**STUDENT RECORD MANAGEMENT SYSTEM FOR**

**OFFICE OF STUDENT AFFAIRS**

A Capstone Project Proposal

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**Chapter 1**

**INTRODUCTION**

**Project Context**

The Web based Record management is a crucial aspect to all operation. This both handles the physical and computerized records. The primary purpose is to ensure that the records or all data in the department are managed in a way that is efficient, effective, and compliant with regulatory requirements. The goal to have proper record management for the campus is to maintain accurate, complete, and reliable records and support all their operations and decision-making for the legal obligation. The Lyceum of Alabang (LOA) manages the development of the well-being of all the students at the campus. Within educational institutions it involves the environment for learning and personal growth of students. The Office of Student Affairs oversees and manages various aspects of student life and development within the campus. This department has a big role in giving students the right disciplinary actions to them. It aims to enhance student privacy, providing support to help them with their academics learning.

The campus of LOA has faced numerous challenges in managing records for many years due to its outdated system. Issues such as record loss, maintenance difficulties, and time-consuming report generation are prevalent. The process of making redundant reports and organizing members has been inefficient. To address these issues and meet the institution's quality education expectations, the researcher will develop an upgraded system that integrates various services. Currently, the OSA, students, and faculty members consult a designated official for guidance and to address any violations. After seeking advice and informing the person in charge about the violation, they proceed to document the reports. This system has a feature to send a summon or letter to the student through message,

The Dashboard Module offers a quick look at key metrics and features. The Statistics Module helps you analyze data and create reports. The Send Message Module makes internal communication easy, while the Scholarship Module simplifies managing applications and payments. The Organization Module makes it easy to keep track of affiliated groups, and the Events Module handles event creation, scheduling, and registration. The OSA Staff Module is designed for Office of Student Affairs staff to manage tasks and access student data efficiently. The Cases Module tracks student cases or incidents, ensuring nothing is overlooked. The Admin Module helps administrators manage users, system settings, and access controls. The Student Module provides students with a space to manage their profiles, access resources, and communicate with staff. This web-based platform offers many features like a user-friendly interface allowing staff to have easy access to managing records of students. It’s ideal solution for the office of student affairs (OSA) is to maintain records without an error, the system ensuring the retrieval of data and providing security for sensitive information.

**Purpose and Description**

The office of Student Affairs (OSA) Staff members is using Microsoft Excel as a reliable tool to effectively organize and process the student’s records. In recent years the Student Affairs department has relied on Microsoft Excel as an essential technology to efficiently manage student files. But it has limitations such as security, data entry errors, difficulty in handling large datasets and limited features. When it comes to managing files of the students in LOA, it is crucial to prioritize accuracy and efficiency. Recognizing these challenges, the researchers aim to develop a cutting-edge web-based record management platform specifically designed for the OSA. Ensuring the smooth and proper management of their work system.

Staff members can easily access thorough student records. This streamlined accessibility allows them to retrieve detailed information about each student. Doing this will establish a web-based student record management system, providing safe access to student data, and serving as a platform for administrative tasks so they can save a lot of time in recording files. The Lyceum of Alabang continues to use technology to improve student services and achieve academic excellence. The website is equipped with a user-friendly feature that has been specifically designed to ensure that staff members can easily navigate and utilize the system without encountering any difficulties. This enhancement will greatly benefit the OSA's department by allowing for better file management, improving their ability to organize records, and promoting a more creative work environment. The researchers are using their expertise in web programming to provide the OSA with a web-based program for this project so they can improve their student service.

**Objectives of the Study**

The general objective is to develop a student record management system for the Office of Student Affairs (OSA) that would enhance the operation of the department. Specifically, it attempts to satisfy the following objectives:

1. To develop a secure web-based system for student record management of the Office of Student Affairs (OSA) at the Lyceum of Alabang that will:

* Keep tracks of student profiles in a centralize data repository.
* Generate graphical reports and records.
* To improve the handling of student violations, penalties and other student services and streamline administrative tasks.
* To secure the data, most importantly the sensitive information of the students, will only be seen and handled by the Office of Student Affairs (OSA) staff.

1. To create the system as designed using PHP as the computer language and conceptualize the features of an effective Student record management system with the help of Unified Modeling Language (UML) for designing and visualizing the design of this program.
2. To test the functionality and running time execution performance of the software.
3. To evaluate the acceptability of the software using the standard criteria for software quality define in ISO IEC 25101:2015.

**Significance of the Study**

The outcomes of this study offer significant advantages to various stakeholders. Firstly, for Officers of Student Affairs, the streamlined administrative processes, reduced manual workload, and improved access to student information empower them to make efficient decisions and proactively address student concerns through data analysis.

Students benefit by becoming more aware of their violations and staying informed about current institutional activities, ultimately enhancing their conduct and performance. Parents receive notifications about their children's school violations, enabling them to monitor their behavior and involvement in school activities.

Lastly, future researchers can use the study's results as a foundation for their own research endeavors. The findings serve as a valuable resource, guiding them in exploring and developing systems or generating new ideas that contribute to the advancement of knowledge in the field.

**Scope and Limitation**

The Students Record Management System for the Office of Student Affairs is a comprehensive web-based platform designed to streamline the management of student disciplinary matters within educational institutions. It offers a suite of features including recording student violations and disciplinary actions, tracking student profiles, generating statistical reports, automating correspondence generation, tracking resolutions and summons, and utilizing monitoring data to determine non-academic awardees.

The system ensures efficient user roles and permissions, implements robust security measures, provides an intuitive user interface, and ensures compliance with data privacy regulations and institutional policies. Additionally, the system will include a feature that allows administrators to create, manage, and deactivate user accounts, ensuring that only authorized personnel have access to the system. This feature will enable administrators to maintain control over user access and ensure security of the system and the confidentiality of student records. In the events every student can view campus events and see detailed information. Events are organized by OSA Staff and categories it by departments allowing students to easily find events relevant to their respective department. Also, it has lists of available scholarships and financial aid options, providing detailed information on eligibility, deadlines, and benefits.

Despite its capabilities, the system faces several limitations. These include potential challenges related to internet connectivity, as it relies on a stable internet connection for access operation. Furthermore, while the system offers an emailing feature for notifications, summons, and other important messages to students, it only supports one-way communication, students cannot directly reply to emails sent through the system.

This limitation may hinder the ability for students to provide immediate feedback or seek clarification on instructions, potentially delaying responses, and resolutions to issues. Additionally, scalability for future expansion may be constrained by technical limitations and integration complexities with existing institutional databases.

**Chapter 2**

**REVIEW OF RELATED LITERATURE AND SYSTEMS**

This chapter presents a survey of related literature and articles from local and foreign authors, developers, and professors which has significant bearing in relation to the development and implementation of the project as well as the ideas relevant to the present study relating to other studies and discusses briefly to provide foundation for this research.

**Related Literature**

**Web-based record management system**

According to Stangl M., Pielmeier J., Berger C., Braunreuther S., Reinhart G., (2019), Web technologies have experienced rapid development in recent years. Web browsers enhanced their abilities because of the improvement of JavaScript, CSS3 and HTML5. Hence, richer web-based software solutions with an increasing range of functions are available. By using responsive web design (RWD), a technology to display content without resizing on different screens, developers can support a diverse range of devices with small effort.

Ghods S., Goldberg A., Jourda F., Lee D., Arshdeep Mand, (2020), said that systems and methods of real time notification of activities that occur in a web-based collaboration environment are disclosed. In one aspect, embodiments of the present disclosure include a method, which may be implemented on a system, for selecting a recipient of a notification an activity according to criteria determined based on a workspace in which the activity was performed in the online collaboration platform and/or sending the notification of the activity to the recipient such that the recipient is notified in real time or near real time to when the activity occurred.

Uka K., & Nwabueze E., (2019) said that students’ academic and personal records form a vital part of the education system though progress throughout life continues to be hinged on availability of accurate data on graduates of various institutions.[1]And[2] noted that students’ records in most institutions have been held in low esteem, especially in the third world where most archival records on students are held in physical systems, giving rise to complications in recovering vital information and reduced access time. Therefore, since time is of essence in the digital age, there is need to develop systems that are flexible, reliable, and accurate for the purpose of delivering accurate information anytime needed. Meanwhile, availability of such information must not require physical presence except in exceptional cases when physical authentication is necessary.

