the following phases:



System Architecture / Framework

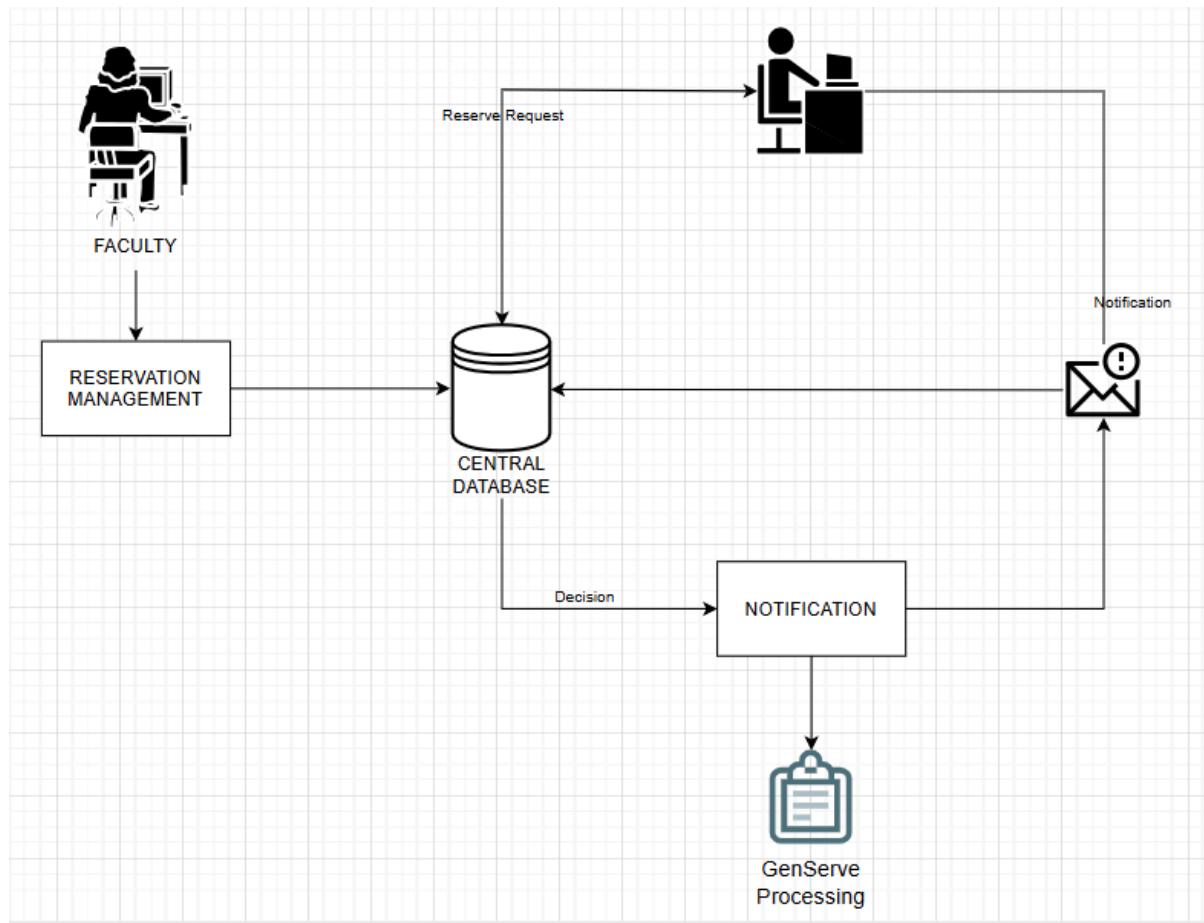


Figure 3.1: System Architecture of CSUCC Gym Reservation System

Figure 3.1. System Architecture of the CSUCC Gym Reservation System

The architecture of **Gym Reservation** consists of **three layers**:

1. Presentation Layer (Frontend):

This layer serves as the primary interface for faculty members and administrators. Through the Reservation Management interface, users can submit reservation requests, view updates, and interact with the system. It ensures that all user inputs are properly collected and forwarded for processing.

2. Application Layer (Backend):

This layer handles the core system logic. It processes reservation requests, communicates with the central database, and determines system decisions such as approval or denial of requests. It also manages the notification flow, ensuring that users receive timely updates based on system actions.

3. Database Layer:

This layer is responsible for storing and maintaining all essential data within the system, including reservation records, user information, schedules, and notification logs. It provides secure and consistent data management, ensuring that information is accurately saved, retrieved, and updated whenever needed.

