

**DIGI-ROOMS: WEB-BASED SCHOOL FACILITY RESERVATION AND  
MANAGEMENT SYSTEM FOR NUESTRA SEÑORA DE ARANZAZU PAROCHIAL  
SCHOOL**

**A Capstone Project Proposal  
Presented to the Faculty of the  
Information and Communications Technology Program  
STI College Marikina**

**In Partial Fulfilment  
of the Requirements for the Degree  
Bachelor of Science in Information Technology**

**Elmer Jr. G. Felisilda  
Rechelle A. Golimlim  
Daisy P. Borbe**

**April 15, 2025**

## **ENDORSEMENT FORM FOR PROPOSAL DEFENSE**

**TITLE OF RESEARCH:** **Digi-Rooms: Web-Based School Facility Reservation and Management System for Nuestra Señora De Aranzazu Parochial School**

**NAME OF PROPONENTS:** Elmer Jr. G. Felisilda  
Rechelle A. Golimlim  
Daisy P. Borbe

In Partial Fulfilment of the Requirements  
for the degree Bachelor of Science in Information Technology  
has been examined and is recommended for Proposal Defense.

### **ENDORSED BY:**

Mr. Tristan S. Unabia  
**Capstone Project Adviser**

### **APPROVED FOR PROPOSAL DEFENSE:**

Mr. Frederic D. Yulo, MIM  
**Capstone Project Coordinator**

### **NOTED BY:**

Mr. Dave Lord M. Rubaya  
**Program Head**

**APRIL 15, 2025**

## APPROVAL SHEET

This capstone project proposal titled **Digi-Rooms: Web-Based School Facility Reservation and Management System for Nuestra Señora De Aranzazu Parochial School**, prepared and submitted by **Elmer Jr. G. Felisilda, Rechelle A. Golimlim, and Daisy P. Borbe**, in partial fulfillment of the requirements for the degree of Bachelor of Science in Information Technology, has been examined and is recommended for acceptance and approval.

**Mr. Tristan S. Unabia**

Capstone Project Adviser

Accepted and approved by the Capstone Project Review Panel

in partial fulfillment of the requirements for the degree of

Bachelor of Science in Information Technology

**Mr. Ry Vincent Uy**

**Mr. Mark Saledio**

**Mr. Frederic D. Yulo, MIM**

**Noted:**

**Mr. Dave Lord M. Rubaya  
Program Head**

Mr. Frederic D. Yulo, MIM  
**Capstone Project Coordinator**

**April 15, 2025**

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## INTRODUCTION

### **Project Context**

Schools do not only provide educational services but also grant students and faculty access to various facilities essential for learning. These include classrooms, laboratories, libraries, audio-visual rooms, auditoriums, and gymnasiums, which are utilized for academic, co-curricular, and extracurricular activities. Efficient room management is crucial to ensuring these facilities are properly allocated and available when needed.

Nuestra Señora De Aranzazu Parochial School Inc., or NSDAPS, is a Catholic institution and a member of the Manila Archdiocesan and Parochial Schools Association, also known as MAPSA. It is currently under the management of Rev. Fr. Gerard Joaquin V. Masangya, the school director, and Ms. Julie Ann M. Pajardo, LPT, MAEd, the school principal. Situated in the heart of San Mateo, Rizal, NSDAPS has two campuses – one on Barangay Guitnangbayan 1 and an annex on Barangay Santa Ana – the main having 4 floors while the annex having 5, the school accommodates approximately 1600 students spanning from preparatory to senior high school levels. 105 employees – including teaching and non-teaching personnel, are currently working in both campuses.

The main building has a total of 44 classrooms, with 14 facilities available for use, consisting of a Learning Resource Center, a function hall, a function room, 2 libraries, 2 computer laboratories, a gymnasium, an auditorium, a physics and chemistry room, a bamboo garden, a TLE room and kitchen, and a veranda. Meanwhile, the smaller annex building houses a total of 9 classrooms and 5 facilities consisting of a chapel, a computer laboratory, a library, a gymnasium, and a multipurpose multimedia laboratory. With hundreds of students using the school building at any given time, management of these facilities and resources are necessary. In some instances, facilities such as the Audio-Visual Rooms, had been converted into a classroom to accommodate the students.

Campus maintenance is managed by the school's General Services Unit (GSU), under the leadership of Mr. Edgardo Manalo Jr. The department focuses on room and equipment management, venue set up, maintenance, and more. Currently, there are a total of 29 employees under the department, excluding Mr. Manalo. 19 of which work at the main

building, with the remaining 4 being stationed at the annex building. Together, they make up the department that manages both campuses.

In its current state, NSDAPS relies on a manual, paper-based system for processing room requests, handled solely by Mr. Manalo. Requests for room reservations, such as for club meetings, practices, and school events, are written on a paper form and recorded in a calendar.

For example, the process for requesting a room for club practices involves the club moderator obtaining a pullout form from the Office of the Student Affairs (OSA), where details such as the requester's name, the time, date, and room being requested, the purpose for the request, a name list of students involved, and the teacher concerned in the request. Once filled up, it is signed by the moderator, before being brought back to the OSA to be signed by the Assistant Principal. Once approved, the moderator attaches a GSU-issued reservation form, where the requester's name, reservation details, number of attendees, equipment and facilities being requested, and additional remarks are copied from the pink form. Once copied, both forms are brought to the GSU for Mr. Manalo's approval. Conflicts are first checked through the calendar before the request is signed by Mr. Manalo, finalizing the reservation. If there are conflicts or there are valid reasons for rejection, the declination of the request is communicated to the teacher concerned, who will then communicate it to the students. For requests made by outside parties, such as organizations from the neighboring Church, a letter of request is sent addressed to the school director, which, after approval, will be brought to Mr. Manalo for the finalization of the request.

This process is time-consuming and prone to errors, making it difficult to track availability, prevent scheduling conflicts, and respond to requests in a timely manner. Separate records maintained by the GSU and OSA often lead to discrepancies. Managing two separate campuses with this system further complicates the process, as requests from both buildings are recorded in one linear list in the calendar. Time-sensitive and last-minute requests must be processed swiftly to prevent delays and conflicts. With the department already handling numerous aspects of the school's operation, such as equipment and facility maintenance, delays caused by this manual schedule checking may cause disruptions of planned activities. In some cases, unresolved requests result in events not having the required rooms

or facilities, affecting the smooth operation of school activities. For example, church organizations may hold last-minute events and request a room the night before its schedule. In this situation, with the current process, the request will not be addressed since the calendar is kept at the school's office, and it is impossible to check the availability of the requested room, resulting in a rejected request.

Given the numerous clubs, organizations, and events hosted by NSDAPS, a more efficient and organized system is essential. The current manual process lacks reservation tracking, making it difficult to manage multiple consecutive room requests, particularly during large-scale activities such as club fairs. A system that can visualize room utilization, that is, who is currently using these facilities, can help not only the GSU, but other school personnel understand the room assignments and act accordingly. For example, NSDAPS releases its students' report cards in rooms assigned for different grade levels. The GSU can print the room utilization map to guide parents into which rooms they can get the report cards of their child from.

Beyond scheduling, an efficient room management is also valuable for long-term planning. Data analytics and reports generated from trends stemming from room usage trends help the school administration identify the most utilized facilities and allocate ample resources for improvements or additional rooms dedicated to these facilities. However, such insights are difficult to derive from a linear list organization of the calendar currently holding room request records. As NSDAPS continues to expand to cater to its growing student population, having access to such data will be beneficial for optimizing campus facilities to better serve students and faculty.

The proposed Web-Based Room Management System named Digi-Rooms aims to address these inefficiencies by providing a centralized digital platform for room scheduling and tracking. With this system, the General Services Unit can process requests more efficiently, eliminating the need for calendars. The system shall offer real-time room availability updates, immediate conflict detection to prevent overlapping bookings, and automated request tracking to ensure timely approvals. It will also generate reports on room usage patterns, assisting school administrators in making informed decisions for facility improvements. Additionally, the system will be accessible anywhere, allowing situations

such as the one mentioned earlier, to be processed, since a physical calendar is no longer required to record such requests.

By implementing this web-based solution, NSDAPS can enhance its room management process, reducing administrative workload, and improving the overall efficiency of campus operations. The system will streamline room reservation procedures, minimize scheduling conflicts, and provide a more convenient experience for both staff and students, contributing to a more organized and productive school administration. Ultimately, the proposed project aligns with NSDAPS' current goal of implementing advantageous digital systems into its current day-to-day operations in its pursuit of digital transformation.

### **Purpose and Description**

The purpose of Digi-Rooms is to transform how NSDAPS manages its campus facilities by replacing a time-consuming, manual, and disorganized process with an efficient, centralized system. This project focuses on the creation and deployment of an online facility reservation system customized to meet the unique requirements of Nuestra Señora De Aranzazu Parochial School's General Services Unit. It aims to increase the department's efficiency, solve the problems with the current manual reservation method, and improve the general experience for staff and instructors in terms of room reservation and management.

Digi-Rooms is intended to be a comprehensive and easy-to-use online platform that reduces scheduling conflicts and speeds up the reservation process. To enable effective and convenient facility reservations, the system will offer an interactable map of both campus buildings, automated schedule conflict notifications, a simple scheduling system, reporting and analytics, and online accessibility. Digi-Rooms seeks to increase communication, decrease manual work, and improve overall school facility use by digitizing and automating these procedures. The Digi-Rooms system's design, development, implementation, and evaluation will all be covered in this project, along with an analysis of how it affected user satisfaction and facilities management procedures at the school.

### **General Problem**

How to develop a web-based school facility reservation and management system for Nuestra Señora De Aranzazu Parochial School that provides effective request processing, room availability display, conflict detection, and real-time scheduling?

### **Specific Problems**

1. How to design, develop, and implement an account management module that allows secure user registration and login?

To stop unwanted access, the project must have a centralized, safe authentication system. In order to specify access levels, it must assign user roles and enable staff to register and be confirmed before using the system. This helps to secure the system across departments by guaranteeing that only authorized staff can change settings, approve requests, or make reservations.

2. How to design, develop, and implement an interactive map module that displays floor plans of both campuses and shows room availability?

The two multi-floor campuses are difficult to dynamically visualize. This module must give users instant access to room details (such as capacity and upcoming and current reservations) and display real-time availability using colored markers or overlays. Users should be able to easily navigate between floors and buildings on the map.

3. How to design, develop, and implement a map editor module that enables administrators to upload and manage floor plans?

The system must give administrators the ability to manage building and floor structures, add or modify room markers with particular metadata, and upload new floor plan images or vectors. As the school grows or changes its infrastructure, this feature is essential for scalability and flexibility.

4. How to design, develop, and implement a schedule management module that allows the creation, editing, and approval of reservation requests with real-time conflict detection?

It must do away with manual checks and simplify the booking process. This module must promptly verify the availability of rooms and stop duplicate requests from being sent. It should also make it simple for authorized staff to manage and edit reservations through the system's user interface.

5. How to design, develop, and implement a report generation module that produces usage analytics and logs user activity?

Insightful reports on room usage, popular facilities, and regular users must be produced by the system. It should help direct resource allocation and policy-making by logging important acts for accountability and enabling data exporting for administrative use, long-term planning, or documentation.

6. How to design, develop, and implement a system that offers real-time access and remote submission of room reservation requests?

Currently, only the General Services Unit is able to physically make reservations during school hours, which restricts accessibility and delays urgent requests. Because the suggested system would be web-based, users will be able to utilize their devices to remotely submit and monitor requests at any time. With this approach, last-minute reservations may be handled more quickly, and events that might take place outside of usual business hours can be accommodated. Consequently, the technology enhances the user experience across departments and offers more flexibility.

### **General Objective**

This project seeks to improve administrative efficiency and the overall user experience for the General Services Unit and authorized staff by designing, developing, and evaluating Digi-Rooms - a web-based facility reservation system that addresses scheduling conflicts and inefficiencies in the current manual process.

### **Specific Objectives**

The project's specific objectives are as follows:

1. To design a centralized system for the management of room requests and scheduling.

This system shall replace the current manual, paper-based system by enabling the General Services Unit, the Administration Office, and the Office of Student Affairs to use shared data. This shared platform will prevent interdepartmental data conflicts and streamline the overall reservation process.

**2. To provide a visual representation of room utilization.**

The system shall have an interactive map of the campus and provide visual indicators on the rooms currently being used by scheduled and recurring activities, such as classes and club meetings. These visual cues allow the user to immediately determine the availability of a requested room, so that it will be rejected immediately should the circumstance arise. An interactive map also allows department heads and officials to plan ahead of big events, assign and group rooms to specific purposes, etc.

**3. To design a user-friendly map editor that enables administrators to upload, manage floor plans in a various format.**

The system shall have a clear button on how to upload floor plans to ensure for the non tech savvy administrators it can easily upload floor plans without confusion. The system is also flexible for floor plan types by supporting various file formats, ensuring they can easily upload it without the file conversion. Administrators will be able to make real time changes such as adding rooms, updating and adjusting room markers ensuring the school floor plan is current and relevant.

**4. To develop a system that allows users to create, edit, and approve room reservation requests with real time availability and conflict detection.**

The system shall automatically check room availability at the specified time before finalizing reservations. Administrators will have the ability to approve or reject the request based on the real-time availability, it can reduce the need for manual conflict verification and ensure that users receive prompt alerts if a conflict arises.

**5. To provide tools to generate easy to understand reports and analytics.**

To aid with the school's planning processes, Digi-Rooms aims to provide the necessary tools to generate reports that will be beneficial for long-term planning. With data provided by these tools, NSDAPS can easily determine most and underutilized facilities and allocate resources respectively.

By achieving these objectives, Digi-Rooms will enhance communication, reduce manual workload, and improve the overall organization and efficiency of campus facility management. This streamlined process not only benefits the General Services Unit but also has long-term implications for better resource planning and increased user satisfaction.

**6. To develop a web-based system that allows requests to be viewed and submitted in real time on any device at any time.**

The system shall allow users to submit room reservation requests remotely on any devices with internet access. By enabling real time access, users can submit requests anywhere without their traditional office hours that can provide flexibility to the staff and administrators. The system should have notified users about their request. So, everyone is informed about approval, rejections, or conflicts.

## **Scope and Limitations**

### **Scope**

The project targets the General Services Unit and personnel of the Administration and Student Affairs Office, providing an efficient way to manage and access facilities across two campuses. There will be 2 main user types involved in the system: the admin, which is Mr. Manalo, who can edit map information, along with being able to set permissions on other accounts on what they can modify and view. The second is the school staff involved in the reservation process (e.g., authorized personnel from the Office of the Student Affairs and Administration), who can mainly only create requests, view schedules, view the map, and generate reports. The project shall focus on the creation of its core features, including the following:

- Account Management Module
  - User Authentication
    - A secure login function prevents unauthorized actors from accessing the system, while the registration function allows employees involved to access the system once the account is authorized by the administrator. This limits the use of the system to teachers and personnel, disabling access from students and unauthorized parties.
  - Role-based access
    - Features and module components are limited to particular user roles to ensure that only tools that are necessary for them will be made available. This also prevents unauthorized tampering of information, especially in schedule and map records.
    - The following roles will be adapted:
      - Teacher
        - This role can view the interactive map and create requests.
      - Staff
        - This role encompasses staff in departments involved in the reservation process, such as the Office of the Student Affairs. They can approve teacher requests for final approval, generate reports, view the interactive map, and create requests.
      - Administrator
        - This role involves the GSU head, who has access to aforementioned features and the ability to edit schedule and map information.
- Interactive Map Module
  - Floor Plan Map
    - A projection of the selected campus and level's floor plan is displayed in the map. The user is able to change the floor level or switch campuses when necessary. This gives a visualization of the

floor's layout, aiding in room assignment and schedule planning for events and activities.

- Availability Visualization
  - Markers are overlaid on top of the floor plan map that indicate the availability of the room it is assigned to at the specified time and date in the map view. This makes it easier for requesters to immediately identify which rooms are available at their chosen time and adjust accordingly.
- Room Information Display
  - Clicking a room marker opens a side panel that displays the room information, along with the current and upcoming activities for the selected room.
- Real-Time Updates
  - Each time a reservation is made or modified, the map is updated in real-time, ensuring that users always have access to the most up-to-date information regarding room availability.
- Map Editor Module
  - Floor Plan Upload
    - A digital copy of the floor plan in the form of an image (JPG, PNG) or a vector (SVG) can be uploaded to a specific floor. These images will serve as the layout in which the room markers can be placed in.
  - Floor and Building Management
    - Additional buildings and floors may be added or removed to ensure flexibility and future proofing.
  - Room Marker Management
    - Room markers can be created and placed at any point in the selected floor, which represents a singular room. Additional data can then be specified, such as the room number, the name, capacity, etc. The addition of new rooms will reflect immediately to the system and the modules that use room information for its functions, such as the

reservation creation interface. Alternatively, deleted room markers will delete the schedules tied into it.

- Schedule Management Module
  - Reservation creation
    - Users with request creation access can create a reservation request, which involves a form that will ask for information such as the type of request, purpose, time, date, people involved, equipment, etc.
  - Immediate conflict detection
    - During reservation creation, the system will use the specified room, time, and date to automatically check for conflicts in its schedule records. When a conflict is detected, the creation of the request is automatically blocked, preventing the user to proceed further until the conflict is resolved. The system will recommend nearby available rooms, or the user can manually choose one using the interactive map and schedule view interface.
  - Request approval
    - Once the request is finalized, it is then sent to the staff account for approval. Afterwards, it will be sent to the administrator account for the final approval, in which the request will be added to the schedule records.
  - Reservation management
    - The administrator can create, edit, and delete requests through the schedule interface.
- Report Generation Module
  - Schedule timetable generation
    - A room, time, and date can be specified to generate a 7-day timetable that displays the scheduled reservations for the room.
  - Room utilization report generation
    - Data from the schedule record will be used to generate analytics regarding the common reservation purposes, requester types, reservation trends, and facilities commonly reserved.

- Map overview report generation
  - Exports a snapshot of the map interface set at a specified time and date for printing as reference for involved employees.
- Reservation slip generation
  - A scheduled activity can be specified to generate a printable reservation slip as reference for involved employees.
- Active account list generation
  - A list of the active accounts within the Digi-Rooms system can be viewed and printed for reports and reference.
- Logging
  - All actions done through the systems are logged and can be viewed and printed if needed.
- Document generation
  - Generated reports, along with other data, such as schedule and map information can be exported as a PDF or be printed.

## **Limitations**

Identified below are the potential challenges and constraints associated with the project:

- The system will not integrate with external calendar apps like Google Calendar.
- The system will not include a direct messaging mechanism.
- The system will rely on constant internet connectivity in order to maintain live updates on schedule data.
- The system will only be accessible by school personnel and administrators. Students will not be allowed access to ensure liability.
- The adoption of the system depends on the appeal to non-tech-savvy staff.

## **Review of Related Literature/Studies/Systems**

### **Related Literature**

#### **Foreign Literature**

Malter & Rindfleisch (2019) affirmed that the transition from pre-digital to the digital age influences most corners of modern life, transforming how marketing is done and how

content is consumed. Moving forward, this transition to a completely digital age will continue in expected and unexpected ways. Harberg et al. (2016) exemplified this statement, stating that digitalization is one of the most important transformations in the modern world which involves many aspects of everyday life, particularly business.

Harberg et al. (2016) defined digitalization as a term that refers to a transition from an analog process to a digital one, and includes the creation of new forms of values such as accessibility and availability. Digital transformation, as stated by Duarte & Ebert (2021), is the adoption of new technologies in increasing productivity and value creation. It challenges the traditional systems of education to transition to more innovative learning methods such as simulations and gamification of materials. Software itself remains as the cornerstone of digital transformation, opening the doors for technological innovations and new business models.

Among the many facets of modern living that benefits in digital transformation is tourism. Vlahović et al. (2024) stated that e-booking systems nowadays saves significant time and money for consumers, and provides a simple yet beneficial way in reserving accomodations to their travel destinations. The reliance of business owners and consumers to digital services only increases from here, making it one of the most important aspects of modern-day tourism. Companies are said to depend more and more to e-booking as its medium of distribution through the use of digital systems given the significant benefits it provides.

#### Local Literature

According to German et al. (2024), technology and information systems have become necessary for many organizations today to keep up with the industrial competition. Businesses look into automation or digitalization of their processes to provide a more efficient and reliable service to consumers. An online reservation system enables fast and paperless transactions, which prove to be economically and environmentally efficient. It enables cost reduction by eliminating the need for manual entry and processing, which translates into lower prices for customers and increased profits for businesses. Baldovino et al. (2021) emphasizes this point by stating that since individuals have technology and

internet connection everywhere, an online booking app to make reservations would resolve several hassles consumers face.

During the COVID-19 pandemic, one of the sectors most impacted is the educational sector. The Philippine educational system had to embrace technology moving forward, with the pandemic accelerating the transformation from face-to-face to digital means of management. An article by Hernando-Malipot & Nazario (2020) stated that automation is more important than ever in school management. A school management system named Edusuite had been used by at least 15 schools, such as King's College of the Philippines, and CIIT College of Arts and Technology. The utilization of artificial intelligence (AI) and complex algorithms further simplify the management of various school facets - optimizing the school's resources even more.

In a keynote message of the Silliman University President McCann (2022) had emphasized the institution's digital transformation by launching several initiatives such as its own Learning Management System, modernization of several facilities to encourage digital innovation among students, and the full transition of its administrative processes to electronic systems. These improvements within the university processes were partly motivated by the disruptions of the COVID-19 pandemic, pushing the institution to adopt innovation in light of pandemic and accessibility limitations.

According to the assessment made by Santos & Ramos (2025), Holy Cross College's paper-based processes hinder the institution's operational efficiency and its ability to make data-driven decisions. While it had revealed adequate allocation of necessary resources, the assessment also showed the inefficiencies in terms of funding, repairs, and user-centered practices. The study had affirmed the role of effective facility management in ensuring sustainability of school operations and long-term institutional growth. It had also emphasized the significance of adopting digital facility management processes that address these issues, streamlining operations and improving user satisfaction. The study concluded the essentiality of digital reporting and tracking tools in facility development and the centralization of management tasks, offering benefits in speed, accuracy, and reliability.

## **Related Systems / Studies**

## Foreign Studies

A study done by Atkinson & Lee (2018) involved the utilization of Google Calendar as a reservation system to be used in Fordham University's Quinn Library in New York. A singular account was created to hold all calendars for each room in the library, along with the appointment time constraints, room size, and number of allowed students per room. A public link was shared among staff and students, allowing users to access the calendar and book appointments. A regulation was put in place to ensure that only university-provided emails were used and that only a limited amount of usage hours were provided per room and requestor. The results of the study determined that with the use of the Google service, usage patterns can be found through the calendar, allowing library staff to allot more staffing on days with higher demands. They were able to ascertain prominent appointment use cases with the calendar system. There were also an increase in reservations and had encouraged students and faculty to utilize the facilities for work and studies. However, the study had pointed out that Google Calendar were not suited for the needs of the library. Checking that requests were made with official email addresses and use periods individually were time consuming and inconvenient for the library personnel. Google Calendar also did not have a built-in reporting function, and collecting usage data were manually done and were tedious.

Alkhaldi et al. (2018) developed a Web-Based University Facility Reservation System, aiming to provide employees and visitors of the Imam Abdulrahman Bin Faisal University to reserve campus facilities. It uses a table view of reservations, where the user selects a room and see the reserved dates in a simple list in the interface. The administrator can then manage and edit the reservations created within the system. The survey that followed had determined that a high percentage of the responded had found the system extremely helpful, proving the benefits posed by such a reservation system.

In order to address similar issues in UCSI University, an institution in Malaysia involving time wastage and increased library administrator workloads revolving the institution's manual reservation process, Lynn et al. (2024) introduced U-Reserve, a Web-Based Facility Reservation System. The study incorporated several features from existing systems and integrated user acceptance feedback in enhancing the program. It emphasizes the

importance of color theory and visual appeal, highlighting the fact that the system's frontend is just as significant as its backend, and that design and functionality goes hand in hand in creating a beneficial system.

A study made by Xuan (2021) on the implementation of a secure room booking system at the University of Manitoba Libraries involved the use of the Juno Secure Room Booking System. The system effectively enhanced the security and efficiency of study room reservations, addressing limitations found in the previously used system named LibCal. The Juno system offered secure access control, ensuring only authorized users can enter reserved spaces, thereby enhancing security. Additionally, the University developed a custom booking interface that integrates seamlessly with the Juno system, providing a user-friendly experience. Basing on student feedback, a local database was also developed to improve the booking process and increase user engagement. The implementation of the Juno system led to a significant increase in room bookings and unique user logins, indicating high user adoption and satisfaction. Overall, the Juno system effectively reduced administrative workload and improved space utilization, offering a more robust solution compared to LibCal.

### Local Studies

Lapuz et al. (n.d.) developed a Web-Based Database Reservation and Venue Management System for Bazaar City in Metro Manila. Its modules include visual stall and calendar reservations, and data reporting. Its reservation module catered to both customers and employees of the complex, providing a more robust system of blocking certain time periods for events and activities. Its report generation module allows the management to see analytics and interpret the data presented into improving the company's marketing strategy. After careful consideration of the company's needs and discussion with the clients, the system was able to address Bazaar City's current problems. After further evaluation by the clients, the system was able to receive high satisfaction ratings, demonstrating the efficiency of such software in addressing the requirements established by the management.

German et al. (2021) conducted interviews across the various departments of Mapua University School of Industrial Engineering and Engineering Management and had

determined that there is a significant waste in room request approval, filling of reservation forms, and finding alternative schedules. They had also determined that there were significant loss of free physical space due to it being used to store forms and papers. To address these issues, the researchers developed a Web-Based Digital Room Reservation System named e-Reserva Cardinal, which involves three major user roles: students, facilitators, and administrators. It aims to reduce the waste in time and physical space as emphasized by the interview results. The reservation process involves sending an email to the department Dean for reservation permission, with the issuance of the permission file and necessary documentation following upon approval. The file is uploaded through the website along with the request details (e.g., the room, time and date), that is received by the facilitator involved in the department's room reservations. Upon request approval, the status is updated through the system's notification module.

Leona et al. (2023) developed a Web-Based Dormitory Reservation System for students in Sumacab Este, Cabanatuan City named App-Stay. The system includes a reservation and visual map module that creates an easier system for accommodation-providers, dormitory owners, and student users. The subsequent evaluation of IT professionals and concerned users had determined that App-Stay provides significant benefits for landlords and students in the barangay, especially for students looking for low-cost, high-quality accommodations. Its accessibility to smartphone users expanded its coverage to users who may not have access to desktop computers or laptops. The results had concluded that App-Stay created a dependable and user-friendly platform that offers significant benefits to both students looking for budget-friendly accommodations and landlords who are looking for ways to streamline their once-manual systems.

Banogon et al. (n.d) focused the creation of their Web-Based Reservation System named A-Venue around the activities done by Adamson University's Office for Student Affairs and Physical Facilities and General Services Office, which mainly involves traditional and manual methods for processing event and venue reservations. The system, which passed the ISO 25010 Software Quality Model, aims to manage event data and eliminate data redundancy, data loss, and excessive use of paper. It streamlined the event reservation process, which, in turn, encouraged Officially-Recognized Student Organizations to utilize

their campus' facilities in organizing their activities and events. The study highlighted the benefits of an online reservation system, such as convenience, reduction of paper usage, and efficient event management.