Alade S., (2023) states that it is impossible to overstate the importance of document management systems as a necessity in the workplace environment of an organization. Interviews, scenario creation using participants' and stakeholders' first-hand accounts, and examination of current procedures and structures were all used to collect data. The development approach followed a software development methodology called Object-Oriented Hypermedia Design Methodology. With the help of Unified Modeling Language (UML) tools, a web-based electronic document management system (WBEDMS) was created. Its database was created using MySQL, and the system was constructed using web technologies including XAMPP, HTML, and PHP Programming language.

According to Jaymer M., Moyon E., Morales E., (2020), said that the Department of Social Worker and Development (DSWD) Caraga continuously generates records daily. Still, their records management system is conventional, giving them a hard time retrieving and keeping track of the record's whereabouts. With this, DSWD Caraga embarks into record's digitization for its management to ensure the preservation of permanent and valuable papers, secured and accessible for future reference as required by the organization's different offices based on existing rules and regulations in records management.

**Data Privacy and security in recordkeeping**

Scheid M., (2019) said that, when considering privacy, teachers should remember that all student personal information belongs to the student and therefore should be kept private. This information includes things like assessment results, grades, and demographic information. Teachers can ensure students’ privacy by empowering them to share only the information they want and helping them understand how sharing their personal information can impact them. Confidentiality comes into play when private data is shared. Students trust their teachers to keep their data confidential and share it carefully. Teachers are responsible for holding every student’s data in confidence and sharing it only with necessary parties such as parents, other teachers, and administrators. Finally, teachers can keep student data both private and confidential by establishing clear security practices in their classrooms.

Livingstone, S. (2019) said that children’s autonomy and dignity as actors in the world depends on both their freedom to engage and their freedom from undue persuasion or influence. In a digital age in which many everyday actions generate data whether given by digital actors, observable from digital traces, or inferred by others, whether human or algorithmic the relation between privacy and data online is becoming highly complex. This in turn sets a significant media literacy challenge for children (and their parents and teachers) as they try to understand and engage critically with the digital environment. With growing concerns over children’s privacy and the commercial uses of their data, it is vital that children’s understandings of the digital environment, their digital skills and their capacity to consent are considered in designing services, regulation, and policy.

Kumar, P.C., Chetty, M., Clegg, T., & Vitak, J., (2019) said that school educators increasingly use digital technologies to teach students, manage classrooms, and complete everyday tasks. Prior work has considered the educational and pedagogical implications of technology use, but little research has examined how educators consider privacy and security in relation to classroom technology use. To better understand what privacy and security mean to elementary school educators, we conducted nine focus groups with 25 educators across three metropolitan regions in the northeast U.S. Our findings suggest that technology use is an integral part of elementary school classrooms, that educators consider digital privacy and security through the lens of curricular and classroom management goals, and that lessons to teach children about digital privacy and security are rare.

Jones K., Asher A., Goben A., Perry M., Salo D., Briney K., Robertshaw M., (2020), said that higher education institutions are continuing to develop their capacity for learning analytics (LA), which is a sociotechnical data-mining and analytic practice. Institutions rarely inform their students about LA practices, and there exist significant privacy concerns. Without a clear student voice in the design of LA, institutions put themselves in an ethical gray area. To help fill this gap in practice and add to the growing literature on students' privacy perspectives, this study reports findings from over 100 interviews with undergraduate students at eight U.S. higher education institutions. Findings demonstrate that students lacked awareness of educational data-mining and analytic practices, as well as the data on which they rely. Students see potential in LA, but they presented nuanced arguments about when and with whom data should be shared; they also expressed why informed consent was valuable and necessary.

According to Barth S., de Jong M., Junger M., Hartel P., Roppelt J., (2019), research shows that people’s use of computers and mobile phones is often characterized by a privacy paradox: Their self-reported concerns about their online privacy appear to be in contradiction with their often-careless online behaviors. Earlier research into the privacy paradox has several caveats. Most studies focus on intentions rather than behavior and the influence of technical knowledge, privacy awareness, and financial resources is not systematically ruled out.

**Student Disciplinary matters**

According to Espinosa, Ken Paul M., (2020), The purpose of the school authority is to improve student discipline related to increasing student discipline at school, namely by attendance in class or in attendance calls. Parents are still very concerned about the condition of the children at school, whether they really behave well or not, and parents cannot do direct monitoring but must wait when the report cards are distributed. In monitoring violations, students still use paper media, namely by being recorded in a book, this makes information about student behavior slow to reach parents. To overcome this, a student monitoring information system is needed to communicate information to parents of students that are directly related to the condition of their students at school through computerized data processing using a web-based system.

Olipas, C., (2020), said that the guidance office is one of those dedicated offices concerned about student safety, as well as recording and managing student information. In a different Higher Educational Institution (HEI), the guidance office typically handles the recording, organizing, maintaining, securing, and managing the student information essential for the office to monitor the students. An automated student information management system suits a guidance office to perform its different tasks. However, the need to include the management of students’ violation is essential to make meaningful insights from the records being kept in the guidance office.

According to MacLeod P. & Eaton S. (2020) investigated faculty attitudes towards student violations of academic integrity in Canada using a qualitative review of 17 universities’ academic integrity/dishonesty policies combined with a quantitative survey of faculty members’ (N = 412) attitudes and behaviors around academic integrity and dishonesty. Results showed that 53.1% of survey respondents see academic dishonesty as a worsening problem at their institutions. Generally, they believe their respective institutional policies are sound in principle but fail in application. Two of the major factors identified by faculty as contributing to academic dishonesty are administrative. Many faculty members feel unsupported by their administration and are reluctant to formally report academic dishonesty due to the excessive burdens of dealing with paperwork and providing proof. Faculty members also cite unprepared students and international students who struggle with language issues and the Canadian academic context as major contributors to academic dishonesty.

Zoromski A., (2020), said that disruptive student behavior in middle school is associated with negative outcomes, including poor grades, low achievement scores, dropout, lost teaching time, teacher burnout, and societal expenditures. Classroom Behavior Management (CBM) strategies are effective at reducing disruptive behavior, decreasing teacher stress, and increasing achievement with elementary students, but less is known regarding these strategies for middle school students.

According to Burgason, Kyle A., Sefiha, Ophir, Briggs, Lisa, (2019), said that research consistently indicates that academic dishonesty is pervasive on college campuses, including in online courses. For our study we administered a survey to two groups of undergraduate criminal justice students, one group of face-to-face students at traditional college-age and the other a group of distance learners employed full-time in criminal justice professions.

**Web Based System with SMS**

According to Satria D., Zulfan Z., Munawir M., Mulyati D.,(2019) It is known that the consultation process by the way it is done now still has problems from the effectiveness of student research time and the distance between the research center and the location of the supervisor. These problems resulted in students not being timely in conducting research consultations with their supervisors. Therefore, a system is needed that can provide a system of research consultations remotely using internet facilities that are integrated with the consultation notification system via the SMS Gateway. The methodology is built using the phases of context diagrams, data flow diagrams and entity relationships. The system is built using PHP programming, MySQL database and Gammu.

Majaliwa, A. & Simba, F. (2019) said that the continues growth in mobile wireless access ensures a wider audience reach and as the mobile devices market is maturing, its penetration will accelerate faster at a lower cost. Some organizations within a government opt to implement m-government to supplement e-government services. This sometimes happens based on the management knowledge towards m-government, facilities they must host the service, skilled manpower to implement the m-government projects, business (services) demand or sometimes order from other government organs. Due to lack of standard extension procedures, each government institution can extend its e-government system to government according to developer’s knowledge.

According to Alpasan B., (2021), said that the School of Institute of Information and Computer Studies is facing a problem in the submission of the documents every end of the academic year which are requirements of the Director of the IICS before signing the clearance of its faculty members.

To fast-track the submission of the documents, an alternative solution to solve the current problem was developed, to be known as the “e-Document Archiving System with SMS Support”. Descriptive research design was used to determine whether the objectives of the study were achieved while Developmental research design was used for the development of the software. The architectural design used in this system was n-tier architecture. Since the developed system will be deployed into local area network connecting office the IICS building, the concerned faculty where can upload and archived documents electronically. The Director could simply download and print documents in real time. A Short Message Service (SMS) Support was also be used, as additional feature which would play a vital role as a communicating tool, that enables to send notification to concerned faculty members particularly, which required documents and deadline of submission.