Flow of the System

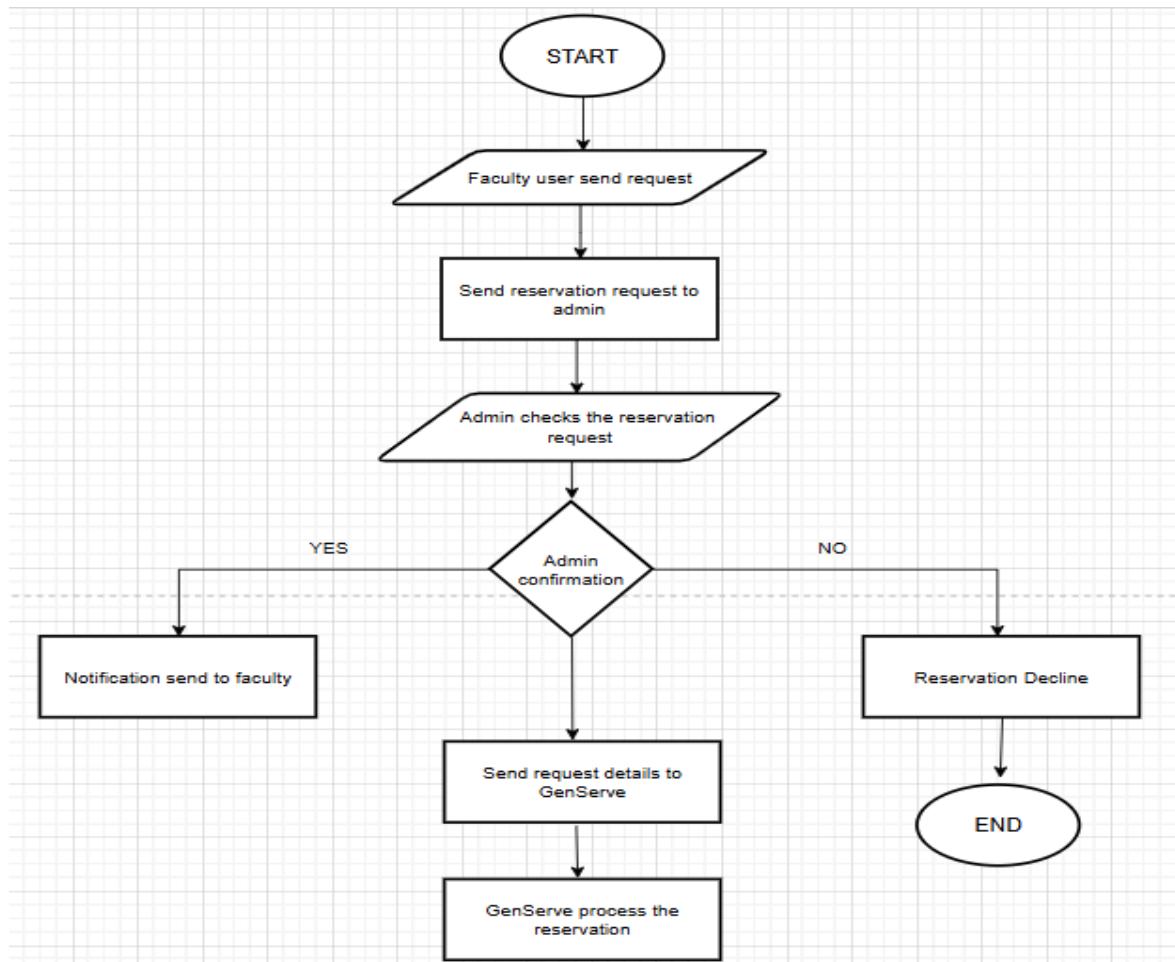


Figure 3.2: Flowchart of the CSUCC Gym Reservation Process

Figure 3.2. Flowchart of the CSUCC Gym Reservation Process

This system flowchart illustrates the process of reserving the CSUCC gym facility through an online platform. The process begins when a faculty user submits a reservation request, which is then forwarded to the admin for review. The admin checks the details of the reservation request and decides whether to approve or decline it.

If the reservation is approved, the system sends a notification to the requesting faculty member and forwards the reservation details to the GenServe unit for processing. GenServe then handles the confirmed reservation, ensuring that the schedule and facility arrangements

are properly managed. However, if the admin declines the request, the system marks the reservation as declined, and the process ends.

Data Flow Diagram (DFD)

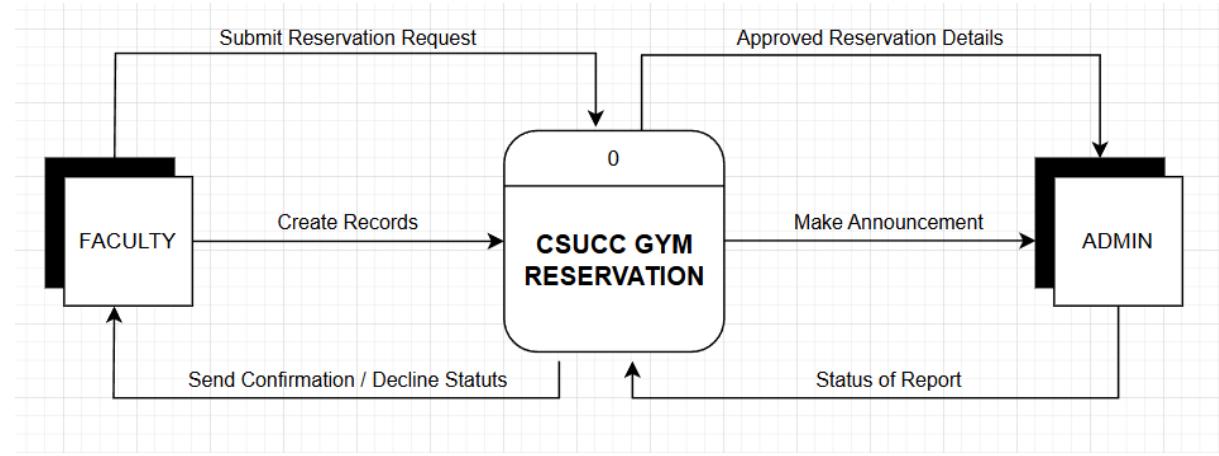


Figure 3.3: Diagram 0 for CSUCC Gym Reservation System

Figure 3.3 illustrates the Current Context Data Flow Diagram (DFD) of the CSUCC Gym Reservation System, designed to manage and streamline the process of reserving the gym facilities within the campus. Within this diagram, two primary external entities are depicted: “Faculty” and “Admin”, both of which interact with the system.

The Faculty entity initiates the process by submitting a Reservation Request, which is received and processed by the CSUCC Gym Reservation System. The system then creates records of these requests and evaluates them. Once the request has been reviewed, the system sends back a Confirmation or Decline Status to the faculty, informing them of the result of their reservation submission.

On the other hand, the Admin entity interacts with the system by reviewing Approved Reservation Details, monitoring the Status of Reports, and making announcements related to gym schedules or availability.

This diagram clearly demonstrates the directional flow of information between the Faculty, Admin, and the CSUCC Gym Reservation System, emphasizing how the system facilitates efficient reservation management, communication, and record-keeping within CSUCC.

