

**ONLINE REQUEST OF CREDENTIALS FOR SAINT MICHAEL COLLEGE OF CARAGA**

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A Capstone Project Presented to

The Faculty of the College of Computing and Information Sciences

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Nasipit, Agusan del Norte

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In Partial Fulfillment

of the Requirements for the Degree

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

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## **CHAPTER I**

### **INTRODUCTION**

#### **Project Context**

The Office of the Registrar aids students, faculty, staff, and alumni in various academic tasks, such as overseeing academic policies and procedures, managing student records, facilitating student registration, handling transcripts, coordinating course scheduling, providing commencement services, performing degree audits, offering assessment and reporting, and ensuring institutional compliance. The SMCC Registrar's Office continues to process requests for academic credentials; however, it has become increasingly burdensome for the staff, mainly because of the time-consuming manual processing and the high volume of requests they manage. As the number of credential requests grows, the risk of errors and delays also increases, further restraining the resources available.

According to Devikah et al., educational institutions frequently must provide academic transcripts and certificates upon student request, as these documents are essential for applying to new programs and job placements. Doing this manually can be time-consuming and require much work [1]. Also, fulfilling requests on the agency side can be just as frustrating as asking for them on the constituent side [2].

In today's digital era, technological advancements are essential in shaping credential management, as mentioned by I. E. Khairuddin et al. [3]. Additionally, K. I. R. Abang et al. stated that in any bustling institution, it is essential that each accomplished

student's request be prompt and efficient [4]. To cope with these challenges, they need to grab the opportunities that technology can offer and test innovations that are not only in response to the global threat challenges but also the future [5]. Thus, making a system that provides an online requisition of credentials is wiser. In this case, embracing more effective methods in today's advancing technological landscape can aid in maintaining organization and improving productivity [4].

Throughout the years, manual credential requests have been carried out across most educational institutions, specifically at the Office of the Registrar in Saint Michael College of Caraga. The current system for requesting academic credentials at SMCC heavily relies on manual methods. Students and alumni must submit requests in person or through physical forms, leading to inefficiencies and delays in processing.

To address the issue of inefficient and cumbersome credential requests at SMCC Registrar, an essential solution is to create a web-based system simplifying the process of requesting academic credentials. This system can facilitate the quick and secure issuance of credentials in the Registrar's office. Students and alumni could submit requests electronically, track their Status in real time, and experience reduced wait times and increased transparency. The online platform would automate much of the manual processing for administrative staff, reducing paperwork and streamlining workflow. Thus, it makes processes more accessible and convenient for everyone.

The SMCC registrar needs to implement and optimize the online request system to address existing problems in the institution. Implementing an online request system

can significantly enhance the efficiency and effectiveness of administrative processes within educational institutions. The system automates the request management process, making tracking and fulfilling requests more streamlined. This transition from a paper-based system to a digital platform not only improves accessibility for students but also fosters a more organized and transparent workflow for administrative staff.

### **Project Objectives**

The researchers' study aims to design, develop, and implement an Online Request for Credentials for Saint Michael College of Caraga.

Specifically, it aims to:

1. Generate comprehensive reports on request volumes and processing times for transparency and ongoing process improvements.
2. Develop a tracking feature that enables users to monitor the real-time status of their credential requests while allowing key personnel—such as the Cashier, Head of the LRC, and Dean/Principal—to review and confirm requests with incomplete or pending requirements for clearance purposes.
3. Establish a validation process for verifying the validity of the uploaded identification document.

## **Scope and Limitation**

The Online Request of Credentials System is specifically designed for Saint Michael College of Caraga. The system will only accommodate one admin account (admin), the Registrar, or the authorized/assigned staff, along with designated key personnel, including the Cashier, Head of the LRC, and Dean/Principal, or all of whom are authorized staff members. The admin will have full access to all system features, including viewing and verifying the entire process. At the same time, the key personnel will verify the requirements for credential requests.

The capstone project will not support credential requests from institutions outside the project. The daily request processing limit is set at 10, deferring any additional request to the following day. The system will not include a detailed review or update of institutional data protection practices, although it will incorporate necessary security features. Limitations also include specific software and hardware requirements, such as adequate RAM, processor capability, and storage, as well as compatibility with modern web browsers and development platforms. Furthermore, the system's functionality is restricted to processing credential requests, excluding other administrative tasks.

## Definition of Terms

The terms defined below explain the basic concepts and factors discussed during the conceptualization and development of the Online Request of Credentials System and provide contextual information on how the researchers applied these concepts in their study.

**Access Control** – Mechanisms within the Online Request of Credentials System that regulate who can view, modify, or manage different aspects of the system, ensuring that only authorized personnel have access to sensitive functions and data.

**Admin** – A user role within the Online Request of Credentials System with comprehensive access to all system features. The admin can view, verify, and manage all aspects of the credential request process, including user management.

**Request Tracking** — This feature within the Online Request of Credentials System allows users to monitor the status of their credential requests in real-time, including progress updates and estimated completion times.

**User Validation** – This ensures that user inputs are accurate, secure, and complete before processing any request. In ORCSMCC, it includes validating the essential information provided by end-users during the sign-up and log-in processes..

**Web-Based System** – A platform accessible through internet browsers, enabling users to interact with the system remotely without installing specific software.

**Workflow Automation** – The use of automated processes within the Online Request of Credentials System to handle repetitive tasks, such as routing requests and updating status, thereby improving efficiency.

## **CHAPTER II**

### **REVIEW OF RELATED LITERATURE**

This chapter shows the literature related to the researchers' study to conform to the existing problems encountered. It focuses on the need to implement the researchers' proposed software application, its benefits, and the issues it addresses. The literature comes from electronic materials, e-books, websites, articles, and journals.

#### ***Efficiency and Transparency in Credential Request Systems***

The shift towards digitizing administrative processes in educational institutions has led to the development of online credential request systems, enhancing the issuance, verification, and management of academic credentials. These systems address the inefficiencies of manual processes, offering improved accuracy and speed. However, they also bring challenges related to data security, system compatibility, and user privacy.

The advancements in online credential request systems have transformed how credentials are created, managed, and verified, enhancing trust and efficiency in various sectors. These systems facilitate the issuance of digital credentials, allowing for interoperability and recognition across borders, which is crucial in a globalized job market [6].

According to K. I. R. Abang et al., the transition from manual to online credential request systems in higher education has notably reduced administrative bottlenecks. For instance, the City College of Tagaytay (CCT) implemented an online credential request system during the pandemic, providing a safer, faster, and more efficient solution for

students and administrators [4]. However, M. Chase et al. emphasized that challenges such as ensuring data trustworthiness, managing user privacy, and maintaining usability persist [7], and institutions must address issues related to data security, particularly when handling sensitive information, to prevent potential breaches [8]. Furthermore, G.W. Matkin also concluded that institutions must adapt to these changes, balancing the needs of students and employers while navigating the complexities of digital credentialing [9].

A similar system was developed by Alegado et al. for NUEST, where they introduced a web-based chat box request system to facilitate online document requests. Built using web technologies like HTML, CSS, PHP, and MySQL, this system simplified the request process, reducing the time and effort required for both user staff. It garnered positive feedback, with experts and users rating its effectiveness highly [10]. Despite these advantages, the issue of data privacy and security remains crucial, particularly given the increasing dependence on digital platforms in educational settings.

Heather Flanagan's insight on digital identity systems underscores the importance of security in such platforms. Flanagan notes that while digital credentials open opportunities for innovation and efficiency, they also come with inherent risks. Addressing the risks involves implementing comprehensive security and privacy that balance the needs of various stakeholders [11]. Also, ensuring user data privacy during verification processes is crucial, as systems must balance transparency with confidentiality [12]. This highlights the need for similar security protocols in the online credential request system to protect sensitive student information and comply with evolving digital identity standards [11].

I. Keck et al.'s study further discusses the technical challenges, such as system incompatibilities and the need for specialized personnel to manage the transitions. Their study emphasizes the importance of ensuring that such systems are user-friendly. They propose a framework for evaluating credential systems' effectiveness and ensuring their sustainability in the long term [13].

Rassameeroj et al. explored the impact of online systems on reducing errors and enhancing accuracy in credential processing. They found that automated systems significantly reduced manual errors in document handling and data entry, leading to faster and more reliable services for students. However, they also raised concerns about system downtimes and the need for continuous software updates to maintain reliability [14].

The literature reflects a consensus on the potential benefits of online credential request systems, particularly regarding efficiency, accuracy, and accessibility. However, as Mishra R. et al. noted, these systems also require ongoing investment in infrastructure, security, and training to meet the evolving needs of both institutions and users. Moreover, the study emphasized the importance of ensuring data protection compliance [15].

While online credential request systems offer significant benefits to higher education institutions, including faster processing times and enhanced accuracy, their implementation requires careful consideration of technical, security, and operational challenges. The transition from manual to online systems represents a paradigm shift that

can improve the overall efficiency of academic institutions. Still, regular updates, proper staff training, and stringent data security measures must accompany it.

### ***Credential Request Processes Through Automation and Real-Time Tracking***

The transition to digitized credential request and approval processes has revolutionized administrative workflows in educational and professional institutions. These systems offer increased efficiency, accessibility, and security, enabling users to request, process, and verify credentials seamlessly. It highlights the critical verification steps, eligibility assessment, and the authorities' role in ensuring compliance with institutional standards. The process typically involves multiple steps, including documentation review, verification of qualifications, and recommendations from authorized personnel.

According to Gaikwad et al., institutions are moving towards digitizing the credential request systems to streamline administrative processes, thereby increasing convenience for students and alumni. Online platforms allow users to submit requests for academic documents, such as transcripts and certificates, at any time and location, significantly reducing barriers [16].

Gune et al. explained that the approval process for credential requests involves several key steps and methodologies that ensure efficiency and security. Initially, a request is submitted and categorized based on type to determine the appropriate approver. This is facilitated by systems that utilize visual representations of approval elements, allowing users to define their processes effectively [17]. Chiahsin et al. also

stated that credential verification may involve multiple service providers, ensuring that the requested credentials are validated securely [18].