According to Mishra, S. & Soni, D. (2023) said that text messages or SMS (Short Text Messages) are a part of smartphones through which attackers target the users. Smishing (SMS Phishing) is an attack targeting smartphone users through the medium of text messages. Though smishing is a type of phishing, it is different from phishing in many aspects like the amount of information available in the SMS, the strategy of attack, etc. Thus, detection of smishing is a challenge in the context of the minimum amount of information shared by the attacker. In the case of smishing, we have short text messages which are often in short forms or in symbolic forms. A single text message contains very few smishing-related features, and it consists of abbreviations and idioms which makes smishing detection more difficult. Detection of smishing is a challenge not only because of features constraint but also due to the scarcity of real smishing datasets. To differentiate spam messages from smishing messages, we are evaluating the legitimacy of the URL (Uniform Resource Locator) in the message. We have extracted the five most efficient features from the text messages to enable machine learning classification using a limited number of features.

Alharbi, E., & Alghazzawi, D. (2019) said that OTP-SMS is one of the most common methods which has been used in 2FA. However, attackers found a way to attack this method and gain access to the user’s account without their permission. In this paper, we proposed a new 2FA framework for OTPSMS method to prevent different attacks, mainly Man in The Middle (MITM) attack and third-party attack. The proposed framework is based on the use of Blockchain technology, which add more security and better environment for authentication process.

**Related System**

**IMSU PORTAL**

A group of people walking in front of a building

Description automatically generated

Figure 1: Homepage

A close-up of a application form

Description automatically generated

Figure 2: User Registration

This study discusses a web-based student record management system for tertiary institutions. This article was created out of the challenges related with student academic record management, which include inappropriate course registration, late distribution of students' results, reconciliation of students' results, and malpractices at various. Students clearing units, inaccuracies caused by laborious and time-consuming calculations, and issues retrieving records in the institution.

The goal of this paper is to create a portal that will include online registration, profile creation, students' final clearance and payment, transcript processing, admission status checking, verification of both O’level /A’level and degree certificates, and result checking, with the goal of reducing paperwork and automating the record generation process in tertiary institutions.

The approach utilized in packaging this material is the Object-Oriented Analysis and Design approach (OOADM), and the programming languages used are Hypertext Markup. HTML, PHP, CSS, JS, and MySQL. The product attempts to give a solution to inefficiencies while maintaining information accuracy and convenience of access for students, professors, parents, and administration in higher institutions.

**PERSONNEL**

A sign in front of a field

Description automatically generated

Figure 3: Login

A screenshot of a computer

Description automatically generated

Figure 4: Menu Dashboard

Design and Implementation of a Personnel Record Management System. This project upgraded the existing system for managing and maintaining personnel records at the record division of Ladoke Akintola University of Technology, Ogbomoso.

The need for a better record management system is critical, which led to the development of a university personnel record management system that uses the K-Way Merge Sort Algorithm for sorting and merging data in the database to produce the required information in a requested format, which previously wasted time and resulted in insufficient reports. The system was built by constructing a relational database with MYSQL to successfully accept personnel records, and designing a web-based solution utilizing PHP, JavaScript, and HTML at the front-end.

The MYSQL was installed at the database's back end in order to provide the University's record department with a more secure and effective personnel records management system. The built system used a k-way merge sort algorithm to query the database and generate the appropriate report, sorting and collating different related fields as needed, combining them to form a single output, and saving the modified records in the archive for future reference.

**DMS**

A blue and white document management system

Description automatically generated

Figure 5: Dashboard

A screenshot of a computer

Description automatically generated

Figure 6: Information Data

Design and Implementation of a Web-based Document Management System The database was established with MySQL, and the system was built with web technologies such as XAMPP, HTML, and the PHP programming language.

The system evaluation yielded a successful result. After utilizing the built system, respondents expressed 96.60% satisfaction with it. This demonstrates that the document system was deemed as competent and great enough to fulfill or meet the given requirement when utilized by secretaries and departmental officials. The system created achieved an accuracy of 95% and a usability of 99.20%. The analysis concluded that a recommended electronic document management system would improve user satisfaction, increase productivity, and ensure time and data efficiency.

As a result, well-known document management solutions surely help organizations store and manage a significant amount of their knowledge assets, which comprise documents and other related objects.

**Federal University Wukari (FUW) Clinic**

A close-up of a medical form

Description automatically generated

Figure 7: Create New File

Design and Implementation of a Secured Web based Medical Record Management System: A Case Study of Federal University Wukari (FUW) Clinic Patient records make up the majority of medical records in almost all health care facilities around the world. The current system of medical record keeping used in FUW Clinic is primarily paper-based and is associated with issues such as misplacement of patients' records, unnecessary duplication of patients' records, and a lack of effective backup facilities. In an attempt to address the issues associated with paper-based medical records, this project aimed to automate the entire process by developing a web-based application to reduce the cost of purchasing stationery materials required for paper-based record keeping while also improving the integrity and security of patients' medical records.

The proposed system employs the following security tools to prevent unauthorized users from gaining access to system resources: The sign up module, the security measure employed on the sign up module to ensure that no unauthorized person is allowed to create a user account is that when a user clicks on the sign up button, a prompt will be displayed asking the user to enter a One Time PIN (OTP) that can only be obtained from the clinic's appropriate authorities. Another security measure is the use of the MD5 encryption function to encrypt user passwords on login tables.

**ECMS**

A screenshot of a computer

Description automatically generated

Figure 8: Admin Dashboard

A Secured Cloud-Based Electronic Document Management System The system was built with HTML, CSS, JavaScript, Laravel (a PHP framework), and MySQL to handle document entry, electronic document management (EDMS), and document retrieval and sharing. The papers were encrypted using the Advanced Encryption Standard (AES) technique to prevent unauthorized people from accessing them. The system was tested on the examinations and records section of Olusegun Agagu University of Science and Technology in Okitipupa. The performance demonstrates that it is useful for storing, retrieving, and sharing processes. SECEDOMAS is well-structured, more efficient, secure, and long-lasting.

**Binan Tricycle Franchising and Regulatory Board**

A screenshot of a computer

Description automatically generated

Figure 9:  Add Violations

Web-Based Management System with SMS and E-mail Notification for Binan Tricycle Franchising and Regulatory Board. The Binan Tricycle Franchising and Regulatory Board (BTFRB) is an entity of the City Government of Binan under the City Community Affairs Office that is in charge of disseminating, regulating, implementing, and maintaining compliance with tricycle service rules, laws, and regulations. The office is located at the POSO Office, BC3 Building, Brgy. Zapote, Binan City, Laguna. Mr. Ronaldo Roscain supervises the management. There are 4,450 registered tricycle franchisees that are members of 45 TODA and serve an average of 30 tricycle operators and drivers every day. The most common violations over the last five years have been invalid or no franchise and illegal parking in Poblacion and San Antonio, respectively.

**Barangay Document Requesting System**

A screenshot of a computer screen

Description automatically generated

Figure 10: User Documents

A screenshot of a computer

Description automatically generated

Figure 11: User Reports

The Development and Assessment of a Web- Based Barangay Document Requesting System A barangay is an important part of a country's growth and success, and it has to be carefully monitored and improved. To meet the need for innovations in barangay procedures, this project designed, developed, and evaluated Docu-Go, a web-based barangay document request system.

The researchers used a developmental research approach, which included IT specialists and people of a barrio in Cabanatuan City, Nueva Ecija, Philippines. The researchers developed the system using a modified waterfall paradigm. To assess the system's technical characteristics and quality, an ISO 25010-based survey questionnaire was conducted. The assessment findings showed that both components were largely accepted by the two groups of respondents. However, some recommendations were made to improve the system's functioning and user experience.

**MediCord**

A screenshot of a login page

Description automatically generated

Figure 12: Login form

A Web-Based Health Record Management System Information technology (IT) is critical for managing data and making effective and timely decisions. IT also improves the security and efficiency with which data and information are shared. Since the coronavirus 2019 (COVID-19) has had a substantial influence on how individuals do jobs and processes in the "new normal," IT solutions have become critical to the continued performance and administration of various chores and activities.