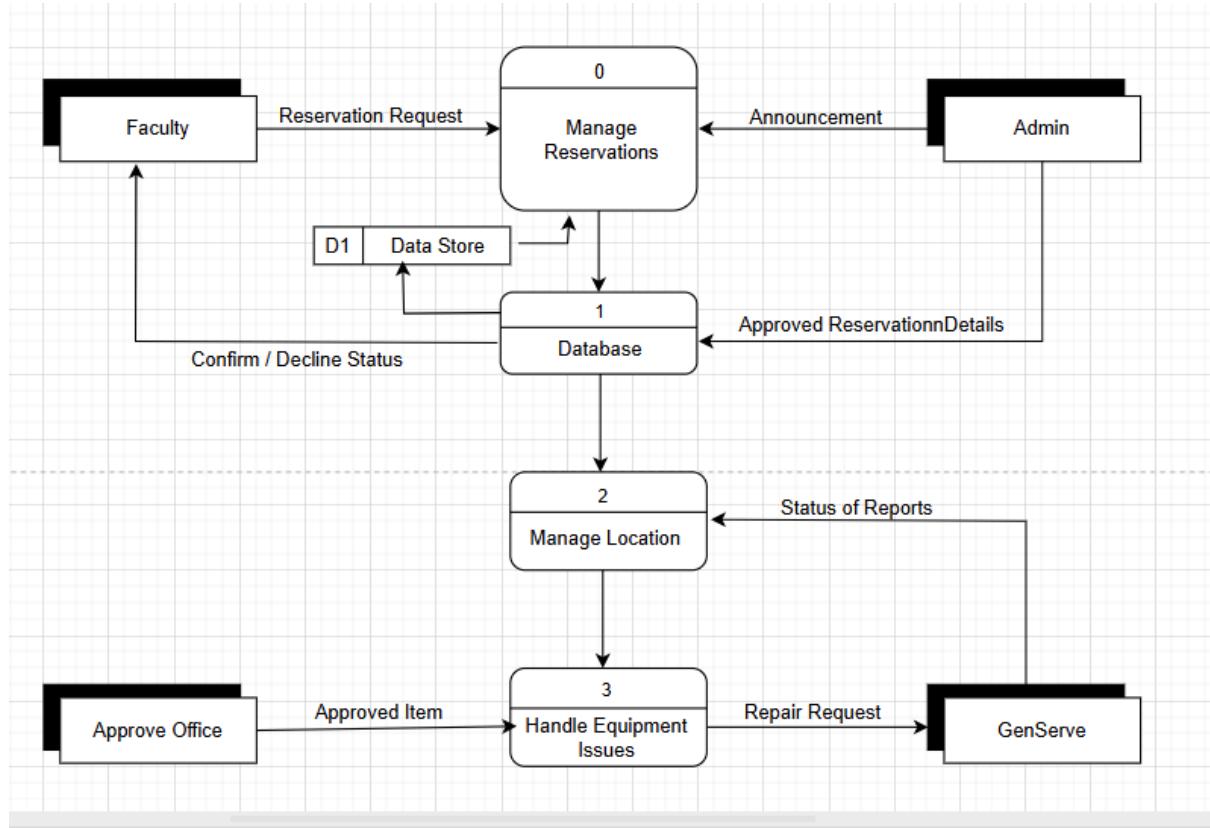


Figure 3.4: Diagram 0 for CSUCC Gym Reservation System

Figure 3.4 presents the Level 0 Data Flow Diagram (DFD) of the CSUCC Gym Reservation System. The diagram provides an overview of how the system manages reservation requests, approvals, and equipment-related concerns within the gym facility. At the center of the process is the Manage Reservations module, which receives Reservation Requests from the Faculty and announcements from the Admin. Once a request is submitted, it is processed and stored in the Database (D1) for verification and tracking.

The Admin reviews the submitted requests and sends announcements or updates related to gym schedules and availability. The system then records the approval details in the database, and the Faculty is notified of the Confirm/Decline Status of their reservation.

After approval, the Manage Location module monitors the assigned venue or area for the approved reservation. It also receives the Status of Reports from related operations and forwards necessary information to the Handle Equipment Issues process. This process manages gym equipment concerns and coordinates with two external entities: Approve Office, which handles approved items, and GenServe, which processes Repair Requests when maintenance or servicing is required.

Overall, the diagram illustrates the systematic flow of information and interaction between users, administrators, and support services, ensuring efficient handling of reservations, equipment maintenance, and location management within the CSUCC Gym Reservation System.

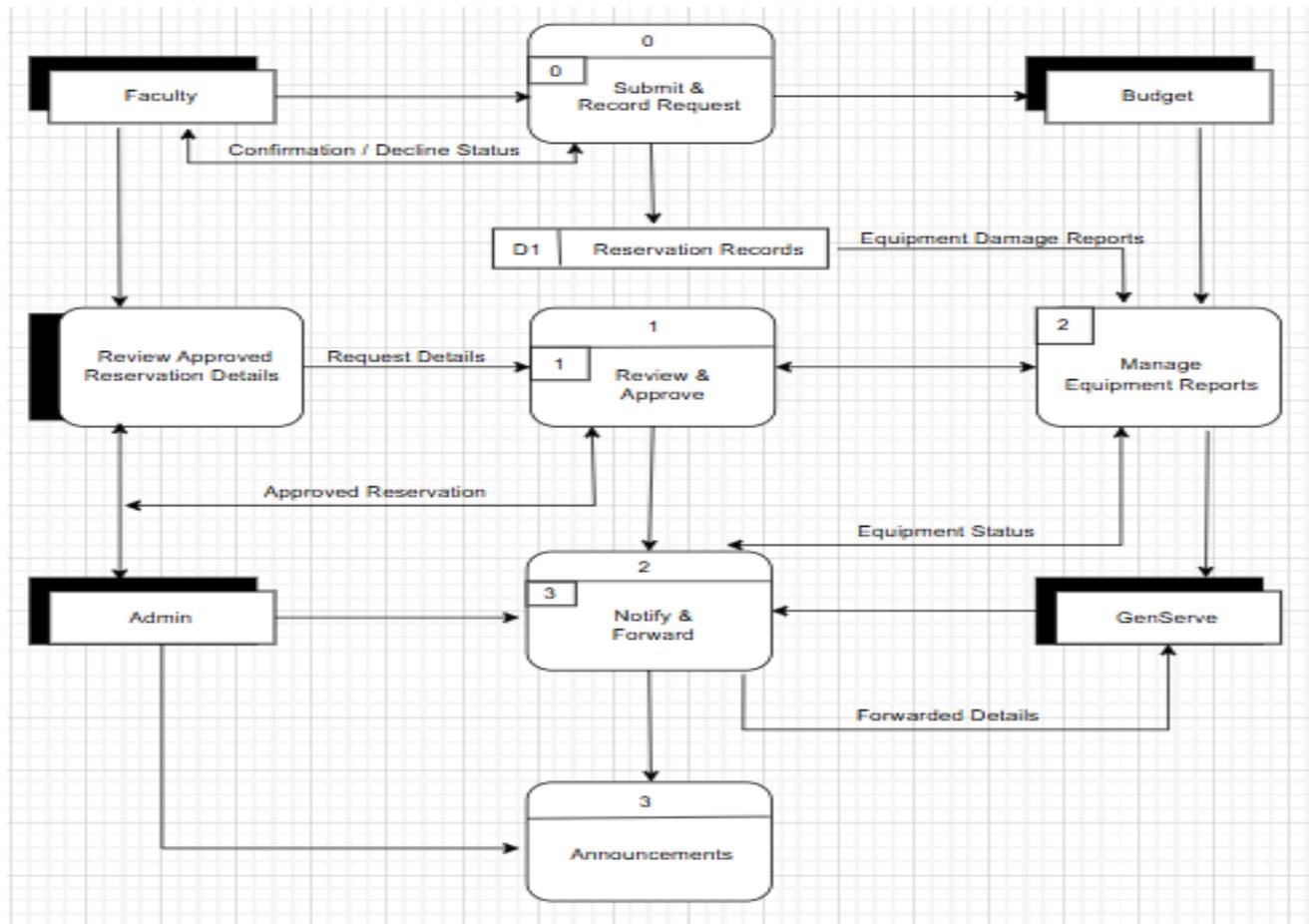


Figure 3.5: Diagram 0 for CSUCC Gym Reservation System

Figure 3.5 illustrates a Level 0 Data Flow Diagram (DFD) representing the structure and process flow of the CSUCC Gym Reservation System. This diagram provides a detailed overview of how reservation requests, approvals, equipment reports, and announcements are systematically managed within the system.