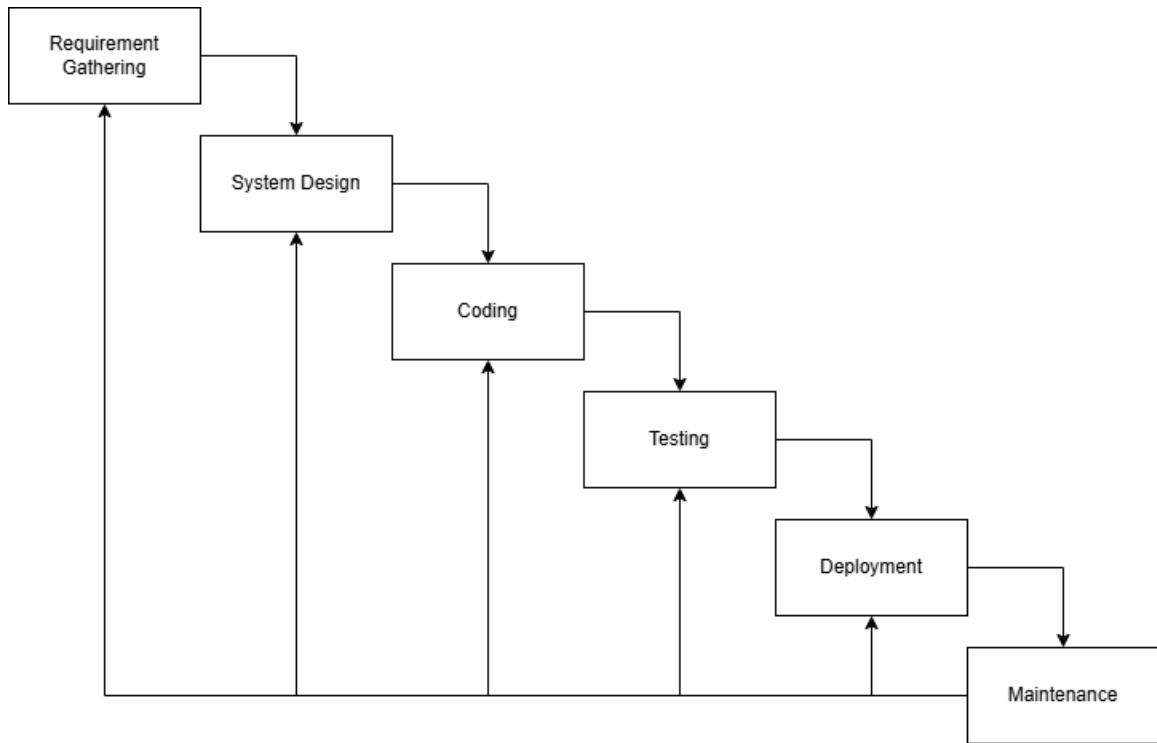
Avenido et al. (2017) developed an Online Reservation System for the use of university facilities at Central Philippine University to improve the scheduling process of school facility reservations. The system digitized the previously manual process, featuring a user-friendly web interface for submitting requests, a calendar to check availability, and admin tools for managing and approving reservations. Their study concluded that the system significantly reduced reservation time and improved operational efficiency—directly aligning with the goals of Digi-Rooms.

### Synthesis

The literature and studies emphasize the importance of digital transformation as part of society's progression towards the modern era. Digital technologies touch most facets of modern living, from educational, to business aspects. Transitioning operations of an organization to a digital medium grants them access to advanced processes such as automation and analytics, allowing them to make more data-driven decisions grounded in organized data. In the educational sector, embracing technology is a major step in advancement and development. Many institutions had slowly transitioned their manual operations to digital ones, and their facilities are slowly adapting to the digital era. A particular type of institutional operation is handling facility reservations. Utilizing online or electronic means to handle the reservation process of school rooms and facilities have its advantages. Schedule keeping is automated, and records are generated automatically. The use of a digital system also organized relevant data and files for the users, with such as a time table of active reservations, rooms available, and other pertinent information. This allows the school's authorities to make informed decisions, given that reports created from these systems are driven by usage data. Reservation systems significantly cuts down the processing time as well, which, as proven by several similar projects, encouraged students and faculty to request reservations, leading to higher utilization of school facilities. Combining several features and building from it allows Digi-Rooms to cater to the unique

needs of NSDAPS, along with offering tools to better make informed decisions in the management of the school.

## METHODOLOGY



**Figure 1. Modified Waterfall Model**

The Modified Waterfall Model is a development framework that offers a linear yet iterative process flow for the development of a system project. This model allows changes and corrections to be made in previous phases so it could be rectified before the system completes development. It also enables the involved actors to suggest changes and fixes at any phase of the development. As user requirements change over time, this flexibility is beneficial since it can be addressed and applied at any given point in the development process.

The proponents had chosen this particular model as user acceptance is an important aspect of the success of the program. Frequent updates and communication with the client allow them to review each stage of the development cycle and provide suggestions and feedback. Constant communication on significant milestones of the project were also requested by the client to monitor its progress and offer subsequent feedback to ensure that it is up to the requirements posed by the client and users.

## **Technical Background**

In order to realize the planned system for this capstone project, the following technologies shall be employed:

### **Technologies to be Used**

#### Microsoft Visual Studio Code

- The Integrated Development Environment made by Microsoft for various programming languages. It supports numerous extensions and enhancements, and its versatility and light weight means that it is better accessible for many projects.

#### MongoDB

- MongoDB is a NoSQL database system that stores data as documents in a JSON format rather than tables and rows of a traditional database. This system interfaces with JavaScript code with ease and allows for better organization of data. The proponents are planning to use JSON-structured data storage as information revolving around the rooms and facilities often include different properties that would otherwise be difficult to implement in a traditional database schema.

#### Express.js

- Express.js is a web application framework for Node.js that simplifies server-side app development by providing tools to handle common tasks such as routing, templating, handling of requests, and error handling.

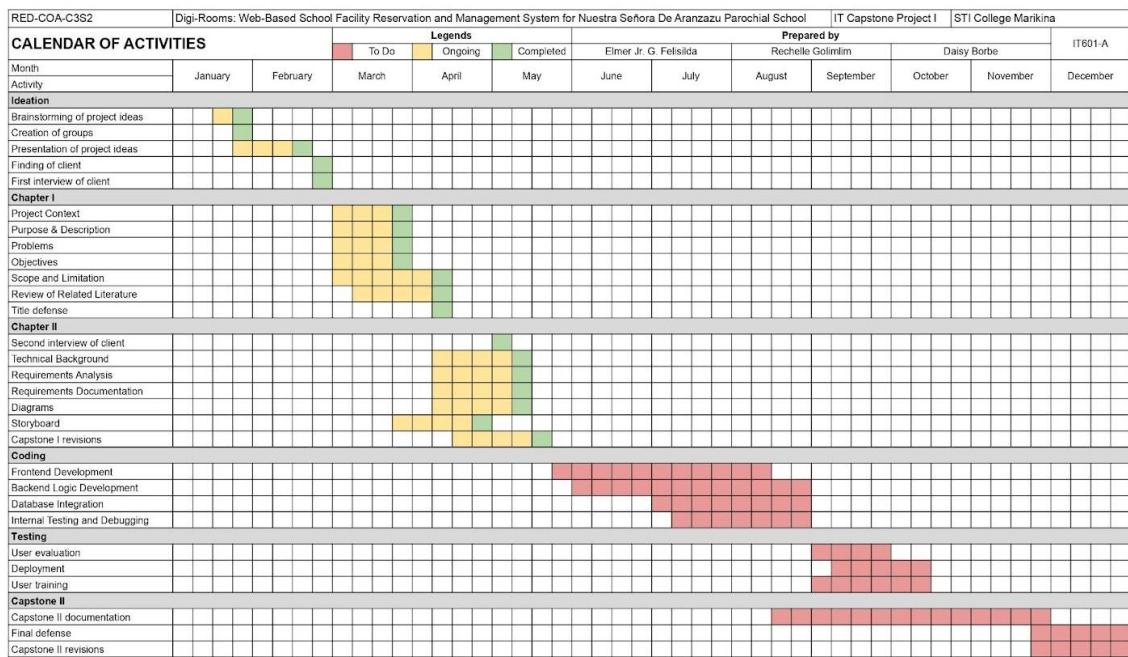
#### React.js

- React.js is a JavaScript-based UI library designed by Facebook. This library contains functions and systems that allow for flexible and responsive user interfaces while keeping complexity to a minimum.

#### Node.js

- Node.js is a cross-platform runtime environment that allows the execution of JavaScript code into the server-side, allowing the building of web-based applications that uses a familiar language unifying both the front-end and back-end.

## Calendar of Activities



**Figure 2. GANTT Chart of Activities**

Ideation (January to February 2025)

- People involved
  - Proponents
- Activities
  - The individual brainstorming of Capstone Project ideas, the formation of groups, and the planning of the chosen project. This also includes the search for clients, preliminary interviews, and the identification of their key problems.

Chapter I (March to April 2025)

- People involved
  - Proponents
- Activities

- The creation and drafting of the various sections of the project's Chapter I documentation, including identifying key problems and objectives, scopes and limitations of the project, and research of similar works and literature.

#### Title Defense (April 15, 2025)

- People involved
  - Proponents, Panelists
- Activities
  - The presentation of the project's Chapter I documentation, along with the acceptance of revisions and approval to proceed with succeeding sections of the paper and the development of the system.

#### Chapter II (April to May 2025)

- People involved
  - Proponents, Client
- Activities
  - The creation and drafting of the various sections of the project's Chapter II documentation, along with the planning of the system flow, design, and specific functionalities. This also includes a secondary interview with the client for additional figures and information about the reservation process. The proposed system flow, design, and functionalities were also presented to the client for feedback and approval. Revisions obtained from panelists were also applied to the documentation.

#### System Development (May to August 2025)

- People involved
  - Developers
- Activities
  - Front-end Development
    - The development of the system's front-end side, including the user interface and experience based on the specified requirements and the

storyboard. Responsiveness with mobile devices and smaller screen sizes is also developed here.

- Back-end Logic Development
  - The development of the system's back-end side, including all logical and data processing systems required on each module of the program.
- Database Integration
  - The integration of the MongoDB database with the system runs in parallel with the development of the backend logic. This allows the developers to properly program CRUD operations into modules and test its functionality using dummy data.
- Internal Testing and Debugging
  - The testing of each module and functionality is conducted once it is completed. This allows developers and testers to determine fatal errors and edge cases early and rectify it when needed.

## Testing (September 2025)

- People involved
  - Developers, Client, Users
- Activities
  - The finalized system is subjected to user acceptance testing (UAT) to evaluate its alignment with the client's specific requirements and user expectations. This allows the developers to determine possible difficulties of the users in the system, particularly its UI and UX, and adjust them accordingly. This also includes the user evaluation of the system, where the testing methods are specified in the following sections.

## Deployment (September to October 2025)

- People involved
  - Developers, Client, Users
- Activities

- The system is deployed to a live environment with all core functionalities operational. Issues related to hosting or connectivity are identified and addressed during this phase. The client and users are trained through live demonstrations and walkthrough of the process, and a written user manual is given as reference.

#### Maintenance (October to November 2025)

- People involved
  - Developers
- Activities
  - Smaller details are polished and the system is tracked for potential connection issues that are recorded and rectified. Support is given to users who encounter errors or difficulties with the system. Remaining bugs are addressed and fixed as well.

#### Capstone II (August to November 2025)

- People involved
  - Proponents
- Activities
  - The creation and drafting of the various sections of the project's Chapter III and IV documentation is done in parallel with the development, testing, deployment, and maintenance of the system. Forms, letters, documents, and other relevant files are organized and filed for safekeeping. Preparations are also done for the Capstone II Final Defense. Revisions obtained from the adviser and panelists after the defense is also addressed.

### **Resources**

This section outlines the essential hardware, software, and network components required for the successful development, and operation of the system.

#### **Hardware Requirements**

##### For Developers

- Laptop/Desktop Computer
  - Processor: Intel Core i5 (or equivalent) or higher
  - RAM: 8 GB minimum
  - Storage: 256 GB SSD or higher
- Stable internet access

For System users

- Supported Devices
  - Desktop or Laptop (Windows/macOS/Linux)
  - Tablet or Smartphone (Android/iOS)
- Recommended Specs
  - RAM: 4 GB minimum
  - Display: At least 1280×720 resolution (desktop); standard mobile screen for smartphones
- Stable internet access

## **Software Requirements**

For Developers

- Frontend development
  - HTML, CSS, JavaScript, React.js
- Backend development
  - Express.js
  - Node.js
  - MongoDB
- Developer Tools
  - Visual Studio Code
  - Git + GitHub

For System users

- Compatible browsers
  - Google Chrome, Mozilla Firefox, Safari, Microsoft Edge

- Device operating systems
  - Windows, macOS, Android, iOS

## Requirements Analysis

### Who

General Service Unit Head (GSU)

- The GSU, under the direction of the head or administrator, is the main user. This administrator user has the ability to add, edit schedules and floor plans and grant others access.

School Staff of Student Affairs

- Student Affairs Office can log in to generate reports, check schedules and the interactive map, and create and approve room requests.

Teachers

- Teachers and other authorized staff can use the system to make reservations and check the map of available rooms. They do not have full editing rights – The GSU head and staff manage approvals.

### What

User Account and Roles

- The system implements role-based access control and provides secure authentication through login and registration functionalities. Access is restricted to authorized school personnel, specifically teachers and staff. Available features are determined by assigned roles (teacher, staff, and administrator).

Interactive Campus Map

- Dynamic campus maps feature floor plans for all buildings and floors. Real-time room availability is visually represented by color-coded markers (green for available, red for reserved), updating in an instant with each new booking. The

interface allows users to navigate easily between floors and buildings. Selecting a room marker displays that room's details and current/upcoming activities.

### Map Editor

- The system provides a user-friendly interface for administrators to upload and manage floor plan images in JPG, PNG, and SVG formats. Its scalable design facilitates the dynamic modification of floor plans, allowing for the adding or removal of structures and floors. Moreover, administrators can add and edit room markers directly on the floor plan, associating metadata like number, name, and capacity. Changes made to room information or floor layouts are applied immediately.

### Reservation Scheduling

- The scheduling module allows users to create or edit room reservation requests by completing an online form specifying the date, time, purpose, participants, and required equipment. Authorized users can add or remove reservations via the scheduling interface, with the GSU administrator having full editing privileges.

### Conflict Detection

- The system incorporates automated conflict detection by checking the requested room and time against the current reservation schedule upon submission. If an overlap is identified, the system blocks the request and notifies the user. By providing users with options to select different time slots or view other available rooms, the system obviates the need for manual calendar checks.

### Approval Workflow

- The system implements a two-tiered approval process. Initially, staff accounts (such as Student Affairs) review the request, after which it is forwarded to the GSU administration for final approval before being added to the official schedule.

### Reporting and Analytics

- Digi-Rooms provides administrative reporting tools that enable:

- Timetable Reports
  - Generation of seven-day schedules for specific rooms, times, and dates.
- Usage Analytics
  - Creation of room utilization reports based on historical reservation data, including trends, popular amenities, and user types.
- Map Snapshots
  - Exporting snapshots of the interactive map at a designated date and time for printing or reference.
- Reservation Slips
  - Generation of printable slips for scheduled activities, beneficial for event staff.
- Account Logs
  - Viewing and printing lists of currently active user accounts and a system action log for auditing purposes
- Document Export
  - All data and reports, including schedules, maps, and logs, can be exported as PDF documents for printing.

## Notifications

- The system automatically sends email and status updates to users regarding their reservation requests, including approval, rejection, or conflict notifications, ensuring all parties remain informed of the outcome.

## Where

### On-campus Access

- Digi-Rooms is accessible across both of NSDAPS' multi-story campuses, both of which are integrated into the interactive map. The primary users of the system are personnel and administrators from GSU, the Admin Office, and Student Affairs, typically accessing it from their on-campus offices.

### Remote Access

- Its web-based enables authorized users (teachers and staff) to access Digi-Rooms remotely via the internet, for example, from home or mobile devices. This ensures that facility reservations can be made and viewed from any location, even outside of regular business hours.

### Device Support

- The interface is mobile-friendly for tablets and smartphones and fully functional on desktop and laptop PCs. Consequently, reservations can be made and viewed on any device with a modern web browser and internet connectivity.

### Network

- Hosted on the school's internet-connected network infrastructure, the application benefits from the Wi-Fi connectivity between campuses, allowing for real-time synchronization across buildings. This immediate data sharing ensures that any modifications are reflected across all campuses due to the centralized storage of data, whether on a local server or in the cloud.

### When

#### Always on

- Digi-Rooms provides users with constant availability, enabling them to view schedules and submit or modify reservation requests around the clock.

#### Off-hours and Urgent Requests

- A key objective is to facilitate both last-minute and off-peak reservations, a capability that overcomes the limitations of the previous paper-based calendar by allowing urgent submissions outside of standard school hours; this digital solution even accommodates weekend or next-day events through remote, real-time request processing.

#### Peak Periods

- The system consider and manages increased workloads before major events (fairs, exams) and at the start of terms (class and club scheduling) using real-time conflict

detection and reporting; its architecture ensures that any reservation modification (creation, approval, or cancellation) is instantly reflected in all views, providing virtually uninterrupted room availability without the need for manual refreshes.

## How

### Web-Based Architecture

- Digi-Rooms is a web-based application accessible through a browser, employing a Node.js back-end to manage business logic and MongoDB for data storage encompassing rooms, users, and schedules; the user interface is constructed using HTML and CSS.

### Real-Time Operation

- Digi-Rooms offers seamless real-time synchronization, where the map and list displays refresh instantaneously upon any reservation creation or change; this is facilitated by the back-end's swift database updates and immediate broadcast of changes to all users, thereby assuring that they consistently view the latest availability.

### Role-Based Security

- The system employs authentication and role-based access control, ensuring that users are identified and assigned roles upon login; this mechanism restricts access to specific functionalities based on user roles (e.g., only staff and administrators can view approval screens) and effectively blocks unauthorized or unauthenticated access, with student registration being explicitly prohibited and limited to school personnel.

### Conflict-Checking Logic

- When a reservation request is submitted, the system automatically queries the database for existing bookings matching the specified room, date, and time; if a conflict is detected, the request is blocked, and an alert is generated, effectively preventing any overlapping reservations.

## Floor Plan and Marker Management

- Through the map-editor interface, administrators can drag room markers and upload floor plan files (JPG, PNG, SVG), which updates the floor and room database; the system's design also allows for future modifications by adding or removing floors and rooms.

## Email Integration and Logging

- The system incorporates an email notification system to inform users of reservation status updates; furthermore, it maintains a detailed log of all user activities, such as logins, request submissions, approvals, and modifications, providing administrators with a comprehensive audit trail for accountability and oversight.

## Requirements Documentation

This section provides a detailed list of features and functionalities that the Digi-Rooms system should provide at the end of the development phase. This acts as the reference for developers during the development phase, and a document of agreed-upon functionalities that will help align the client's expectations at the final product. Each requirement is aligned with its parent module, and represents a singular action that a user should be able to do inside the system.

## Functional Requirements

- Account Management Module

- REQ-1. The user shall be able to log in to the system by providing their email and password.
- REQ-2. The user shall be able to create a registration request for a new account by providing their email, name, department, and password.
- REQ-3. The administrator shall be able to view pending registration requests.
- REQ-4. The administrator shall be able to approve registration requests.
- REQ-5. The administrator shall be able to reject registration requests.
- REQ-6. The administrator shall be able to specify the reason for rejection of registration requests from a predefined set of strings.

REQ-7. The administrator shall be able to set individual permissions on accounts.

REQ-8. The user shall be able to receive email notifications for account status updates.

- Interactive Map Module

REQ-9. The user shall be able to view the interactive map.

REQ-10. The user shall be able to view the information of a room by clicking on a marker linked to it in the map.

REQ-11. The user shall be able to switch buildings and floors.

REQ-12. The user shall be able to view the availability of rooms based on the specified date and time.

REQ-13. The user shall be able to change the date and time.

- Schedule Management Module

REQ-14. The user shall be able to view the schedule timetable based on the specified date, time, and room.

REQ-15. The user shall be able to create a reservation request.

REQ-16. The user shall be notified of a schedule conflict before the finalization of the reservation request.

REQ-17. The user shall be able to choose an alternative room to resolve a schedule conflict before the finalization of the reservation request.

REQ-18. The teacher shall be able to view their reservation requests pending for approval.

REQ-19. The staff shall be able to view reservation requests pending for approval (initial stage).

REQ-20. The staff shall be able to approve reservation requests (initial stage).

REQ-21. The staff shall be able to reject reservation requests (initial stage).

REQ-22. The staff shall be able to specify the reason for rejection of reservation requests from a predefined set of strings (initial stage).

REQ-23. The administrator shall be able to view reservation requests pending for approval (final stage).

REQ-24. The administrator shall be able to approve reservation requests (final stage).

REQ-25. The administrator shall be able to reject reservation requests (final stage).

REQ-26. The administrator shall be able to specify the reason for rejection of reservation requests from a predefined set of strings (final stage).

REQ-27. The user shall be able to receive email notifications for reservation status updates.

- Map Editor Module

REQ-28. The administrator shall be able to add a new building.

REQ-29. The administrator shall be able to add a new floor based on the specified building.

REQ-30. The administrator shall be able to edit the building name.

REQ-31. The administrator shall be able to edit the floor name.

REQ-32. The administrator shall be able to upload a floor plan image/vector for a specified floor.

REQ-33. The administrator shall be able to add a new room marker based on the specified floor.

REQ-34. The administrator shall be able to reposition the room marker by dragging it across the screen.

REQ-35. The administrator shall be able to edit the properties of the room marker.

REQ-36. The administrator shall be able to delete a building, floor, and room marker.

- Reporting Module

REQ-37. The user shall be able to generate a schedule timetable document.

REQ-38. The administrator shall be able to generate a room utilization document.

REQ-39. The user shall be able to generate a calendar view document.

REQ-40. The administrator shall be able to generate a map overview document.

- REQ-41. The user shall be able to generate a reservation slip document.
- REQ-42. The administrator shall be able to generate an active account list document.
- REQ-43. The administrator shall be able to generate a log history document.
- REQ-44. The user shall be able to export the specified document into PDF.
- REQ-45. The user shall be able to print the specified document.

## **Non-Functional Requirements**

- Operational Requirements
  - REQ-46. The system will operate in modern web browsers.
  - REQ-47. The system will be responsive in window and device sizes.
  - REQ-48. The system will use dropdowns on forms that do not require unique values.
- Performance Requirements
  - REQ-49. The system shall retrieve the latest schedule, room, and map data in less than 2 seconds.
  - REQ-50. The system shall update the database in real time.
- Security Requirements
  - REQ-51. The user shall only see and access the modules that are specified on their account permissions.
- Cultural and Political Requirements
  - REQ-52. The system will use English language only.
  - REQ-53. The system will use non-technical terms as much as possible.

## **Storyboard**

The following storyboard designs had been presented and approved by the client.

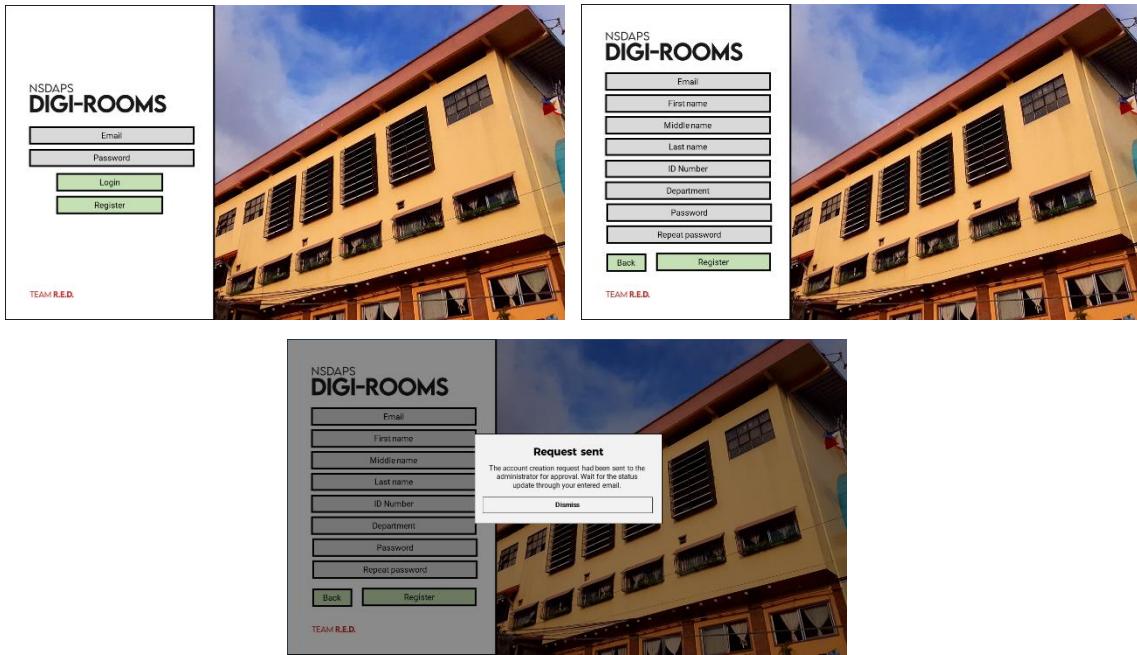


Figure 3. Storyboard for the Login/Register screen

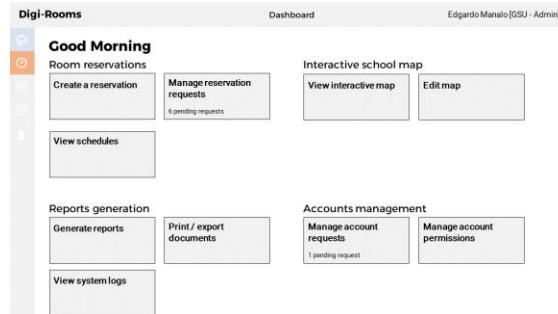
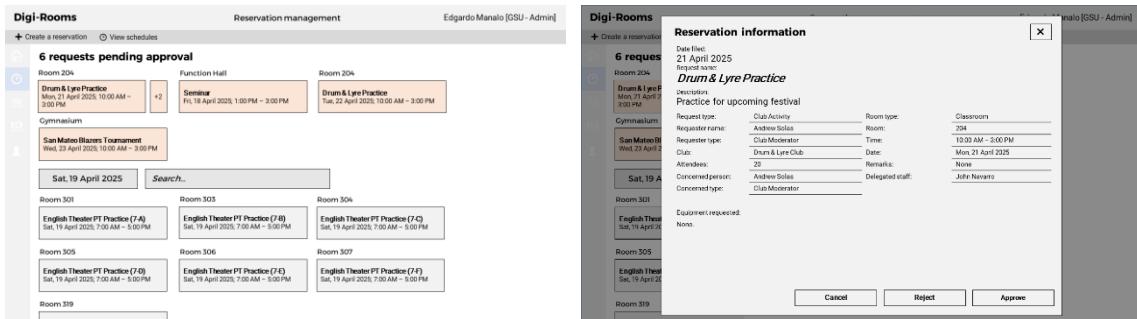


Figure 4. Storyboard for the home screen



This storyboard illustrates the process of approving or rejecting a reservation request. It consists of three main panels:

- Left Panel:** Shows a list of pending reservations. One specific entry for "Drum & Percussion Practice" on Saturday, April 22, 2025, from 10:00 AM to 3:00 PM is highlighted. Buttons for "Print report" and "Inspect another" are visible.
- Middle Panel:** A "Request approved" dialog box is displayed over the list. It includes a "Print report" button and a "Dismiss" button.
- Right Panel:** A "Reservation information" dialog box for the same reservation. It shows the date (21 April 2025), time (10:00 AM - 3:00 PM), room (Room 204), and description ("Drum & perc Practice"). A "Rejection reason" field is present, along with "Cancel", "Reject", and "Approve" buttons.