Integrating digital certificates and facial recognition technology can streamline verification, reduce administrative burdens, and enhance security against counterfeiting [19]. Furthermore, non-fungible tokens (NFTs) and blockchain technology provide a decentralized, secure method for issuing and validating academic credentials, ensuring compliance with regulations like GDPR [20]. Blockchain solutions can accelerate verification processes by approximately 8% while maintaining data integrity [21]. Countries like China and the U.S. offer valuable insights into competency validation, which can be adapted to improve systems in other regions [22]. Lastly, a design thinking approach to distributed ledger technology can revolutionize credential verification, ensuring transparency and fraud prevention [23].

Implementing a web-based system can streamline the approval request process, making it more efficient. While these systems enhance the approval process, challenges such as manual errors and inefficiencies in traditional methods persist, highlighting the need for continuous improvement in approval workflows.

### ***Validation of Uploaded Documents through Admin Review in Online Credential Systems***

The validation of documents is a crucial element in online credential systems. Effective document verification processes ensure that uploaded documents, such as identification cards and receipts, adhere to institutional requirements, safeguarding the integrity and security of transactions. As the rapid development of information sharing

and exchange continues, an increasing number of businesses and individual users are adopting digital documents due to their convenience and efficiency [24] . However, while digital documents simplify accessibility, verifying their authenticity remains a significant challenge [25].

The implication arising from the problem of fake documentation is causing serious and alarming impacts and needs to be urgently taken into consideration. This technological revolution, while enabling greater flexibility in document handling, has also introduced vulnerabilities. Validating documents remains a laborious and time-consuming process, further exacerbating concerns about fraudulent documents [26]. The implications of counterfeit documents are severe, posing risks to security, institutional trust, and transactional integrity. Addressing this issue requires immediate attention and the adoption of modern, robust methods for issuing and verifying significant documents to safeguard against potential misuse [27].

According to Hamidi, H., inaccurate verification methods can lead to significant security vulnerabilities, allowing unauthorized access to sensitive information and systems. High error rates in scanned identity verification may increase susceptibility to identity theft and other fraudulent activities, underscoring the necessity of precise assessments [28]. However, C. Avram et al. stated that using uploaded I.D.s and documents for validation enhances security. This process helps reduce identity theft and unauthorized access to sensitive information, creating a safer online environment [29]. Using copies of official documents, such as birth certificates or government I.D.s, allows organizations to validate users' identities effectively [30].

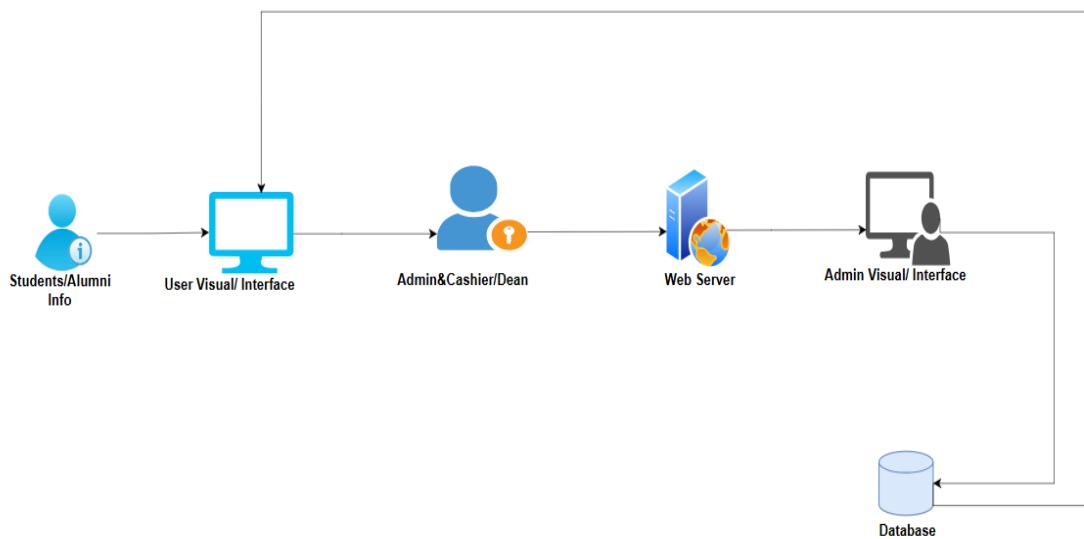
According to Alsulaiman, A., utilizing user-centric design in credential verification also indirectly supports security. When users find the design intuitive, they are less likely to make errors that could compromise their credentials during the verification process. User-friendly interfaces can guide individuals through complex security steps, ensuring that security protocols are followed without frustrating users [31]. Additionally, the studies of C. Avram et al. and M. Schmitt et al. also stated that uploaded I.D. validation simplifies the user experience by allowing for quick and easy verification. Users can upload their identification documents directly from their mobile devices, which minimizes the time spent manually entering data. This convenience increases user satisfaction rates as the process becomes hassle-free and efficient [29], [32].

The validation of identification documents, through optimized admin review and advanced technological solutions, is vital for securing online credential systems. By leveraging robust verification methods, user-centric designs, and emerging technologies, institutions can effectively address challenges like fraudulent documentation and enhance overall system reliability. These advancements not only protect sensitive information but also foster user trust and satisfaction, paving the way for more efficient and secure digital transactions in the future.

## CHAPTER III

### SOFTWARE REQUIREMENTS AND DESIGN SPECIFICATION

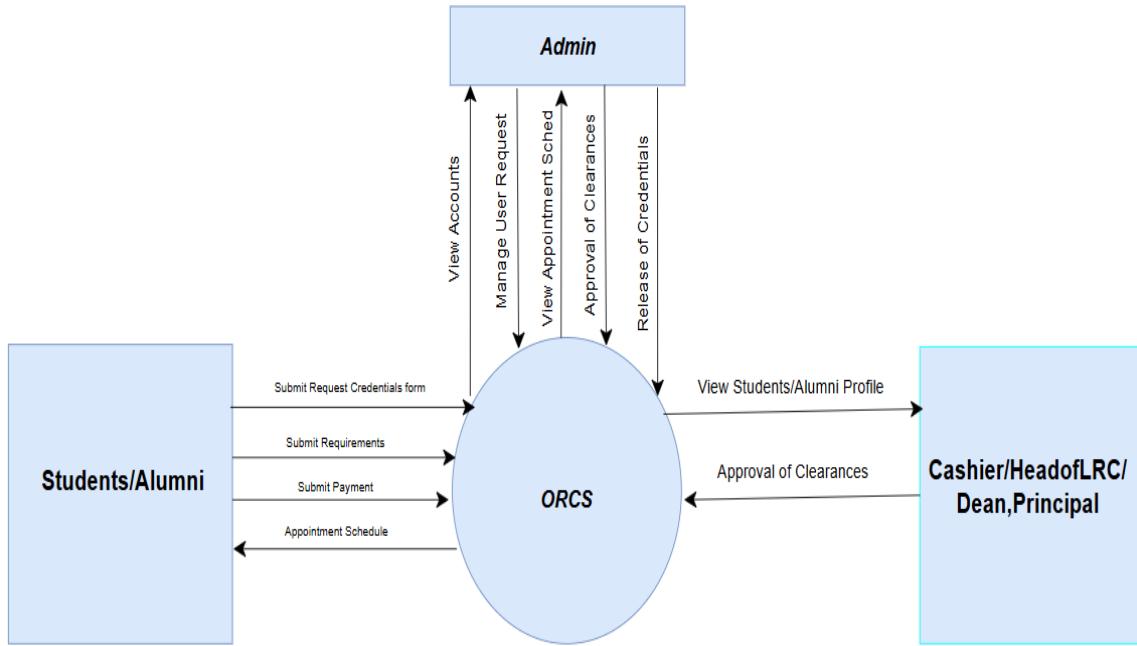
This chapter presents a detailed analysis of the technical components involved in designing and developing the proposed system, including software and hardware requirements specifications. Additionally, it provides a thorough overview of the functionality of the Online Request for Credentials System (ORCS).



*Figure 1. System Architecture*

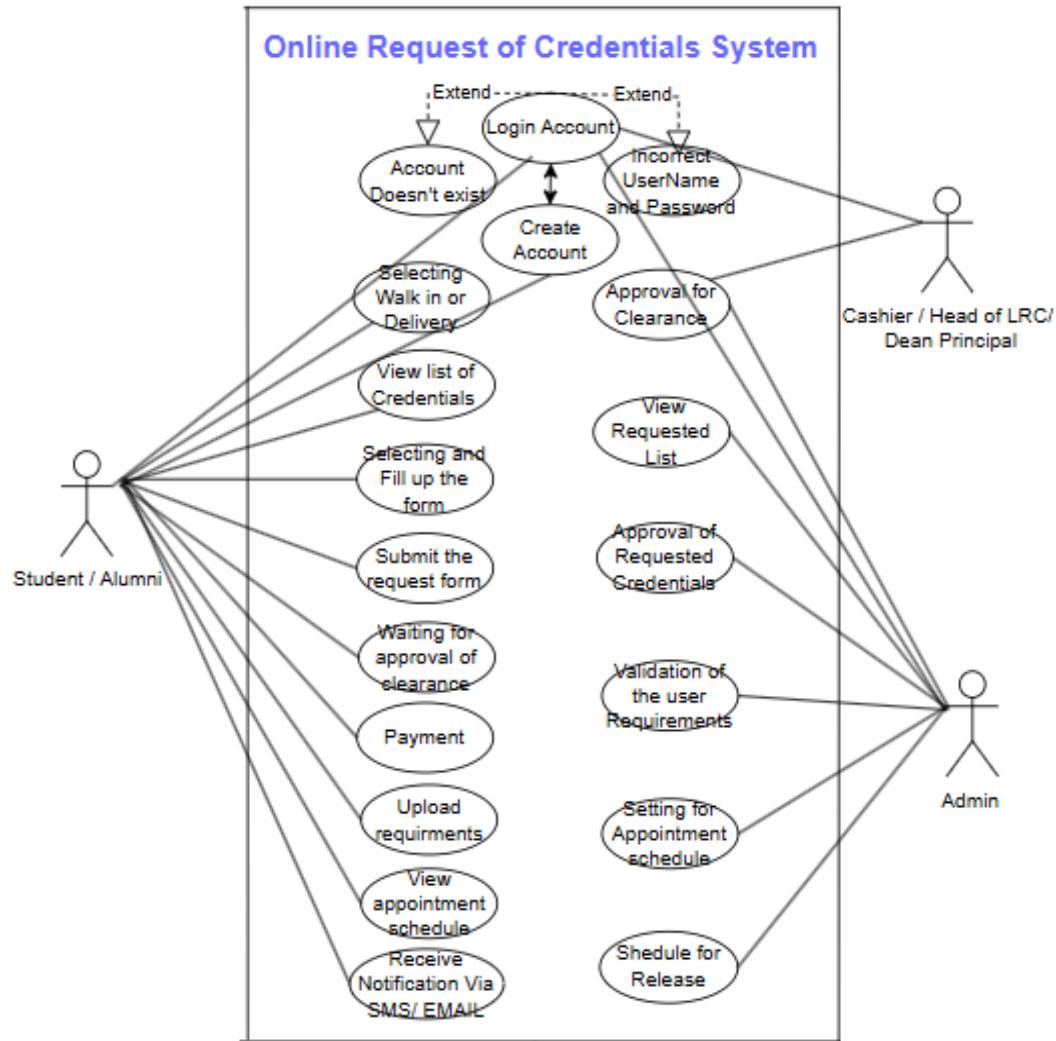
Figure 1 illustrates the fundamental process of the Online Request of Credentials System (ORCS). This system enables user interaction among various roles, including administrators (Registrar Office), user (Cashier, Head of LRC, and Dean/Principal), as well as students and alumni, all of whom can access the platform via the Internet. End-users must create an account to use the main platform. The Cashier, Head of LRC, and Dean/Principal review requests from students seeking credentials. They check the requesters' backgrounds and approve clearance. Meanwhile, the administrator manages

the credential requests by validating the end-users requirements and ensuring the necessary approvals are in place.