At the center of the process is the Submit & Record Request module, where the Faculty initiates gym reservation requests. These requests are recorded in the Database (D1) as Reservation Records and forwarded to the Review & Approve process for evaluation. The Budget Office is also linked to this process, submitting Equipment Damage Reports whenever maintenance or replacement is needed.

The Review & Approve process verifies the reservation details and communicates with the Manage Equipment Reports module to update the Equipment Status. Once approved, the system sends confirmation or decline notifications back to the Faculty and stores the finalized details in the database.

Simultaneously, the Notify & Forward process manages communication between internal units. It sends Forwarded Details to GenServe for necessary repairs and maintenance while providing updates to the Admin, who oversees and monitors all activities. The Announcements process then disseminates relevant updates, schedules, or reservation notices to all concerned users.

Overall, this DFD demonstrates the coordinated flow of data and responsibilities among the faculty, admin, budget office, and GenServe, ensuring efficient handling of gym reservations, equipment management, and maintenance within the CSUCC Gym Reservation System.

3.3 Materials, Tools, and Technologies

Hardware Requirements

- Laptop/Computer with at least an Intel Core i5 processor, 8GB RAM, and 512GB SSD
- Stable Internet Connection
- Localhost Server or Hosting Platform

Software Requirements

- Frontend: HTML5, CSS3, JavaScript
- Backend: PHP or Node.js

- Database: MySQL
- Development Tools: XAMPP, Visual Studio Code
- Version Control: Git and GitHub
- Design Tools: Draw.io (diagrams)

3.4 Data Gathering Procedure

Data gathering for the CSUCC Gym Reservation System was conducted through a combination of interviews and survey questionnaires to obtain both qualitative and quantitative information from the system's intended users. Interviews were held with selected faculty members, gym administrators, and GenServe personnel to gain deeper insight into the existing manual reservation process, including challenges in scheduling, equipment tracking, and communication. These interviews allowed the researchers to gather firsthand experiences, specific concerns, and practical suggestions that helped shape the system's initial design. To complement this, an online survey was distributed to a larger group of faculty and gym staff using Google Forms. The survey aimed to collect measurable data regarding user needs and expectations, focusing on issues such as usability, accessibility, and the effectiveness of the current workflow. The combined results from the interviews and surveys provided a comprehensive understanding of the problems faced by users and served as the basis for developing the features and functionalities of the proposed system.

3.5 Testing and Evaluation

After the development of the CSUCC Gym Reservation System, testing and evaluation were conducted using a survey-based assessment among faculty members, administrators, and GenServe personnel. Respondents were asked to perform actual system tasks such as browsing equipment, submitting reservations, viewing announcements, sending reports, and using the messaging feature. Once the tasks were completed, users answered a structured Likert-scale questionnaire designed to measure their satisfaction with the system's functionality, usability, efficiency, and reliability. Their survey responses provided objective feedback on how effectively the system addressed the problems identified during the interview and initial survey phase. The results were then analyzed to determine whether the system met user expectations and whether additional improvements were necessary to enhance the overall user experience.

3.6 Statistical Treatment

The data gathered from the survey during the testing and evaluation phase were analyzed using descriptive statistical methods. Frequency counts were used to identify how many respondents selected each rating for every questionnaire item, while percentage distribution presented the proportion of responses for each Likert-scale option. Weighted mean calculations were applied to determine the overall level of user agreement regarding key system qualities such as functionality, usability, efficiency, and reliability, with numerical values assigned to each Likert category for computation. The researchers also manually

created the graphical representations, including bar graphs and pie charts, to visually illustrate user response patterns and satisfaction levels. These statistical treatments enabled the researchers to accurately interpret the survey results and draw meaningful conclusions about the effectiveness and performance of the CSUCC Gym Reservation System.

CHAPTER IV

Results and Discussion

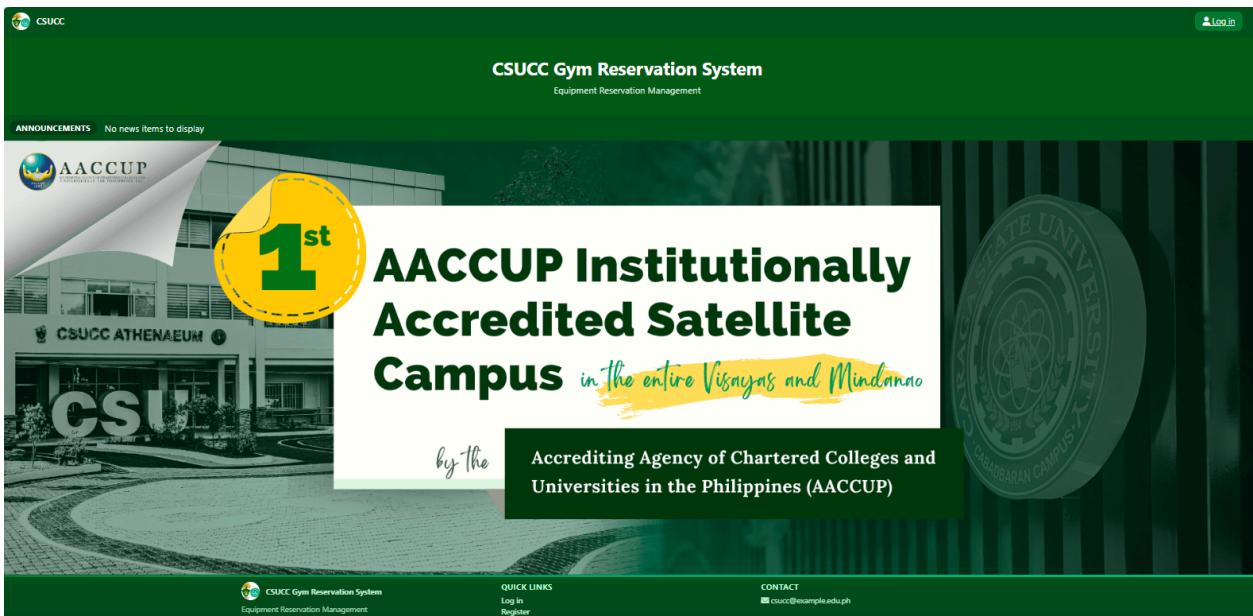
4.1 Overview

This chapter presents the results of the development and evaluation of the CSUCC Gym Reservation System. It includes the system's major features, user interface screenshots, and evaluation results based on functionality, usability, efficiency, and reliability. The discussion highlights how each module meets the objectives stated in Chapter 1 and demonstrates how the system addresses the existing problems of the current manual process.