This storyboard illustrates the rejection of a reservation request. It follows a similar structure to the approval storyboard:

- Left Panel:** Shows the list of pending reservations, with the same "Drum & Percussion Practice" entry highlighted.
- Middle Panel:** A "Request rejected" dialog box is displayed over the list. It includes a "Print report" button and a "Dismiss" button.
- Right Panel:** A "Reservation information" dialog box for the rejected reservation, showing the rejection reason and "Cancel", "Reject", and "Approve" buttons.

**Figure 5. Storyboard for the Admin and Staff's reservation request approval/rejection screen**

This storyboard illustrates the creation of a new reservation and handling conflicts:

- Top Left Panel:** Shows the creation of a new reservation for "English Theater PT Practice (7A)" on Saturday, April 22, 2025, from 7:00 AM to 3:00 PM. Step 1: Request information is completed. Step 2: Schedule is selected.
- Top Right Panel:** Shows the creation of a new reservation for "English Theater PT Practice (7C)" on Saturday, April 22, 2025, from 7:00 AM to 3:00 PM. Step 1: Request information is completed. Step 2: Schedule is selected.
- Middle Left Panel:** Shows the creation of a new reservation for "English Theater PT Practice (7D)" on Saturday, April 22, 2025, from 7:00 AM to 3:00 PM. Step 1: Request information is completed. Step 2: Schedule is selected.
- Middle Right Panel:** Shows a conflict resolution dialog box for Room 304. It lists "Room 304" as the room type, "21" as the room number, and "No conflicts" as the status. It also shows the start time (7:00 AM), end time (3:00 PM), and date (Sat, 19 April 2025).
- Bottom Left Panel:** Shows the creation of a new reservation for "English Theater PT Practice (7B)" on Saturday, April 22, 2025, from 7:00 AM to 3:00 PM. Step 1: Request information is completed. Step 2: Schedule is selected.
- Bottom Right Panel:** Shows a "Create a reservation // Find alternatives" dialog box for Room 310. It lists "Main Building" as the room type, "Floor 3" as the floor, and "Sat, 19 April 2025" as the date. It shows a grid of rooms (317, 316, 314, 311, 309, 307, 306, 304, 319, 320, 321, 322, 315, 313, 310, 308, 305, 303, 301) with "Available" status for most. It also shows "Current activity" and "No activity is happening at this time." Buttons include "Switch to schedule view", "Main Building", "Floor 3", "Sat, 19 April 2025", "7:00 AM", "Find other rooms", "Use this room instead", and "Back".

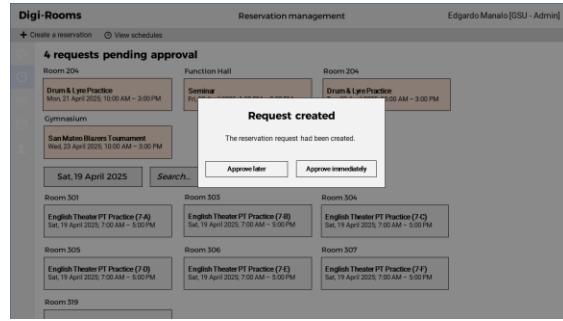
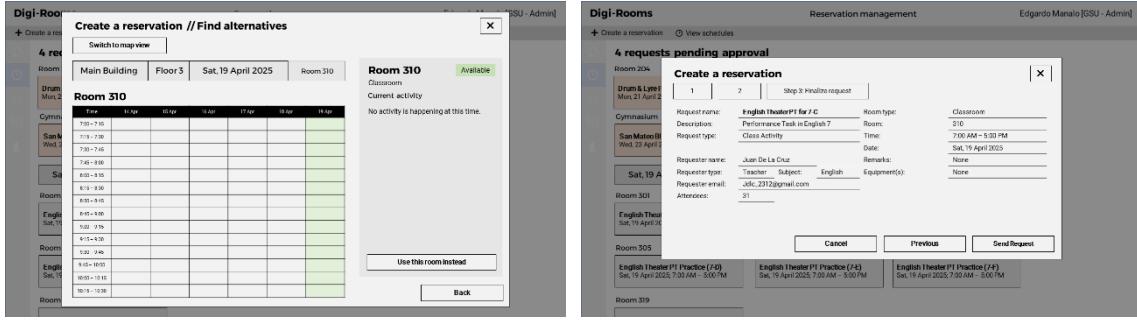


Figure 6. Storyboard for the reservation creation screen

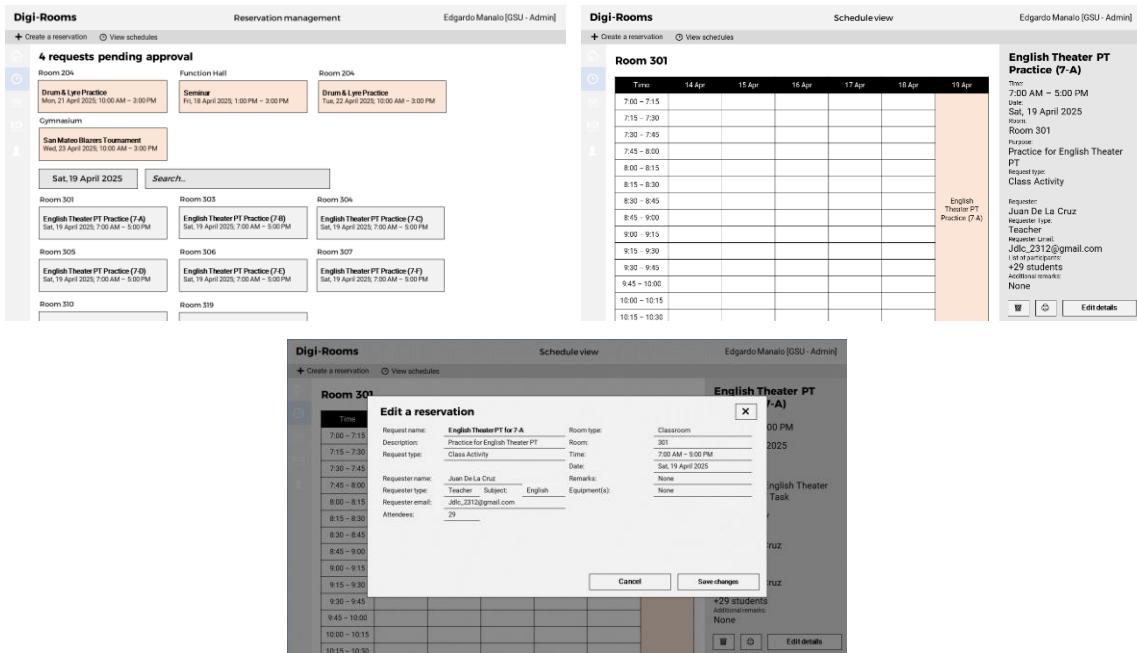
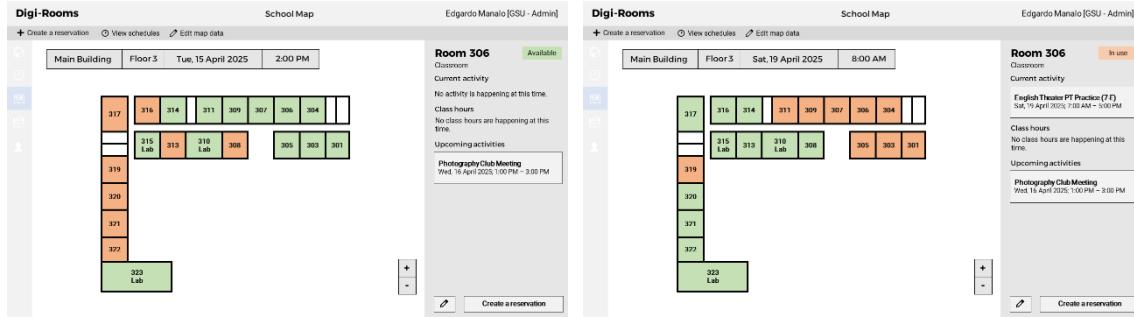
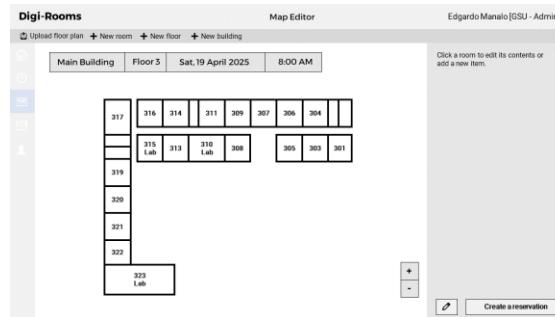


Figure 7. Storyboard for the reservation modification and timetable screen



**Figure 8. Storyboard for the interactive map and room information view**



**Figure 9. Storyboard for the map editor screen**

**Figure 10.** Storyboard for the report generation screen

**Figure 11.** Storyboard for the accounts management screen

## Design of Software, System, Product, and/or Processes

The project will adapt the Modified Waterfall Model for its software development process, which involves six primary stages: Requirements Gathering, System Design, Coding, Testing, Deployment, and Maintenance. At any point in the development process, the client and other involved parties may give their feedback in which updates addressing them may be implemented at the necessary stage, and the subsequent stages onwards. The proponents will communicate to the client after major milestones in the project to update them with the progress. Outlined below are the six primary stages of the development cycle of Digi-Rooms and the action that will be taken by the proponents.

### Requirements Gathering

A series of initial interviews were conducted to understand the needs of the General Services Unit in terms of room reservations, and to decide on the modules that will be present in the system. Using the client's answer, the proponents had formed the initial set of requirements and modules for the system:

- A secure login system using email, along with a registration request process for new accounts.
- A smart scheduling system that digitizes the reservation creation and approval process, automatically checks for conflicts, and recommends alternatives.
- A visual map of the school campuses and its rooms' availability through color indicators that allows the user to view the individual room information and schedules.
- A simple-to-use editor to edit the map properties, allowing the user to add, rearrange, edit, and delete room markers and information.
- A report generator that creates printable documents for reports and hard copies of reservations and maps.

## **System Design**

The requirements are used as reference material for the proponents in designing the Digi-Rooms system and its individual modules and components.

### Modules and Functionalities

- Account Management Module
  - Login function
  - Registration function
    - Account registration request creation function
  - Account registration request approval function
  - Access role management function
- Schedule Management Module
  - Reservation request creation function
  - Reservation request approval function
  - Schedule conflict detection function
  - Alternative room recommendation function

- Schedule viewing function
- Interactive Map Module
  - Map viewing function
  - Room information viewing function
  - Live room status update function
- Map Editor Module
  - Building and floor creation, modification, and deletion function
  - Room marker creation, modification, and deletion function
- Report Generation Module
  - Schedule timetable creation and viewing function
  - Room utilization report creation and viewing function
  - Map overview creation and viewing function
  - Reservation slip creation and viewing function
  - Active account list creation and viewing function
  - Log creation and viewing function
  - Document export to PDF function
  - Document printing function

The system will use MongoDB as its database. It shall contain 7 collections, named Buildings, Floors, Rooms, Schedules, Templates, Accounts, and Logs. Each collection document shall contain the following attributes.

#### Database Collections

- Buildings

- This collection contains existing buildings within the map. It contains the name and address of the building, and an array named Floors that contains the IDs referencing individual Floor documents in the Floors collection. When rendering the interactive map, this is the entry point of the system.
- Floors
  - This collection contains existing floors from all buildings. Its objectId is referenced in the Building document that it belongs to. It specifies the number (e.g., Floor 1, 2, 3, etc.) of the floor and its assigned name (e.g., Ground Floor, etc.). It contains an embedded document that contains the information regarding the floor plan image associated with the floor. Finally, it has a Rooms array that contains the IDs referencing individual Room documents in the Rooms collection.
- Rooms
  - This collection contains existing rooms from all floors and buildings. Its objectId is referenced in the Floor document that it belongs to. It specifies the name, capacity, floor, location, and type of the room. The Location attribute is an embedded document that contains the string value of the Building and Floor that it belongs to (this removes the need to access the Buildings and Floors collection when obtaining the room location when being displayed in other parts of the program). It also contains the code (e.g., 301, 302, 303, etc.), and the Coordinates, which contains the X and Y value of the room marker when being rendered in the map. The Type attribute is a string value obtained from a set of predefined options from the RoomType attribute from the Templates collection.
- Schedules
  - This collection contains the name, description, requester, activity, room, time, equipment, remarks, delegated staff, creation and modification dates, and approval data. The Requester attribute is an embedded document that contains the name and type of the requester. The Name attribute can be set

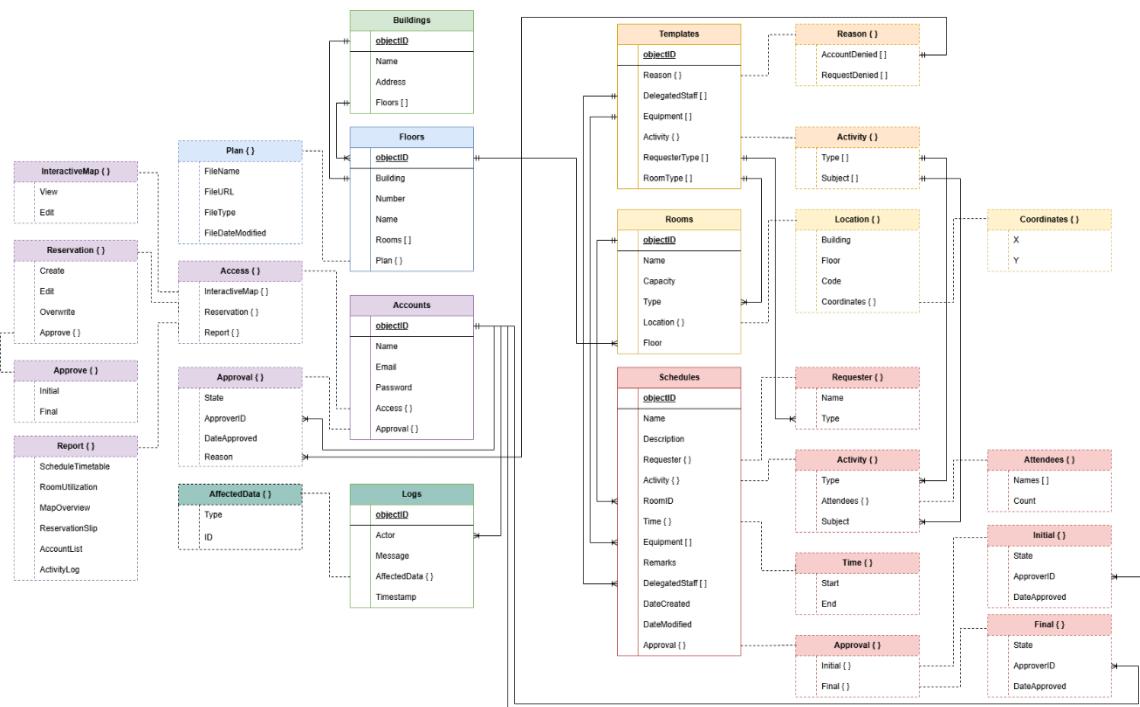
to the user's account name or can be set manually (e.g., when the user is making a reservation on behalf of someone else), while the Type attribute is a string value obtained from a set of predefined options from the Activity.Type attribute from the Templates collection. The Time attribute contains the start and end time and dates of the reservation. The Equipment and DelegatedStaff attributes are an array of string values obtained from a set of predefined options of the Equipment and DelegatedStaff arrays from the Templates collection respectively. The Approval subdocument contains the subdocuments for the Initial and Final stages, which then contains the state, account ID of the approver, and the date information for both stages.

- Templates
  - This collection contains various arrays of predefined options that are used to populate dropdowns in different forms across the system as part of the client's suggestions. The Reason object contains the options for the reasons on account and reservation request denial, while the Activity object contains the options for the type of activity being done in a reserved schedule, along with the subject (e.g., Filipino, English, MAPEH, etc.) if it is applicable. The DelegatedStaff, Equipment, and RequesterType arrays contain options used in filling up the reservation request form, while the RoomType array contains options (e.g., Laboratory, Classroom, Open-Space, etc.) to specify the type of a selected room marker when editing it in the Map Editor.
- Accounts
  - This collection contains all the active and pending accounts registered into the system. The Name attribute pertains to the user's display name, while the Email and Password attribute pertains to their credentials that are used to log in to the system. The Approval object contains the state of the account (e.g., Pending Approval, Denied, Accessible), the account ID of the administrator that approved/rejected the account registration request, the reason (if the account is denied access), and the date and time when the account was approved/rejected. The Access object contains Boolean values

for each action type that can be made in the system. Access roles (e.g., Teacher, Staff, and Administrator) automatically set individual values inside the Access object when editing accounts in the Account Management Module.

- Logs

- This collection contains all the logs of actions done within the system. It includes the account ID of the actor who made the action, the system message (e.g., “Initial stage approval of request”), the timestamp, and the affected data. The AffectedData object contains the type of document that was affected by the action (e.g., a Schedule document is affected when a request was approved), and the objectID of said document.



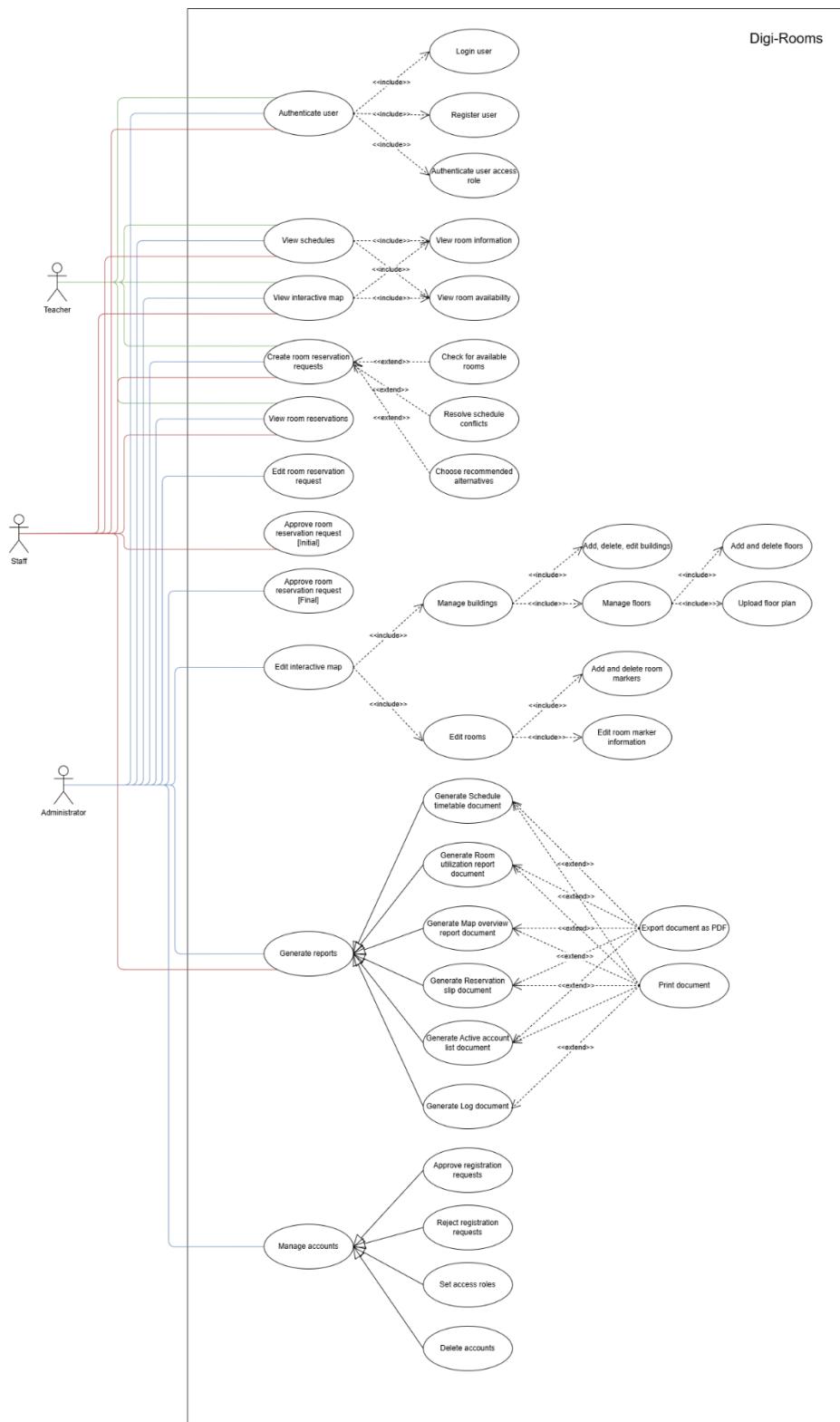
**Figure 12. Structures and Relationships of Collections in the Database**

To ensure the security of the data held inside the database, a user access roles system will be implemented to ensure that only authorized accounts can modified the data that are accessible to them. Outlined below are the permissions for each access roles.

### User Roles and Access

	Teacher	Staff	Administrator
<b>Interactive Map</b>			
View	✓	✓	✓
Edit	X	X	✓
<b>Reservations</b>			
Create	✓	✓	✓
Edit	X	X	✓
Overwrite	X	X	✓
<b>Approve reservation requests</b>			
Initial	X	✓	✓
Final	X	X	✓
<b>Reports</b>			
ScheduleTimetable	✓	✓	✓
ReservationSlip	✓	✓	✓
MapOverview	✓	✓	✓
RoomUtilization	X	X	✓
AccountList	X	X	✓
ActivityLog	X	X	✓

**Figure 13. Permission table for the access roles of the system**



**Figure 14. Use Case Diagram of the Project**

## Flowcharts

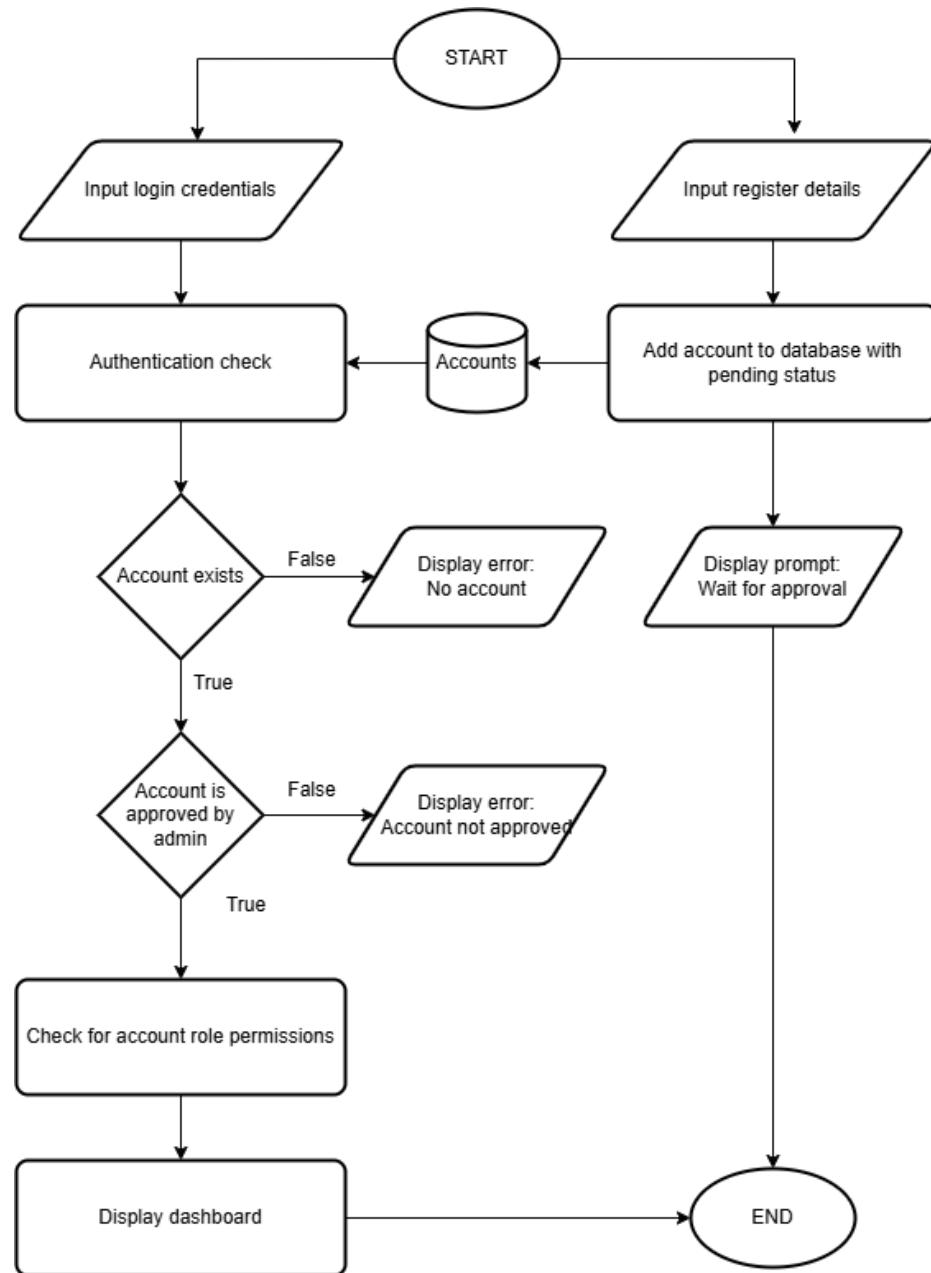
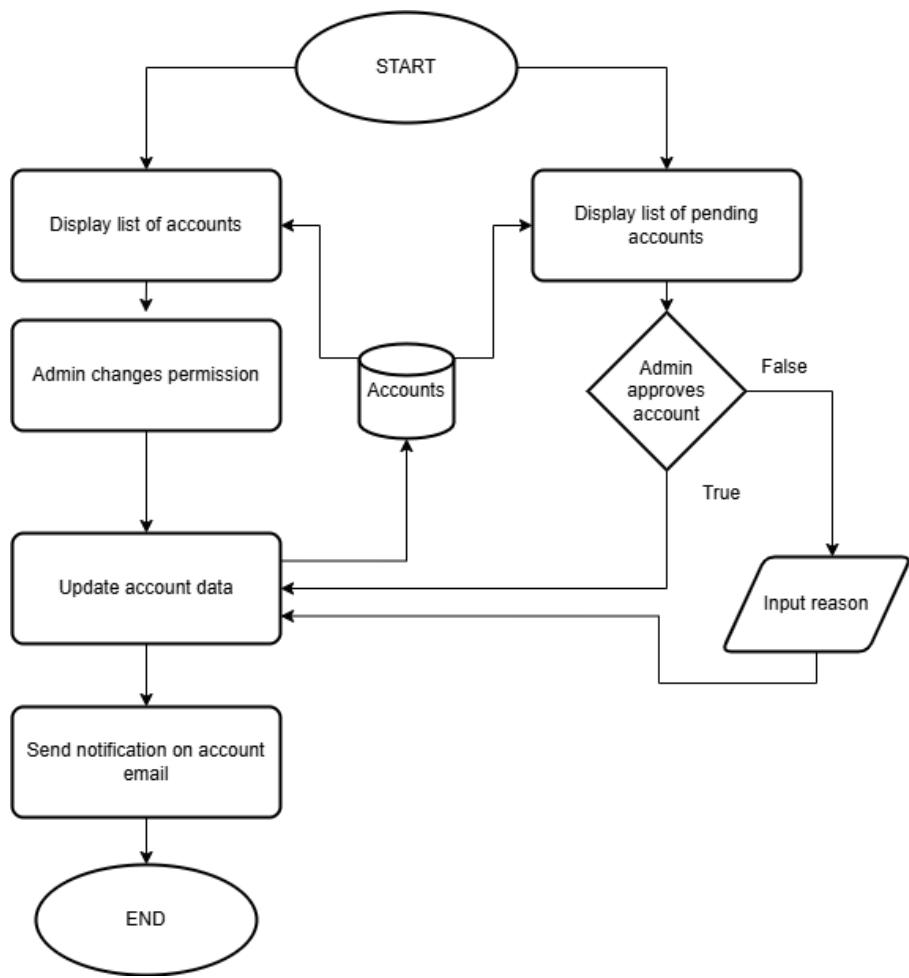
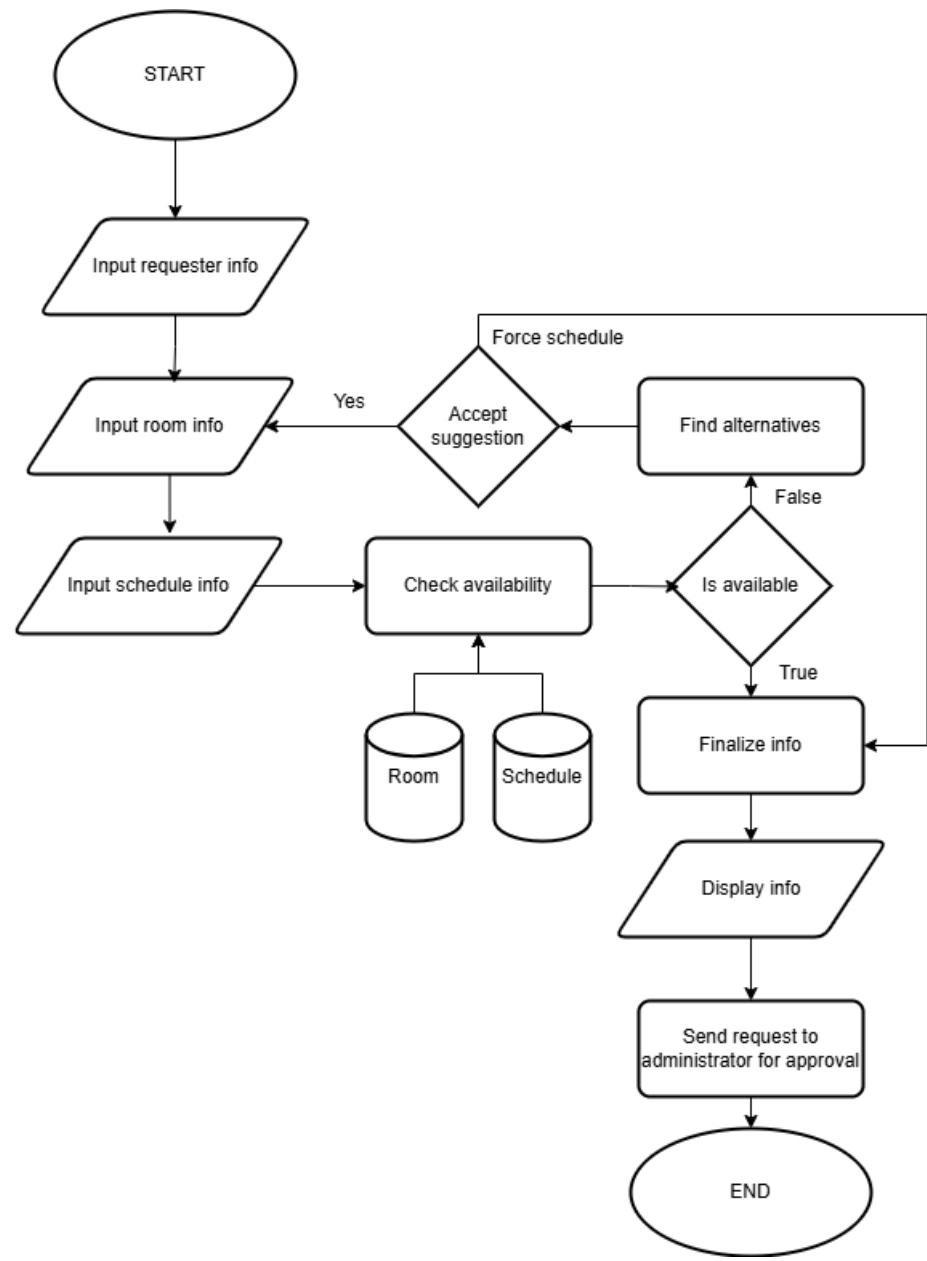