*Figure 2. Conceptual Diagram (DFD Level 0)*

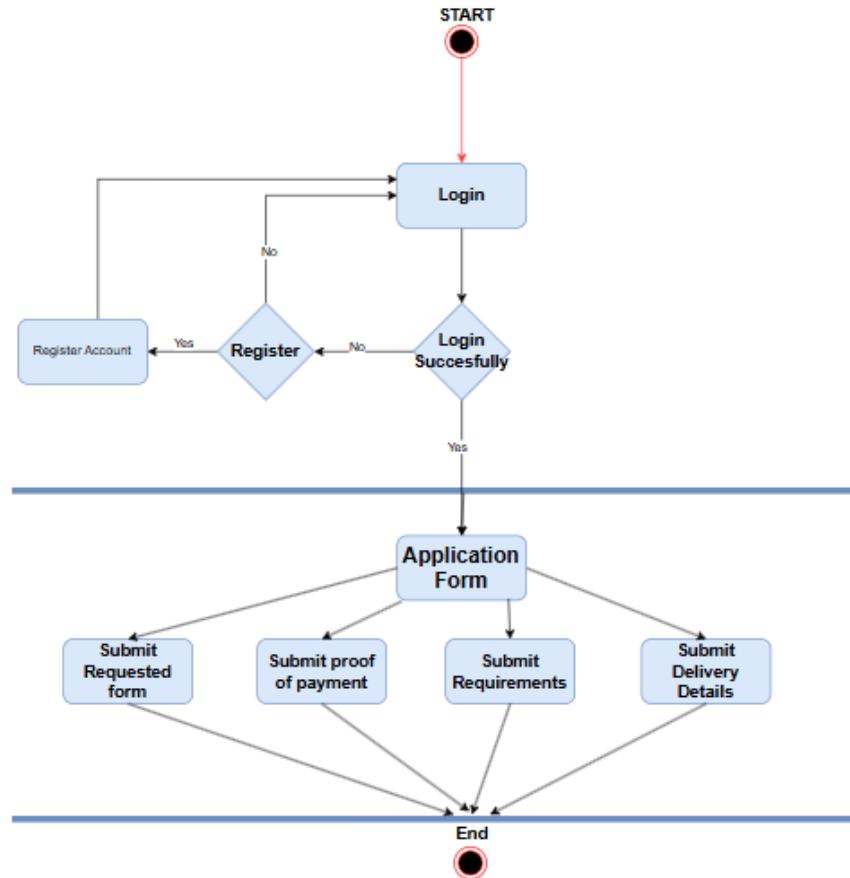
Figure 2 illustrates the operational capabilities assigned to different users within the ORCS architecture. Administrators have the authority to review and manage the credential requests submitted by students and alumni. Additionally, they can perform functions such as approving clearances and validating requirements. Conversely, the Cashier and other offices are responsible for maintaining a list of individuals who have requested credentials and their associated duties within the ORCS.



*Figure 3. Use Case Diagram*

Figure 3 outlines the key features available to each type of user, along with their roles within the system. All users, except for the admin and Cashier, Head of LRC, and Dean/Principal, must create an account before logging in, as they do not have registration privileges. Students and alumni are responsible for completing their request forms, while administrators oversee and manage these submissions. Additionally, administrators control the approval and release of the requested documents. The system generates a schedule for issuing credentials, which is set for appointments from Monday to Friday,

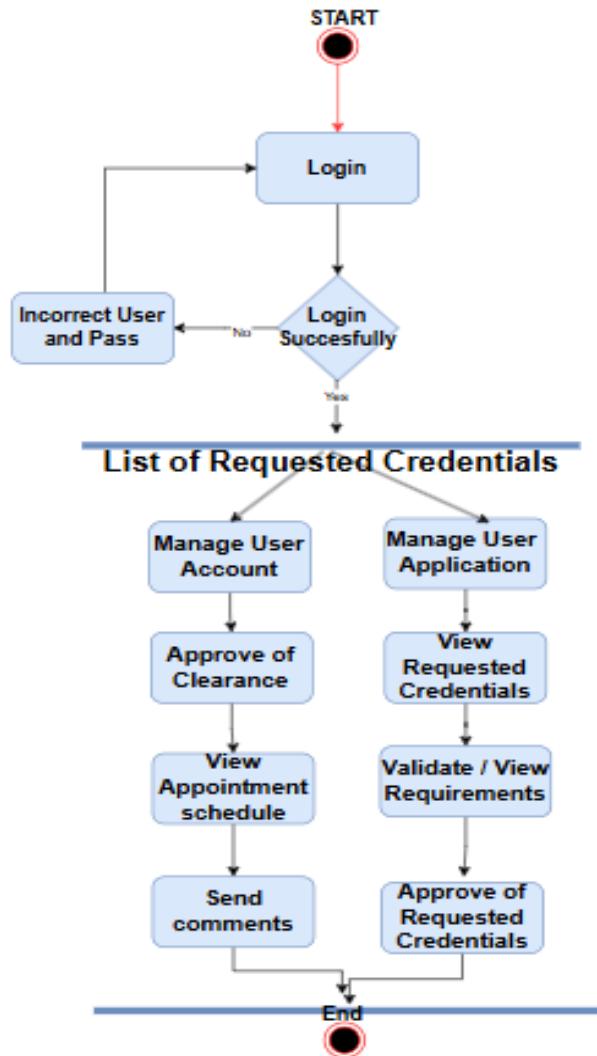
allowing for a maximum of 10 appointments per day.



*Figure 4. Activity Diagram – Students/Alumni*

Figure 4 illustrates the series of activities available to students within the system.

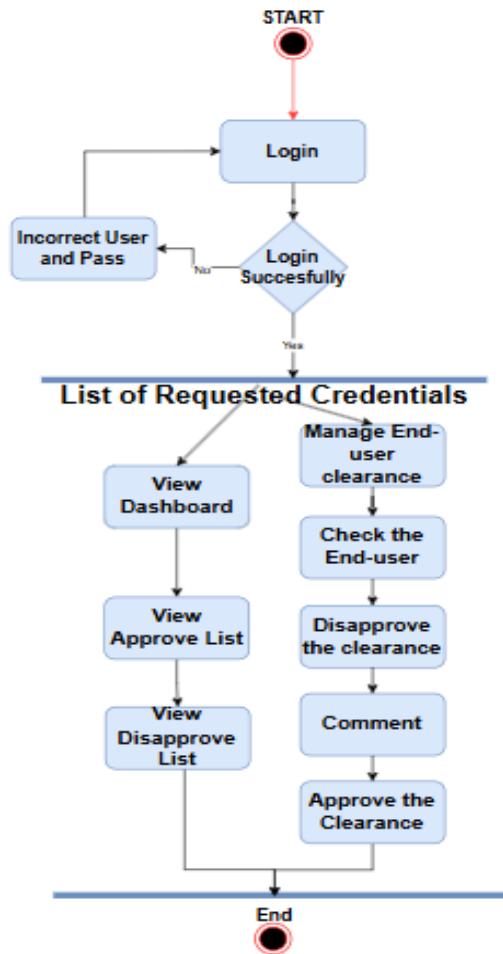
It begins with the login page. If a user does not have an account, they can create one before returning to the login interface. Once logged in successfully, students and alumni are directed to the ORCS homepage, where they can view and select various forms, including the student/alumni request form, requirements form, and release schedule form (note that only students from SMCC are eligible for the release schedule form). Additionally, users have the option to log out of their accounts from this page.