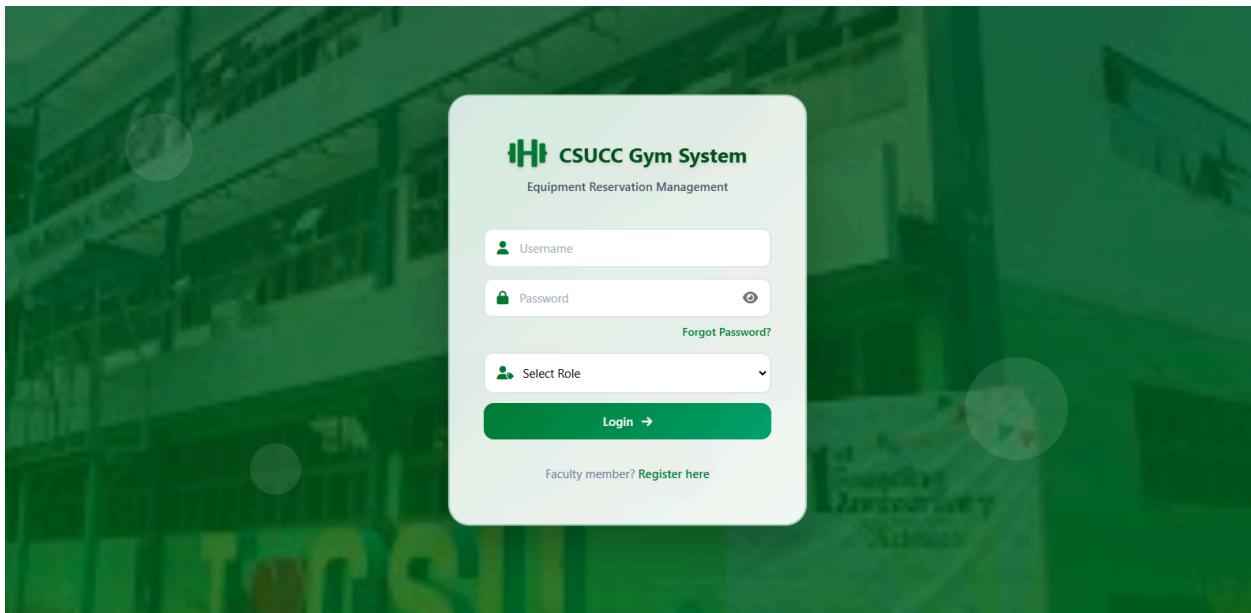
4.2 System Features and Functionalities

The Gym Reservation system was designed to automate and simplify the gym reservation and inventory process for faculty members and administrators of Caraga State University, Cabadbaran Campus (CSUCC). The system consists of several modules that collectively improve efficiency, transparency, and accountability.

4.2.1 Design of the User Interface



4.2.2 User Log-in Page



4.2.3 User Dashboard

A screenshot of the Faculty Dashboard. On the left is a dark sidebar with white text and icons. It includes links for "Home", "Browse Equipment", "My Reservations", "Announcements", "Submit Report", "Messenger", and "Logout". The main area has a light blue header with the text "Welcome, Jena Ytac!" and a small bell icon. Below the header is a section titled "Recent Notifications" with the subtext "No notifications yet.".

4.2.4 Browse Equipment

The screenshot shows the Faculty Dashboard interface. On the left is a dark green sidebar with white text and icons for Home, Browse Equipment, My Reservations, Announcements, Submit Report, Messenger, and Logout. The main area has a light blue background. At the top, it says "Welcome, Jena Ytac!" and features a green circular icon with a bell. Below this is a section titled "Browse Equipment by Category" with four cards:

- Audio & Visual**: LED, Lights, Mics, Speakers
- Furniture & Decorations**: Chairs, Tables, Tela, Chair Covers
- Power & Ventilation**: Ceiling Fans, Large Electric Fans
- Sports**: Basketball, Volleyball, Badminton Racket

4.2.4 Reserve Equipment

The screenshot shows a "Make Equipment Reservation" dialog box over a blurred background of the previous dashboard. The dialog has fields for Equipment (LED), Category (Audio & Visual), Date (dd/mm/yyyy), Time Range (e.g., 8:00-10:00 AM), Quantity (Available: 5, set to 1), and Purpose (a text area). At the bottom are "Cancel" and "Submit Reservation" buttons.

4.2.5 Submit Report

Welcome, Jena Ytac!

Submit Report

Equipment Name
Enter equipment name

Issue Description
Describe the issue in detail

Submit Report

My Report History

EQUIPMENT	DESCRIPTION	DATE SUBMITTED	STATUS
bangko	guba	11/4/2025, 10:256 PM	PENDING

4.2.6 User Message Box

Welcome, Jena Ytac!

Messenger

Chat with Admin

System Administrator 49m ago

fsfsf 49m ago

fsfsfsf 50m ago

Type a message...

4.2.5 Admin Dashboard

Welcome, System Administrator!

Pending Reservations **1**

Faculty Accounts **2**

Admin Dashboard

- Dashboard
- Reservation Requests
- Faculty Accounts
- Announcements
- Audit Logs
- Messenger
- Logout

4.2.7 Reservation Request

Reservation Requests

FACULTY	EQUIPMENT	DATE	TIME	QUANTITY	STATUS	ACTION
Jena Ytac	LED	2025-11-04	8:00-10:00	1	PENDING	✓ Approve ✗ Decline

Admin Dashboard

- Dashboard
- Reservation Requests
- Faculty Accounts
- Announcements
- Audit Logs
- Messenger
- Logout