Information technology applications promote the safety of all individuals in a society by using an electronic procedure to replace the human tasks of recording and distributing data. The goal of this research was to create an information technology-based application named MediCord: A Web-Based Health Record Management System. This study used developmental research methods. MediCord developed for a health clinic in one of the towns of Nueva Ecija, Philippines.

The results demonstrated that the proponents effectively planned and developed the system using the stages of the software development life cycle (SDLC). Furthermore, adhering to the SDLC has enabled the proponents to create a number of diagrams that have proven to be useful tools during project building. Proponents proposed that following the system's design and development, the remaining stages of SDLC be completed, and the project's real evaluation be based on industry-accepted and widely used relevant standards. This creates potential for future research as a result of the current study.

**UeRMS**

A green and white registration form

Description automatically generated

Figure 13: Login

A computer screen shot of a computer screen

Description automatically generated

Figure 14: Information Form

University Electronic Records Management System for Northwest Samar State University, Calbayog City. Any organization's governance relies heavily on an effective records management program. According to the polls, Northwest Samar State University was not completely informed of how to apply the National Archives of the Philippines Act of 2007 (R.A 9470).

The university nevertheless relied on the university code for records management regulations. This research was conducted to establish and validate the acceptance of the developed University Electronic Records Management System (UeRMS) for Northwest Samar State University as perceived by computer experts, school administrators, teaching staff, and non-teaching people. Thus, the responders' ideas and assessments regarding the system's design are crucial. After verifying the built system, they discovered that it was considerably faster to search records than the manual procedure.

**The Guidance and Counseling Office of the Nueva Ecija University System**

A login screen with a blue background

Description automatically generated

Figure 15: Login

A screenshot of a computer

Description automatically generated

Figure 16: Information Dashboard

Guidance and Counseling Record Management System the Record Management System for Guidance and Counseling Center of the Nueva Ecija University of Science and Technology was created with the goal of providing a software application that manages student records and allows students to access personal information quickly and easily. The features centered on adding and updating students' information/profiles using the application. The user can print a copy of the student's record. The Record Management System was developed in accordance with the System Development Life Cycle (SDLC), which included stages such as planning, analysis, design, coding, testing, implementation, and maintenance.

The system took three months to construct and was built utilizing the Visual Basic 2017 programming language and Microsoft SQL Server 2017 database. Respondents greatly supported the Record Management System based on their assessment of five criteria: functionality, usability, efficiency, portability, and security. The group of responders' recommendations may be considered for future system enhancements.

**Alabang Web-Based Student Record Management**

A close-up of a document

Description automatically generated

Figure 17:  Login Form

A screen shot of a computer

Description automatically generated

Figure 18: Information Dashboard

The development and setup of a web-based student record management system for the college of computer studies. The Lyceum of Alabang was created to help students transition into school. It provides the capabilities required for record storage as well as a management application that allows clients to access their data online easily and efficiently. The Lyceum of Alabang (LOA) Student Records Managements System provides clients with 24/7 instant access and the ability to efficiently search for needed files, view accountability of a file, access detailed activity reporting, schedule a delivery service, and more.

This system not only provides ease of access to files, but it is also a dynamic website that will reduce the amount of work for all Lyceum of Alabang staff members. College of Computer Studies. It manages the data of every student enrolled in college, automatically computing the students' grades and displaying a list of topics accessible for the semester. During beta testing, users rated the system and gave it a weighted mean of 3.8, indicating that the system received highly positive feedback from respondents.

**LOA Covid Tracker**

A computer screen with a blue and white text

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Figure 19: Reports

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Figure 20: Monitoring

The development of the LOA Covid Tracker. A covid-19 record management system for the Lyceum of Alabang utilizing NFC with SMS notification is a research project that seeks to design, develop, and deploy a system for monitoring and recording covid-19 cases at the Lyceum of Alabang. The system should be capable of monitoring and tracking individuals who may have come into contact with the virus in order to limit the spread of covid, as well as generating a report in accordance with the CHED-DOH joint Memorandum circular No 2021-004 Guidelines on the implementation of Limited face-to-face classes for all programs of higher education institutions.

The frontend is developed with Visual Studio 2022 and Android Studio, while the backend is built with XAMPP. Alpha and beta testing will also be conducted to assess and improve the system. The app should work on most Android phones that have NFC cards. The system was evaluated by actual users and IT specialists using the ISO/IEC 25010:2011 product quality criteria. They rated the system as very good, indicating highly favorable feedback and software performance. There are a few suggestions for software enhancements, such as adding ID print on NFC card functionality and adding a tool to validate vaccination certificates upon scanning and refusing if invalid.

**Synthesis**

In this chapter, the researchers provide some evidence and information to support their research. The researchers provide a local and foreign-related system that they can use as a reference in the development of their project. As we can see from the information that has been gathered on the internet, the web-based record management system is so helpful to everyone since if every country has its own website, they can share their culture and other public information that is related to their respective place

**Conceptual Model of the Study**

**INPUT** **PROCESS OUTPUT**

**Knowledge Requirements**

* **Web Development**
* **Record Management**
* **Database Management**
* **Data Privacy**

**Software Requirements**

* **VS Code (Version 1.88.1)**
* **XAMPP (Version v3.3.0)**
* **Web Browser (Chrome)**
* **Figma (Version 116.17.13)**

**Hardware Requirements**

**Device: Desktop**

**Processor: 12th Gen Intel®**

**CoreTM i5-1235U 1.30 GHz**

**RAM: 8.00 GB**

**System Type: 32-bit operating system, x32 based processor.**

**OS: Windows 7**

**Methodology**

**Phase**

**(Agile Methodology)**

* **Plan**
* **Design**
* **Develop**
* **Test**
* **Deploy**
* **Review**

**Students Record Management System for office of Student Affairs**

* **Functionality**
* **Reliability**
* **Usability**
* **Efficiency**
* **Maintainability**
* **Portability**

**Evaluation**

**ISO | IEC   
25010:2011**

**Figure 21: Conceptual Framework**

The conceptual framework consists of three main components: input, process, and output. The input includes initial requirements and resources such as stakeholder needs, current processes, data, technical, and functional requirements, as well as software and hardware needs. The process involves the Spiral Methodology for developing the system, encompassing planning, requirement analysis, risk assessment, prototyping, and testing. The output comprises the development of the Students Record Management System for the Office of Student Affairs, focusing on purpose, functionality, accessibility, security, and maintainability. This framework outlines how the inputs will be transformed through the process to achieve the desired outputs.

**Definition of Terms**

**Office of Student Affairs (OSA)-** The administrative department within Lyceum of Alabang, responsible for overseeing nonacademic aspects of student life. This includes student welfare, extracurricular activities, counseling services, and disciplinary matters.

**Disciplinary Actions -** It encompass the steps taken when students breach rules or codes of conduct, which may range from warnings to expulsion, depending on the seriousness of the offense. The student record management system would probably monitor these actions to maintain administrative efficiency and uphold fairness in disciplinary processes.

**Student Record Management System-** A comprehensive software solution designed to efficiently collect, store, manage, and retrieve student related information within an educational institution. It encompasses various functionalities such as enrollment, academic records, personal details, and administrative processes.

**Student Violation-** An infraction or breach of rules, policies, or codes of conduct established by the educational institution. Student violations can encompass various behaviors, including academic misconduct, disciplinary infractions, attendance issues, and violations of campus regulations.

**Stakeholder Requirements** - It refers to the specific needs, expectations, and desires of individuals or groups who have a vested interest or stake in the project's outcome. These stakeholders could include students, faculty, administrative staff, IT personnel, and possibly even parents.

**Chapter 3**

**DESIGN AND METHODOLOGY**

This chapter covers the research design and methodology, including Software Development, Requirements Analysis and Documentation, Project Design, and Evaluation Procedures and Testing Procedures.

**Software Development Methodology**

Agile methodology is a dynamic and flexible approach to software development that emphasizes iterative progress, collaboration, and adaptability. Unlike traditional models such as the Waterfall method.

**A diagram of a process

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Figure 22: Agile Methodology

**Phases 1: Plan**  
 In this initial phase, the groundwork for the project is established, focusing on planning, and organizing to ensure a clear direction and structured approach.