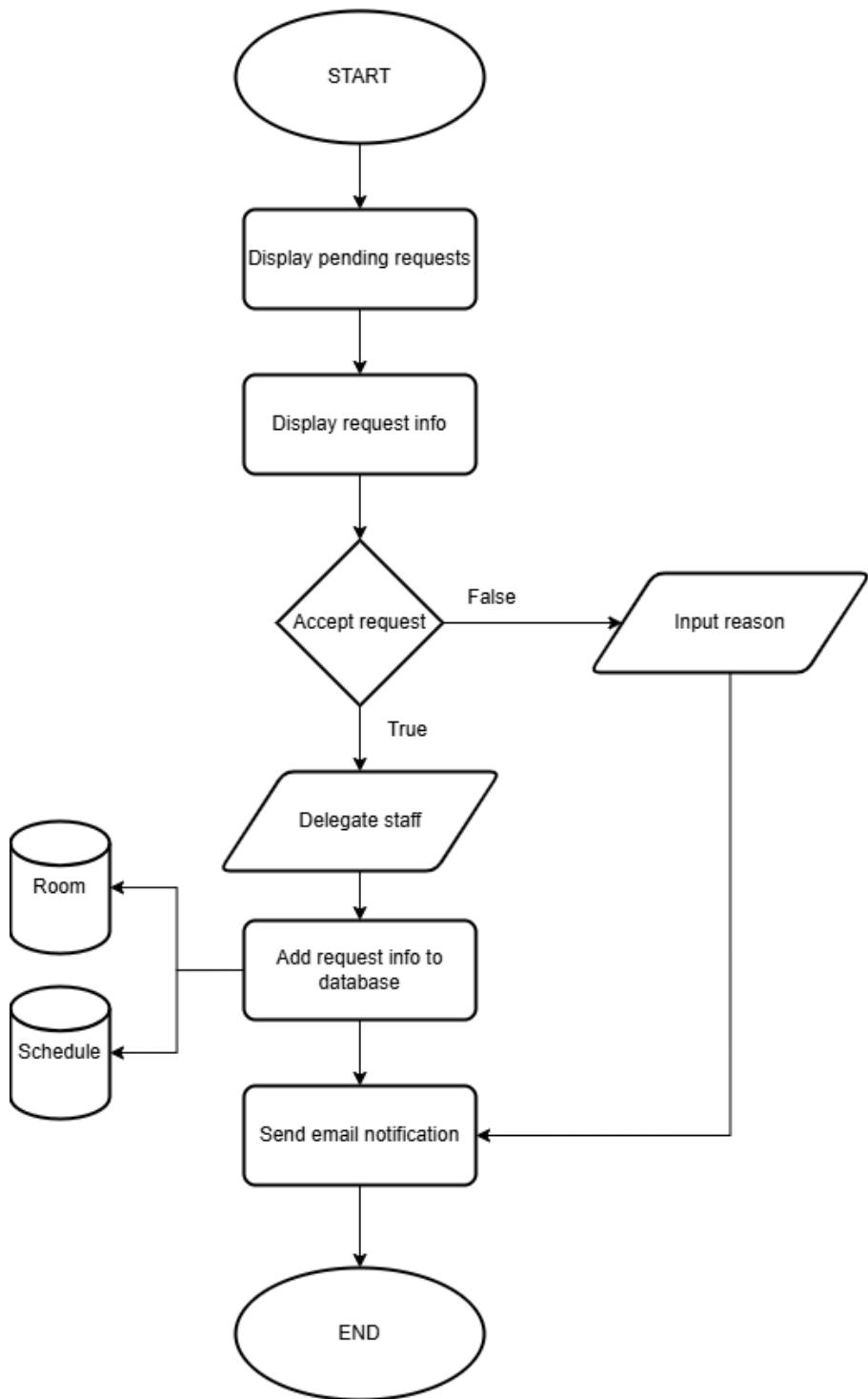
Figure 15. Login/Register function flowchart



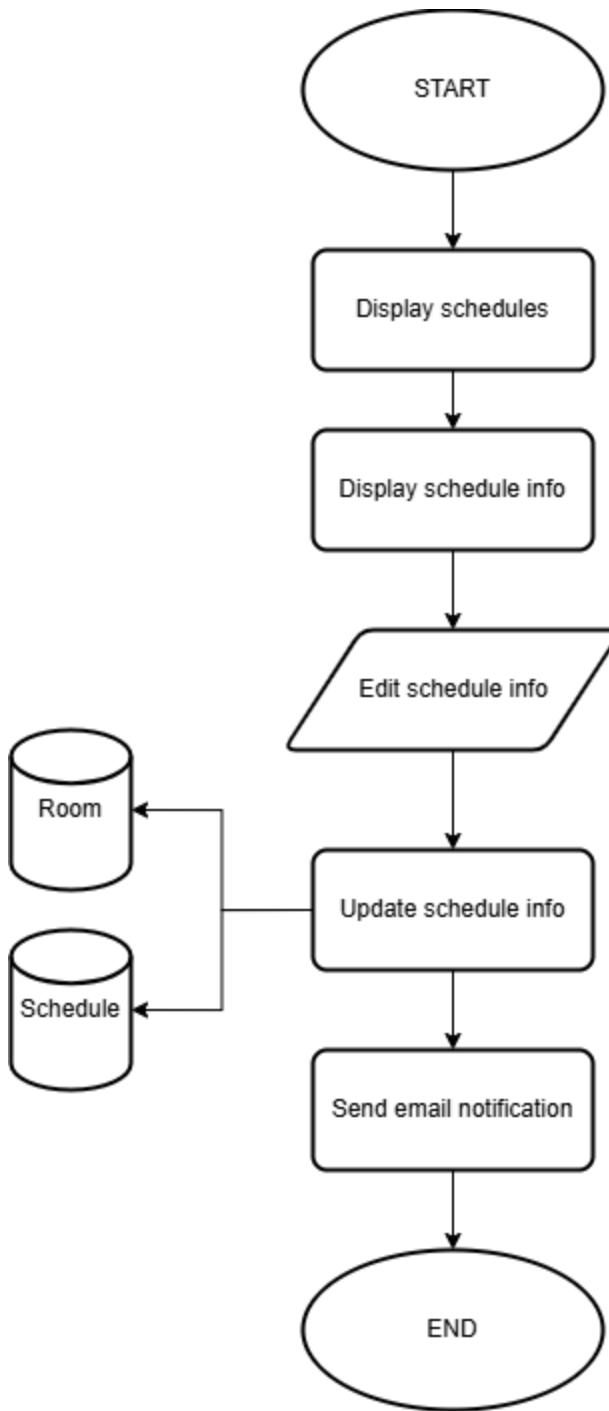
**Figure 16. Account request approval function flowchart**



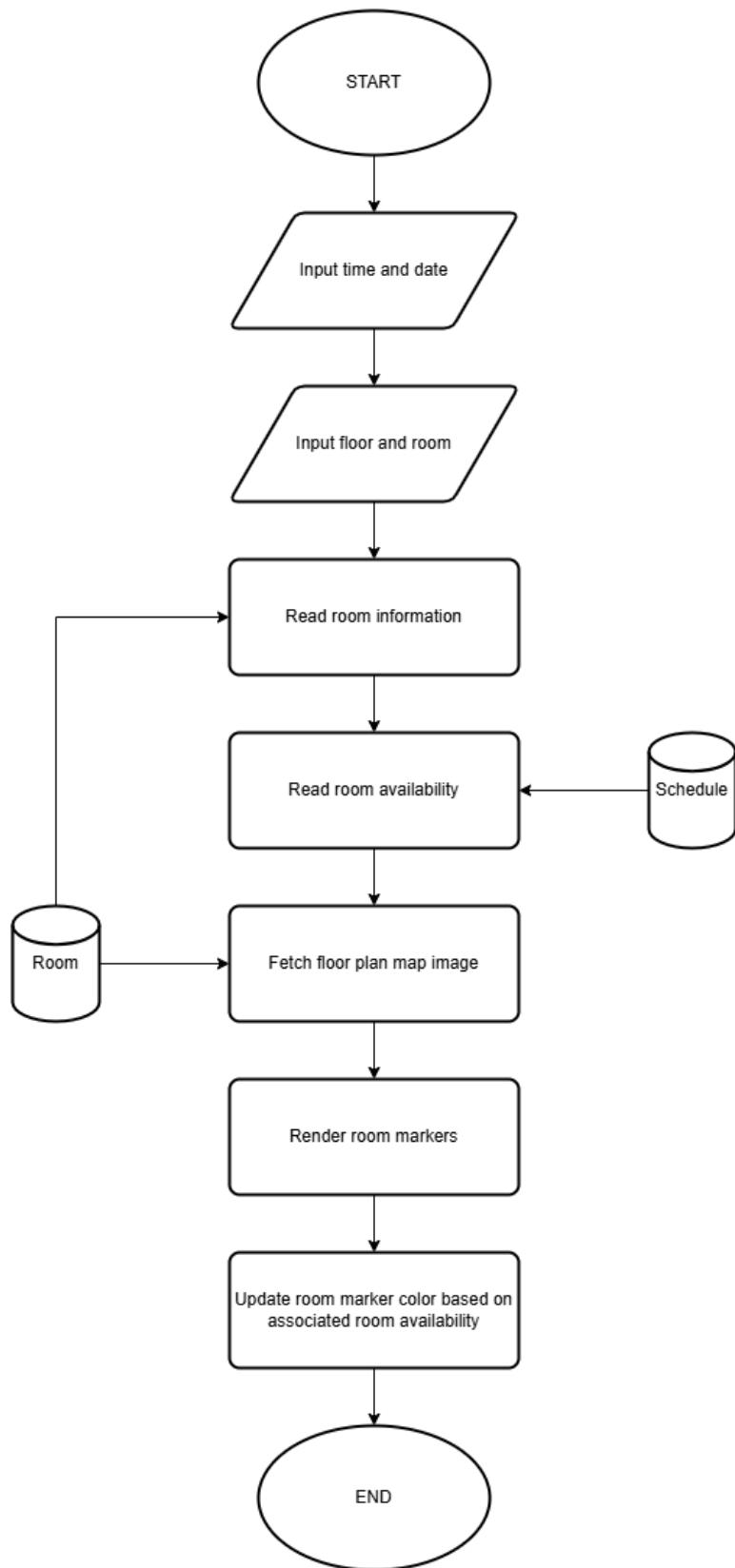
**Figure 17. Reservation request creation function flowchart**



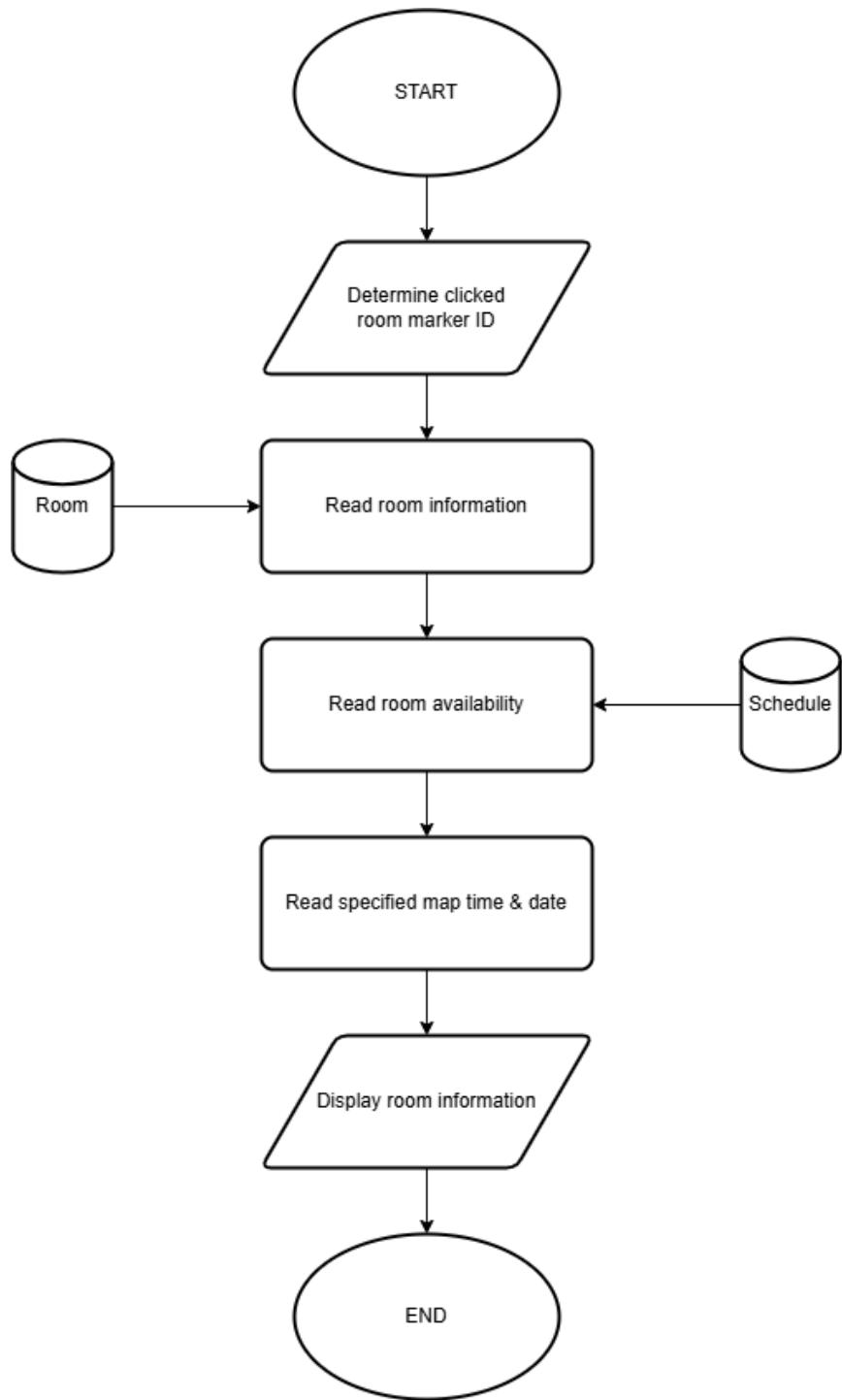
**Figure 18. Reservation request approval function flowchart**



**Figure 19. Reservation modification function flowchart**



**Figure 20. Interactive Map rendering flowchart**



**Figure 21. Room information display function flowchart**

## Coding

The main phase of the development cycle for the Digi-Rooms project involves the actual programming of the specified modules according to the requirements and design. The development will also include frequent updates with the client to notify of the progress of the project.

The implementation of the system will be as follows:

- HTML and CSS will be used for the front-end.
- Node.js will be used for the logic and additional functionality.
- MongoDB will be used to store the data used throughout the system.
- An emailing service will be used to send notification emails to intended users.

Frequent updates with the client is key in resolving issues and adjustment of functionalities early on in the development process. With this in mind, the client will be notified of changes and major developments every time a function of a module has been finished and initially tested for proper functionality.

## Testing

To ensure that the system functions as intended, multiple testing types will be implemented. These will verify all components of the program, ensuring they operate correctly and align with the client's expectations and functional requirements.

### Internal Testing

- This phase of testing spans throughout the development stage of the system and involves the developers themselves. Each module and its subsequent functionalities are tested immediately after completion to check for bugs and errors that may occur. The developers test use cases and go through each step of the process as if the end user is using it. As these tests often involve the first iterations of the modules, it is expected that numerous bugs will be found through them. With internal testing implemented, the likelihood of fatal errors during deployment is significantly reduced.

### External Testing

- This phase of testing involves the client and end users themselves. Once the program has been completed and thoroughly tested internally, the developers will have the client and end users (e.g., staff and teachers) use the system normally. During this phase, the developers walk each user through the process of the modules that they have access to. This includes a short presentation of the features and modules, their benefits, and a short run down on what to do in each process. Before this phase, the system will be made online and hosted on a test domain, and will be seeded with the necessary data such as room and template information. There will be three distinct stages for the external testing:

- Presentation
  - In this stage, the developers will present the functionalities, benefits, accessible processes, and available modules for the users. The processes and how to execute them in the system will be discussed, and potential questions will be addressed.
- Testing proper
  - In this stage, the users shall access and use the system from start to finish, such as account registration, reservation creation, etc. For this stage, the developers will have their own instance of the system running to immediately approve of account and reservation requests.
- Survey
  - In this stage, the users shall answer a short survey form that relates to the usability, functionality, and appearance of each module that they have interacted with. The form will include linear scale questions and open-ended questions asking for feedback and comments. This composition of survey question types will allow the proponents to gather both quantitative and qualitative data.

## **Deployment**

This development phase involves the implementation of the system into the school's operations. The system will be transferred to the official domain, along with the seeded initial data for the system. When necessary, accounts made from the testing phase will be transferred to the new iteration of the system.

### Configuration

- Accounts for necessary users (e.g., Student Affairs and GSU Head) will be created and configured with their respective access roles. Other system settings such as dropdown, map, and room information will be preloaded before the system becomes fully operational.

### Training and Orientation

- A brief orientation session with the users shall be conducted to familiarize them with the system and answer potential questions and concerns. A short demonstration will also be conducted for those who were not present during the testing phase.

### Handover of user manual

- A user manual will be made accessible for all users and can be requested directly into the system. This manual shall contain all potential use cases, conflicts, and problems, along with how to fix them.

## Maintenance

This development phase involves extended support of the system after deployment to fix remaining issues and resolving potential errors. The maintenance phase will span for 3 months after the deployment of the system, and the developers shall provide the users the means to communicate directly to report problems and bugs that they may encounter during the actual operation of the program.

### Performance Monitoring

- During the maintenance phase, developers shall closely monitor the responsiveness and reliability of the system, including the uptime and loading times.

## Minor Updates

- Minor changes and improvements may be done to the system, such as UI tweaks, enhancement of navigation, responsiveness, and reliability. These updates may stem from the reports and feedback the developers receive through the provided contact.

## Bug Fixes

- Final rounds of debugging will be executed to address errors and issues users encounter during actual use.

## Conceptual Framework

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## **APPENDICES**

## **APPENDIX A: RESOURCE PERSONS**



**Figure 22. Interview with Mr. Edgardo Manalo Jr., Head of NSDAPS General Services Unit (GSU), February 28, 2025**



**Figure 23. Interview with Mr. Edgardo Manalo Jr., Head of NSDAPS General Services Unit (GSU), May 2, 2025**

## **APPENDIX B: RESOURCES**

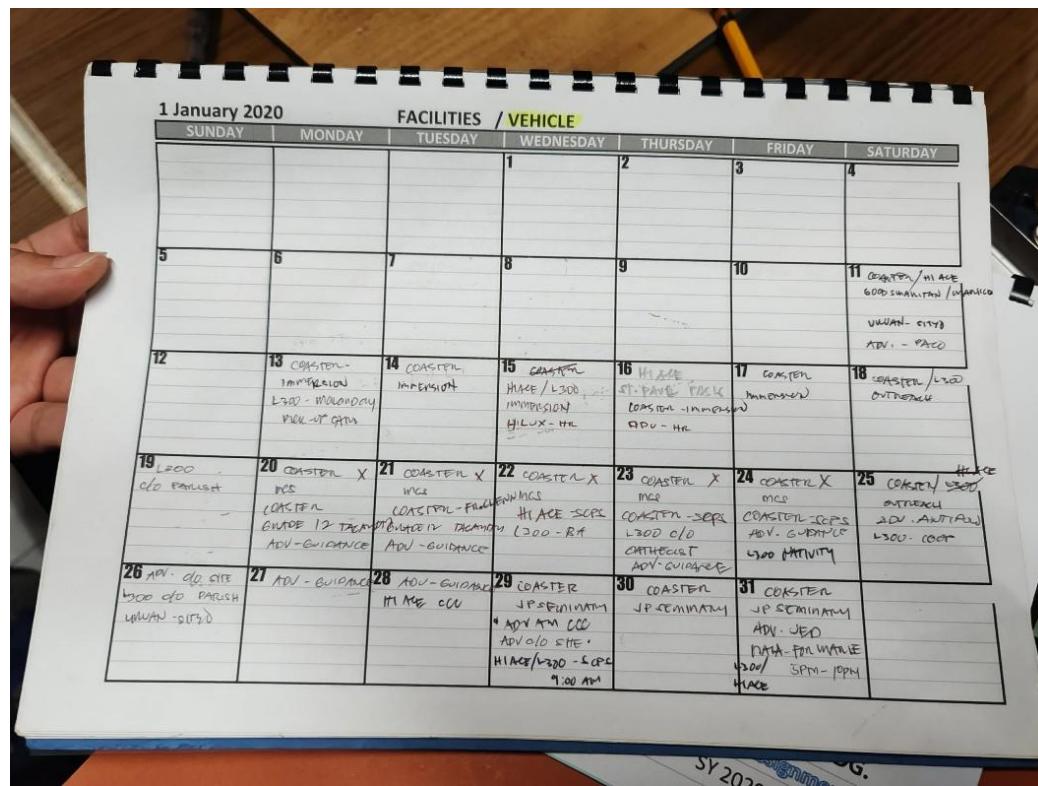


Figure 24. Calendar logging activities and shared equipment


**Nuestra Señora de Aranzazu Parochial School**  
 San Mateo, Rizal  
 Tel: 941-1269 website: www.nsdcaps.edu.ph  
*I am an Aranzazu, I C.A.R.E.*

GSU Form- 4

**GENERAL SERVICES UNIT**  
**Reservation Request Form**

NAME OF APPLICANT:	DATE APPLIED:												
Remarks:	DATE RESERVE:												
	TIME: FROM TO												
REQUISITIONER	<table border="1"> <tr><td>ELEMENTARY</td><td>GRADE</td><td>SEC.</td></tr> <tr><td>HIGH SCHOOL</td><td>YEAR</td><td>SEC.</td></tr> <tr><td>FACULTY</td><td></td><td></td></tr> <tr><td>ORGANIZATION</td><td></td><td></td></tr> </table>	ELEMENTARY	GRADE	SEC.	HIGH SCHOOL	YEAR	SEC.	FACULTY			ORGANIZATION		
ELEMENTARY	GRADE	SEC.											
HIGH SCHOOL	YEAR	SEC.											
FACULTY													
ORGANIZATION													
NO. OF ATTENDEES	If possible, please attach a list of the names of the attendees												
FACILITIES	<table border="1"> <tr><td>GYMNASIUM</td><td>AUDIO-VISUAL ROOM</td></tr> <tr><td>AUDITORIUM</td><td>GARDEN</td></tr> <tr><td>CLASSROOM</td><td>room #</td></tr> <tr><td></td><td>FUNCTION HALL</td></tr> </table>		GYMNASIUM	AUDIO-VISUAL ROOM	AUDITORIUM	GARDEN	CLASSROOM	room #		FUNCTION HALL			
GYMNASIUM	AUDIO-VISUAL ROOM												
AUDITORIUM	GARDEN												
CLASSROOM	room #												
	FUNCTION HALL												
APPROVED BY:													

Figure 25. Reservation Request Form from the General Services Unit


**Nuestra Señora de Aranzazu Parochial School**  
 Gen. Luna Street Guimangbayan I  
 San Mateo, Rizal  
 Tel. 941-1260 Fax: 911-9966 Website: <http://www.nsdaaps.edu.ph>  
 "I am an Aranzan, I C.A.R.E."