4.2.8 Faculty Accounts

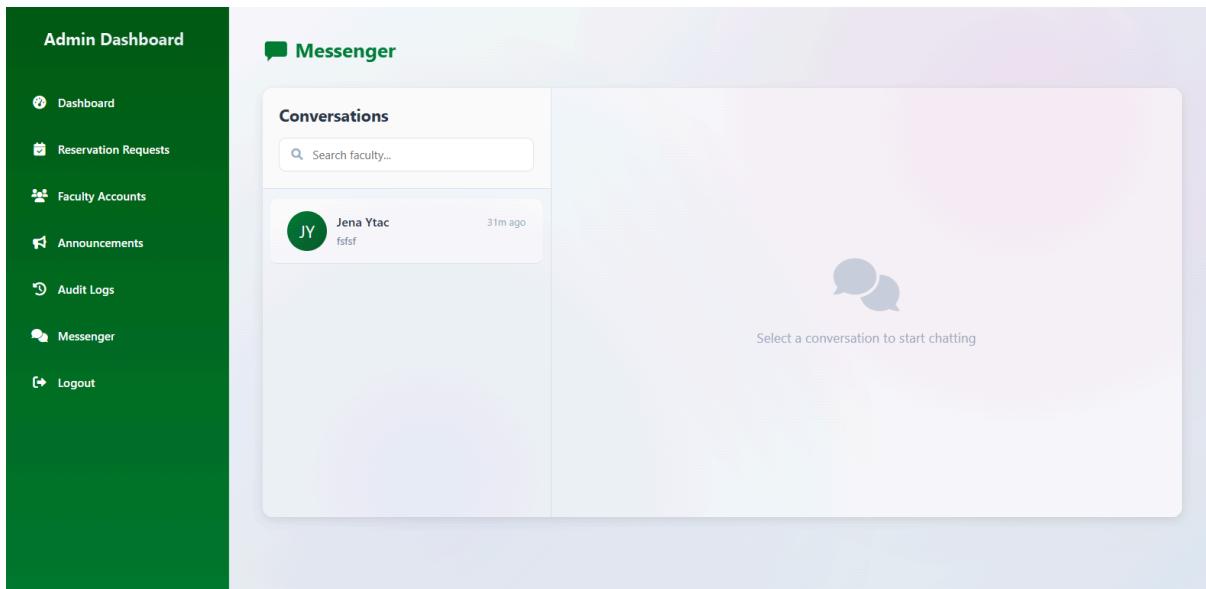
The screenshot shows the Admin Dashboard interface. On the left, a dark sidebar contains navigation links: Dashboard, Reservation Requests, Faculty Accounts (which is the active page), Announcements, Audit Logs, Messenger, and Logout. The main content area is titled "Faculty Accounts" and displays a table of user information. The table has columns for FULL NAME, USERNAME, EMAIL, and ACTION. Two rows are listed: one for "Jhon" and another for "Jena". Each row includes "Edit" and "Delete" buttons.

FULL NAME	USERNAME	EMAIL	ACTION
Jhon	Jhon	jhon@csucc.edu.ph	<button>Edit</button> <button>Delete</button>
Jena	Jena	jena@csucc.edu.ph	<button>Edit</button> <button>Delete</button>

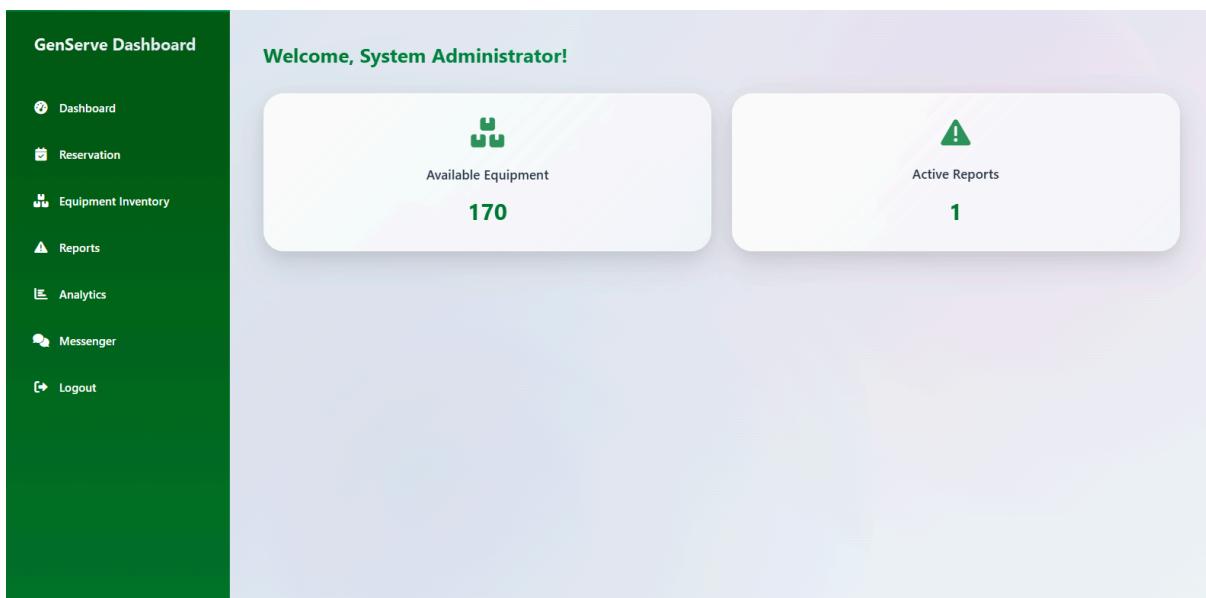
4.2.9 Admin Creating Announcements

The screenshot shows the Admin Dashboard with a modal dialog titled "Create New Announcement" overlaid. The dialog has fields for Title (with placeholder "e.g., Gym Maintenance Schedule") and Message (with placeholder "Enter announcement details..."). It also includes date and time input fields for Start Date, Start Time, End Date, and End Time. The background shows the sidebar with "Announcements" selected.

4.2.11 Admin Message Box



4.2.12 Genserve Dashboard



4.2.13 Reservation Details

No Reservations yet.

4.2.14 Equipment Inventory

NAME	CATEGORY	QUANTITY	STATUS	ACTION
LED	Audio & Visual	5 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Lights	Audio & Visual	8 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Mics	Audio & Visual	3 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Speakers	Audio & Visual	4 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Chairs	Furniture & Decorations	50 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Tables	Furniture & Decorations	20 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Tela	Furniture & Decorations	10 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Chair Covers	Furniture & Decorations	30 (Reserved: 0)	AVAILABLE	<button>Edit</button>
Ceiling Fans	Power & Ventilation	6 (Reserved: 0)	AVAILABLE	<button>Edit</button>

4.2.15 Reports

The screenshot shows the GenServe Dashboard interface. On the left, a dark green sidebar contains a navigation menu with the following items:

- Dashboard
- Reservation
- Equipment Inventory
- Reports
- Analytics
- Messenger
- Logout

The main content area is titled "Damage/Loss Reports". It features a table with the following columns: FACULTY, EQUIPMENT, DESCRIPTION, STATUS, and ACTION. There is one entry in the table:

FACULTY	EQUIPMENT	DESCRIPTION	STATUS	ACTION
Jena Ytac	bangko	guba	PENDING	<button>✓ Mark Fixed</button>

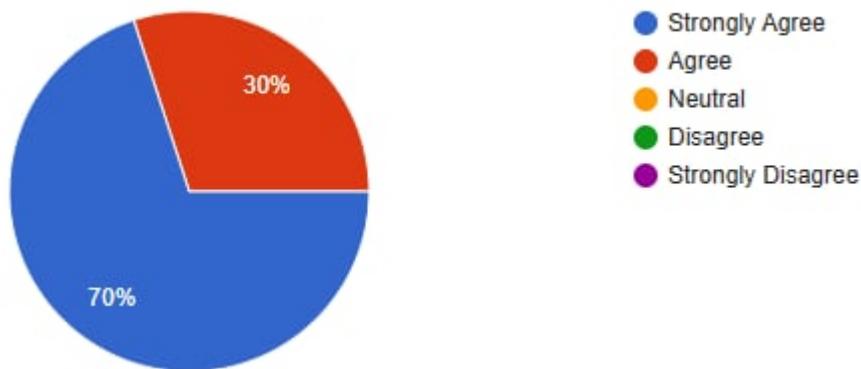
4.2.16 GenServe Message Box

The screenshot shows the GenServe Dashboard interface. The left sidebar is identical to the previous screenshot, featuring the same navigation menu.