* **Creating Project Plan:** Develop a detailed plan outlining tasks, timelines, resources, and responsibilities to guide project execution effectively.
* **Defining Project Scope:** Define the project scope, objectives, and constraints, outlining the overall direction and goals of the project.
* **Establishing Communication Channels:** Set up communication channels and protocols to facilitate effective collaboration and information sharing among team members.

**Phase 2: Design**

This phase involves creating the design of the software solution, ensuring it aligns with the gathered requirements and is prepared for development.

* **Designing Architecture:** Create a high-level architecture and detailed design documents, ensuring they meet the requirements and are scalable and maintainable.
* **Creating User Stories and Wireframes:** Develop user stories and wireframes to visualize and refine the user interface and user experience.

**Phase 3: Develop**

The Development phase focuses on building the software solution in an iterative manner, ensuring continuous progress and integration.

* **Iterative Development:** Develop the software iteratively, with frequent releases and iterations to incorporate feedback and address evolving requirements.
* **Writing Code:** Implement the design by writing code, adhering to coding standards and best practices.
* **Continuous Integration:** Regularly integrate code changes into a shared repository, using automated testing to detect issues early.

**Phase 4: Test**

This phase emphasizes testing the developed software to ensure it meets the required functionality, performance, and quality standards, using both black box and white box testing methods.

* **Black Box Testing:** Test the software from an external perspective, focusing on validating functionality and behavior without knowledge of the internal structure. This includes testing user interfaces, inputs, and outputs to ensure they meet specified requirements.
* **White Box Testing:** Test the internal logic and structure of the software, examining code paths, data flows, and program structures to identify errors and ensure code coverage. This includes techniques such as code reviews, unit testing, and integration testing to verify the correctness and robustness of the software solution.
* **Performance Testing:** Evaluate the software’s performance against predefined benchmarks to ensure it meets quality standards and user expectations.

**Phase 5: Deploy**

In this phase, the software is prepared for release and deployed to the production environment.

* **Deployment Planning:** Plan the deployment process, including scheduling, environment preparation, and rollback strategies.
* **Deploying to Production:** Execute the deployment, ensuring a smooth transition from development to production.

**Phase 6: Review**

After deployment, the software is reviewed to gather feedback and assess its performance and quality in the production environment.

* **Collecting Feedback:** Gather feedback from users and stakeholders to understand their experiences and identify any issues or areas for improvement.
* **Conducting Retrospectives:** Hold retrospectives with the development team to review what went well, what didn’t, and how processes can be improved.

**Requirements Analysis**

In today's school environment, it is crucial to maintain accurate records for effective management. This document outlines the key aspects of developing a web-based record management system specifically for student affairs in schools. Researchers conducted interviews with school administrators to understand the importance of effective record-keeping and the current workflow processes. At the Office of Student Affairs (OSA), students and faculty members consult a designated official for guidance and to address any violations. After seeking advice and informing the person in charge about the violation, they proceed to a person in charge to document the reports. Although the basic process remains unchanged, significant improvements have been implemented. The web-based system is designed to streamline data entry and retrieval, enhance record accuracy, and ensure data security. Eventually, this system aims to improve the overall management of student affairs in educational institutions.

**Proposed System**

**Current System**

This part shows the system's overall features and capabilities, as well as how it works. The researchers employed a variety of UML diagrams to represent the boundaries, structure, and behavior of the system and its objects.

**A diagram of a staff

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**Figure 23: UML Use Case Diagram- Osa Staff Level**

The figure above illustrates the various features and functionalities of the Osa Staff level.

A diagram of a person with text

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**Figure 24:**  **UML Use Case Diagram- Admin Level**

The figure above illustrates the differences functions of the admin level. This describes the system's level of the user.

A diagram of a login account

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**Figure 25: UML Use Case Diagram- Access Level**

The figure above shows how users can interact with the system. It demonstrates the different ways users can use the system's features.

Hardware and Software Requirements

**Table 1: Hardware Requirements for System development**

|  |  |
| --- | --- |
| **Hardware** | **Minimum Requirements** |
| Laptop/Desktop | CPU: Intel core i5 above or Ryzen 5 above  Ram: 8 GB ram above  Storage: 500 GB above SSD or HDD |
| Router | Wi-Fi 5 (802.11ac) or Wi-Fi 6 (802.11ax)  Supports gigabit wired speeds. 1000Base-T (Gigabit Ethernet) or faster ethernet port for internet connection. 1000Base-T (Gigabit Ethernet) or faster ethernet port for local network.  Minimum WPA2 Security |

The table below specifies the hardware requirements for running the required software and development of system.

**Table 2:** **Software Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Software** | **Overview** | **Minimum  Requirements** | **Task** |
| Visual Studio Code | A lightweight yet capable source code editor that runs on your desktop and is available for Windows, macOS, and Linux. | OS: Windows 8/ 8.1/ 10/ 11 (32-bit and 64-bit)  CPU: 1.8 GHz or faster (64-bi)  Quad-core or better  recommended  Memory: 4 GB ram | Development of system and connection to database |
| XAMPP | Apache Friends created a free and open-source cross-platform web server solution stack bundle that primarily includes the Apache HTTP Server Database and interpreters for scripts written in PHP and other programming languages. | OS: Windows 8/8.1/10/11(64-bit) CPU: 2nd generation Intel CPU or newer  Memory: 128 MB ram | Database  Server |
| My SQL | Structured query language  ( My SQL) is a programming language for storing and processing information in a relational database. | OS: Windows 8/ 8.1/ 10/ 11 (32-bit and 64-bit)  CPU: 1.8 GHz or faster (64-bit)  Quad-core or better  recommended  Memory: 4 GB ram | Database |
| FIGMA | Web-based design and prototyping tool used primarily for user interface (UI) and user experience (UX) design. | Windows: 8.1 and above Ram: 4 GB however, 8 GB or more  Storage: 128 gb | UI Design |

The table above specifies the software requirements for developing and designing the system.

**Requirements Documentation**

This section will describe the module of the system development needed to be fulfilled by both the user and the system to perform the designated task.

**Dashboard Module.**

This module contains information used to chart data in student cases. It shows three icons that show the content green means how many infringement cases there are, blue means how many cases have been resolved, red means how many pending cases there are.

**Statistics Module.**

This module contains monthly and yearly of student cases, statistics and other number of cases by category of offense such as minor and major offence.

**Send Message Module.**

This module contains for the notification for the message within the system, the student will receive his summons or letter.

**Scholarship Module.**

This module contains the Scholarship Application Form.

**Organization Module.**

This module contains the individuals responsible for OSA management and event management.

**Events Module.**

This module aims to streamline event management processes to keep all stakeholders informed and ensure smooth execution of the event.

**OSA staff.**

This module contains the ability to add and edit cases, along with a dashboard showing the total number of cases.

**Cases Module.**

This module contains can view records, add student cases, edit cases, search cases you can also search names, filtering cases status in developing and presenting analyzes about various aspects of student records.

**Admin Module.**

This module contains account management can add, edit osa staff account.

**Student List Module.**

This module contains basic student information.

**Student Module.**

This module contains important details about the student. Additionally, there is a dashboard that displays basic student information.

**Settings.**

This module defines Change Password, and other security purposes

**Project Design**

The student record management system for office of student affairs is developed using the following digital software platforms: XAMPP, JavaScript, PHP, and Visual Code. The system will be created by the researcher with an intuitive user interface.

The selection of the appropriate color for the system was carefully considered by the researchers; some colors elicit different emotions, thus selecting the simple color is quite important. Screenshot, functions and photos are sampled in this section. The criteria that are being established will determine how the functionality and usability of the system are presented overall.