GSU Form-1

## REQUISITION

For Equipments, Appliances, Tools (eg. LCD, Camera, Cassette, Mobile PC, Extension Cord etc.)

Requested by:	<i>Nefia D. Santillana, Grade 10</i>			Data Requested:	<i>March 15, 2018</i>		
Department:				Date needed:	<i>March 15, 2018</i>		
Qty.	Description	Purpose	Date	Due Date	Receiving Signature	Date	Remarks
9	9 pos. White Table	Tables	3/17				
1		Anniversary					
10	10 pos. Umbrella Chair		3/17				

Approved by: \_\_\_\_\_  
 Released by: \_\_\_\_\_

Received by: \_\_\_\_\_  
 Returned by: \_\_\_\_\_

Figure 26. Equipment Requisition Form

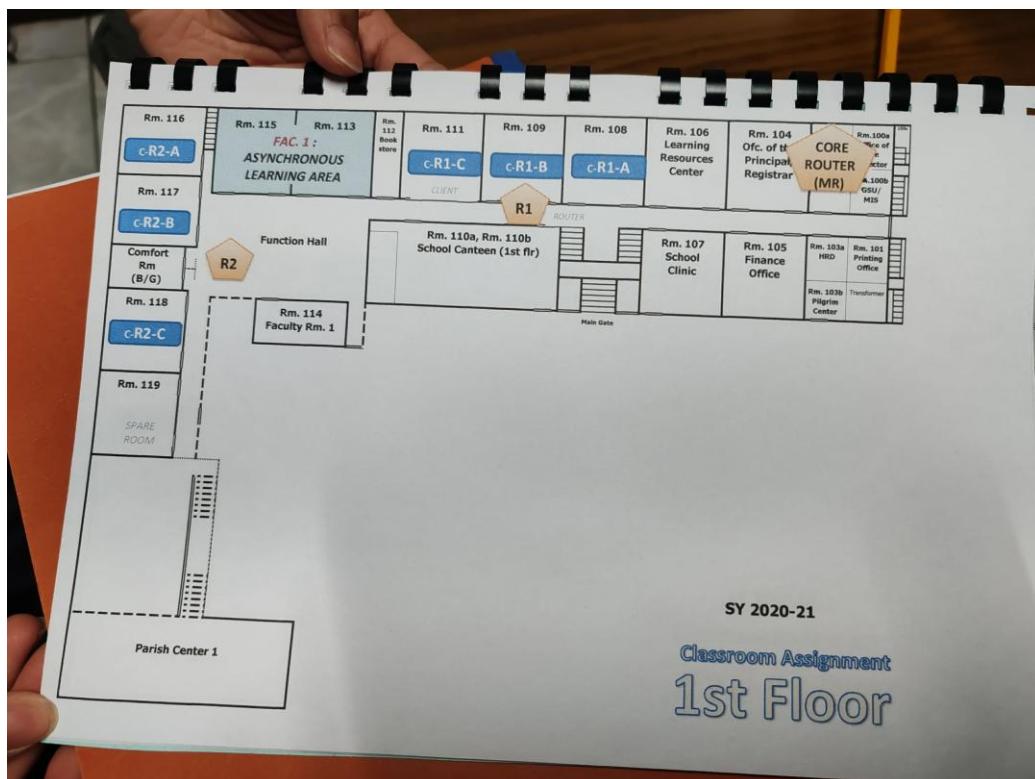
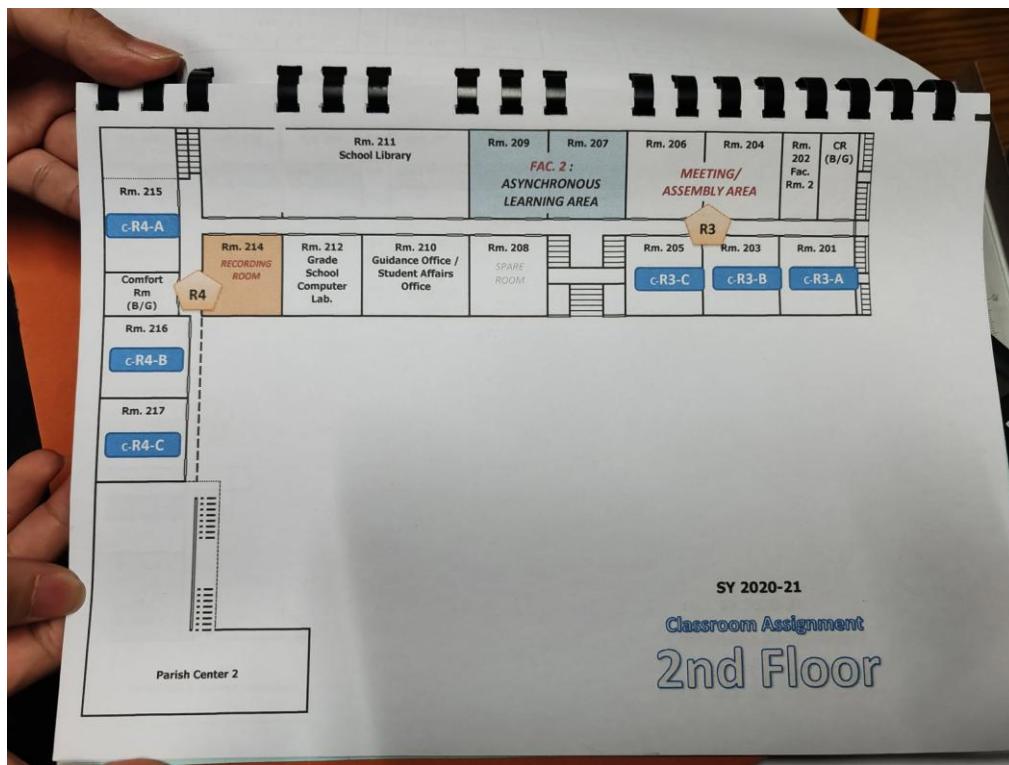
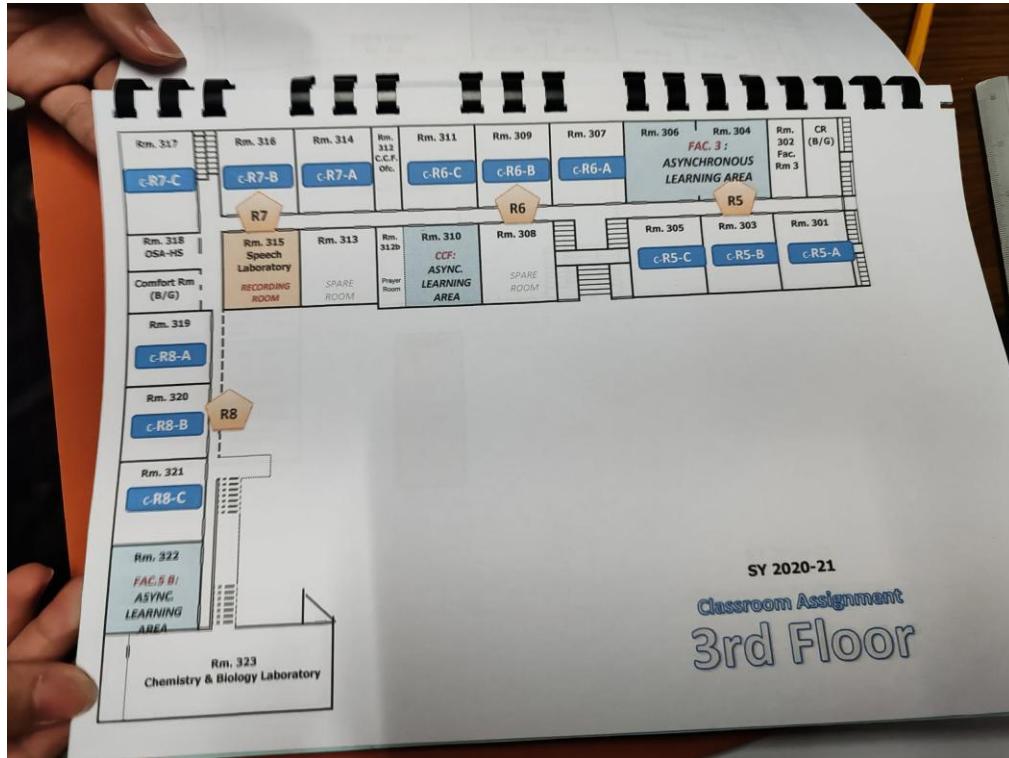


Figure 27. Floor plan of the first floor of NSDAPS' main campus



**Figure 28. Floor plan of the second floor of NSDAPS' main campus**



**Figure 29. Floor plan of the third floor of NSDAPS' main campus**

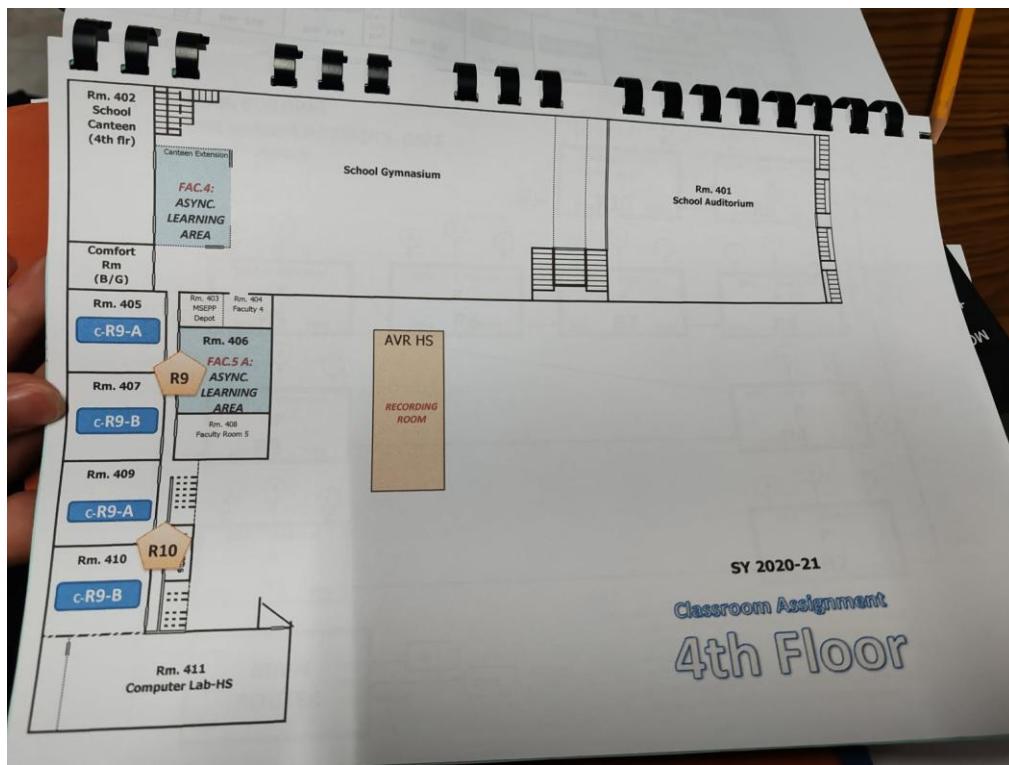


Figure 30. Floor plan of the fourth floor of NSDAPS' main campus

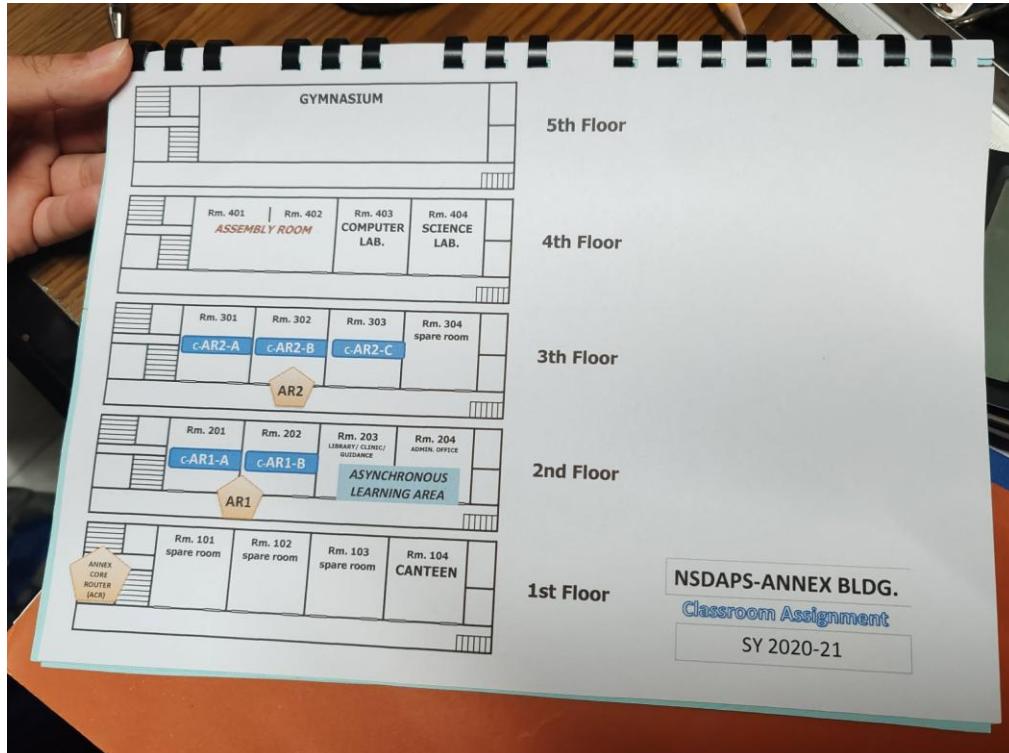
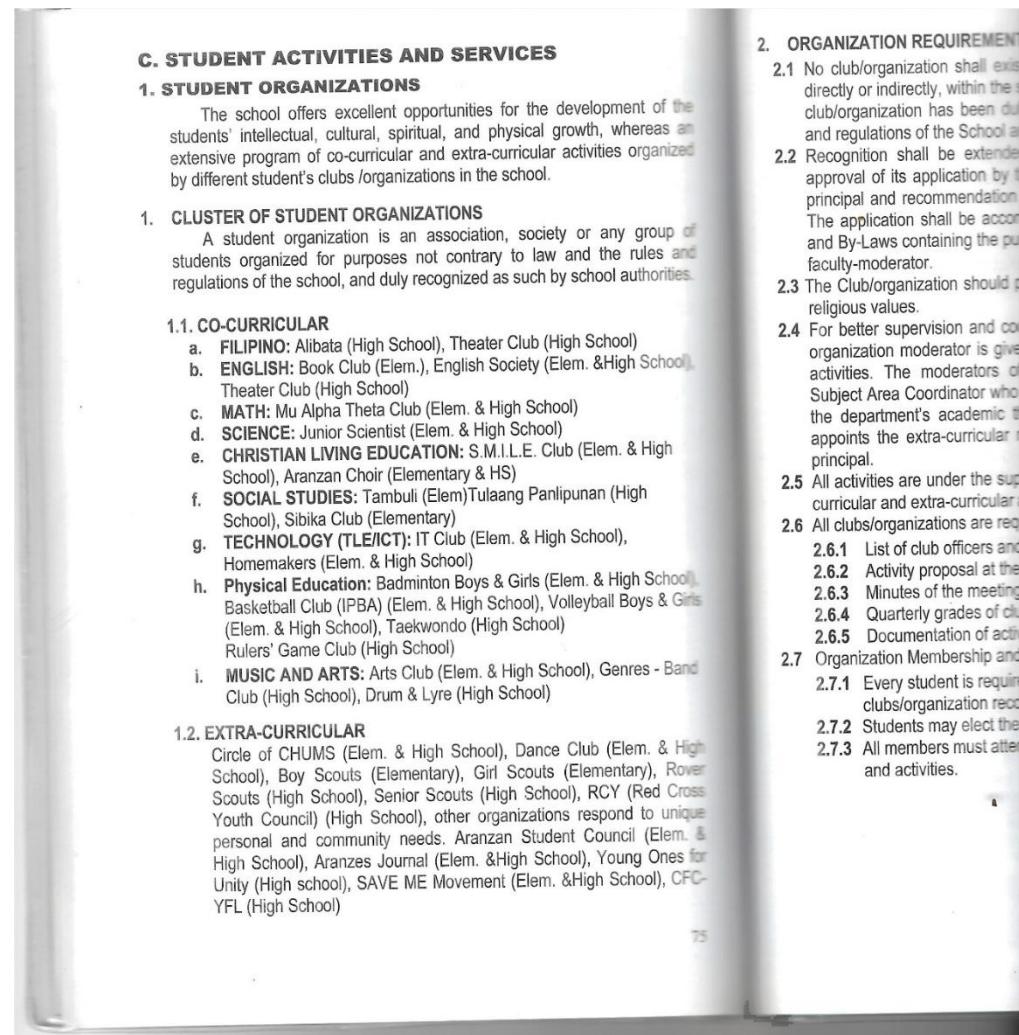
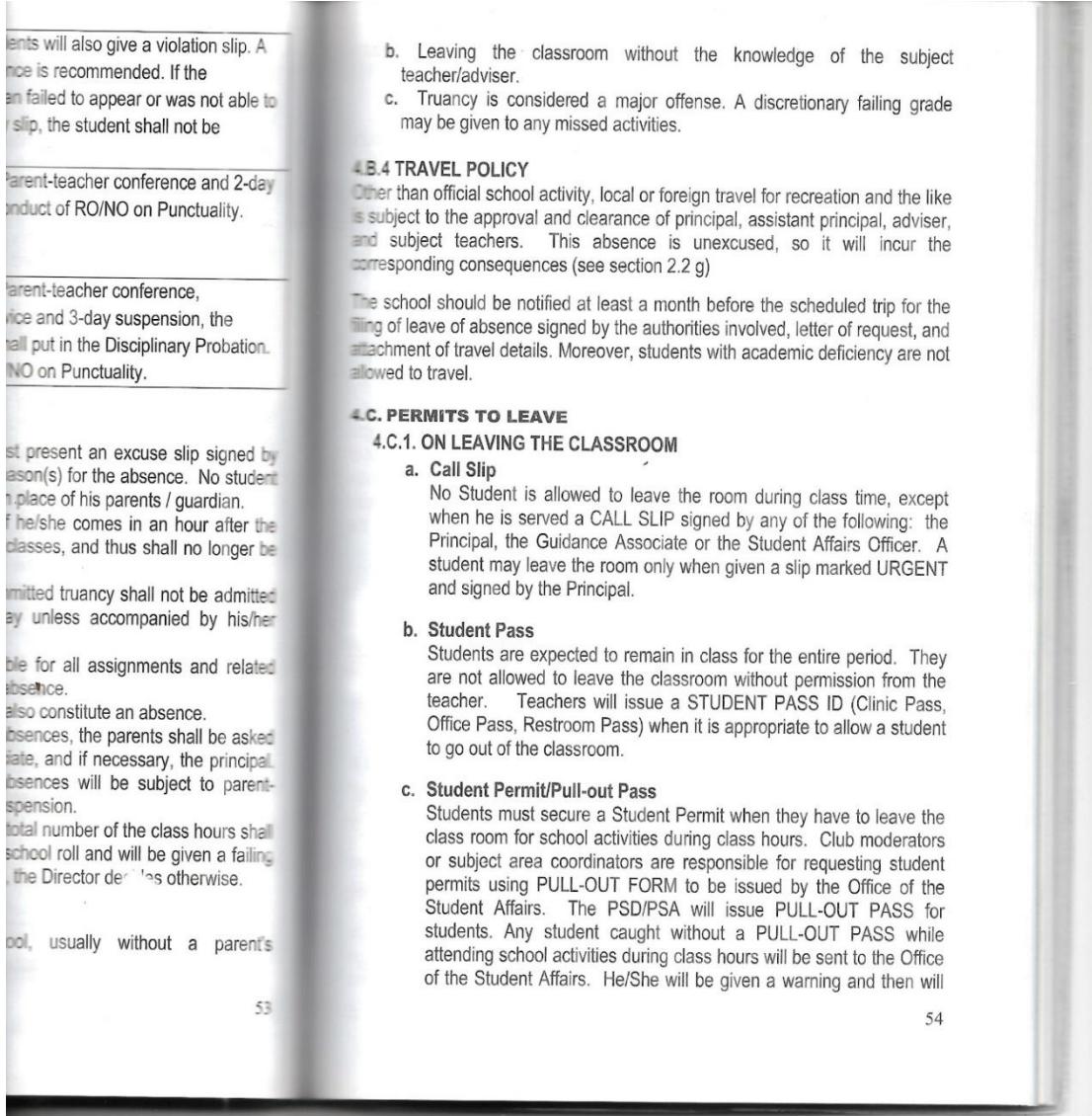


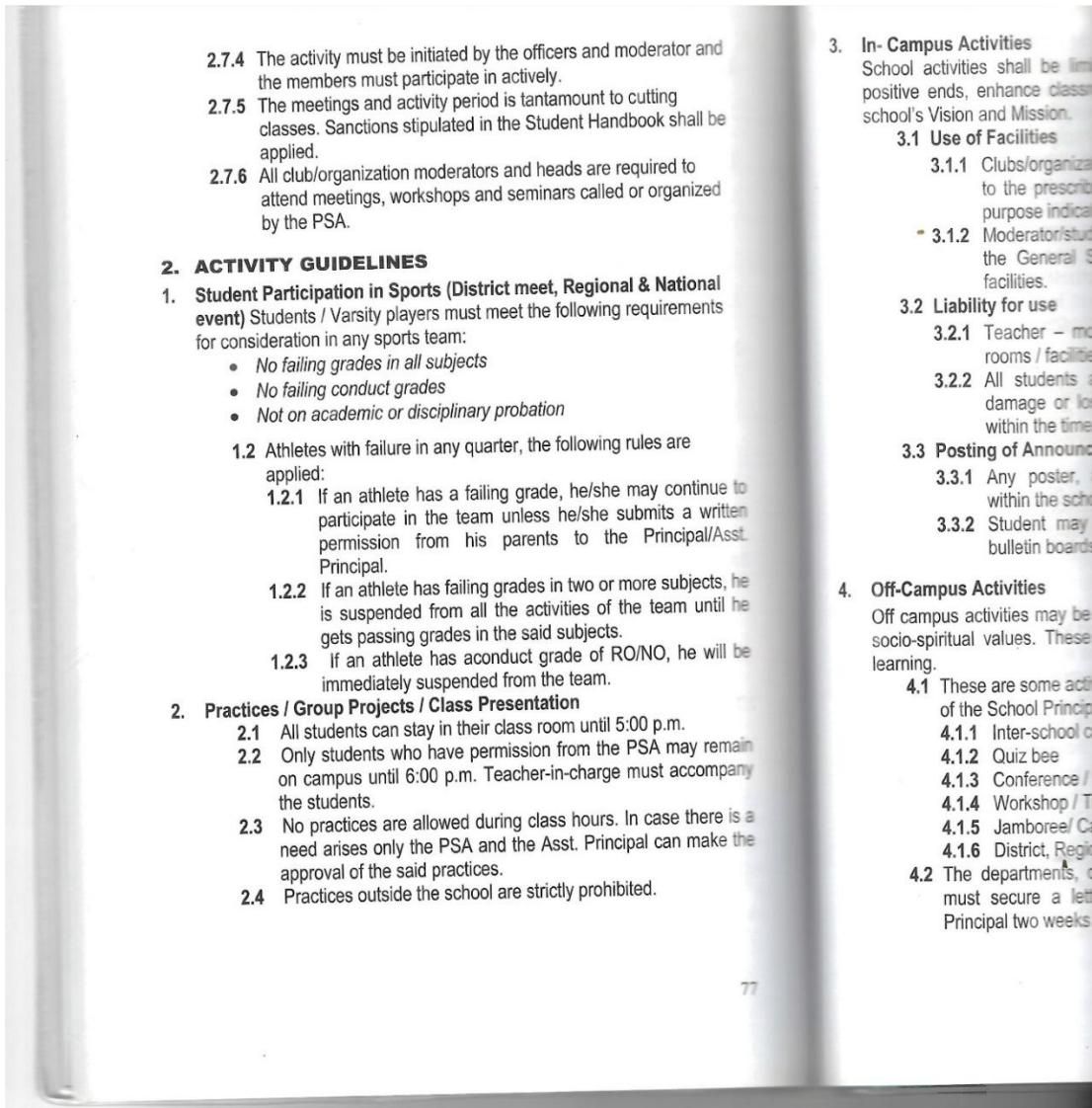
Figure 31. Floor plan of NSDAPS' annex campus



**Figure 32. List of recognized school clubs and organizations from a copy of the school's Student Handbook**



**Figure 33. Guidelines for leaving the classroom for activities using a pull-out form from a copy of the school's Student Handbook**



**Figure 34. Guidelines for practices and group projects from a copy of the school's Student Handbook**

the officers and moderator and actively.

This tantamount to cutting the Student Handbook shall be

and heads are required to seminars called or organized

to meet, Regional & National set the following requirements

robation

or, the following rules are

grade, he/she may continue to unless he/she submits a written parents to the Principal/Asst.

ades in two or more subjects, he activities of the team until he said subjects.

uct grade of RO/NO, he will be pm the team.

entation

ss room until 5:00 p.m. sion from the PSA may remain ther-in-charge must accompany

class hours. In case there is a he Asst. Principal can make the

strictly prohibited.

### 3. In-Campus Activities

School activities shall be limited to those which are geared towards positive ends, enhance classroom situations and in accordance to the school's Vision and Mission.

#### 3.1 Use of Facilities

3.1.1 Clubs/organizations recognized by the school are subject to the prescribed rules and regulations according to the purpose indicated in the permit.

3.1.2 Moderator/student must secure permit from the PSA and the General Services Unit (GSU) in using the school facilities.

#### 3.2 Liability for use

3.2.1 Teacher – moderator should ensure cleanliness of the rooms / facilities after use.

3.2.2 All students and teacher-in-charge are liable for any damage or loss and destruction of any school facilities within the time of the activity.

#### 3.3 Posting of Announcements

3.3.1 Any poster, announcement, distribution or circulation within the school premises must be signed by the PSA.

3.3.2 Student may only post announcements on respective bulletin boards; thus, posting on walls is not allowed.

### 4. Off-Campus Activities

Off campus activities may be allowed for their educational purposes and socio-spiritual values. These activities expose the students in real life learning.

4.1 These are some activities allowed by the school with permission of the School Principal;

4.1.1 Inter-school competition

4.1.2 Quiz bee

4.1.3 Conference / Seminars

4.1.4 Workshop / Training

4.1.5 Jamboree/ Camping

4.1.6 District, Regional, National Meet

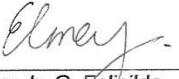
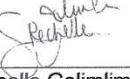
4.2 The departments, classes, or clubs organizing such activities must secure a letter of permission for the approval of the Principal two weeks before the proposed activity.

**Figure 35. Guidelines for in-campus activities from a copy of the school's Student Handbook**

## REQUIREMENTS DEFINITION DOCUMENT

This document serves as a list of the requirements specified by the client, Mr. Edgardo M. Manalo Jr., head of Nuestra Señora De Aranzazu Parochial School's General Services Unit. This list shall be the basis of the IT Capstone Project team, Elmer Felisilda, Daisy Borbe, and Rechelle Golimlim, for their development of the system entitled **"Digi-Rooms: Web-Based Room Reservation and Management System for Nuestra Señora De Aranzazu Parochial School"**.