The main content area is titled "Messenger". It displays a "Conversations" section with the message "Loading conversations...". Below this, there is a placeholder icon of two speech bubbles and the text "Select a conversation to start chatting".

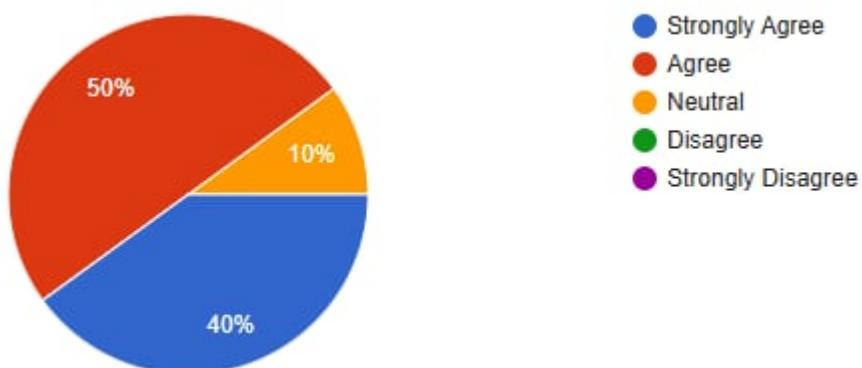
4.3 Frequency count and Percentage Distribution using Graphical Representation with Data Analysis

Q1. The system is easy to navigate and user-friendly.



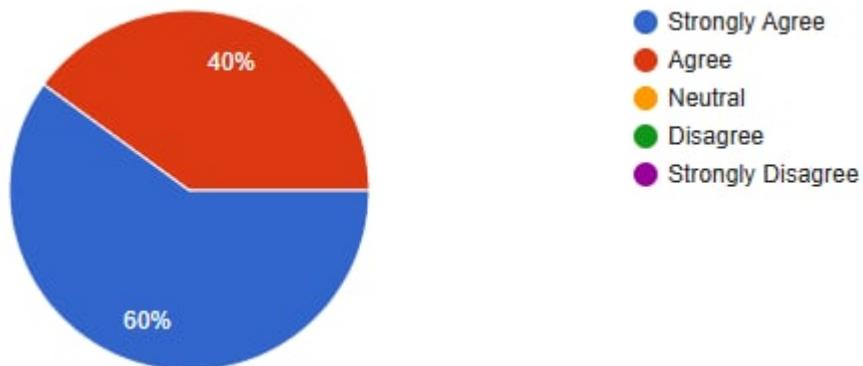
The data reveals strong positive sentiment regarding system usability. A combined 100% of respondents expressed agreement, with 70% strongly agreeing and 30% agreeing that the system is easy to navigate and user-friendly. The absence of neutral, disagree, or strongly disagree responses indicates universal acceptance of the system's interface design and ease of use.

Q2. The reservation process is faster and more efficient compared to the manual process.



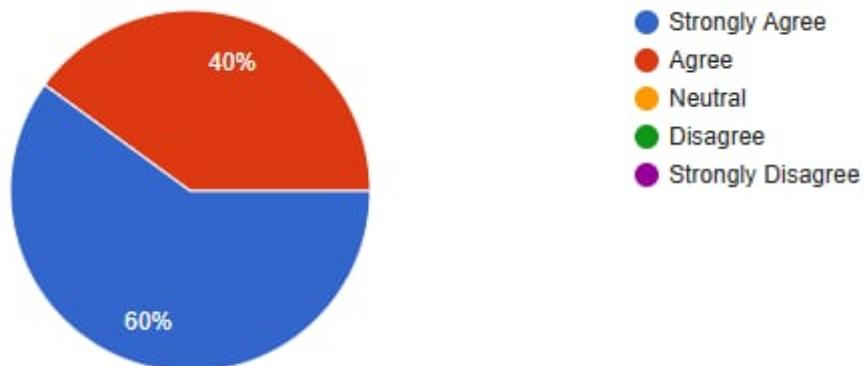
Regarding the reservation process efficiency compared to manual methods, responses were predominantly positive at 90% (40% strongly agree, 50% agree). However, 10% of respondents remained neutral, suggesting some users may not have experienced significant differences or may have limited exposure to the manual process for comparison. No negative responses were recorded, confirming overall satisfaction with the system's efficiency improvements.

Q3. The system provides clear information about equipment availability and reservation status.



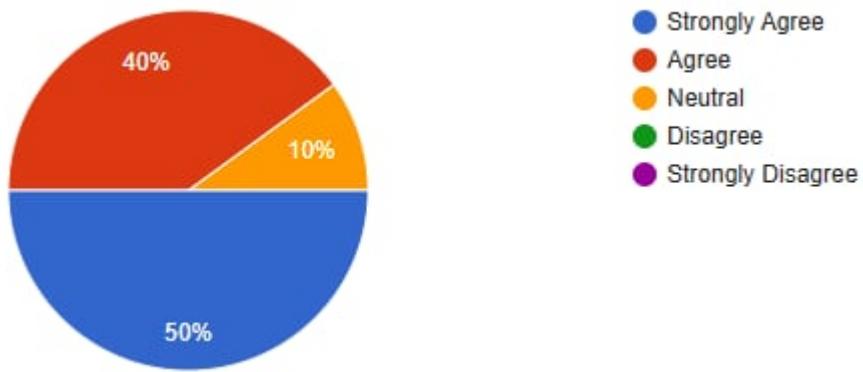
The system's ability to provide clear information about equipment availability and reservation status received complete positive feedback (100%), with 60% strongly agreeing and 40% agreeing. The unanimous approval demonstrates that the system effectively communicates essential information to users, eliminating confusion about equipment status.

Q4. The messaging feature effectively facilitates communication between users and administrators.



Communication facilitation between users and administrators through the messaging feature also achieved 100% positive responses (60% strongly agree, 40% agree). This indicates that the messaging functionality successfully bridges the communication gap and enhances user-administrator interaction within the system.

Q5. Overall, the Gym Reservation System of Caraga State University improves the experience of reserving gym and requesting equipment.



When evaluating the overall improvement to the gym reservation and equipment requesting experience, 90% of respondents expressed agreement (50% strongly agree, 40% agree), while 10% remained neutral. The absence of disagreement, combined with the majority positive response, confirms that the Gym Reservation System successfully enhances the user experience at Caraga State University.