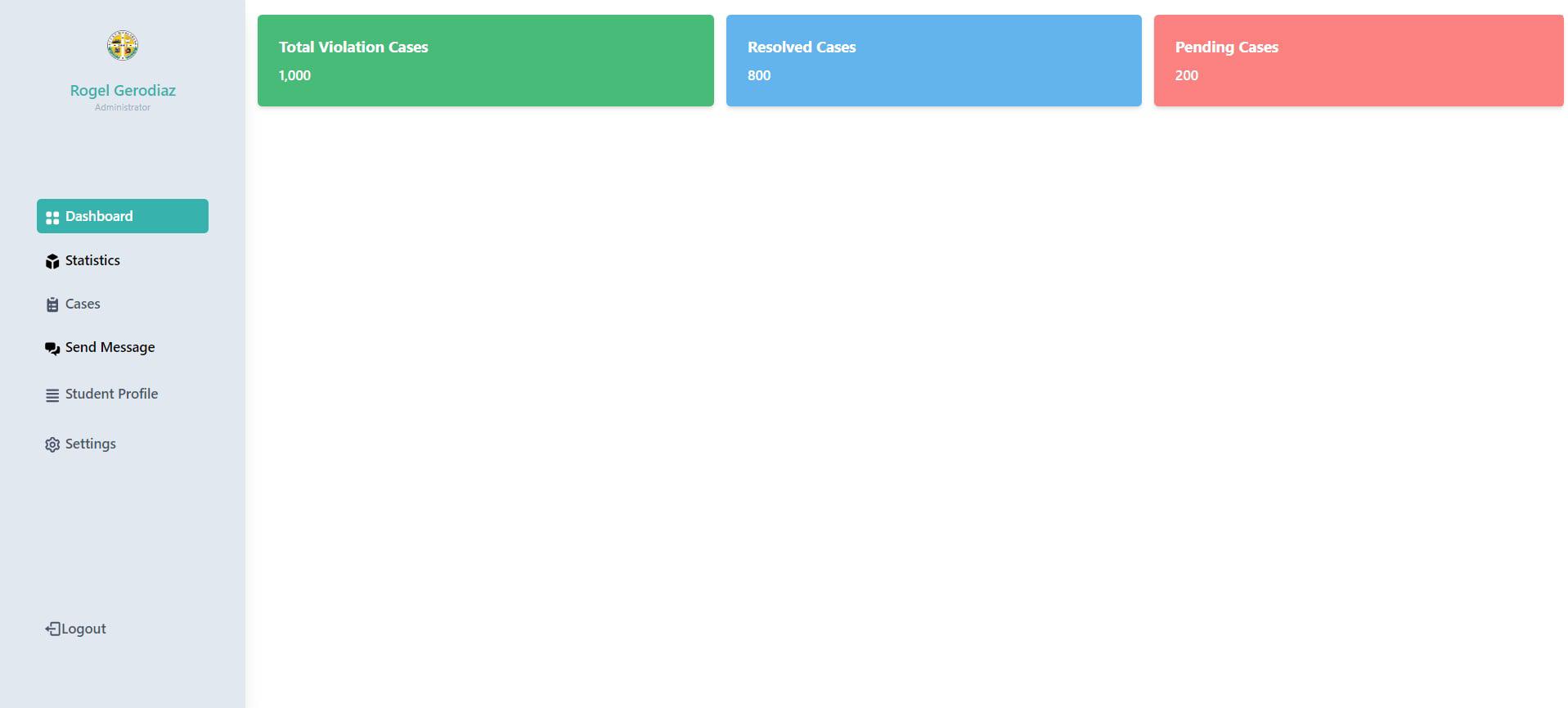
The Student Record Management System for Office of Student Affairs (OSA) Complaint System for Lyceum of Alabang is designed to transform the way student complaints are managed within the institution. This system, exclusively for use by OSA staff, aims to streamline the process of logging, tracking, and resolving student complaints.

A screenshot of a login screen

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**Figure 26: Log In Form**

It shows the log in form of the system It is the first page that see when they open the web application the user will see here the login form, The user must input the username and password to log in. Once he logs in, the user will go to the dashboard.



**Figure 27: Dashboard**

It shows the dashboard of the system It displays the three icons the content shows color green means how many violation cases there are, blue means how many cases have been resolved, red means how many pending cases there are,

**A screenshot of a computer

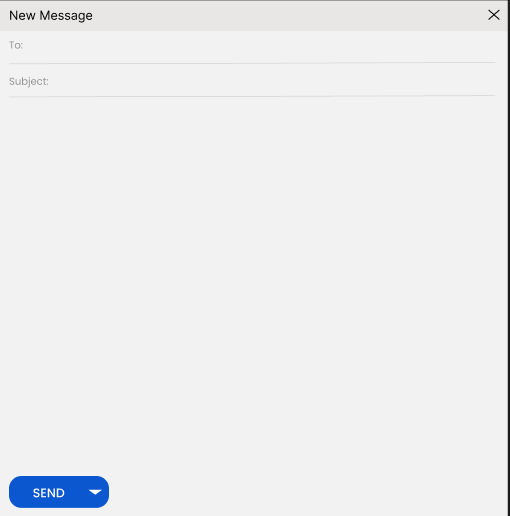
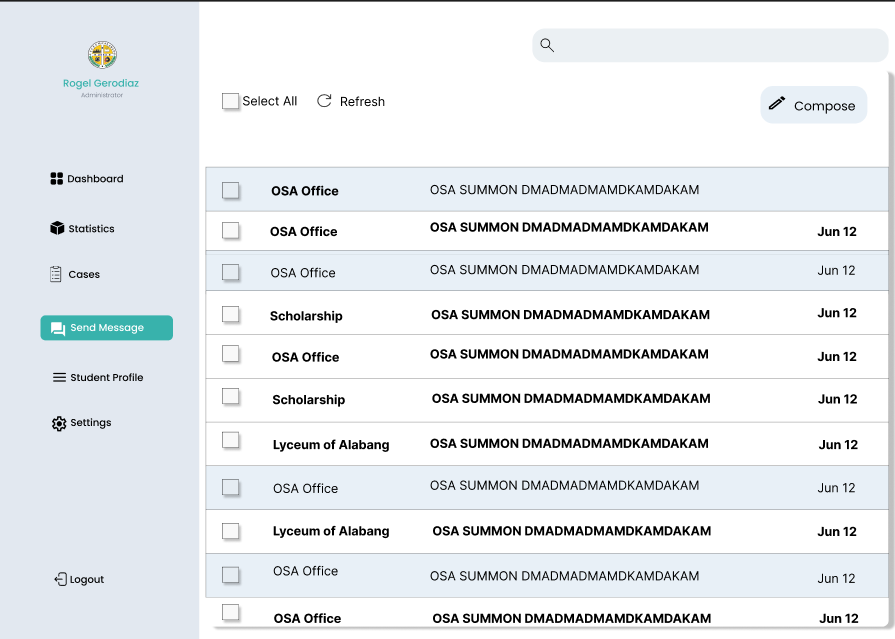
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**A screenshot of a computer

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**Figure 28: Cases**

It shows the records of the student's cases. You can also see here the All button; once you click it, all the cases will appear, and when you click the ongoing button, you can see the cases that are still ongoing in the student's case. When the resolved button is clicked, it will be seen that the student's cases are finished, when the pending button is the ones that are not progressing in the student's case, and there is also a search bar. You can also research names, and when there are new cases you need, click on add cases, then there is a filter of the status of the cases.

****

**Figure 29: Send Message**

You can view the messages sent within the system here. The student will be able to see when their summons or letter was sent, along with the dates. Additionally, you have the ability to search, refresh, select all, and also when you click compose button will appear, if you want to send a new message.

**Evaluation Procedure**

1. The researchers purposively selected forty (40) respondents from LOA. The group of respondents will be divided into two classifications: Ten (10) IT experts and thirty (30) end users:

* The IT experts consist of professors from the Lyceum of Alabang including other universities and companies.
* The end-users are composed of Staffs and IT students from the Lyceum of Alabang.

1. The ISO 25101:2015 software evaluation form was used as an instrument to measure the performance of the system.
2. The research objective was discussed to the respondents and the system functionalities were demonstrated.
3. The respondents were requested to rate the system based on specified evaluation criteria of the ISO 25101:2015 using the numeric ratings of 1 – 5, where 5 is the highest and 1 is the lowest rating as presented in Table 2.
4. The Data were collected and computed to determine the mean rating for each software criterion and overall rating.