Prepared by:

		
Elmer Jr. G. Felisilda Developer	Daisy Borbe Developer	Rechelle Golimlim Developer

### Introduction

- Document Purpose

This document outlines the functional and non-functional requirements for the Digi-Rooms project, involving the agreed-upon modules, features, functions, and design considerations. This document serves as a formal agreement between the development team and the client and the scope and limitations of the project.

- Product Scope

The program, named "Digi-Rooms", involves an Interactive Map, Schedule Management and Conflict Resolution, Reports Generation, Account Management, and a Map Editor. An email notification functionality will be employed to notify the requesters of the status of their reservations, should changes occur. The program is limited for use to NSDAPS' teachers, staff, and the General Services Unit.

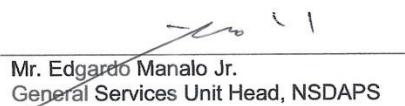
- Product Overview

The program, named "Digi-Rooms", is a Web-Based School Facility and Room Reservation and Management System for Nuestra Señora De Aranzazu. Aiming to digitize and enhance the current reservation process employed by the school, Digi-Rooms involves a visualized interactive map for viewing room availabilities, an easy-to-follow step-by-step reservation process, along with reporting tools for insights and analysis.

### Definition of terms

- User
  - Generalizes the three main access roles – teacher, staff, and administrator.
- Teacher
  - Access role that can view the interactive map, schedules, and create reservation requests.  
This involves members of the school Faculty.

Confirmed and approved by:

  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

1

## REQUIREMENTS DEFINITION DOCUMENT

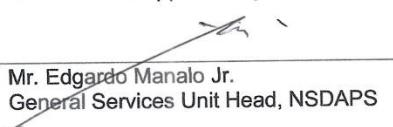
- Staff
  - Access role that inherits the permissions of the Teacher role, along with the ability to approve reservation requests (initial stage) and generate reports. This involves members of the Student Affairs Office.
- Administrator
  - Access role that inherits the permissions of both the Teacher and Staff role along with the ability to approve reservation requests (final stage), and the ability to edit map, room, reservation, and account data. This role has full access to all the tools and functionalities of the system.
- Initial stage
  - The stage of the approval process where the reservation request from the Teacher will pass through the Staff account first for preliminary approval from the Student Affairs Office.
- Final stage
  - The stage of the approval process where the reservation request approved by the Staff account will pass through the Administrator account for final approval from the General Services Unit. After this stage, assuming that the request had been approved, will the reservation be added to the schedule records.

### Specific Requirements

#### Functional Requirements

- Account Management Module
  - REQ-1. The user shall be able to log in to the system by providing their email and password.
  - REQ-2. The user shall be able to create a registration request for a new account by providing their email, name, department, and password.
  - REQ-3. The administrator shall be able to view pending registration requests.
  - REQ-4. The administrator shall be able to approve registration requests.
  - REQ-5. The administrator shall be able to reject registration requests.
  - REQ-6. The administrator shall be able to specify the reason for rejection of registration requests from a predefined set of strings.
  - REQ-7. The administrator shall be able to set individual permissions on accounts.
  - REQ-8. The user shall be able to receive email notifications for account status updates.
- Interactive Map Module
  - REQ-9. The user shall be able to view the interactive map.
  - REQ-10. The user shall be able to view the information of a room by clicking on a marker linked to it in the map.
  - REQ-11. The user shall be able to switch buildings and floors.
  - REQ-12. The user shall be able to view the availability of rooms based on the specified date and time.
  - REQ-13. The user shall be able to change the date and time.

Confirmed and approved by:

  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

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## REQUIREMENTS DEFINITION DOCUMENT

- Schedule Management Module

- REQ-14. The user shall be able to view the schedule timetable based on the specified date, time, and room.
- REQ-15. The user shall be able to create a reservation request.
- REQ-16. The user shall be notified of a schedule conflict before the finalization of the reservation request.
- REQ-17. The user shall be able to choose an alternative room to resolve a schedule conflict before the finalization of the reservation request.
- REQ-18. The teacher shall be able to view their reservation requests pending for approval.
- REQ-19. The staff shall be able to view reservation requests pending for approval (initial stage).
- REQ-20. The staff shall be able to approve reservation requests (initial stage).
- REQ-21. The staff shall be able to reject reservation requests (initial stage).
- REQ-22. The staff shall be able to specify the reason for rejection of reservation requests from a predefined set of strings (initial stage).
- REQ-23. The administrator shall be able to view reservation requests pending for approval (final stage).
- REQ-24. The administrator shall be able to approve reservation requests (final stage).
- REQ-25. The administrator shall be able to reject reservation requests (final stage).
- REQ-26. The administrator shall be able to specify the reason for rejection of reservation requests from a predefined set of strings (final stage).
- REQ-27. The user shall be able to receive email notifications for reservation status updates.

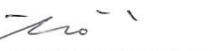
- Map Editor Module

- REQ-28. The administrator shall be able to add a new building.
- REQ-29. The administrator shall be able to add a new floor based on the specified building.
- REQ-30. The administrator shall be able to edit the building name.
- REQ-31. The administrator shall be able to edit the floor name.
- REQ-32. The administrator shall be able to upload a floor plan image/vector for a specified floor.
- REQ-33. The administrator shall be able to add a new room marker based on the specified floor.
- REQ-34. The administrator shall be able to reposition the room marker by dragging it across the screen.
- REQ-35. The administrator shall be able to edit the properties of the room marker.
- REQ-36. The administrator shall be able to delete a building, floor, and room marker.

- Reporting Module

- REQ-37. The user shall be able to generate a schedule timetable document.
- REQ-38. The administrator shall be able to generate a room utilization document.
- REQ-39. The user shall be able to generate a calendar view document.
- REQ-40. The administrator shall be able to generate a map overview document.
- REQ-41. The user shall be able to generate a reservation slip document.
- REQ-42. The administrator shall be able to generate an active account list document.
- REQ-43. The administrator shall be able to generate a log history document.
- REQ-44. The user shall be able to export the specified document into PDF.
- REQ-45. The user shall be able to print the specified document.

Confirmed and approved by:

  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

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## REQUIREMENTS DEFINITION DOCUMENT

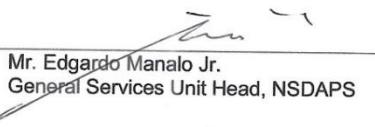
### Non-Functional Requirements

- Operational Requirements
  - REQ-46. The system will operate in modern web browsers.
  - REQ-47. The system will be responsive in window and device sizes.
  - REQ-48. The system will use dropdowns on forms that do not require unique values.
- Performance Requirements
  - REQ-49. The system shall retrieve the latest schedule, room, and map data in less than 2 seconds.
  - REQ-50. The system shall update the database in real time.
- Security Requirements
  - REQ-51. The user shall only see and access the modules that are specified on their account permissions.
- Cultural and Political Requirements
  - REQ-52. The system will use English language only.
  - REQ-53. The system will use non-technical terms as much as possible.

## CONFIRMATION AND APPROVAL

I, \_\_\_\_\_, hereby confirm that:

- The requirements specified in this document aligns with my requirements and vision of the project.
- I approve of the requirements specified in this document.
- I approve on having this requirements definition document to be used for the purpose of documentation and as a basis of information of the researchers for their IT Capstone Project.

  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

Date signed \_\_\_\_\_

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**Figure 36. Signed Requirements Definition Document for Mr. Edgardo Manalo Jr.**

## **APPENDIX C: LETTERS**

February 26, 2025

**Ms. Julie Ann Pajardo**  
School Principal  
Nuestra Señora De Aranzazu Parochial School  
General Luna Street, Guitnangbayan I  
San Mateo, Rizal

Dear Ms. Pajardo:

Greetings of peace and goodwill.

We are a group of students from STI College Marikina currently developing our capstone project, a requirement for our Bachelor of Science in Information Technology program. We are writing to explore the possibility of partnering with Nuestra Señora De Aranzazu Parochial School for this project.

We have been impressed by Nuestra Señora De Aranzazu Parochial School's commitment to integrating technology into its daily operations. We believe our skills and knowledge in IT could be beneficial in further enhancing your school's efficiency and effectiveness. Specifically, we are interested in exploring how a custom-designed web-based system could address any current operational challenges.

We would be grateful for the opportunity to meet with you for approximately 30-45 minutes to discuss your school's needs and explore potential areas where our capstone project could be of assistance. This meeting would allow us to understand your current processes and identify specific challenges that a digital solution could address. This collaborative approach will ensure that our project directly aligns with your school's requirements and provides a tangible benefit.

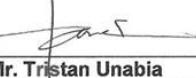
Please feel free to contact us at felisilda.289421@marikina.sti.edu.ph to schedule a convenient time for this meeting.

Thank you for your time and consideration. We look forward to the possibility of working with you.

Respectfully yours,

  
\_\_\_\_\_  
**Elmer Jr. G. Felisilda**  
Student, STI College Marikina

Approved by:

  
\_\_\_\_\_  
**Mr. Tristan Unabia**  
IT Capstone Project Adviser

  
\_\_\_\_\_  
**Daisy Borbe**  
Student, STI College Marikina

*Attention: Sir Jed Manalo*

  
\_\_\_\_\_  
**Rechelle Golimlim**  
Student, STI College Marikina

  
\_\_\_\_\_  
2/26/2025

**Figure 37. Letter of interview request addressed to the school principal, who delegated it to the General Services Unit Head**

#### PRE-INTERVIEW CONSENT FORM

This form obtains your consent to allow the interviewers, Elmer Felisilda, Daisy Borbe, and Rechelle Golimlim, to record this interview for documentation purposes as part of the Capstone project process for academic purposes. To help you prepare with this interview, we have supplied the interview questions as follows:

#### Interview Questions

##### Current System Context

- Could you describe the current process of reserving rooms and facilities for school events and activities? What is the current method of recording and tracking room availability in the school?
- Who is responsible for managing room requests and assignments?
- How are student-initiated and teacher-initiated room requests and permits handled?
  - What is the current process of receiving, handling, and tracking these requests?
  - How is the approval or rejection of requests communicated to the requesters?
- Had there been any instances of parties outside the school (such as the church) using the school's rooms and facilities?
  - Are their requests also subject to the same process as those of the teachers and students?
- Does the method of room management and tracking in the main campus apply to the annex campus as well? Or does it have its own processes?
- What are the most common types of events or activities that require room and facility reservations?
- Had there been any instances of conflicts in scheduled use?
  - How are they handled and communicated to everyone involved?

##### System Issues

- What are the biggest challenges or frustrations that staff face with the current room and facility management process?
- How much time is typically spent in processing room and facility reservation requests?
  - How about the time spent in handling scheduling conflicts?
- Are there difficulties in tracking room and facility usage or generating reports?
- Do you see the use of a digital web-based room and facility management system as a potential improvement in the school's operations?

##### Future collaboration

- Are you willing to collaborate with us in the creation of a web-based system for room management in Nuestra Señora De Aranzazu Parochial School?
- How do you prefer to communicate and receive updates?
- Who is the best point of contact for project updates?
- How often do you want to be updated regarding the project status?
- What are your expectations for the final product and implementation?

##### Consent and Confirmation

I, EDGARDO MANALO JR., hereby confirm that:

- I understand the purpose of this interview and topics that will be discussed.
- All answers provided during this interview are truthful and complete to the best of my knowledge.
- I consent on having this interview audio recorded for the purpose of documentation and transcription by the interviewers for their IT Capstone Project.

  
Interviewee signature

2/28/25  
Date signed

**Figure 38. Pre-interview consent form for Mr. Edgardo Manalo Jr., NSDAPS' General Services Unit Head, February 28, 2025**

### **PRE-INTERVIEW CONSENT FORM**

This form obtains your consent to allow the interviewers, Elmer Felisilda, Daisy Borbe, and Rechelle Golimlim, to record this interview for documentation purposes as part of the Capstone project process for academic purposes. To help you prepare with this interview, we have supplied the interview questions as follows:

#### **Interview Questions**

##### **Relevant Figures**

- What is the average count of students enrolled at NSDAPS' main and SHS campus?
- What is the total count of employees, both teaching and non-teaching, that is currently active in NSDAPS' main and SHS campus?
- How many classrooms are there at NSDAPS' main campus?
- How many classrooms are there at NSDAPS' SHS campus?
- Does the school share resource and facilities?
- What is the total count of employees that work under the General Services Unit?
  - How many of which work at NSDAPS' main campus?
  - How many of which work at NSDAPS' SHS campus?
- What instance have you experienced where there were significant time spent processing requests?

##### **Proposed System**

- Would you like the website to include multiuser support, so that other departments would be able to access and interact with the system?
- Should teachers be able to create reservations directly?
- Should students and the general public be able to create reservations?
  - Should they be granted permission to view the interactive map?
- Should requesters stop by the administration / student affairs office first before the requested schedule is created, or should they be able to create a request that would be approved by the administration before arriving to you for final approval?
- What kind of reports would you like the system to generate?
- Do you agree with the proposed account management module of the system?
- Do you agree with the proposed schedule management module of the system?
- Do you agree with the proposed interactive map and map editor module of the system?
- Do you agree with the proposed reports generation module of the system?
- Are there any features/functions discussed that you want to be removed/modified?
- Are there any features/functions that you want to be added?
- Do you have specific requirements on the modules discussed?

##### **Expectations**

- Do you believe that the proposed system will benefit the General Services Unit and the school?
- If the system works well, how would it change the room reservation routine of the school?

##### **Consent and Confirmation**

I, EDGARDO MANALO, hereby confirm that:

- I understand the purpose of this interview and topics that will be discussed.
- All answers provided during this interview are truthful and complete to the best of my knowledge.
- I consent on having this interview audio recorded for the purpose of documentation and transcription by the interviewers for their IT Capstone Project.

  
Interviewee signature

5/2/25  
Date signed

**Figure 39. Pre-interview consent form for Mr. Edgardo Manalo Jr., NSDAPS' General Services Unit Head, February 28, 2025**

## **APPENDIX D: PERMITS**

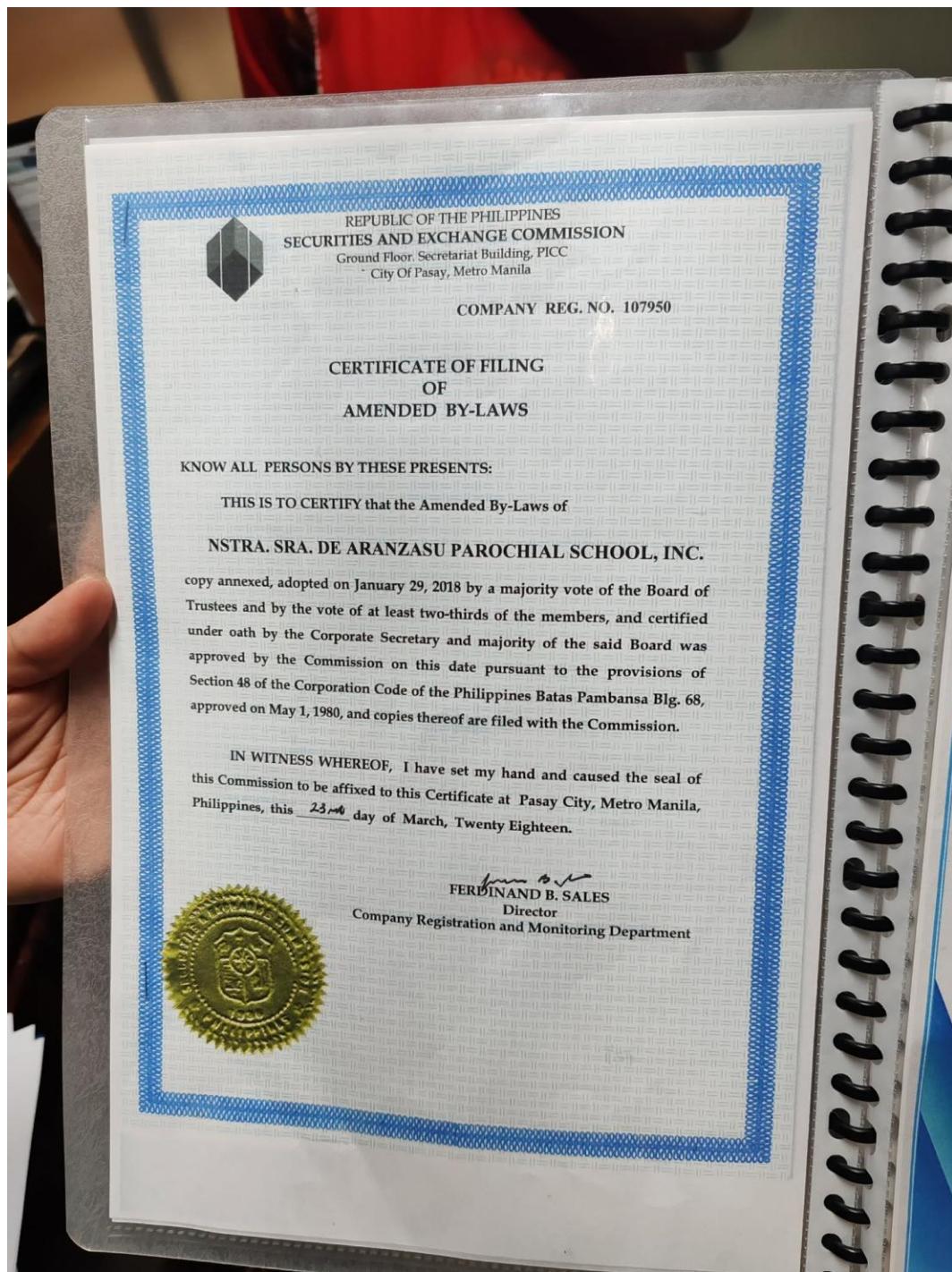


Figure 40. SEC Certificate of Nuestra Señora De Aranzazu Parochial School

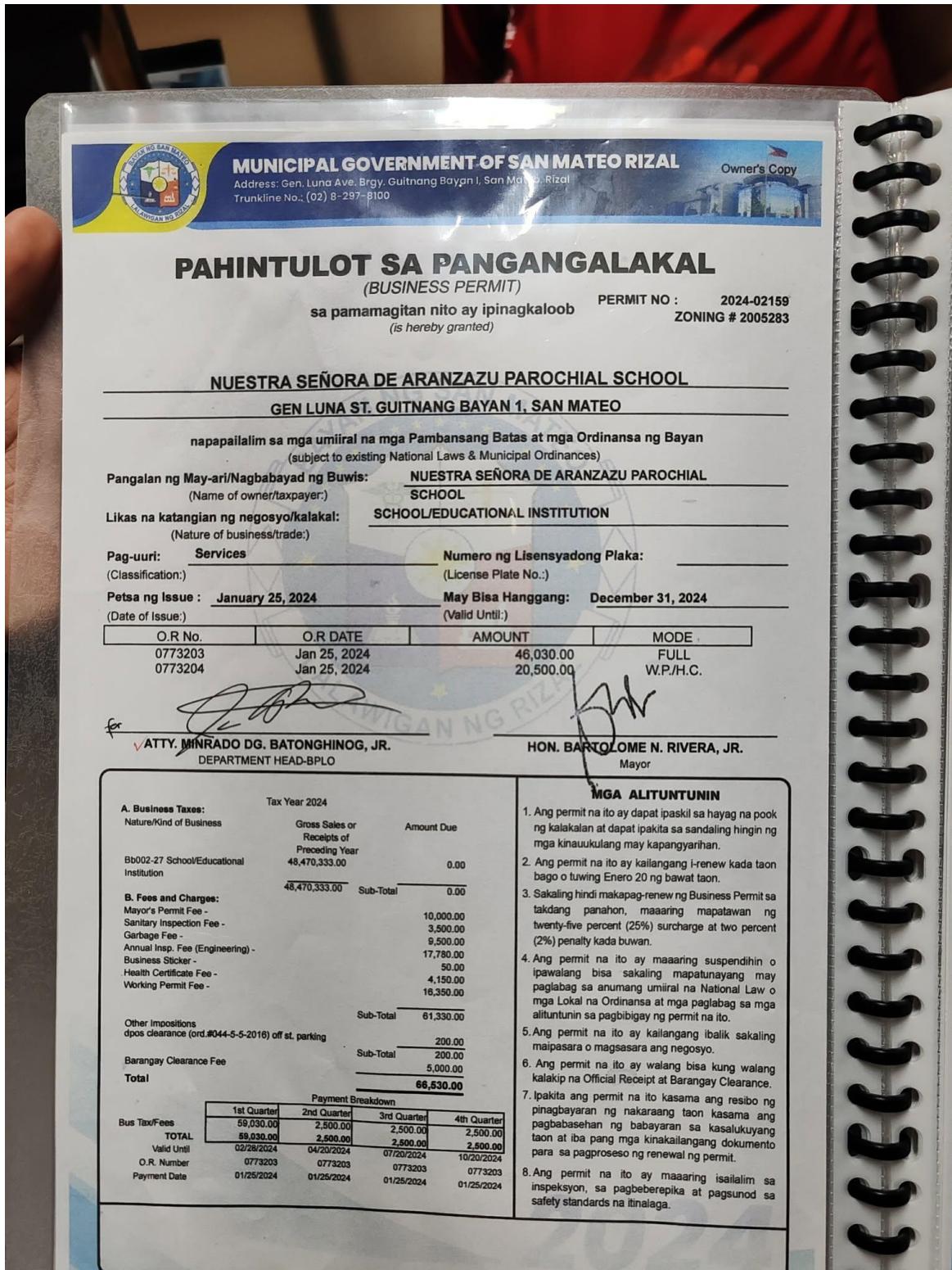


Figure 41. Municipal Business Permit of Nuestra Señora De Aranzazu Parochial School

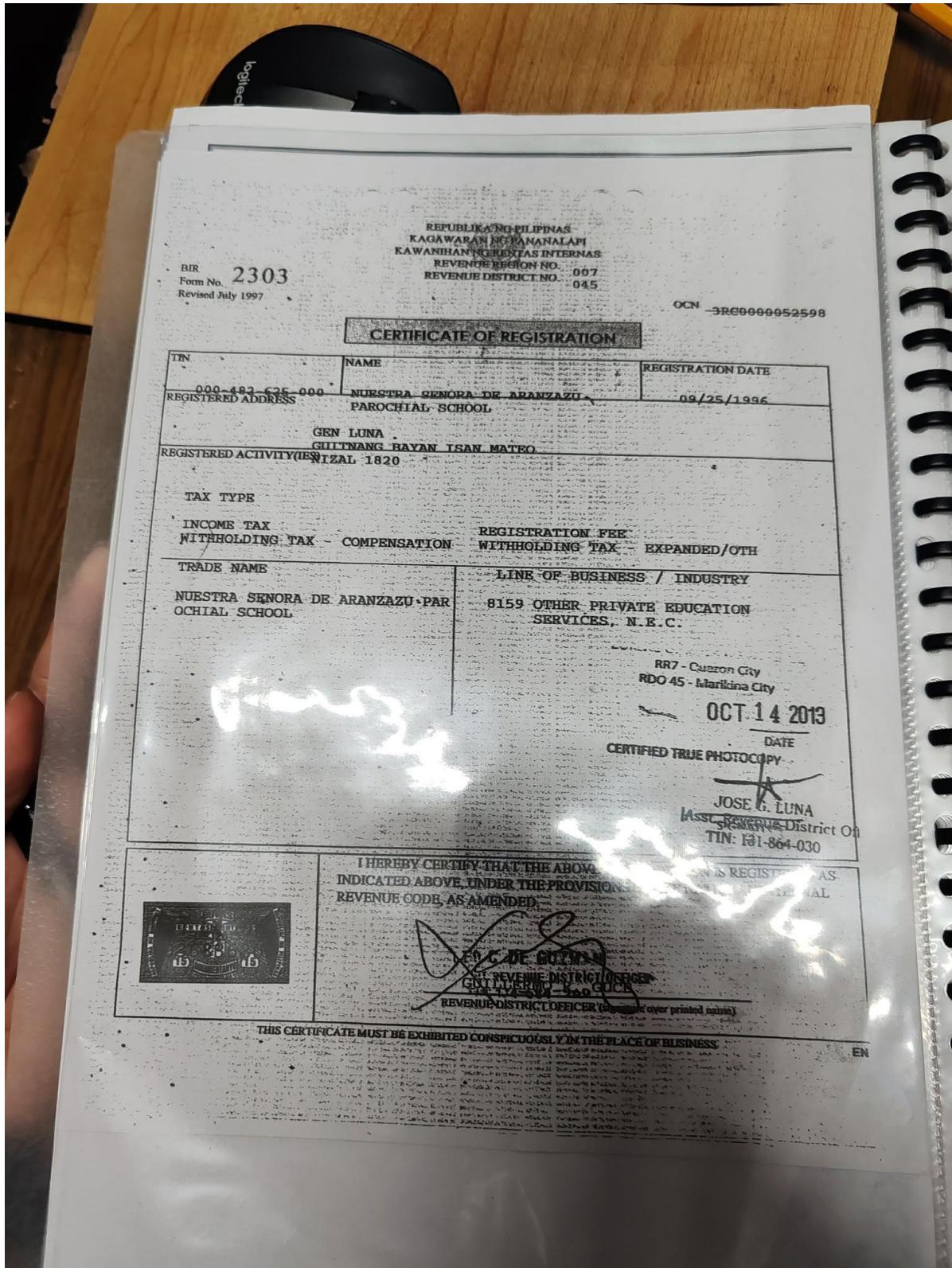


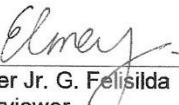
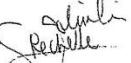
Figure 42. BIR Certificate of Nuestra Señora De Aranzazu Parochial School

## **APPENDIX E: INTERVIEW TRANSCRIPTS**

**INTERVIEW TRANSCRIPT – 28 FEBRUARY 2025**

This document serves as a confirmation that the transcription shown in the following pages are true and accurate accounts of the interview conducted between the IT Capstone Project team, Elmer Felisilda, Daisy Borbe, and Rechelle Golimlim, and Mr. Edgardo Manalo Jr., head of Nuestra Señora De Aranzazu Parochial School's General Services Unit. Conducted last 28<sup>th</sup> of February 2025, the interview was part of the data-gathering process for the team's capstone project entitled "Digi-Rooms: Web-Based Room Reservation and Management System for Nuestra Señora De Aranzazu Parochial School".