4.4 Weighted Mean

Mean Range	Interpretation
4.20–5.00	Strongly Agree
3.40–4.19	Agree
2.60–3.39	Neutral
1.80–2.59	Disagree
1.00–1.79	Strongly Disagree

Item	Question	Mean
1	The system is easy to navigate and user-friendly.	4.70
2	The reservation process is faster and more efficient	4.30

	compared to the manual process	
3	The system provides clear information about equipment availability and reservation status	4.60
4	The messaging feature effectively facilitates communication between users and administrators	4.60
5	Overall, the Gym Reservation System of Caraga State University improves the experience of reserving gym and requesting equipment	4.40

All five items obtained weighted mean scores ranging from 4.30 to 4.70, indicating that respondents strongly agree with the statements presented. These results suggest that users perceive the Gym Reservation System as highly usable, efficient, and effective in enhancing the overall gym reservation and equipment request experience at Caraga State University.

CHAPTER V

Summary, Conclusions, and Recommendations

5.1 Summary

This study addressed the inefficiencies in the manual gym reservation process at Caraga State University, Cabadbaran Campus (CSUCC). A web-based system was developed to automate the reservation of gym facilities and equipment for faculty members. Through interviews with faculty, administrators, and GenServe personnel, along with survey questionnaires, the researchers identified key problems such as scheduling conflicts, lack of real-time equipment visibility, and excessive administrative workload. The system was built using HTML, CSS, JavaScript, PHP, and MySQL, following the System Development Life Cycle (SDLC) framework. Findings showed that the system significantly improved efficiency, transparency, and accountability while reducing manual errors through features like real-time reservation tracking, automated notifications, equipment inventory management, and a messaging platform for direct communication between users and administrators.

5.2 Conclusions

The manual gym reservation process at CSUCC is inefficient, prone to scheduling conflicts, and heavily paper-based. The developed CSUCC Gym Reservation System effectively addressed these issues by providing an organized platform where faculty members can easily submit and monitor reservation requests while administrators efficiently manage approvals, inventory, and reports. Its role-based access for faculty, admin, and GenServe, combined with automated notifications and real-time messaging, improved workflow coordination and user accountability. The system's analytics and audit logs provide valuable insights for decision-making and resource allocation. Although limited to faculty users and internal use, the system significantly streamlined gym operations and demonstrated high user satisfaction across functionality, usability, efficiency, and reliability criteria.

5.3 Recommendations

It is recommended to expand the system to include student access and develop a mobile application for greater convenience. Integration with existing university systems such as the faculty information system and university calendar should be pursued for seamless data sharing. Regular training sessions and technical support should be provided to ensure smooth adoption and continuous improvement. Strengthening security features through multi-factor authentication is also advised to better protect user data. Advanced analytics capabilities, including predictive maintenance scheduling and utilization forecasting, should be incorporated in future versions. Future research may assess long-term user satisfaction, conduct scalability studies if student access is implemented, and explore the application of this framework to other university resource management systems such as laboratories, conference rooms, and transportation services.

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APPENDICES

Survey Questionnaires

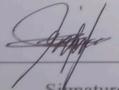
Caraga State University Cabadbaran Campus Gym Reservation System

Name : _____
Date : _____

User Evaluation Questionnaire

Instructions: Please rate the following statements based on your experience with the CSUCC Gym Reservation system. Check (✓) the appropriate box.

Question	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
1. The system is easy to navigate and user-friendly.	✓				
2. The reservation process is faster and more efficient compared to the manual process.	✓				
3. The system provides clear information about equipment availability and reservation status.	✓				
4. The messaging feature effectively facilitates communication between users and administrators.		✓			
5. Overall, the FlexAccess system improves the gym reservation experience at CSUCC.	✓				

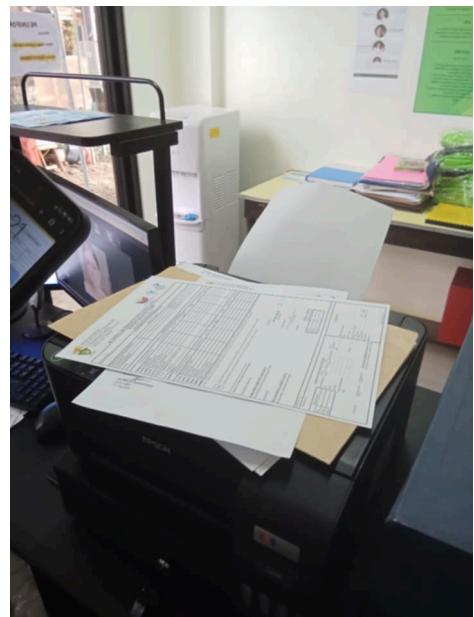
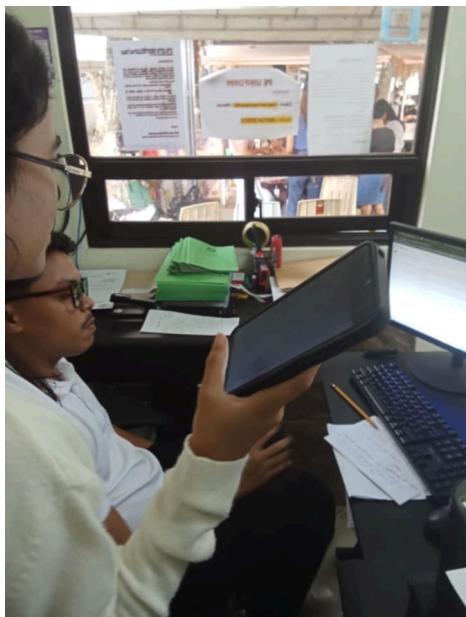

 Signature

Gantt Chart / Project Timeline

Task	Week 1 (Starts on September 1, 2025)	Week 2	Week 3 (Ends on September 20, 2025)	Week 4 (Starts on September 21, 2025)	Week 5 (Ends on October 5, 2025)	Week 6 (Starts on October 10, 2025)
Requirement Gathering						
System Design						
System Development						
Testing						
Final Review & Deployment						

Task	Week 7	Week 8 (Ends on November 20, 2025)	Week 9 (November 23-25, 2025)	Week 10 (November 25 - December 1, 2025)
Requirement Gathering				
System Design				
System Development				
Testing				
Final Review & Deployment				

Documentation



 <p>Republic of the Philippines CARAGA STATE UNIVERSITY CABAÑABURAN CAMPUS Brgy. Cabañaburan, Cabadbaran City Region XI - Caraga</p>	 <p>BACOLOD CITY BACOLOD CITY</p>	 <p>SUCOTEC SUCOTEC</p>	 <p>PAB PAB</p>																																																
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