*Figure 5. Activity Diagram - Admin*

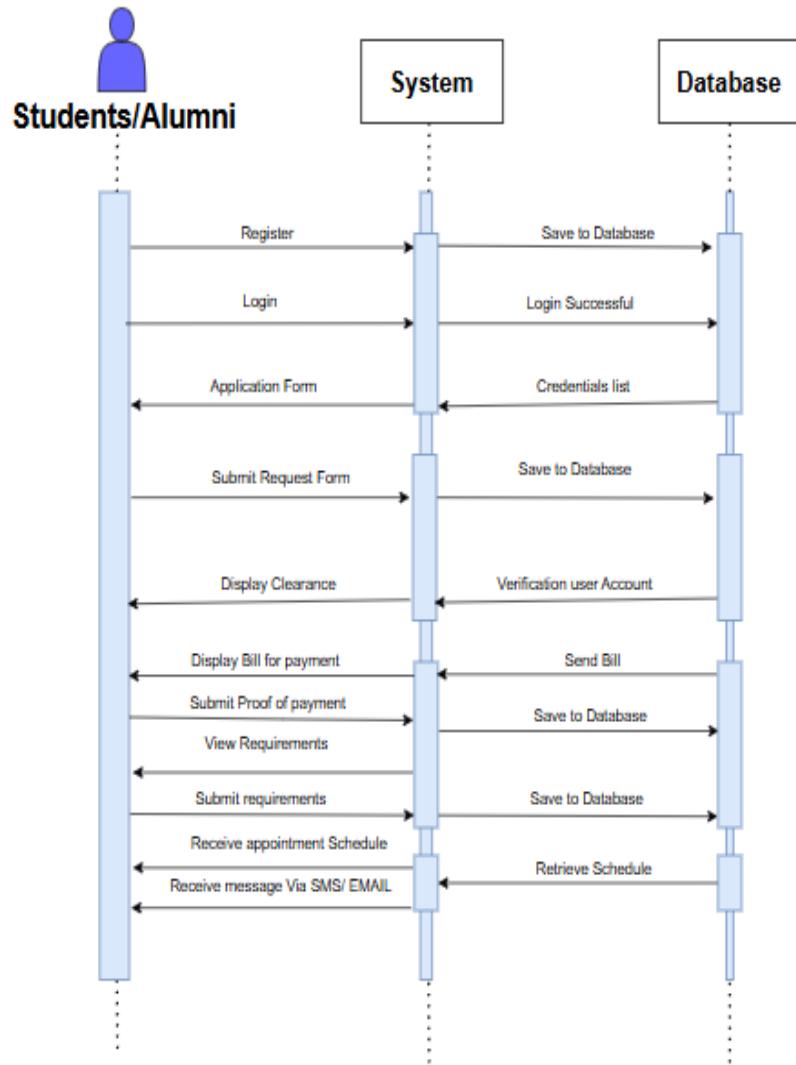
Figure 5 illustrates the system's administrative functions. After a successful login, administrators can access the dashboard, which displays a list of credential requests and the appointment schedule for issuing those credentials. Administrators are responsible for managing various forms, including requests from students and alumni, clearance approvals, and requirement validations. Additionally, they can oversee the appointment schedule for releasing the credentials requested by users, ensuring that all relevant

information for students and alumni is integrated.



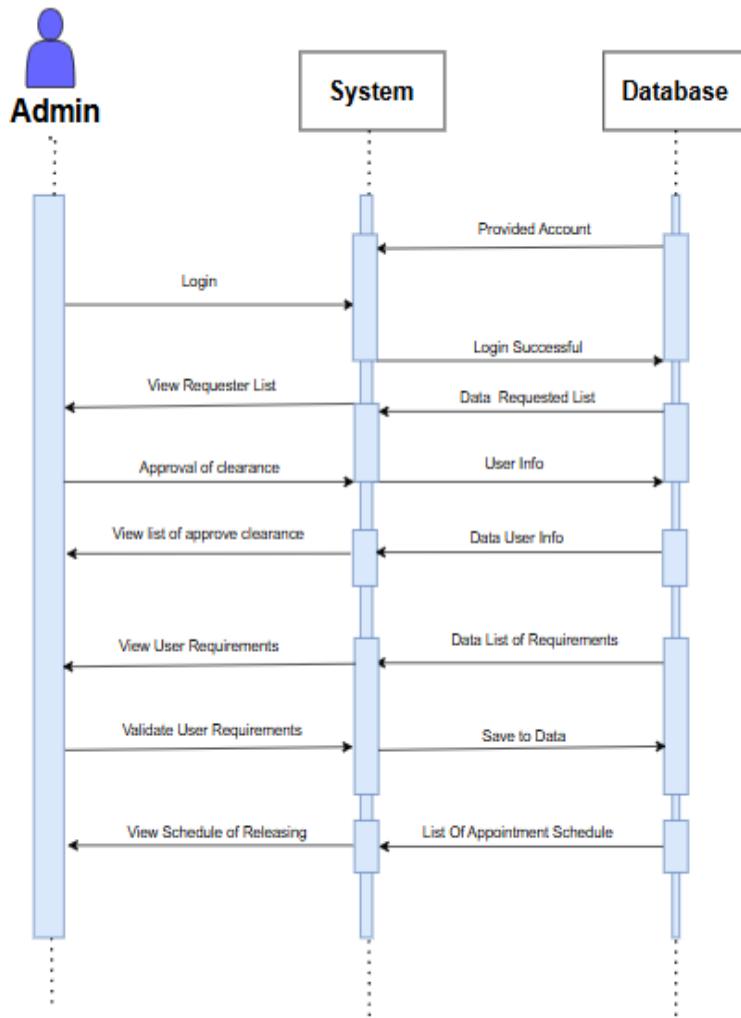
*Figure 6. Activity Diagram – Cashier/Head of LRC/Dean*

Figure 6 illustrates the series of activities available to the user. On the login page, if a user does not have an account, they cannot access the homepage or the registration form. Administrators have the authority to register accounts for cashiers, heads of the LRC, and deans. Once logged in successfully, the user's capabilities are limited to viewing and managing the list of individuals who have filled out the form. This includes checking backgrounds, approving clearances, and adding comments if the end-user has not completed the requirements for their clearance.



*Figure 7. Sequence Diagram – Students/Alumni*

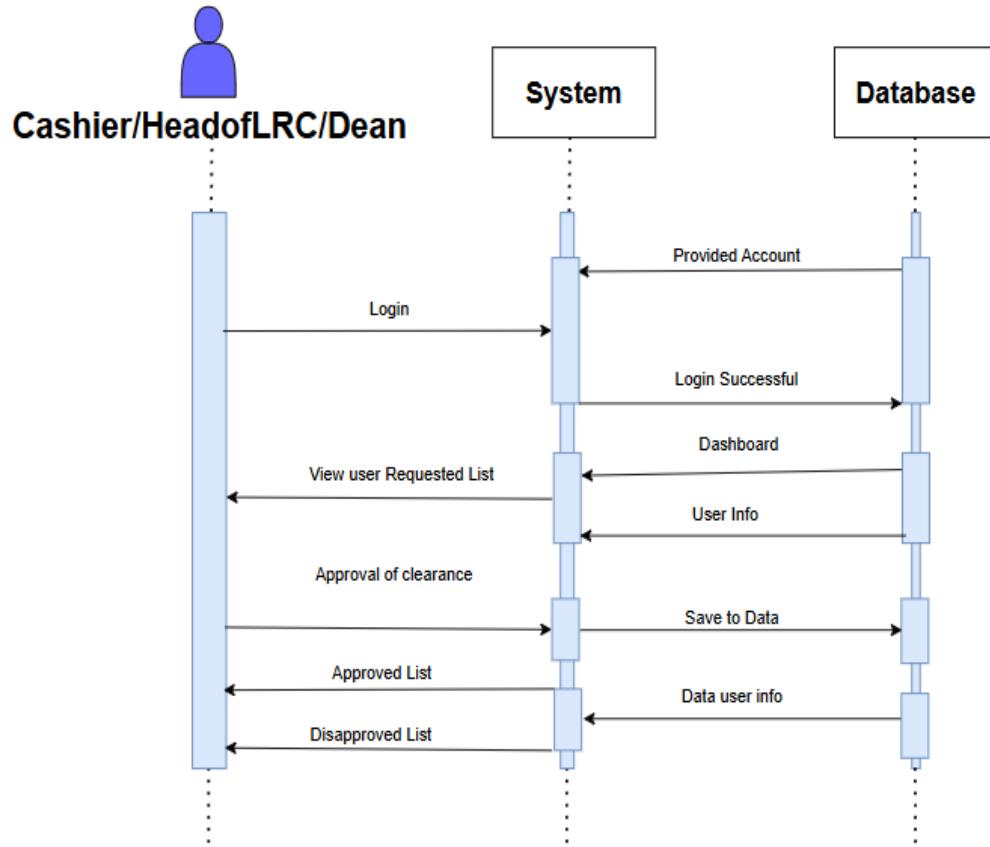
Figure 7 illustrates the procedural steps available to students and alumni. After successfully registering, users can start using the login interface. Once logged in, students and alumni can access various functions, such as submitting request forms and requirements forms for database storage. Additionally, the system is designed to send scheduled appointments. After completing the requirements, users are expected to claim their credentials.



*Figure 8. Sequence Diagram – Admin*

Figure 8 illustrates the procedural steps available to administrators. They can utilize the login interface to create an account in the SQL database for enhanced system security. Upon successful login, administrators gain access to the dashboard, which displays a list of students and alumni who have requested credentials, as well as the scheduled appointments for the release of these credentials. Additionally, administrators can access and manage the requested forms stored in the database, schedule appointments by sending notifications to students and alumni accounts, and

print documents directly from the database.



*Figure 9. Sequence Diagram – Cashier/Head of LRC/Dean*

Figure 9 illustrates the procedural steps available to users. The user can use the login interface to complete the login process, which is facilitated by an account provided by the admin. Once the login is successful, the user can access the requested list or user information, allowing them to approve the clearance.