Transcribed and reviewed by:

 Elmer Jr. G. Felisilda Interviewer	 Daisy Borbe Interviewer	 Rechelle Golimlim Interviewer
--	---	---

**Interview Proper**

Time	Speaker	Transcription
3:15	Elmer	Could you describe yung current process ng pagpapareserve ng room and facility dito for activities, kunwari po, nagpa-practice yung student, yung klase nila, paano po ang pagpapareserve 'nun?
3:30	Mr. Manalo	Meron silang reservation form.
3:49	Mr. Manalo	Parang venue reservation form.
4:43	Mr. Manalo	[Bago 'yan], magfi-fill up sila n'yan, nagfi-fill up sila n'yan, tapos, papapirma, tapos kapag nagpapirma, mayroon akong logbook. Doon ko sinusulat kung may conflict, ganyan. Usually, ginagamit lang naming n'yan kapag in-house. Ibig sabihin, ang magpapareserve ay estudyante, uh, di pala, teacher lagi, di pwedeng estudyante, kasi kailangan mayroong magbabantay. Ang applicant d'yan is yung teacher.
5:26	Elmer	So, yung teacher or adviser po ng klase nila?
5:30	Mr. Manalo	Kung sino man. Halimbawa, practice ng drum and lyre, so yung moderator ng drum and lyre, parang ganun. So, practice ng halimbawa, robotics, or computer club, so yung coach, parang ganun.
5:43	Elmer	So, bale po, kunwari, yung adviser po nila, lalapit po sa inyo dito, tapos manghihingi ng form?
5:50	Mr. Manalo	Actually, ang form is available sa Admin office, para centralized. Alam nila kung sino yung kumukuha, nila-log din kasi nila 'yun. So, alam nila kung sino kumukuha. Lahat naman 'yon, hindi lang naman sa reservation. Halimbawa, sa sasakyan, reservation ng sasakyan, reservation ng... request ng kailangang bilhin kasi under General Services lahat 'yon.
6:12	Elmer	So, kayo po yung responsible po nung sa pagina-manage po n'yan no, or is there other... maliban po dun sa admin?
6:21	Mr. Manalo	Wala.
6:23	Elmer	So, bale, kayo lang po tapos yung admin po?
6:25	Mr. Manalo	Sa reservation. Tapos, nilalagyan ko lang ng note. Halimbawa, ang in-charge dito, halimbawa, function room, ang pinag-in-charge ko d'yan is maintenance. S'ya ang taga-hawak ng susi, taga-bukas ng sound system. Ibibigay sa kanya 'to. Halimbawa, "Attention: Ate Myrna". So, "Attention: Ate Myrna", ibig sabihin, sa kanya 'yon. Ngayon, makikita ko naman 'yon kung conflict o hindi dahil mayroon

Confirmed and approved by:

  
 Mr. Edgardo Manalo Jr.  
 General Services Unit Head, NSDAPS

**INTERVIEW TRANSCRIPT – 28 FEBRUARY 2025**

		naman akong logbook. Pagna-log ko. Pero, may mga pagkakataon kasi na hindi ko nala-log, parang ganun.
7:02	Elmer	So, kayo din po ang naga-approve ng request?
7:07	Mr. Manalo	Actually, 'yun lang talaga trabaho ko d'yan, yung approval. Since wala naman akong secretary, or taga-record, ako na rin. Ako lahat.
7:24	Elmer	Nabanggit n'yo po yung students and teacher ang magpapa-reserve. Ang naalala ko po kasi nung nandito ako, sa may prefect of students...
7:41	Mr. Manalo	Ah, may attachment 'yan. 'Yun kasi, estudyante. Ibig sabihin, halimbawa, practice ng ganito, during class hours. So, pull-out 'yun. Pull-out sila, so kailangan n'yong i-pull-out, diba natatandaan n'yo sumusulat kayo ng pangalan ng lahat ng kasали dun sa practice na 'yun. Ngayon, ia-attach ito doon. So, last ako. Dapat, makikita ko na doon na approved ng prefect at ng assistant principal.
8:16	Elmer	Kayo po talaga ang may final say po doon?
8:18	Mr. Manalo	Oo, kasi nga, ako lang makakaalam kung available or hindi. Kahit in-approve nila, di naman nila alam kung may nauna na, or may conflict.
8:31	Elmer	Paano po, kunwari, na-reject n'yo po yung ano, paano n'yo po sya kino-communicate dun, kunwari, sa students na nag-request, paano po siya nako-communicate?
8:39	Mr. Manalo	Actually, hindi ko talaga kinakausap yung estudyante kasi kailangan ng liability. So, teacher talaga ang nagrerequest. Hindi naman pwede kasi hindi payagan kung available naman. Unless, may maintenance, may ginagawa dun sa ano.
9:03	Elmer	Had there been any instances na, kunwari, sa Church organizations sa labas, nanghihiram ng room po?
9:10	Mr. Manalo	Mayroon. Yun nga, ang sinasabi ko sa'yo, 'yan ay ginagamit for in-school. Gumagawa sila ng letter, addressed kay Father, kapag taga-labas. Kapag sinabing taga-labas, hindi estudyante, hindi teacher, kung baga ito yugn mga Church org. 'Yun lang naman ang pinapayagan natin, o kaya, ibang school – ibang school na sister school. Hindi 'yung ibang school na competition. Halimbawa, Sta. Cecilia, Marikina... Kailangan nila ng letter. Ang letter naman na ito, sa-sign-an ko, so, ganoon din, ise-schedule, tapos, kapag na-schedule, guard naman. Kasi, usually, nanghihiram lang naman sila ng facilities kapag walang klase.
10:30	Elmer	Mayroon pong annex ang Nuestra. Same din po 'syia? Paano n'yo po nalalaman 'yung ano, kayo rin po ba nagma-manage sa annex?
10:45	Mr. Manalo	Sa annex, dahil medyo malit lang s'ya, yung maintenance doon, parang sinasabi nalang sa akin.
10:49	Elmer	Dito pa rin?
10:50	Mr. Manalo	D'yan pa rin. Dapat. Although, may mga pagkakataon nalang na tine-text nalang nila na "Sir, kailangan ko ng ganoon, ganito...ng gym, kasi may practice 'yung ano...", pinapayagan ko nalang din minsan, parang verbal communication. Di naman din kasi ako makakapunta doon to check. Although, mayroon naman tayong maintenance doon, s'ya ang nagse-set up.
11:30	Elmer	What are the common types ng reasons na napapansin n'yo? Sa in-school.
11:41	Mr. Manalo	Practices. Kasi naman, hindi na nila kailangang kumuha ng permit kapag klase. Halimbawa, MAPEH class. Hindi naman kailangang kumuha ng permit sa computer lab kasi may schedule naman sila. Ang usual lang naman dito ay 'yung function room, function hall, auditorium. Ang usual na gamit d'yan ay events. Halimbawa, may culminating activities sa auditorium. Practices after class, saka kapag sabado. May mga pagkakataon na nagliliinis, so kailangang i-schedule.

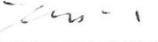
Confirmed and approved by:

  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

**INTERVIEW TRANSCRIPT – 28 FEBRUARY 2025**

		Lingga naman kasi, di naming pinapagamit talaga. Di lang s'ya basta request – kailangan din ng parent consent kapag sabado or beyond school hours.
12:56	Elmer	Madalas po ba yung instances na may schedule conflicts dito?
13:04	Mr. Manalo	Oo, syempre. Kakaunti lang ang mga facility natin.
13:09	Elmer	Let's go to the system issues. Ano po yung mga biggest challenges sa pagmanage ng...
13:14	Mr. Manalo	Conflict. Conflict ng schedule, basta-bastang gumagamit, nakikita mo nandoon nalang. May pagkakataon na dahil hindi nagpaalam, may maintenance na ginagawa. Nakaka-disrupt ng operations.
13:46	Elmer	Kunwari po, nagka-conflict po, sabi n'yo. Gaano katagal yung ginugugol n'yo pong oras sa pagfi-fix ng conflict ng schedule?
13:59	Mr. Manalo	Depende kasi 'yan kung mayroong alternative. Halimbawa, ang nirequest ay gym. Pwede naman kayong mag auditorium. Odi gawin nalang nating auditorium kasi kasya naman kayo doon. Ganoon lang ka-informal na gawan muna natin ng paraan yung alternatives. Yung gaano katagal, 'yun lang. May mga tao naman na nandoon. Hindi naman ako ang nagse-set up doon eh. Halimbawa, "Joel, kailangan nila ng sound system", kasi hindi lang naman venue 'yan eh. Madalas d'yan, nanghihiram din ng gamit. Yung gamit, ibang form iyon.
15:11	Mr. Manalo	Halimbawa, iyan. Manghihiram sila ng tables, monobloc. Kumbaga, hiwalay pa 'yun. May mga taong nagse-set up noon.
15:25	Elmer	Kunwari po, nanghihiram po s'ya ng room at nanghihiram din ng gamit, magkasama na po 'yan?
15:29	Mr. Manalo	Magkasama na.
15:32	Elmer	From start to finish, kunwari, nagpa-request si teacher. Ano po yung duration noon mula request to approval n'yo po, usually? Yung pagla-log book, ganoon?
15:45	Mr. Manalo	Within the day. Minutes lang, siguro. Basta walang conflict. Para sa kanila naman 'yan, hindi natin kailangang ipag-damot.
15:57	Elmer	Gumagawa din po ba kayo ng report?
16:00	Mr. Manalo	Iyon. Iyon ang wala ako. Iyon ang maganda ninyong gawin. Para at least makikita natin yung insights, kung gaano kadalas ang gamit nito, sino madalas gumagamit, parang ganoon. Para din naaarial, na mas marami palang nangangailangan ng ganiton lugar, halimbawa, ng function room. So dapat pala magdagdag pa tayo ng function room, for improvement.
16:35	Elmer	Nakikita n'yo po ba na beneficial itong system?
16:42	Mr. Manalo	Beneficial sa akin, kasi unang-una, wala naman akong extrang tao na gagawa n'yan. Kung may computer ako dito, okay na. Enter ko, pagdating sa dulo, makikita ko na lang.
16:56	Elmer	Would you be willing to collaborate with us about this project po?
17:01	Mr. Manalo	Oo naman. Sure. Actually, itong mga OJT ng STI dito, ganoon ang ginagawa ko sa kanila ngayon. Pinapagawa ko sila ng database program on isang system naming na kulang. Nagde-develop sila.
17:35	Elmer	How do you prefer po na makipag-communicate with us po? By messenger po ba? By email?
17:46	Mr. Manalo	Pwede 'rin. Gawa ng GC.
17:54	Elmer	Kunwari po, nagde-develop na po kami ng system. How often do you want us to update you sa mga development?
18:03	Mr. Manalo	Weekly. Dependes sa inyo. Kung mayroon kayong malaking development.
18:26	Elmer	Kunwari po, gagawa na po kami ng system. Ano po yung mga napipisil n'yong pinaka-potential na features, yung need nyo talaga na features sa system po?

Confirmed and approved by:

  
 Mr. Edgardo Manalo Jr.  
 General Services Unit Head, NSDAPS

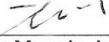
**INTERVIEW TRANSCRIPT – 28 FEBRUARY 2025**

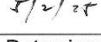
18:36	Mr. Manalo	Yung report generation, maganda iyon. Digital management, pages-schedule. Para at least, pagpindot, "ay conflict", pula, ganoon.
18:56	Elmer	Para immediate na ma-check no?
18:57	Mr. Manalo	Oo. Para di ko na kailangang isipin or i-log book. Saka siyempre user friendly dapat. Hindi yung dapat magko-code pa ako na baliwala. Parang dropdown siguro na nandoon siguro. Function room, number of pax, parang ganoon. Maganda kasi na may, actually kulang na nga yan eh [reservation form] kaya may others. Para at least, madaling i-monitor. Actually, 'yun ang main ano, yung monitoring.
19:46	Elmer	Final question po, ano po yung mga expectations n'yo sa final project po? 'Yung pinaka output na nya sa dulo?
20:00	Mr. Manalo	Siguro, mapagaan ang trabaho ko. Mayoong documentation, recording. Medyo dun kasi kulang talaga yung department naming due to limited personnel. Wala na talagang gumagawa ng nagfa-file-file ng mga ganyan.
20:35	Elmer	Thank you po sa pagsagot ng questions po namin.

**CONFIRMATION AND APPROVAL SHEET**

I, EDGARDO MANALO, hereby confirm that:

- The contents of this transcript document provides a true and accurate account of the interview conducted last 28<sup>th</sup> of February, 2025.
- The interview answers I provided during the aforementioned interview are truthful and complete to the best of my knowledge.
- I approve on having this transcript document to be used for the purpose of documentation and as a basis of information of the researchers for their IT Capstone Project.

  
Mr. Edgardo Manalo Jr.  
 General Services Unit Head, NSDAPS



Date signed

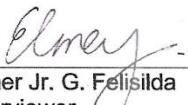
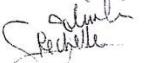
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**Figure 43. Transcript of interview from February 28, 2025, signed May 2, 2025**

## INTERVIEW TRANSCRIPT – 2 MAY 2025

This document serves as a confirmation that the transcription shown in the following pages are true and accurate accounts of the interview conducted between the IT Capstone Project team, Elmer Felisilda, Daisy Borbe, and Rechelle Golimlim, and Mr. Edgardo Manalo Jr., head of Nuestra Señora De Aranzazu Parochial School's General Services Unit. Conducted last 2<sup>nd</sup> of May 2025, the interview was part of the data-gathering process for the team's capstone project entitled "Digi-Rooms: Web-Based Room Reservation and Management System for Nuestra Señora De Aranzazu Parochial School".

Transcribed and reviewed by:

 Elmer Jr. G. Felisilda Interviewer	 Daisy Borbe Interviewer	 Rechelle Golimlim Interviewer
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### Interview Proper

Time	Speaker	Transcription
0:24	Elmer	What is the average count of students enrolled in NSDAPS' main and SHS campus po?
0:33	Mr. Manalo	Approximately 1600 plus.
0:37	Elmer	Both na po yun?
0:38	Mr. Manalo	Both na yun, oo.
0:40	Elmer	What is the total count of employees, both teaching and non-teaching, that is currently active in the school's main and SHS campus?
0:50	Mr. Manalo	As of now, 105, both teachers and non-teaching personnel.
0:59	Elmer	How many classrooms are there at the main campus po?
1:02	Mr. Manalo	44 classrooms, and 9 sa annex, sa Senior High School campus.
1:09	Elmer	Does the school share resources and facilities po?
1:14	Mr. Manalo	Yes.
1:17	Elmer	What is the total count of employees that work under the General Services Unit po?
1:25	Mr. Manalo	Both contractual and regular employees, 23. So, 19 sa main tapos 4 sa Senior High School campus.
1:37	Elmer	Have you experienced na instance na there is a significant time spent sa pagpoprocess po ng request?
1:49	Mr. Manalo	Sa venue, yes. Conflict ng schedule, tapos minsan, wala talagang facilities due to budget constraints.
2:03	Elmer	Confirm ko lang po sa pagkaka-interpret po namin sa process nyo po nung pagrereserve po. Kunwari, yung teacher, ang sabi nyo po is bawal po mag-reserve diretsa yung student po. So dapat may teacher po. Pag nagpapa-reserve po 'yon kunwari po sa practice, dadaan po yung teacher sa Student Affairs Office. Tapos, kukuha po ng pull-out form?
2:33	Mr. Manalo	Oo.
2:34	Elmer	Tapos doon po isusulat yung pangalan, request, ganoon po?
2:39	Mr. Manalo	Oo.
2:40	Elmer	After po noon, bibigyan po sya ng GSU form, yung reservation form po dito?
2:46	Mr. Manalo	Oo.

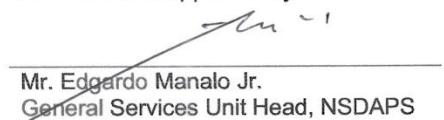
Confirmed and approved by:

 Mr. Edgardo Manalo Jr. General Services Unit Head, NSDAPS	1
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2:47	Elmer	Tapos, didiretso na po ba sya dito?
2:50	Mr. Manalo	Oo, tapos ako na yung magpo-process noon para ibigay doon sa concerned. Kasi may kanya-kanya silang personnel concerned.
3:00	Elmer	Parang may dine-delegate kayong staff?
3:03	Mr. Manalo	Personnel na assigned.
3:07	Elmer	Kapag from outside po sya, magse-send po sya ng letter sa inyo?
3:17	Mr. Manalo	From outside? So hindi school activity ganoon?
3:21	Elmer	Yes po.
3:23	Mr. Manalo	Gagawa muna sya ng letter, direct kay Father, addressed kay Father, tapos si Father magbibigay sa akin.
3:31	Elmer	Si Father po is yung Director po iyon?
3:33	Mr. Manalo	Oo. Sya ang aming pinaka-head. Kung hindi sya school concern ha.
3:41	Elmer	Kapag teacher po, no need na i-pullout yung students, pupunta po sya sa Admin office then doon po kukuha ng form?
3:50	Mr. Manalo	Ano 'yan?
3:55	Elmer	Kapag in-house po sya. Tapos hindi sya practice, parang hindi nya need ng pullout form. May nabanggit po kasi kayo last time na...
4:03	Mr. Manalo	Kapag hindi sya classroom-based kasi, kailangan talaga ng pullout form. Halimbawa, may practice sa auditorium, at may klase, kailangan ng pullout form. Hindi na kailangan ng pullout form kapag after class. Halimbawa, tapos na yung klase, tapos magpa-practice sila, okay lang 'yun. Pero kailangan pa 'rin nila ng reservation. Kailangan pa 'rin ng form. Pero kung within class hours, kailangan ng pullout form.
4:40	Elmer	Kapag after class po, saan po sya pupunta, yung teacher? Sa admin office po ba?
4:45	Mr. Manalo	Considering na mayroon na syang student affairs na permit?
4:51	Elmer	Sabi nyo po kasi, after class hours, hindi po need ng pullout form?
4:58	Mr. Manalo	Actually, hindi sya pullout form, ah yung sinasabi mo bang ano? Hindi kasi sya pullout form talaga, permit din sya. Na sila ang gagamit ng venue na iyon. Iba pa yung pullout form. So kailangan pa 'rin ng Student Affairs. Kung baga parang listahan lang ng kung sino talaga yung gagamit ng venue na iyon, section nyo, ganoon. Hindi naman kasi necessary na buong section nyo. Halimbawa, yung group nyo lang, ang gagamit ng ganitong venue.
5:35	Elmer	Ico-confirm ko lang po yung mga facilities dito na madalas po gamitin dito. Ito po ba yung mga facility sa main campus? Learning Resource Center, Function Hall, dalawang Library, dalawang Computer Laboratory, dalawang AVR, isang gym, isang Auditorium, isang Physics and Chemistry room, Bamboo Garden, TLE room, Veranda, tapos yung mga student classrooms po. Ginagamit po ba sya lahat sa mga activities?
6:20	Mr. Manalo	Oo. Function room. Iba pa yung function hall sa function room. Yung function hall, dito sa baba, yung function room, sa second floor. Pero siyempre, hindi lahat 'yan, pinapagamit. Wala naman nang AVR. Wala na tayong AVR. Hindi 'yan lahat, pinapagamit. Halimbawa, computer laboratory. Depende, kung ang gagamit ay computer related, robotics, mga ganoon. Pero hindi sya open for all. The rest, function room, function hall, gym, auditorium, 'yan ang open for all.
7:07	Elmer	Ito po, sa SHS building. Isang chapel, isang computer laboratory, isang library, isang gymnasium, tapos lahat po ng mga classroom. Tama po ba?
7:22	Mr. Manalo	Mayroon doon na [schoola lab]. Convertible physics, parang multimedia laboratory. Yung Learning Resource Center mo nga ito 'yan dito sa may gitna? Parang ganoon ng Senior High.

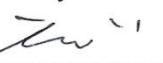
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Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

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7:50	Elmer	Multipurpose laboratory?
7:51	Mr. Manalo	Oo.
7:55	Elmer	Since na-confirm na po namin yung mga figures po, ipe-present na po naming yung proposed system po namin. So, yung system po ay may limang modules, account management, schedule management, school map, tapos reports generation na sinabi nya po last time na pinaka-need nya po. Magsa-start po sya sa login, email, password. Kapag may bagong employee na gustong mag-reserve sir, pwede po syang mag-register. Iyan po yung mga information. Tapos, pagkagawa ng registration po n'ya, ia-approve po s'ya ng admin para magamit. Para di po sya magagamit agad.
9:04	Mr. Manalo	Sa employees lang 'yan?
9:06	Elmer	'Yon po yung proposed po naming kasi sabi n'yo nga po, hindi po naga-ano yung mga students, for employees lang po sya. After po n'yan, magse-send po sya ng email, pagka-approve ng admin. Parang status update po. Pagka-login po nya, ito po, sa inyo, admin account, ito po yung dashboard nya. Lahat po ng functions na is nandito na. Kapag gagawa po yung user ng reservation, dadating po sya dito sa account nya for approval.
10:10	Mr. Manalo	May notification?
10:12	Elmer	Opo. Magsesend po sya ng email sa inyo. Pagkabukas nya po ng system, lalabas na po dyan yung pending na approval. Pagka-click po ng isang pending, may lalabas po sya na window, yung in-enter na reservation information, time, type of activity, sino yung nag-request, ganoon po. Pwede nya po sya i-reject or i-approve. Pagka-approve nya po, magno-notify po sya sa nag-request ng email na approve na po yung request. If reject naman po, pwede isulat yung reason. Makikita po ng requester sa email nya yung reason ng rejection of request. Sa paggawa po ng reservation, may tatlong steps po sya. First, yung information ng request, name, short description, type ng activity, name ng requester, email, tapos yung list of students po yung parang sa pullout form, para marecord din po if ever. Tapos requested na equipment if meron. Next, sa mismong scheduling po. Pwede po sya mamili ng type, like classroom or laboratory, magkakaroon ng selection.
13:10	Mr. Manalo	Dropdown menu?
13:13	Elmer	Yes po. So, here po, since classroom po ang pinili nya, pwede nya pong i-type yung room number. Kunwari, Room 310, yung start time, 7 to 5 PM, tapos yung date. If wala po syang conflict, wala pong lalabas dito sa kanan. Pero kapag meron po, automatic po sya, habang tina-type nya, iche-check nya po yung conflicts. Kunwari po, dito, may conflicts po sya sa Room 306, kasi may gagamit na sa Room 306, ipapakita nya po dito sa side yung nagko-conflict na schedule, tapos susubukan nya pong mag-suggest ng pinakamalapit na room po doon na available. Which is this, Room 307. Mayroon pong tatlong options dito, pwede ka po maghanap ng other rooms, which is magbubukas ng map, then pwede ka pong mag-select ng ibang room. Pwede nya po i-click yung mga elements po dito para magpakita ng information sa side. If kulay green, ibig sabihin is available sya sa specified time. If kulay red, ibig sabihin may bumabangga po ng schedule dito sa specified time kaya di po sya available. Kunwari po, itong room 310 is available, pwede nya pong pindutin itong "Use this room instead", at automatic po syang magse-set as room para sa reservation. Then, kunwari, mas priority nya po itong reservation na ito, pwede nya po syang i-"Force Schedule". Ibig sabihin po, made-delete yung unang schedule. Tapos po, ang final step, parang ido-double check po yung information, tapos once i-click po yung "Send Request", since admin po kayo, pwede nya pong i-approve mamaya or ngayon na mismo.
15:50	Mr. Manalo	Bakit? Anong purpose?

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Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

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15:52	Elmer	Kunwari po, you're saving it for later, baka may mas importante pang reservation, pwede nyo po syang ipila dito sa pending approval. After po, pwede ka po gumawa ng bago, i-dismiss, or pwede nyo po i-print yung parang form na ibinigay nyo, yung brown? Yung reservation form po. Once na-approve na po sya, didiresto na po sya sa nag-reserve.
16:35	Mr. Manalo	Anong format yung gine-generate na report? PDF?
16:41	Elmer	Opo sir. Pwede din po syang i-print.
16:45	Mr. Manalo	I mean, sakali kasi, ang purpose, kung sakali kapag PDF, halimbawa i-send ko sa guard.
16:52	Elmer	Opo, pwede po sya i-export as PDF. Tapos ito po yung sa view schedule, pwede kang mag-select ng room. Kunwari, itong Room 301, lalabas yung timetable nya, for isang linggo, tapos kung ano yung mga naka-reserve sa kanya sir.
17:14	Mr. Manalo	So possible din na buo?
17:17	Elmer	Opo sir. Kunwari, ito po ay 7:00 AM to 5:00 PM, yung mga blocks po d'yan mula 7 to 5, kakainin po ng schedule. Pero kung kunwari, gagamitin nya lang is 7 to 9, ito lang po yung makakain nya. Tapos pwede nyo pong i-delete, i-print, export as PDF. Tapos edit details. Kapag edit po, lalabas po yung form ulit tapos pwede nyo pong i-modify. Tapos magche-check din po sya d'yan ng conflict. Ito naman po yung susunod na module, yung school map. Visualization ng floor plan po dito. Bale po, kami na po magse-setup nyan para po magamit agad, pero ang purpose po kasi nito is kapag nag-expand or nagpalit ng rooms, pwede po syang i-edit. Parang ang process po nya is kukunan naming ng picture yung floor plan, tapos ite-trace po namin, tapos lalagyan ng markers, 'yun po yung magpupula or maggi-green. Tapos pwede nyo na po syang saksakan ng information.
18:50	Mr. Manalo	Graphical?
18:54	Elmer	Yes po sir. Graphical representation ng mga available na rooms, para mas madali pong tignan. Kunwari sir, medyo nahihiyo ka sa timetable, pwede nyo po syang tignan dito.
19:16	Mr. Manalo	Bakit yung time mo dito isa lang?
19:18	Elmer	Ito po yung starting time nya po sir. Kunwari sir, pinalitan ko yung date nang Saturday, tapos 8 AM po yung start. Itong mga nakapula po dito is may reservation na ang start time nya is somewhere around 8:00. Halimbawa, Room 306 sir. Ang current activity nya is 7:00 AM to 5:00 PM. Since nagfo-fall sya dito, magpupula po yung room na iyon. Yung map editor naman po sir, for scalability na din po, in the case na planong mag-expand yung school, mag-change ng mga room po, para di na din po sya maging dependent po sa amin. Pwede nya po i-change yung layout nya sir. Yung generate reports po, ask na din po namin, kung ano yung mga gusto nyo pong makita na mga reports po dyan, pero ito po yung mga documents na pwede nyang i-print. Schedule timetable po, pagka-click, dito sa gilid, pwede ka pong mag-set ng date, kunwari, April 14, so magsa-start sya sa April 14, then isang linggo, anong campus, anong room, ganoon po. Since Room 306, ipapakita nya dyan yung schedule nang isang linggo sa Room 306. Like earlier, pwede nyo po syang i-export sa PDF or pwede nyo pong i-print. Room utilization po, insights, pwede ka pong mamili ng room dito, tapos ipapakita nya yung data doon. Kunwari sir, reservation for the last 3 months, or yung mga usual na purpose po ng pag-reserve, sino yung mga usual na gumagamit, anong type ng activities, mga ganoon po sir. Yung map overview naman po sir, halimbawa, naga-arrange po kayo ng mga rooms for an event, like club fair or enrolment ngayon, pwede nyo po syang i-print. Kunwari, dito is sa uniform, dito is registrar, ganoon. Pwede nyo po syang i-save or i-print para pwede nyong i-present or ipaskil sa labas. Yung reservation slip po sir, is yung kanina po. Kapag

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 Mr. Edgardo Manalo Jr.  
 General Services Unit Head, NSDAPS

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		gusto nyo pong i-print, sino yung delegated na staff, mga ganoon sir. Account list naman po, para sa admins lang, mga accounts na active, type ng access. Kunwari, sa OSA, staff lang, so sa staff is pwede gumawa ng reservation pero bawal mag-edit or mag-approve, parang ganoon po sir.
23:07	Mr. Manalo	May role?
23:09	Elmer	Yes po sir. Sa account management module naman po, parang sa schedule management, yung mga accounts na pending approval. Kunwari, itong si Juan Dela Cruz na employee, gusto nyang mag-reserve, pwede nyo pong i-approve sya na gumawa ng reservations, mag-edit, ganoon. So if ever na wala ka po, pwede sya yung sumalo. Pwede nyo din po i-edit yung mga permissions nya, save changes, or pwede i-delete. Ayun lang po.
23:45	Mr. Manalo	Sana mag-materialize.
23:49	Elmer	We'll try our best. Tapos ito po yung mga tanong po namin sa system. Mayroon po ba kayong questions po muna?
24:28	Mr. Manalo	Suggestion lang. Yung wala nang ita-type. Lahat naka-dropdown. Even yung reason. Para mayroon tayong template ng mga reasons. Pare-pareho naman kadalasan 'yan. Para at least mai-standard. Para din hindi na kailangan na optional yung reason. Yung mga common na reasons, nandoon na. Yung iba, sa susunod nalang siguro, as we go along. Pero generally, okay sya. Dapat lang medyo, since wala masyadong staff na gagawa n'yan, baka nga ako lang din kung sakali ang gagawa, medyo user-friendly talaga. So click lang nang click. Mas simple. Simple lang yung forms, simple lang yung magge-generate. Although, okay naman lahat, simplehan lang natin nang kaunti. Okay yung equipment. Siguro, suggestion ko lang, i-dropdown menu nalang din, para wala nang isusulat. Dito sa may map, maganda itong may ganitong report, yung may GUI. Doon sa report, lagyan mo na din ng time. I suggest nga ito lang lagi ang nakikita ng staff. Para makita agad. Kaya nga, kita mo, yung manual natin is kalendaryo nga lang eh para kita agad. Pero, okay ito, nakikita by floor. Or, I suggest, kung sakali, mayroon kayo na by date naman. May report din sya na naglalabas by date. Halimbawa, for the whole month, mayroong ganoon. Calendar view kung baga. Para anytime, kita mo na agad.
31:40	Elmer	Okay sir, noted po. Ito po, mga follow up questions po regarding sa system. Would you like the website to include multiuser support so that other departments would be able to interact and access the system? Para hindi lang po ikaw ang makakagamit po nito?
31:52	Mr. Manalo	Okay 'yun. Mayroon na lang access, limit, yung iba. Parang mga role.
32:11	Elmer	Should teachers be able to create reservations directly po sir? Or kailangan po nilang dumaan sa OSA po para magpa-reserve?
32:19	Mr. Manalo	Kung doon sa one mo ay mayroon kang multiuser support, dapat mayroong, page admin, page moderator. Parang page moderator si OSA, sya, pwede nya lang makita. Possible na sabay naming makita. Kung 'yun ang tanong mo, ah, kung direktang ano?
33:10	Elmer	Opo sir. Kasi, yung current process nyo po is dadaan muna sa OSA para sa approval. Kapag diretso po yung teachers po doon sa system, magkakaroon po ng separate na role yung OSA, tapos yung request na gagawin ng teacher, pupunta po sa OSA muna for approval before...
33:30	Mr. Manalo	Ganoon pa 'rin. Gawin lang nating digital.
33:36	Elmer	So pwede po syang gumawa ng reservation, yung teacher?
33:38	Mr. Manalo	Oo.
33:43	Elmer	Should students and the general public be able to create reservations?