**Table 3: Likert Scale in The Rating System**

|  |  |
| --- | --- |
| **Scale** | **Descriptive Rating** |
| 5 | Excellent |
| 4 | Very Good |
| 3 | Good |
| 2 | Fair |
| 1 | Poor |

The data gathered from the approaches mentioned above were categorized, quantified, tabulated, and statistically analyzed to attest to the validity of the findings. The following are the statistical instruments utilized in this study:

**Percentage**. It was used to get the percentage of the respondents categorized in the demographic profile. The following formula was used:

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Where:

% = Percentage

n = Total Number of Respondents

f = Frequency

**Mean.** It was used to determine the average response of the respondents regarding the sub variables. The following formula was used:

A mathematical equation with equal sign

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Where:

A black letter x with a divide

Description automatically generatedA black letter on a white background

Description automatically generated = is the weighted mean

= sum of the product of weights multiplied by their respected frequency

A black letter with a white background

Description automatically generated = sum of all respondents

**Testing Procedure**

**Unit testing**

  Unit testing is a type of software testing where individual units or components of a software application are tested in isolation to ensure they function correctly.

It involves testing individual components like functions or methods, ensuring they perform tasks such as student registration and data validation accurately. This testing method allows developers to isolate modules for independent testing, verifying input validation, error handling, and handling of edge cases. Integration with external systems is also tested to ensure seamless data flow, while aiming for high code coverage to catch potential bugs early and ensure system reliability. Overall, unit testing is essential for ensuring the system's reliability, stability, and maintainability by detecting defects early and providing confidence in the correctness of code units.

**Blackbox Testing**

Blackbox testing is a method of testing where the tester doesn't have knowledge of the internal workings or code implementation of the system being tested.

In our project entitled Student Record Management System for the Office of Student Affairs, Blackbox testing is employed to assess the system's functionalities without access to its internal code structure. This testing approach includes validating input data, ensuring user authentication, verifying data integrity and consistency, evaluating search and retrieval capabilities, testing permissions and access control, assessing error handling, checking performance under varying loads, testing integrations with external systems, validating report accuracy, and evaluating overall user experience. By conducting Blackbox testing, researchers gain insights into the system's functionality, performance, and usability without relying on knowledge of its internal workings, thus providing valuable assessments of its effectiveness and reliability.

**Whitebox Testing**

It is a software testing technique that examines the internal structure of a system or application. It involves understanding the code, algorithms, and internal paths of the software.

In this project, white-box testing would entail assessing the internal logic, code paths, and data flows within the system to ensure its functionality, reliability, and security. This could involve techniques such as code reviews, unit testing, and path testing to validate the system's behavior and uncover any potential vulnerabilities or errors.

The test case includes a set of inputs, execution preconditions and the expected outcomes to each objective per component. It serves as a criterion in analyzing the system's effectiveness and possible errors. The test case form used is shown in Table below.

**Table 4: Test Case Form**

|  |  |
| --- | --- |
| **Test Case ID** |  |
| **Objective** | To verify that the system accurately records student violation and manage them effectively |
| **Pre-Conditions** | 1. the student record management system is accessible.  2. to user has valid credentials to access the system. |
| **Actions** |  |
| 1. Open the Student Record Management System | |
| 2. Log-in using valid username and password | |
| 3. Navigate the student registration section | |
| 4. Enter the necessary details of the violation including student id and violation type | |
| 5. Verify that the system displays a confirmation message indication successful recording of a violation | |
| 6. Test the systems ability to update or delete violation records as needed | |
|  |  |
| **Expected Results** |  |
| 1. The system should successfully record a violation and provide a confirmation message | |
| 2. All entered information should the stored accurately in a database | |
| 3. The system should allow for easy retrieval of violation records | |
| 4. The system should provide functionality to update of delete violation records securely and efficiently | |

**Table** **5: Summary of Test Case Execution**

|  |  |  |
| --- | --- | --- |
| **Test Execution** | **Expected Result** | **Actual Result**  **Cycle 1 Cycle 2** |
| **No of Test Cases Executed** | **100%** |  |
| **Result of Test Cases**  **Passed**  **Failed** | **100%**  **0%** |  |
| **No of Test Cases Not Executed** | **0%** |  |

**Implementation Plan**

The implementation plan for the Student Record Management System (SRMS) begins with project initiation, including defining the project's purpose, objectives, and stakeholders. Stakeholder analysis identifies key participants such as OSA staff, IT personnel, students, and faculty.

**Table 6: Implementation Plan**

|  |  |  |  |
| --- | --- | --- | --- |
| **SCHEDULE** | **ACTIVITY** | **PERSON INVOLVE** | **TOTAL/WEEKS** |
| March 8, 2024 | Interview Meeting | Director, office of Student Affairs | 3 days |
| March 15, 2024 | Documentation | Members | 5 days |
| June 6, 2024 | Plan for revise Documentation | Members | 2 weeks |
| June 7, 2024 | UI Design in Figma | Members | 1 weeks |

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**APPENDIX A. Communications**

**A piece of paper with writing on it

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**A white paper with black text and a pen

Description automatically generated**

**APPENDIX B. Instrument Tool**

**A group of people sitting at a table

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**A group of people standing in a room

Description automatically generated**

Student Record Management System for

Office of Student Affairs (OSA)

**General Direction**: Please accomplish this questionnaire very carefully and honestly. Please rest assured that any information that you supply will be treated with the greatest confidentiality and anonymity.

Name (optional) : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Position : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sex (optional) : \_\_\_ Male \_\_\_ Female

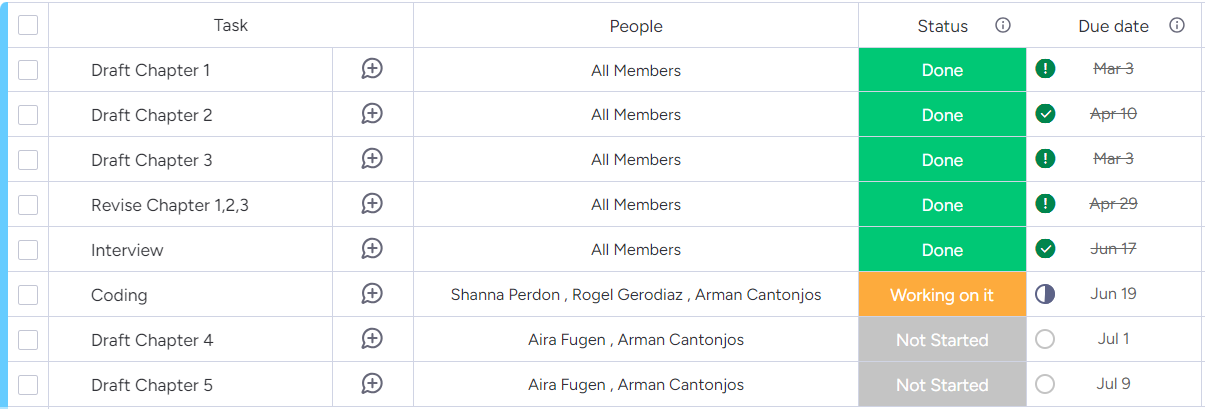
**Software Evaluation**

Kindly put a check mark at the right of the software evaluation characteristics under the proper heading to indicate your assessment on the software product based on the specific factor.