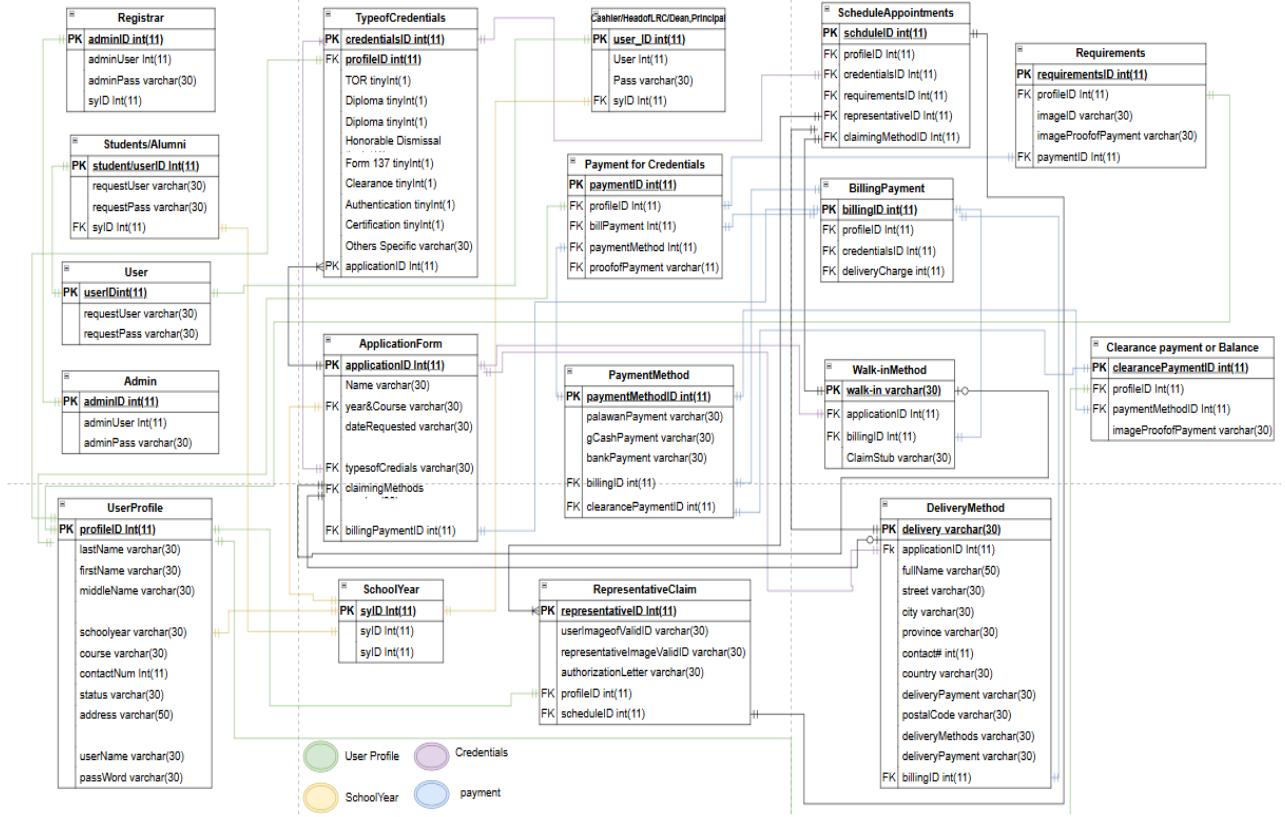
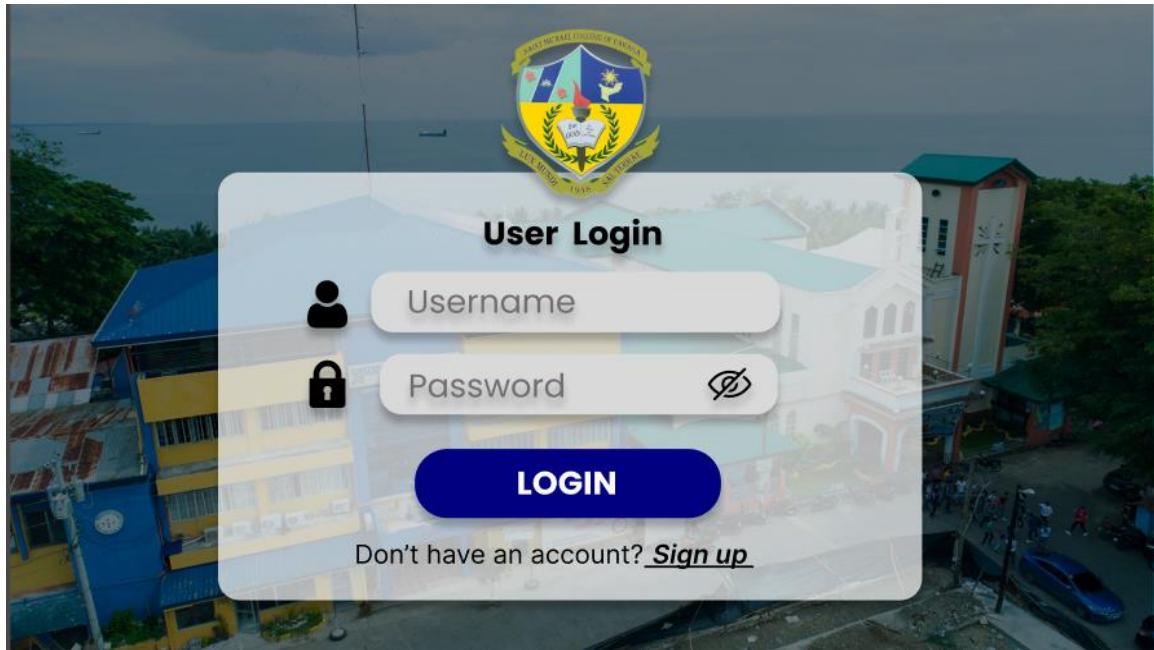


Figure 10. Entity Relationship Diagram – Database Design

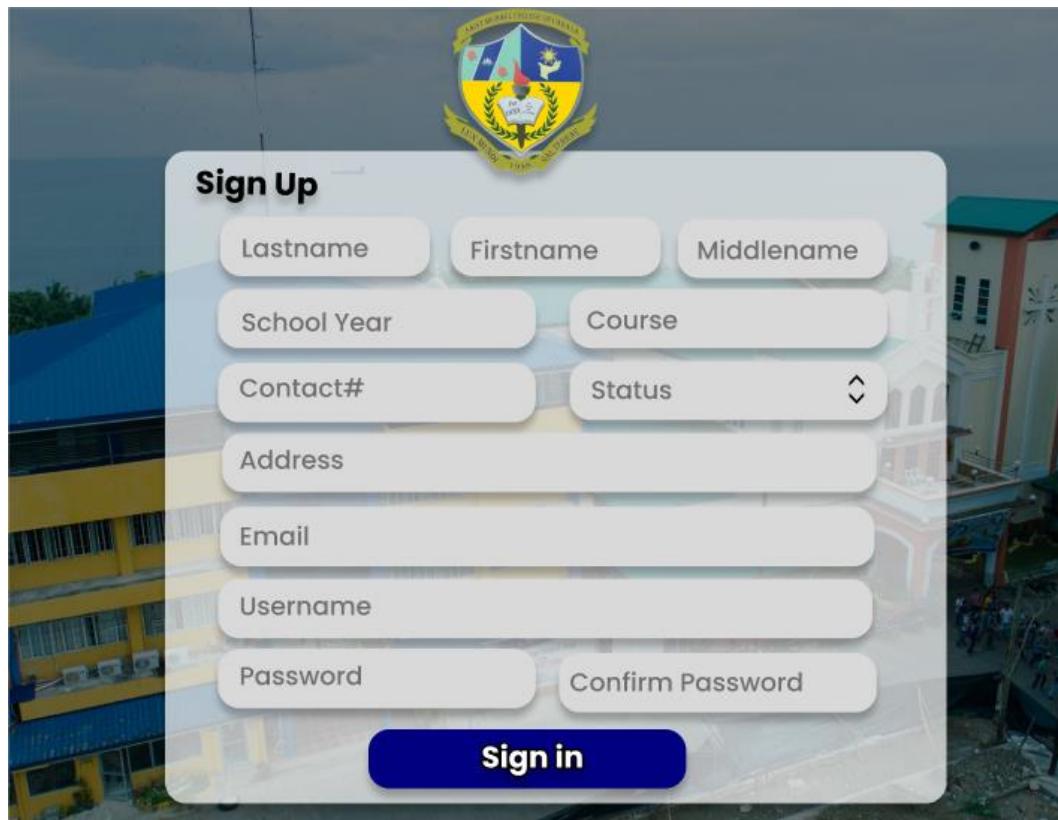
Figure 10 presents a detailed schema for a Web-based Online Request of Credentials System (ORCS), which features numerous interconnected entities and their properties. The Entity-Relationship Diagram (ERD) includes essential components such as user profiles, types of credentials, methods for submitting claims, and application forms. This design facilitates comprehensive requests from students and alumni while also supporting administrative tasks. Each entity is meticulously defined using primary keys (P.K.) and foreign keys (F.K.) to ensure data integrity and relational connectivity throughout the database. Relationships between entities are categorized into one-to-one, one-to-many, and many-to-many, clearly illustrating the complex interdependence of the system components. Additionally, the ERD incorporates auxiliary tables, including

payment methods, representative claimers, delivery methods, walk-in methods, and requirements. These enhancements improve the functionality and security of the system.



*Figure 11. Students/Alumni - Login Page (User Interface Design)*

Figure 11 displays the login page for the Online Request of Credential System. The interface allows users to securely access their accounts, keeping simplicity and ease of access in mind. The interface includes fields for “Username” and “Password,” allowing users to securely enter their credentials. Beneath the login button, there is a link labeled “Don't you have an account? Sign Up,” providing quick access for new users to create an account.



*Figure 12. Students/Alumni - Sign-Up Page (User Interface Design)*

Figure 12 presents the sign-up page enabling new users (students and alumni) to create an account. The interface includes fields for essential information such as Name (with separate inputs for last, first, and middle names), school year, course, contact number, address, username, and password with a confirmation field for added security. The “Status” field offers a dropdown for users to select their current standing ( e.g., undergraduate, graduate). A prominent “Sign in” button completes the form, leading users to the next step in the registration process.

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[www.smccnasipit.edu.ph](http://www.smccnasipit.edu.ph)

**APPLICATION FORM FOR FILLING REQUEST FOR CREDENTIALS**

NAME : <u>Hinautan Angelo Masinag</u>	COURSE & YEAR : <u>BSIT 3</u>	DATE REQUESTED : <u>11/11/2024</u>
<input type="checkbox"/> TOR :	<input type="checkbox"/> Form 137-A/E :	<input type="checkbox"/> Certification :
<input checked="" type="checkbox"/> Diploma : <u>₱ 350</u>	<input type="checkbox"/> Clearance :	<input type="checkbox"/> Others (please specify) :
<input type="checkbox"/> Honorable Dismissal :	<input type="checkbox"/> Authentication :	
<b>Walk-in</b>		<b>Delivery</b>
<b>TOTAL:</b> <u>₱ 350</u>		
<b>Submit</b>		

*Figure 13. Students/Alumni- Application Form (User Interface Design)*

Figure 13 displays the application form page, where students and alumni can request various credentials, including the Transcript of Records (TOR), Diploma, Honorable Dismissal, and other certifications. Users select the required documents by checking the boxes and can specify additional documents under "Others (please specify)."

The TOR and Certification fields feature dropdown menus for users to choose specific types of credentials. The total cost for selected documents is automatically calculated and displayed at the bottom of the form. Users can opt for "Walk-in" or "Delivery" to receive their credentials. If "Delivery" is chosen, additional fields will appear. The "Submit" button allows users to finalize their requests. The left-hand sidebar features navigation options for various parts of the system, including "Application Form," "Schedule of Release," "Clearance," "Payment," and "Log Out," ensuring a streamlined and efficient credential request process.