Confirmed and approved by:

*Elmer Jr.*  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

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33:49	Mr. Manalo	No. Students, hindi. Yung liability eh. Mahirap kasi, kapag community pinagusapan, manual pa 'rin 'yan. Kailangan pa 'rin ng letter sa Director.
34:45	Elmer	Should they at least have the ability to view the interactive map? Pero di po sya pwedeng gumawa ng reservation.
34:59	Mr. Manalo	Dyan?
35:00	Elmer	Opo sir.
35:01	Mr. Manalo	Para makita nya kung may conflict?
35:03	Elmer	Hindi sir, parang makikita nya lang po kung ano yung available na rooms dito.
35:09	Mr. Manalo	Kaya nga, para makita yung mga conflict dun sa room.
35:12	Elmer	Yung mga general user po, mga students, ganoon. Mapa-publish po sya sa website, tapos makikita nila itong floor plan na ito, and itong buong section na ito may activity.
35:35	Mr. Manalo	Parang di na din kailangang ma-post publicly. Kasi data privacy na 'yan eh. May taga-labas na mino-monitor yung ano. For safety 'rin. Di sya dapat public. Although maganda yung report nya. Siguro limited lang dapat yung may access.
36:05	Elmer	So for employees lang po talaga?
36:08	Mr. Manalo	For employees, for admins, ganoon.
36:10	Elmer	Should the requester stop by the admin office before the requested schedule is created or should they be able to create a request na ia-approve muna ng admin bago dumating sa inyo?
36:34	Mr. Manalo	Oo. Sino bang tinutukoy nyo na admin?
36:56	Elmer	Yung admin office po. Yung OSA, ganoon.
37:01	Mr. Manalo	Magkaiba kasi 'yun. Technically, wala namang concern si admin office d'yan. Yung OSA, ang concern nya lang, if students. Depende 'yan kung sino yung requestor. Kung students, may OSA. Kapag di naman students, pwede din kasing personnel eh. Halimbawa, meeting, ganoon. So, hindi naman kailangan ng OSA doon.
37:45	Elmer	Bukod po dito sa mga reports po dito, mayroon pa po ba kayong mga reports na gusto nyong ma-generate sa system?
37:52	Mr. Manalo	Ayun nga, yung kanina, yung calendar type na view.
38:01	Elmer	Based po dun sa pinresent po naming na system, do you agree sa account management module po?
38:09	Mr. Manalo	Oo, simplified nga lang natin. Yung mga input.
38:16	Elmer	How about the schedule management module po?
38:20	Mr. Manalo	Okay na 'yun.
38:22	Elmer	Bale gawin lang pong dropdown?
38:23	Mr. Manalo	Oo, simplehan lang natin.
38:32	Elmer	How about yung school map po?
38:37	Mr. Manalo	Okay 'yan. Madali naman kasing i-ano yung school kasi wala namang building. Kung baga, talagang floor-by-floor yung ano. Kaya okay naman 'yan.
38:53	Elmer	How about 'yung reports generation po?
39:00	Mr. Manalo	Okay naman sya.
39:02	Elmer	So are there any features or functions na diniscuss na gusto nyo pong ipatanggal or ipa-modify?
39:06	Mr. Manalo	Yung gawing mga dropdown lang. Para user-friendly na as-in. Yung di na kailangan ng staff para i-process.
39:31	Elmer	Bukod po dun sa dropdown and calendar view, may ipapadagdag pa po ba kayong features?
39:36	Mr. Manalo	Sa ngayon wala.

Confirmed and approved by:

  
 Mr. Edgardo Manalo Jr.  
 General Services Unit Head, NSDAPS

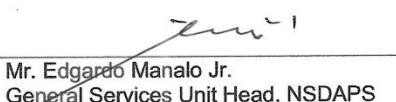
**INTERVIEW TRANSCRIPT – 2 MAY 2025**

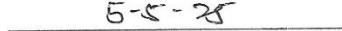
39:40	Elmer	Bukod po dun sa user-friendliness, may specific requirements po ba kayo sa layout or sa arrangement?
39:48	Mr. Manalo	Okay 'yan. Simplehan lang natin. Wag nyo nang artehan. Mas simple, mas magandang tignan. Siguro color coding. Although, color coded naman na ito diba? Red, for conflict, parang ganoon. Ayun lang.
39:57	Elmer	Do you believe na yung system na pinopropose po namin is beneficial sa inyo at saka sa GSU, sa school?
40:29	Mr. Manalo	Oo naman. Sana nga eh. Para di na kailangan ng staff, kasi technically wala naman talaga akong staff. Ako lang din nagpo-process ng lahat. So makakatulong nang malaki.
40:43	Elmer	If the system works well po, how would it change yung room reservation process dito sa school?
40:52	Mr. Manalo	Documentation. Nakita nyo naman, yung kalendar, blanko lagi. Malaking bagay sa documentation, recording, sa hindi na kailangan ng staff, 'yun ang malaking benepisyon nyan. Lyon din kasi ang hinahanap sa akin. Sa GSU, na parang kulang sa documentation.
41:22	Elmer	Ayan po sir, thank you po sa pagsagot sa mga tanong po namin.

**CONFIRMATION AND APPROVAL SHEET**

I, EDGARDO MANALO Jr., hereby confirm that:

- The contents of this transcript document provides a true and accurate account of the interview conducted last 2<sup>nd</sup> of May, 2025.
- The interview answers I provided during the aforementioned interview are truthful and complete to the best of my knowledge.
- I approve on having this transcript document to be used for the purpose of documentation and as a basis of information of the researchers for their IT Capstone Project.

  
Mr. Edgardo Manalo Jr.  
General Services Unit Head, NSDAPS

  
Date signed

7

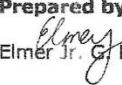
**Figure 44. Transcript of interview from May 2, 2025, signed May 5, 2025**

## **APPENDIX F: JOURNALS**

## ACCOMPLISHMENT AND CONSULTATION FORM

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Thesis/Capstone Project Title: N/A  
 Week Number: 1 (January 20 – January 25, 2025)

<b>ACTIVITY/ ACCOMPLISHMENT</b>	<b>REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE</b>
<ul style="list-style-type: none"> <li>• The IT Capstone Project course had officially commenced, with each member being assigned to their groups with their respective roles as the Programmer, Documenter, and Designer.                     <ul style="list-style-type: none"> <li>◦ Each student was asked to introduce and rate themselves on the three aforementioned roles.</li> <li>◦ Students who rated themselves highly on any of the three roles were asked to take on a leadership role and pick group members from the remaining students.</li> </ul> </li> <li>• Each student was asked to create concept papers for their ideas to be potentially used in their group's IT Capstone Project.                     <ul style="list-style-type: none"> <li>◦ One group had presented their concept papers, with the rest of the class providing questions to be answered by the presenter.</li> </ul> </li> </ul>	
<b>Prepared by:</b>  Elmer Jr. Felisilda / February 24, 2025	 Daisy Borbe / February 24, 2025  Rechelle Gollimlim / February 24, 2025
<b>Checked by:</b>  N/A Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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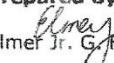
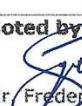
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Thesis/Capstone Project Title: N/A  
 Week Number: 2 (January 27 – February 1, 2025)

ACTIVITY/ ACCOMPLISHMENT	REMARKS / COMMENTS / SUGGESTIONS/ DELIVERABLES and DUE DATE
<ul style="list-style-type: none"> <li>• There were no meetings this week due to Chinese New Year.</li> <li>• Group members continued on their conceptualization and creation of their concept papers.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / February 24, 2025	 Daisy Borbe / February 24, 2025  Rechelle Golimlim / February 24, 2025
<b>Checked by:</b>  N/A Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

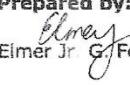
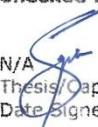
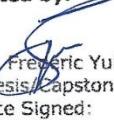
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Thesis/Capstone Project Title: N/A  
 Week Number: 3 (February 3 – February 8, 2025)

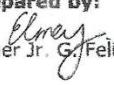
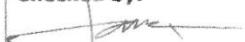
<b>ACTIVITY/ ACCOMPLISHMENT</b>	<b>REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES AND DUE DATE</b>
<ul style="list-style-type: none"> <li>• Two new groups began their presentation of their concept papers.</li> <li>• Each presenting member was asked by the class questions regarding their concepts, and received input from the Dean afterwards.</li> <li>• Our group was not able to present due to one member's absence.</li> <li>• We had finalized our concept papers and prepared for possible questions regarding our proposed ideas.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / February 24, 2025	 Daisy Borbe / February 24, 2025  Rechelle Golimlim / February 24, 2025
<b>Checked by:</b>  N/A Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: N/A  
 Week Number: 4 (February 10 – February 15, 2025)

<b>ACTIVITY/ ACCOMPLISHMENT</b>	<b>REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE</b>
<ul style="list-style-type: none"> <li>• We had been assigned our research adviser, Mr. Unabia.</li> <li>• Created a letter of request for Mr. Unabia a day after we were assigned to him.</li> <li>• Mr. Unabia had received the letter of request and we were told to return next week to discuss further matters about his advisory to our group.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / February 24, 2025	
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	
<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:	

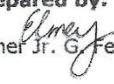
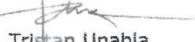
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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System  
for Nuestra Señora De Aranzazu Parochial School  
Week Number: 5 (February 17 – February 22, 2025)

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<ul style="list-style-type: none"> <li>• The group had chosen to undertake the project: "Digi-Rooms: Web-Based School Facility Reservation and Management System for Nuestra Señora De Aranzazu Parochial School".</li> <li>• Mr. Unabia had received a copy of the acknowledgement letter and concept paper for the project.</li> <li>• Began creating the first chapter of the research and divided tasks between members.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / February 24, 2025	 Daisy Borbe / February 24, 2025  Rechelle Golimlim / February 24, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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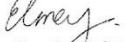
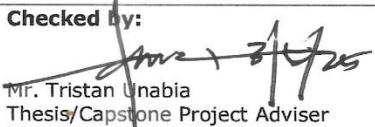
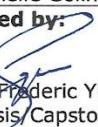
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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 6 (February 24 – March 1, 2025)

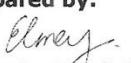
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>February 24</b> <ul style="list-style-type: none"> <li>Established contact with the school through message.</li> <li>Created request letter addressed to the school principal for a short interview.</li> </ul> <b>February 25</b> <ul style="list-style-type: none"> <li>Had Mr. Unabia sign the request letter and check the interview consent form for approval.</li> </ul> <b>February 26</b> <ul style="list-style-type: none"> <li>Given the request letter to the principal's office of NSDAPS.</li> <li>The principal, Ms. Julie Ann Pajardo, referred us to the General Services Head, Mr. Edgardo Manalo Jr. to talk to.</li> <li>We had talked with Mr. Manalo regarding the purposes of the interview and our intent to have the school as a client for the system, which he agreed. He scheduled the interview in February 28.</li> </ul> <b>February 28</b> <ul style="list-style-type: none"> <li>We interviewed Mr. Manalo regarding his needs in room management.</li> </ul> <b>March 1</b> <ul style="list-style-type: none"> <li>Transcribed the audio recording of the interview.</li> </ul>	<i>Start Consulting Date for Q1</i>
<b>Prepared by:</b>   Elmer Jr. G. Felisilda / March 3, 2025	Daisy Borbe / March 3, 2025   Rechelle Golimlim / March 3, 2025
<b>Checked by:</b>   Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>   Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 7 (March 3 – March 8, 2025)

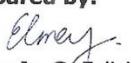
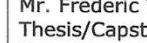
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>March 3</b> <ul style="list-style-type: none"> <li>• We had an online general meeting with Mr. Unabia at 3:00 PM.</li> <li>• Divided Chapter 1 between members:                             <ul style="list-style-type: none"> <li>◦ Elmer Felisilda – Project Context</li> <li>◦ Rechelle Golimlim – Purpose and Description &amp; Objectives</li> <li>◦ Daisy Borbe – Scope and Limitation</li> </ul> </li> </ul>	<p><i>Send DRAFT - HPM email</i>  <i>Tristan.ungbis @ marikina .</i>  <i>STI.EDU</i></p>
<b>March 4</b> <ul style="list-style-type: none"> <li>• Continuation of writing Chapter 1.</li> </ul>	
<b>March 5</b> <ul style="list-style-type: none"> <li>• We had class with Mr. Yulo, and had Weeks 1 to 6 journals signed by him.</li> </ul>	
<b>March 8</b> <ul style="list-style-type: none"> <li>• Finished the first draft of Chapter 1 up to Scopes and Limitation.</li> </ul>	
<b>Prepared by:</b>   Elmer Jr. G. Felisilda / March 8, 2025	 Daisy Borbe / March 8, 2025   Rechelle Golimlim / March 8, 2025
<b>Checked by:</b>   Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 8 (March 10 – March 15, 2025)

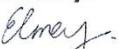
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>March 11</b> <ul style="list-style-type: none"> <li>Submitted the first draft for Chapter I to the email provided by Mr. Unabia (up to Scopes and Limitations).</li> </ul> <b>March 12</b> <ul style="list-style-type: none"> <li>Research for sources began for the Review of Related Literatures and Systems.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / March 31, 2025	 Daisy Borbe / March 31, 2025  Rechelle Golimlim / March 31, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 9 (March 17 – March 22, 2025)

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>March 17</b> <ul style="list-style-type: none"> <li>Unfortunately, due to circumstances related to availability of members, no updates were done to the paper itself. However, the group had continued gathering sources for the RRL/RRS section of Chapter I during this period.</li> </ul>	
<b>Prepared by:</b>   Elmer Jr. G. Felisilda / March 31, 2025	 Daisy Borbe / March 31, 2025   Rechelle Golimlim / March 31, 2025
<b>Checked by:</b>   Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

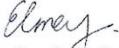
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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 10 (March 24 – March 29, 2025)

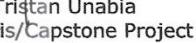
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>March 24</b> <ul style="list-style-type: none"> <li>Two entries for the RRL/RRS section of the paper had been reviewed and added.</li> </ul> <b>March 28</b> <ul style="list-style-type: none"> <li>General revisions for the Introduction section of Chapter I were completed.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / March 31, 2025	 Daisy Borbe / March 31, 2025  Rechelle Golimlim / March 31, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b> Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 11 (March 31 – April 5, 2025)

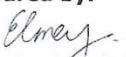
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>March 31</b> <ul style="list-style-type: none"> <li>• Due to the Sports Fest and STI Tagisan ng Talino Clusters, the members were not able to meet face-to-face within the week.</li> <li>• However, research for viable sources for the RRL section is still ongoing.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / April 7, 2025	 Daisy Borbe / April 7, 2025  Rechelle Golimlim / April 7, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 12 (April 7 – April 12, 2025)

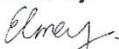
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>April 11</b> <ul style="list-style-type: none"> <li>• Finished the RRL/RRS section of Chapter 1.</li> </ul> <b>April 12</b> <ul style="list-style-type: none"> <li>• Finished the second draft for Chapter 1.</li> </ul> <b>April 13</b> <ul style="list-style-type: none"> <li>• Finished the creation of the PowerPoint presentation for the Title Defense.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / April 14, 2025	 Daisy Borbe / April 14, 2025  Rechelle Golimlim / April 14, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b> Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 13 (April 14 – April 19, 2025)

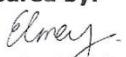
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>April 14</b> <ul style="list-style-type: none"> <li>Finalized Chapter 1 for presentation.</li> </ul> <b>April 15</b> <ul style="list-style-type: none"> <li>The group had undertaken the title defense and received the panelists' revisions.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / April 21, 2025	 Daisy Borbe / April 21, 2025  Rechelle Golimlim / April 21, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 14 (April 21 – April 26, 2025)

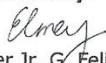
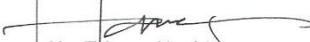
ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>April 22</b> <ul style="list-style-type: none"> <li>Compiled and organized the panelists' revision list.</li> <li>Began working on revisions.</li> </ul>	
<b>April 23</b> <ul style="list-style-type: none"> <li>Began working on Chapter III.</li> <li>Began working on the system design and diagrams.</li> </ul>	
<b>April 24</b> <ul style="list-style-type: none"> <li>Reworked on the interview transcription from February 28 for signing from the client.</li> </ul>	
<b>April 25</b> <ul style="list-style-type: none"> <li>Began on polishing the system storyboard for presentation to the client.</li> </ul>	
<b>Prepared by:</b>   Elmer Jr. G. Felisilda / April 28, 2025	Daisy Borbe / April 28, 2025   Rechelle Golimlim / April 28, 2025
<b>Checked by:</b>   Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b>  Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 15 (April 28 – May 3, 2025)

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>April 29</b> <ul style="list-style-type: none"> <li>Finished the rough outline of the processes for the flowcharts and diagrams.</li> </ul>	
<b>April 30</b> <ul style="list-style-type: none"> <li>Created a pre-interview consent form for a follow-up interview with the client.</li> </ul>	
<b>May 2</b> <ul style="list-style-type: none"> <li>Interviewed with the client for a second time.</li> <li>Presented the storyboard and explained the proposed process of the system.</li> <li>Received feedbacks and suggestions for improvements from the client.</li> <li>Had the client confirm and sign the transcription of the first interview.</li> </ul>	
<b>May 3</b> <ul style="list-style-type: none"> <li>Transcribed the second interview for confirmation and signing from the client.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / May 5, 2025	 Daisy Borbe / May 5, 2025  Rechelle Golimlim / May 5, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b> Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

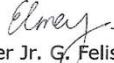
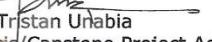
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## ACCOMPLISHMENT AND CONSULTATION FORM

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Thesis/Capstone Project Title: Digi-Rooms – Web-Based School Facility Reservation System for Nuestra Señora De Aranzazu Parochial School  
 Week Number: 16 (May 5 – May 10, 2025)

ACTIVITY/ ACCOMPLISHMENT	REMARKS/ COMMENTS/ SUGGESTIONS/ DELIVERABLES and DUE DATE
<b>May 5</b> <ul style="list-style-type: none"> <li>Had the client confirm and sign the transcription of the second interview.</li> <li>Submitted an updated draft of the manuscript with panelist revisions applied to Mr. Unabia.</li> </ul>	
<b>May 6</b> <ul style="list-style-type: none"> <li>Finished the Technological Background for Chapter 2.</li> <li>Finished flowchart diagrams for Login/Register, Reservation Creation, Reservation Approval, and Reservation Modification functions.</li> </ul>	
<b>May 9</b> <ul style="list-style-type: none"> <li>Created a questionnaire form asking for additional relevant figures such as expenses, pay, and room size and capacity.</li> </ul>	
<b>Prepared by:</b>  Elmer Jr. G. Felisilda / May 13, 2025	Daisy Borbe / May 13, 2025  Rechelle Golimlim / May 13, 2025
<b>Checked by:</b>  Mr. Tristan Unabia Thesis/Capstone Project Adviser Date Signed:	<b>Noted by:</b> Mr. Frederic Yulo Thesis/Capstone Project Coordinator Date Signed:

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## **APPENDIX G: RECEIPTS**



**STI COLLEGE MARIKINA, INC.**  
289 L. de Guzman St., Concepcion Uno 1807  
City of MARIKINA, NCR, Second District, Philippines  
Tel. Nos.: 8942-3307 \* 8948-2978  
NON-VAT REG. TIN 225-089-399-00000

ORIGINAL

211855

**OFFICIAL RECEIPT  
(EXEMPT)**

Issue Date : 2025-04-14  
Tran. No. :

No. : 02000300674	Student Name : DORSE, RAJESH, PHD	
SY - Term : 2024-2025 2nd Term	Course : BS in Information Technology	
TIN : Bus. Style: _____	Address : _____	
CODE	PARTICULARS	AMOUNT
MIS0	Miscellaneous Fee - 2024	1,000.00
 <b>PAID</b>		
<p><b>q</b> THESIS FEE- CAPTION 1</p>		
<b>TOTAL AMOUNT DUE</b>		1,000.00

五元人民币。

THIS DOCUMENT IS NOT VALID FOR CLAIMING OF INPUT TAXES

Not valid without machine validation

No. 211855



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City of Marikina, NCR, Second District, Philippines  
Tel. Nos.: 8942-3307 \* 8948-2978  
NON-VAT REG. TIN 225-089-399-00000

ORIGINAL

— 1 —

OFFICIAL RECEIPT (EXEMPT)		Issue Date : 2025-04
No. : SY - Term : TIN :	02000C00421 2024-2025 Academic Term Bus. Style:	Student Name : Course : Address :
CODE	PARTICULARS	AMOUNT
MISC	Miscellaneous Fee - 2400	1,000.00
	<i>ITEMS FEE- CAPSTONE 1</i>	
<b>TOTAL AMOUNT DUE</b>		<b>1,000.00</b>

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*Journal of Health Politics, Policy and Law*, Vol. 30, No. 4, December 2005  
DOI 10.1215/03616878-30-4 © 2005 by The University of Chicago

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Tel. Nos.: 8942-3307 \* 8948-2978  
NON-VAT REG. TIN 225-089-399-00000

ORIGINAL

Page 10

**OFFICIAL RECEIPT  
(EXEMPT)**

Issue Date : 2025-04-14  
Tran. No. : 25

No. : 07001110006	Student Name : SOLINLIM, RECHILLE, ANGELES	
SY - Term : 2021-22	Course : BS in Information Technology	
TIN : Bus. Style: Term	Address :	
CODE	PARTICULARS	AMOUNT
MTSC	Miscellaneous Fee - 2400	1,000.00
 THESES FEE- CAPSTONE I		
TOTAL AMOUNT DUE		1,000.00

DATA COMPUTER FORMS, INC., V/T REL IN 0005284-00000  
30 BOXES 1000 SETS/BOX 3 PLAT 11 JULY 2000  
IN AUTHORITY TO PRINT NO. 044-542-0005  
LOOSE-LEAF FMT IN 044-542-0005  
ISSUE DATE 06 SEPT. 2003

## **CURRICULUM VITAE**

Curriculum Vitae of

## ELMER JR. G. FELISILDA

**Blk. 20 Lt. 29, Titus St., Villa San Mateo 1, Guitnangbayan 1, San Mateo, Rizal**

**elmerjrgfelisilda@gmail.com**

**09178758977**

### EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/institution
Tertiary	2022 - 2025	STI College Marikina
Senior High School	2017 - 2022	Nuestra Señora De Aranzazu Parochial School
Junior High School	2017 - 2020	Nuestra Señora De Aranzazu Parochial School
Elementary	2011 - 2017	Nuestra Señora De Aranzazu Parochial School

### AFFILIATIONS

Inclusive Dates	Name of Organization	Position
2024 - 2025	STI College Marikina English Society	Secretary
2023 – 2024	STI College Marikina English Society	President
2022 – 2023	STI College Marikina English Society	Technical Committee Head
2019 – 2020	Diocesan Shrine and Parish of Nuestra Señora De Aranzazu Media Ministry	Live director, Cameraman

### SKILLS

SKILLS	Level of Competency	Date Acquired
Graphic Design	High	2021
Frontend Web Development	Average	2022
Video Editing	Average	2019

Curriculum Vitae of  
**DAISY P. BORBE**  
**Blk. 9 #56, Patola St., Tumana, Marikina City, Manila**  
**borbedaisy012@gmail.com**  
**09454262947**

#### EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/institution
Tertiary	2023 – 2025	STI College Marikina
Senior High School	2020 – 2022	Concepcion Integrated School
Junior High School	2016 – 2020	Concepcion Integrated School
Elementary	2011 - 2016	Concepcion Integrated School

#### PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience / Job Title	Name of Address of Company or Organization
2020 - 2022	Socio Cultural and Sports Committee (Volunteer)	CBI

#### AFFILIATIONS

Inclusive Dates	Name of Organization	Position
2020 - 2022	CBI	Socio Cultural and Sport Committee

Curriculum Vitae of

## RECHELLE A. GOLIMLIM

12 Gold St., Sta. Cecilia Subdivision, Guitnangbayan 1, San Mateo, Rizal

rechelle.golimlim0044@gmail.com

09516936294

### EDUCATIONAL BACKGROUND

Level	Inclusive Dates	Name of school/institution
Tertiary	June 2026	STI College Marikina
Senior High School	June 2021	STI College Marikina
Junior High School	May 2018	Concepcion Integrated School
Elementary	May 2013	Concepcion Elementary School

### PROFESSIONAL OR VOLUNTEER EXPERIENCE

Inclusive Dates	Nature of Experience / Job Title	Name of Address of Company or Organization
June 2023	Social Media Manager	The Deep Dive

### SKILLS

SKILLS	Level of Competency	Date Acquired
Proficiency in Microsoft Word, Excel, and PowerPoint	Average	-
Video Editing	Average	-
Computer Programming	Beginner	-