|  |  |
| --- | --- |
| NUMERICAL RATING | EQUIVALENT |
| 5 | Excellent |
| 4 | Very Good |
| 3 | Good |
| 2 | Poor |
| 1 | Very Poor |
|  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SOFTWARE EVALUATION CHARACTERISTICS** | **5** | **4** | **3** | **2** | **1** |
| **FUNCTIONAL SUITABILITY** |  |  |  |  |  |
| 1. Set of functions covers all the specified tasks and user objectives **(Completeness)** |  |  |  |  |  |
| 2. Provides the correct results with the needed degree of precision **(Correctness)** |  |  |  |  |  |
| 3. Functions facilitate the accomplishment of specified tasks and objectives (**Appropriateness**) |  |  |  |  |  |
| **PERFORMANCE EFFICIENCY** |  |  |  |  |  |
| 4.  Response and processing times and throughput rates of a system, when performing its functions, meet requirements **(Time behavior)** |  |  |  |  |  |
| 5.  Amounts and types of resources used by a system, when performing its functions, meet requirements **(Resource utilization**) |  |  |  |  |  |
| 6.  Maximum limits of a system parameter meet requirements (**Capacity)** |  |  |  |  |  |
| **COMPATIBILITY** |  |  |  |  |  |
| 7. Perform its required functions efficiently while sharing a common environment and resources with other system, without detrimental impact on any other system **(Co-existence**) |  |  |  |  |  |
| 8.  Two or more systems or components can exchange information and use the information that has been exchanged **(Interoperability**) |  |  |  |  |  |
| **USABILITY** |  |  |  |  |  |
| 9.  Users can recognize whether a product or system is appropriate for their needs **(Appropriateness recognizability)** |  |  |  |  |  |
| 10. System can be used by specified users to achieve specified goals of learning to use the system with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use **(Learnability)** |  |  |  |  |  |
| 11. System has attributes that make it easy to operate and control **(Operability)** |  |  |  |  |  |
| 12. System protects users against making errors **(User error protection)** |  |  |  |  |  |
| 13.  User interface enables pleasing and satisfying interaction for the user **(User interface aesthetics)** |  |  |  |  |  |
| 14.  System can be used by people with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use **(Accessibility)** |  |  |  |  |  |
| **RELIABILITY** |  |  |  |  |  |
| 15. System meets the needs for reliability under normal operation **(Maturity)** |  |  |  |  |  |
| 16. System is operational and accessible when required for use **(Availability)** |  |  |  |  |  |
| 17.  System operates as intended despite the presence of hardware or software faults **(Fault tolerance)** |  |  |  |  |  |
| 18.  System can recover the data directly affected and re-establish the desired state of the system, in the event of an interruption or a failure **(Recoverability)** |  |  |  |  |  |
| **SECURITY** |  |  |  |  |  |
| 19.  System ensures that data are accessible only to those authorized to have access **(Confidentiality)** |  |  |  |  |  |
| 20.  System prevents unauthorized access to, or modification of, computer programs or data **(Integrity)** |  |  |  |  |  |
| 21.  Actions or events can be proven to have taken place, so that the events or actions cannot be repudiated later **(non-repudiation)** |  |  |  |  |  |
| 22. Actions of an entity can be traced uniquely to the entity **(Accountability)** |  |  |  |  |  |
| 23.   Identity of a subject or resource can be proved to be the one claimed **(Authenticity)** |  |  |  |  |  |
| **MAINTAINABILITY** |  |  |  |  |  |
| 24. System is composed of discrete components such that a change to one component has minimal impact on other components **(Modularity)** |  |  |  |  |  |
| 25.  Asset can be used in more than one system, or in building other assets **(Reusability)** |  |  |  |  |  |
| 26. Degree of effectiveness and efficiency in which it is possible to assess the impact on system of an intended change to one or more of its parts, or to diagnose a system for deficiencies or causes of failures, or to identify parts to be modified **(Analyzability)** |  |  |  |  |  |
| 27. System can be effectively and efficiently modified without introducing defects or degrading existing product quality (**Modifiability**) |  |  |  |  |  |
| 28. Degree of effectiveness and efficiency in which test criteria can be established for a system, product or component and tests can be performed to determine whether those criteria have been met **(Testability)** |  |  |  |  |  |
| **PORTABILITY** |  |  |  |  |  |
| 29. System can effectively and efficiently be adapted for different or evolving hardware, software or other operational or usage environments **(Adaptability)** |  |  |  |  |  |
| 30. Degree of effectiveness and efficiency in which system can be successfully installed and/or uninstalled in a specified environment **(Installability)** |  |  |  |  |  |
| 31. System can replace another specified software product for the same purpose in the same environment **(Replaceability)** |  |  |  |  |  |

**APPENDIX C. Work Breakdown and Gantt Chart**



**A blue screen with a graph

Description automatically generated**

**APPENDIX D. Curriculum Vitae**

***A person smiling at the camera

Description automatically generatedAIRA FUGEN***

Address: BLK 21 LOT 19 San Antonio San Pedro Laguna

Phone Number: 09564728501

Email: Fugenaira@gmail.com

**Objective:**

To learn in a professional environment and receive the training and experience that will enhance my skills and abilities.

**PERSONAL DETAILS:**

Date of Birth: August 1, 2001

Sex: Female

Age: 22

Marital Status: Single

Nationality: Filipino

**EDUCATION BACKGROUND**

**Tertiary:**

Lyceum of Alabang

(2021 - Present)

**Secondary:**

Lyceum of Alabang Senior High School

(2018 - 2020)

Bulusan Sorsogon National Highschool

(2014 - 2018)

**Primary:**

Southville 3A Elementary School

(2008-2014)

**SKILLS:** Computer skills (Excel, Power Point, Word), Active Listening Communication

A person taking a selfie

Description automatically generated

***SHANNA PERDON***

**Address:** 55c New year’s Drive GSIS Village San Pedro Laguna

**Phone Number:** 09996053236

**Email:** shannaperdo1438@gmail.com

**Objective:**

To enhance skills and knowledge in programming and also to gain experience.

**PERSONAL DETAILS:**

Date of Birth: November 13, 2002

Sex: Female

Age: 21

Marital Status: Single

Nationality: Filipino

**EDUCATION BACKGROUND**

**Tertiary:**

Lyceum of Alabang

(2021 - Present)

**Secondary:**

Lyceum of Alabang Senior High School

(2018 - 2020)

Sampaguita National Highschool

(2014 - 2018)

**Primary:**

Upper Villages Christian Academy

(2008-2014)

**SKILLS:** Programming (HTML, Python, Visual Studio, CSS, Java, SQL) Computer skills (Excel, MS access, PowerPoint, Word)

**A person in a suit and tie

Description automatically generated*GINMER ESTRELLA***

Address: 44 Sta Fe. Pacita Complex 1A City of San Pedro Laguna

Phone Number: 09496229825

Email: eginmer28@gmail.com

**Objective:**

To work in a dynamic professional environment with a growing organization and utilize my creativity and innovative thinking for the benefit of the organization and myself.

**PERSONAL DETAILS**

Date of Birth: March 28, 2002

Sex: Male

Age: 21

Marital Status: Single

Nationality: Filipino

**EDUCATION BACKGROUND**

**Tertiary:**

Lyceum of Alabang

(2021 - Present)

**Secondary:**

AMA Computer Colleges Binan Campus

(2018 - 2020)

Pacita Complex National Highschool

(2014 - 2018)

**Primary:**

GSLC/OH

(2008-2014)

**SKILLS:** Fast learner, Computer literate , Multi-tasking

A person with dark hair wearing a white shirt

Description automatically generated***ROGEL GEODIAZ***

Address: Jasmin ST. T.S Cruz Subdivision, Almanza Dos, Laspiñas City

Phone Number: 09093136754

Email: gerodiazrogel0@gmail.com

**Objective:**

To meticulously document the culmination of my Bachelor of Science in Information Technology program through comprehensive and insightful Capstone documentation, showcasing my proficiency, innovative problem-solving abilities, and project management skills in the realm of Information Technology.

**PERSONAL DETAILS**

Date of Birth: June 10, 2001

Sex: Male

Age: 22

Marital Status: Single

Nationality: Filipino

**EDUCATION BACKGROUND**

**Tertiary:**

Lyceum of Alabang

(2021 - Present)

**Secondary:**

Lydia Aguilar Highschool

(2012-2017)

Senior Highschool Informatics Northgate College

(2019-2021)

**Primary:**

Almanza Elementary School

(2006-2012)

**SKILLS:** Web Development

A child in a blue shirt and tie

Description automatically generated***ARMAN CANTONJOS***

Address: Blk 18 Lot 19 United Bayanihan San Pedro Laguna

Phone Number: 09083859964

Email: cantonjosarman25@gmail.com

**Objective:** To learn in a professional environment and receive the training and experience that will enhance my skills and abilities.

**PERSONAL DETAILS:**

Date of Birth: March 25, 2002

Sex: Male

Age: 21

Marital Status: Single

Nationality: Filipino

**EDUCATION BACKGROUND:**

**Tertiary:**

Lyceum of Alabang

(2021 - Present)

**Secondary:**

Upper Villages Christian Academy School

(2015 - 2020)

**Primary:**

Laguna Resettlement Community School

(2009-2015)

**SKILLS:** Programming (HTML, C#, C++, Python, Visual Studio, CSS)

Computer skills (Excel, MS access, PowerPoint, Word)

Problem solving