**Delivery Details**

Full name :	<input type="text"/>	Street Address :	<input type="text"/>
City/Town :	<input type="text"/>	Province/State :	<input type="text"/>
Contact Num. :	<input type="text"/>	Country :	<input type="text"/>
Postal/ Zip Code :	<input type="text"/>	Mailing Address :	<input type="text"/> e.g., Apartment No., Building Name, etc.

*Note: Include all details for accurate delivery.*

**Preferred Delivery Method**

- Standard Mail (5-7 days)
- Express Delivery (5-7 days)
- Courier Service (5-7 days)

**Delivery Fee**

Local (within the city) :	₱ 50
Provincial :	₱ 150
International :	₱ 250

**Total Cost :** ₱ 500 (Credential Fee + Delivery Fee)

**Submit**      **Cancel**

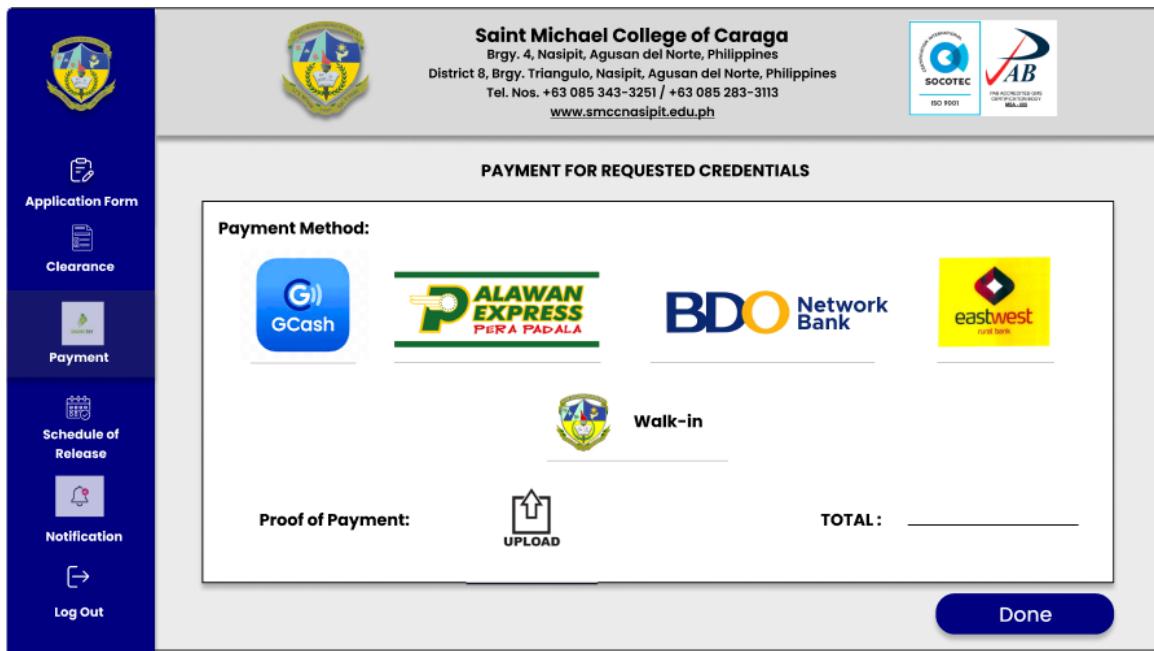
*Figure 14. Students/Alumni- Delivery Details/Request Form (User Interface Design)*

Figure 14 illustrates the delivery details form from the previous form provides a choice between a “Walk-in” or “Delivery” option, allowing users to indicate their preferred method for receiving the requested credentials; selecting the “Delivery” option will direct the user to the Delivery Details interface, where they can provide specific delivery information, such as address, contact details, and preferred delivery method. This step also calculates the total cost based on the delivery and base credential fees. The Delivery Details interface is bypassed for users who select the “Walk-in” option, as no additional delivery information is required. The “Submit” button at the bottom of the form lets users finalize and send their requests for processing.

CLEARANCE - GETTING DOCUMENTS			
<b>DISAPPROVED</b>	<b>PENDING</b>	<b>PENDING</b>	<b>PENDING</b>
<b>Cashier</b>	<b>Head, Learning Resource Center</b>	<b>Dean/ Principal</b>	<b>School Registrar</b>
Step 1	Step 2	Step 3	Step 4
<b>Comment:</b> You have a balance of 5,000 pesos. If you wish to proceed, please pay the required amount.			

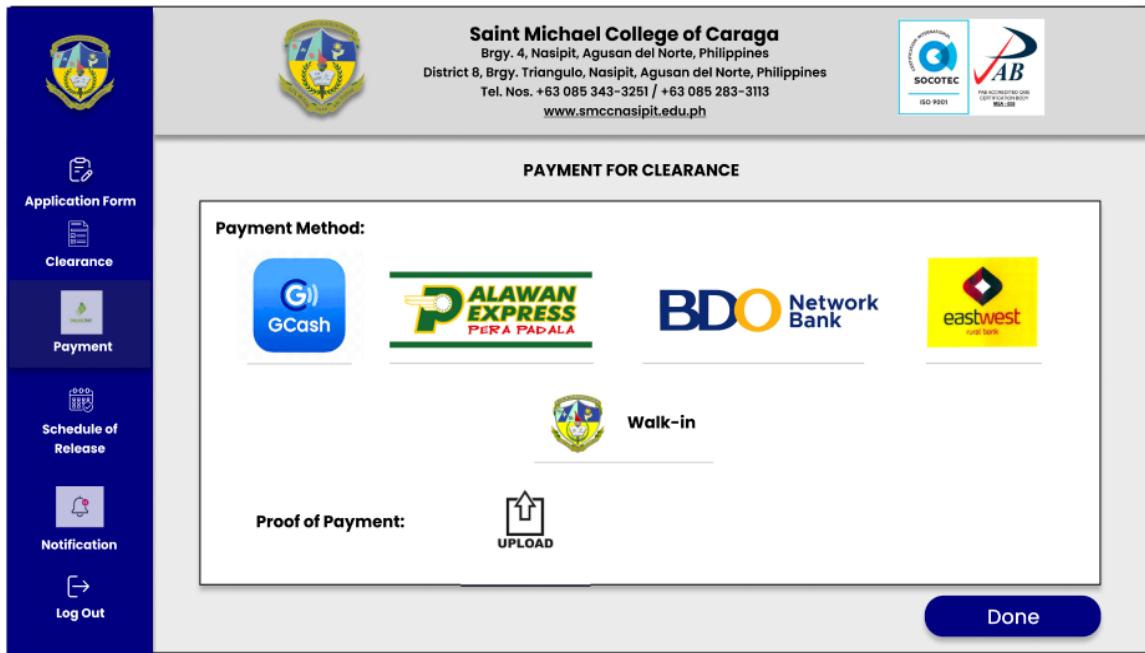
Figure 15. Students/Alumni - Clearance (User Interface Design)

Figure 15 displays the "Clearance - Getting Documents" page, part of the credential request system for students and alumni at Saint Michael College of Caraga. This interface allows users to track the approval status from various departments for their requested documents. If a section is marked as "DISAPPROVED," a comment box appears with additional requirements the requester must comply with. The system uses color-coded indicators—green for "Approved," blue for "Pending," and red for "Disapproved"—for easy visual tracking of progress.



*Figure 16. Students/Alumni - Payment for Requested Credentials (User Interface Design)*

Figure 16 displays the payment method interface for requested credentials, designed to facilitate easy and secure payments for credential requests, and delivery fees. After completing the Delivery Details form, users are directed to this interface to choose their preferred payment method and finalize their transactions. An upload icon is included, allowing users to tap and upload proof of payment (such as a screenshot or scanned receipt). This step is mandatory; the “Done” button remains disabled until proof of payment is uploaded. This feature ensures users verify before proceeding. The “Total” field at the bottom shows the final amount due, including the credential fee, applicable delivery fees, and any outstanding institutional balances. Once the user has selected their payment method and entered the necessary details, they can click the “Done” button to complete the transaction.



*Figure 17. Students/Alumni - Payment for Clearance (User Interface Design)*

Figure 17 illustrates the payment method interface for clearance, intended to simplify and secure the payment process for any outstanding institutional balances. It allows users to view and pay their balances online, ensuring that they can settle their dues conveniently before their clearance is approved. The interface is likely focused on providing a smooth and secure payment process.

The screenshot shows a user interface for a college application system. On the left is a vertical sidebar with a dark blue background and white icons for various steps: Application Form, Clearance, Payment, Schedule of Release (which is highlighted in yellow), Notification, and Log Out. The main content area has a light gray header with the college's logo and details: "Saint Michael College of Caraga", "Brgy. 4, Nasipit, Agusan del Norte, Philippines", "District 8, Brgy. Triangulo, Nasipit, Agusan del Norte, Philippines", "Tel. Nos. +63 085 343-3251 / +63 085 283-3113", and the website "www.smccnasipit.edu.ph". To the right of the header are two accreditation logos: SOCOTEC ISO 9001 and PAB (Philippine Accredited Board) with the code MSA-101. Below the header is a section titled "SCHEDULE OF RELEASE" with a sub-section "For Delivery". A table is displayed with the following data:

Releasing Date	Time	Method of Release	Remarks	Requirements
11/12/2024	9:30 am	Delivery	<i>Upload valid identification card of the claimer.</i>	 UPLOAD

*Figure 18. Students/Alumni - Schedule of Release for Delivery Method (User Interface Design)*

Figure 18 shows the Schedule of Release for Delivery; it is designed for students or alumni who have completed all transactions for their online credential requests. It displays essential information about the release and delivery of the requested credential. The Delivery Schedule table shows the releasing date, time, method of release (specifically for delivery), and remarks with any additional instructions, such as deadlines or guidelines for receiving the document. An Upload icon is included, allowing users to submit necessary documents like a valid ID or other proof of identity, confirming that the credential requestor is the rightful owner. This feature ensures secure verification before the credential is delivered.

The screenshot shows the official website of Saint Michael College of Caraga. At the top right, the college's logo and contact information are displayed, along with accreditation logos from SOCOTEC and PAB.

**SCHEDULE OF RELEASE**

**For Walk-in**

Releasing Date	Time	Method of Release	Remarks	Requirements	Claim Stub
11/12/2024	9:30 am	Walk-in	<b>NOTE: FOR REPRESENTATIVES,</b> present proper Identification Card and Valid Identification Card of the Claimer, and <b>C. Notarized Letter of Authorization</b> (indicating the Name of the Claimer, Name of the Authorized person, present Address and Contact number of the Claimer). <b>D. Photocopy of the ID of the Claimer and the Representative.</b>		

The left sidebar contains a vertical menu with the following items:

- Application Form
- Clearance
- Payment
- Schedule of Release
- Notification
- Log Out

Figure 19. Students/Alumni - Schedule of Release for Walk-In (User Interface Design)

Figure 19 illustrates the Schedule of Release interface for those students or alumni who have completed all transactions for their online credential request and selected the walk-in method for collection. It displays essential information about the release and pick-up of their requested credentials. The Schedule of Release table includes the release date, time, method of release (indicating walk-in), and remarks with additional instructions, such as deadlines or requirements for in-person collection. An Upload icon allows users to submit necessary documents like a valid I.D. or other proof of identity to confirm that the requester is the rightful owner. This feature ensures secure verification before the credential is handed over.

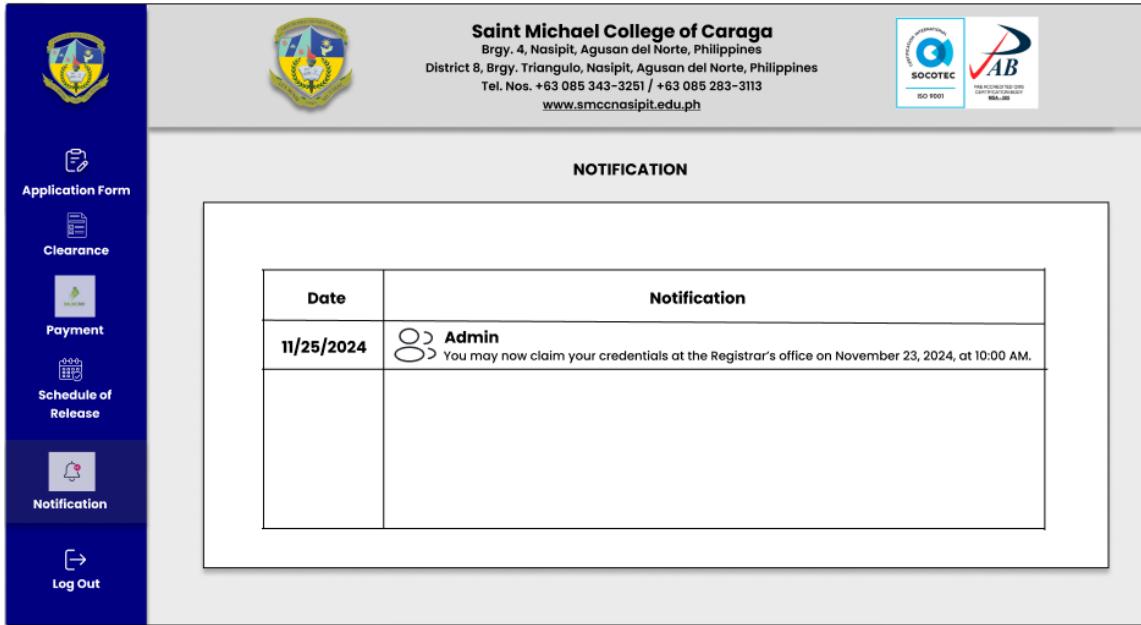


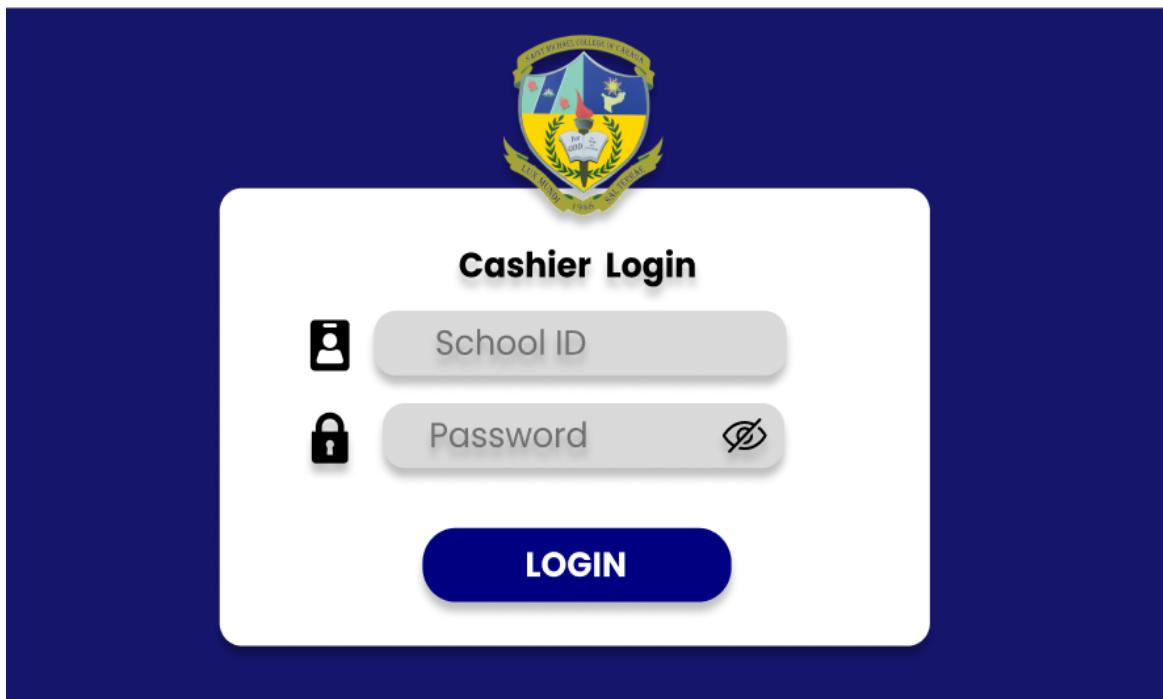
Figure 20. Students/Alumni - Notification (User Interface Design)

Figure 20 shows the notification section of online credential request system. The main content of this section is dedicated for notifications, presents in a table format. The table includes a date column and a notification column where users can view messages from the admin or staffs. This section serves as a platform for user to stay updated on important announcements regarding their credential requests.

<p><b>NOTE: FOR REPRESENTATIVES,</b> present proper Identification Card and Valid Identification Card of the Claimer, and <b>C. Notarized Letter of Authorization</b> (indicating the Name of the Claimer, Name of the Authorized person, present Address and Contact number of the Claimer).</p> <p><b>D. Photocopy of the ID of the Claimer and the Representative.</b></p>	 <p><b>Saint Michael College of Caraga</b> Brgy. 4, Nasipit, Agusan del Norte, Philippines District 8, Brgy. Triangulo, Nasipit, Agusan del Norte, Philippines Tel. Nos. +63 085 343-3281 / +63 085 283-3113 <a href="http://www.smccnasipit.edu.ph">www.smccnasipit.edu.ph</a></p> <p> </p> <p><b>OFFICE OF THE REGISTRAR</b></p> <p><b>CLAIM STUB</b></p>										
<p>Name : Hinautan Angelo Masinag Date Requested : 11/11/2024 O.R.# : _____</p> <p>Document(s) Request : Diploma Releasing Date : 11/12/2024</p> <p>Please bring _____ Documentary Stamp.</p> <p>_____ Signature of In-Charge</p> <p style="text-align: right;">(c) 09177076630 Email: <a href="mailto:registrar@smccnasipit.edu.ph">registrar@smccnasipit.edu.ph</a></p> <p style="text-align: right;"><b>Print</b> <b>Cancel</b></p>											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Form Code No.</td> <td>: FM-DPM-SMCC-RCC-01</td> </tr> <tr> <td>Issue Status</td> <td>: 02</td> </tr> <tr> <td>Revision No.</td> <td>: 02</td> </tr> <tr> <td>Date Effective</td> <td>: 09 January 2024</td> </tr> <tr> <td>Approved By</td> <td>: President</td> </tr> </table>		Form Code No.	: FM-DPM-SMCC-RCC-01	Issue Status	: 02	Revision No.	: 02	Date Effective	: 09 January 2024	Approved By	: President
Form Code No.	: FM-DPM-SMCC-RCC-01										
Issue Status	: 02										
Revision No.	: 02										
Date Effective	: 09 January 2024										
Approved By	: President										

*Figure 21. Students/Alumni - Claim Stub (User Interface Design)*

Figure 21 represents a claim stub issued by Saint Michael College of Caraga for individuals who selected the walk-in method to claim their requested documents. It includes the claimant's name, the requested document (e.g., a diploma), and the relevant dates, such as the date of request and the release date. There is also a note section with instructions for representatives, detailing the necessary requirements like a notarized letter of authorization and photocopies of IDs. Lastly, the interface provides essential contact details and requires the claimant to bring a documentary stamp during the claim process.



*Figure 22. User (Cashier) – Login Page (User Interface Design)*

Figure 22 shows the Cashier Login interface; this login page is specifically for the Cashier, who is responsible for verifying if students have completed their institutional payments before their credential requests can be processed. The interface includes fields for “School ID” and “Password,” with icons and a password visibility toggle to enhance usability. The “Login” button initiates access to the Cashier’s dashboard. The system administrator (the Registrar) provides the Cashier’s account, ensuring secure access. Once logged in, the Cashier can confirm student payment statuses, enabling further processing of their credential requests in the system.

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Tel. Nos. +63 085 343-3251 / +63 085 283-3113  
[www.smccnasipit.edu.ph](http://www.smccnasipit.edu.ph)

**LIST OF REQUESTS FOR CREDENTIALS**

No.	Name	Course & Year	Date Requested	Status	Approval
1	Hinautan Angelo Masinag	BSIT 3	11/11/2024	PENDING	<b>APPROVED</b> <b>DISAPPROVED</b>
2					
3					
4					
5					
6					
7					

Comment:

*Figure 23. User (Cashier) - List of Requests for Credentials (User Interface Design)*

Figure 23 shows the List of Requests for Credentials interface, which enables the Cashier to review and manage student clearance requirements efficiently. It features a six-column table displaying each student's I.D. #, Name, Course & Year, Date Requested, Status, and Approval column. The Approval column includes Approve and Disapprove buttons, allowing staff to easily grant or deny clearance based on the student's completion of requirements or institutional payments.

No.	Name	Course & Year	Date Requested	Status
1	Hinautan Angelo Masinag	BSIT 3	11/11/2024	APPROVED
2				
3				
4				
5				
6				
7				

*Figure 24. User (Cashier) – List of Approved Requests (User Interface Design)*

Figure 24 illustrates the List of Approved Requests, which serves as the interface for the Cashier to manage and track credential requests that have been reviewed and cleared for approval. Initially, each request appears in the Requests for Credentials List, where the Cashier checks the requester's account for any outstanding institutional balance. If the student or alumni has no remaining balance, the Cashier can click the "Approve" button, automatically moving the request from the Requests for Credentials List to the Approved Requests List. This Approved Requests List includes essential details across six columns: a unique I.D. number for each approved request, the Name of the requester, their Course and Year, the Date Requested to show when the request was initially made, and a Status column marked as "Approved" to signify that only fully cleared requests appear here. In addition to the List of Requests for Credentials List, the Dean and LRC also have an interface to a List of Approved Requests, similar to the Cashier's setup. However, the interface and functionality differ to suit their specific roles. For instance,

while the Cashier handles financial verification, the Dean's interface is tailored to academic approvals, and the LRC's interface focuses on library-related clearances. Each department can only approve requests relevant to their area, ensuring a controlled, step-by-step approval process.

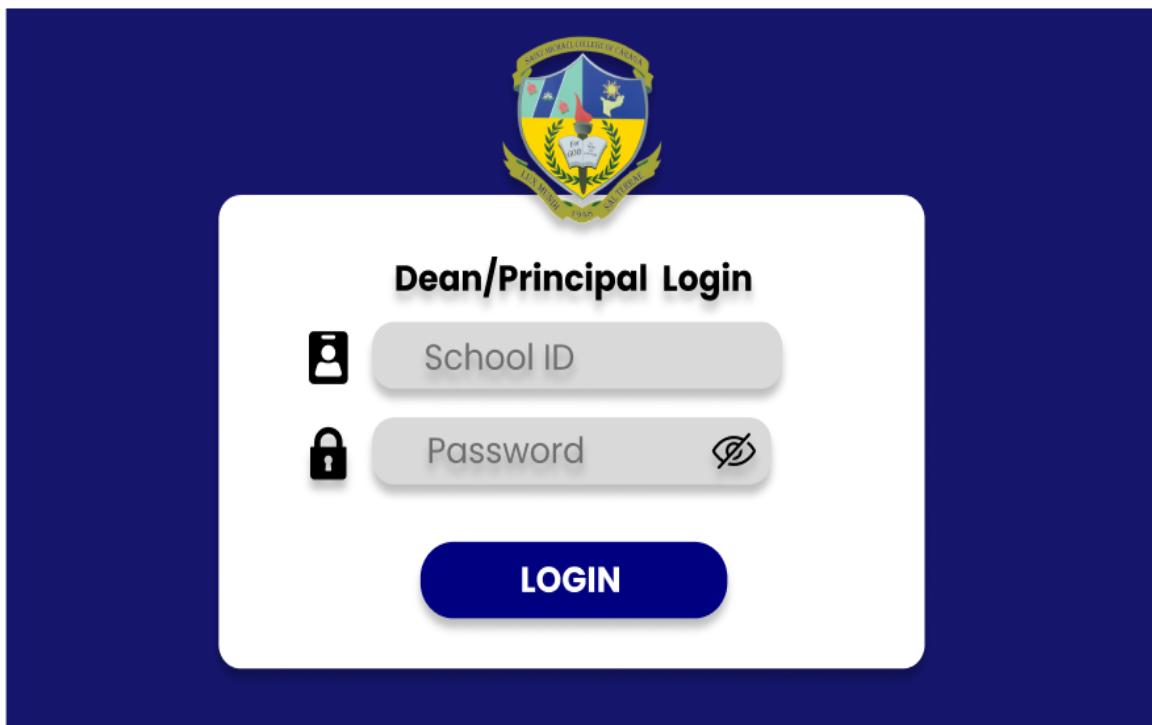
No.	Name	Course & Year	Date Requested	Status	Payment	Approval
1	Hinautan Angelo Masinag	BSIT 3	11/11/2024	DISAPPROVED		
2						
3						
4						
5						
6						
7						

Figure 25. User (Cashier) – List of Disapproved Requests (User Interface Design)

Figure 25 illustrates the Disapproved Requests interface, where the Cashier can review credential requests that were initially disapproved due to outstanding institutional balances or incomplete payment verification. This list provides a clear view of requests that require further action before approval, especially for students or alumni who have opted to pay online. The Disapproved Requests List contains the same columns as the Approved Requests List: I.D. #, Name, Course and Year, Date Requested, and Status. However, it includes an additional Payment column with an upload icon. This icon allows the Cashier to view any proof of payment uploaded by students, enabling them to verify online payments before proceeding with approval. Once the Cashier verifies the payment

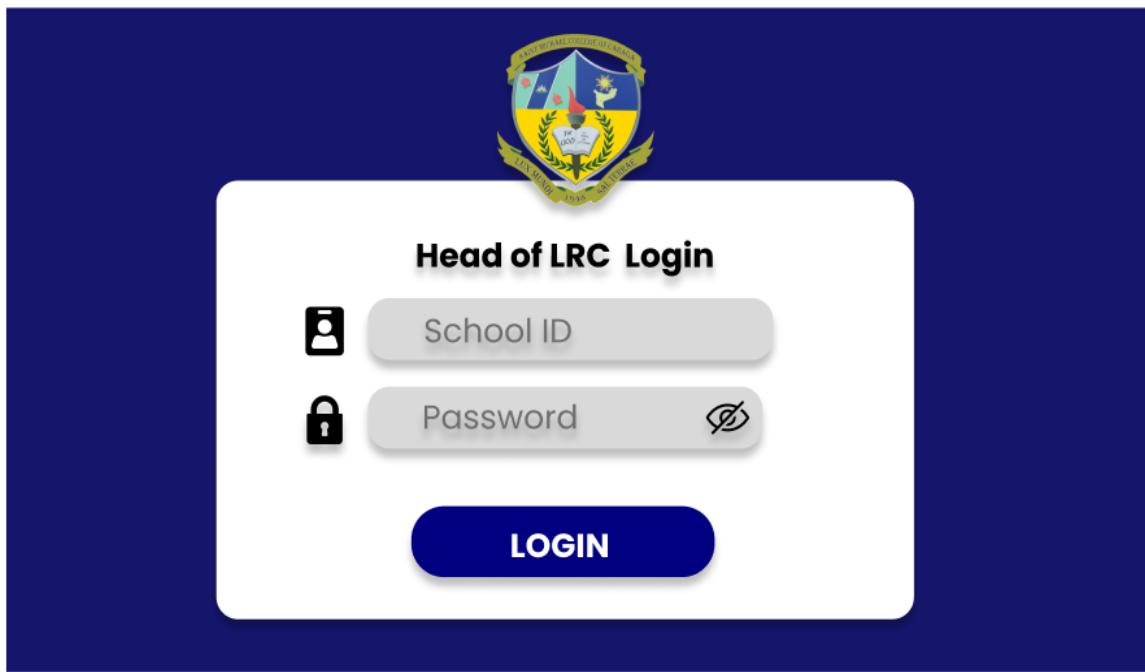
and confirms that no outstanding balance remains, they can approve the request, automatically moving it to the Approved Requests List. In addition to the List of Requested Forms, the Dean and LRC also have an interface for the List of Disapproved Requests, similar to the Cashier's setup. However, the interface and functionality differ to suit their specific roles. For instance, while the Cashier handles financial verification, the Dean's interface is tailored to academic approvals, and the LRC's interface focuses on library-related clearances. Each department can only approve requests relevant to their area, ensuring a controlled, step-by-step approval process.

Through this organized structure, the Dean and LRC can efficiently track, approve, or disapprove requests according to their departmental responsibilities, ensuring that each request passes through the necessary channels before final issuance. This organized structure helps ensure that only eligible requests are processed while allowing the Cashier to handle disapproved requests that meet the required payment criteria efficiently.



*Figure 26. User (Dean/Principal) – Login Page (User Interface Design)*

Figure 26 illustrates the Dean Login interface; this enables the Dean to access the system for clearance approvals. This page requires the Dean to enter a School ID and Password, with icons following each field for easy identification and a visibility toggle for the password field. The Login button below allows the Dean to access their dashboard securely. The system administrator (the Registrar) provides the Dean's login credentials, ensuring security and restricted access. Once logged in, the Dean can verify if students have met academic requirements, granting clearance within the system to proceed with their credential requests.



*Figure 27. User (Head of LRC/Assigned-staff) - Login Page (User Interface Design)*

Figure 27 illustrates the LRC Login interface; this is used by Learning Resource Center staff to confirm clearance status for students. This login page prompts the user to enter a School ID and Password, with icons for each field and a password visibility toggle for usability. The Login button initiates access to the LRC's dashboard. Like other staff accounts, the LRC login credentials are provided by the system administrator (the Registrar), maintaining secure and controlled access. Upon logging in, LRC staff can verify that students have met library and resource-related obligations, approving their clearance status to facilitate the credential request process.

No.	Name	Course & Year	Date Requested	Cashier	Status	Approval
1	Hinautan Angelo Masinag	BSIT 3	11/11/2024	APPROVED	PENDING	<span style="background-color: #0070C0; color: white; border-radius: 50%; padding: 2px;">APPROVED</span> <span style="background-color: #DC3545; color: white; border-radius: 50%; padding: 2px;">DISAPPROVED</span>
2						
3						
4						
5						
6						
7						

*Figure 28. User/Dean and LRC side – List of Requests for Credentials (User Interface Design)*

Figure 28 illustrates the List of Requests for Credentials for the Dean, and the Learning Resource Center (LRC) that enables both departments to review credential requests pre-approved by the Cashier. Each department has a separate account and view, allowing the Dean and LRC to oversee and manage requests specific to their respective roles in the approval process. This list displays essential columns similar to the Cashier's List of Requested Forms: I.D. number, Name, Course and Year, Date Requested, and Status. However, it includes an additional Cashier Approval column indicating whether the Cashier has verified and approved the student or alumni for credential processing. This column ensures that only requests with completed financial clearance reach the Dean and LRC, streamlining their portion of the review process. For the Dean, this list allows for approval only within their designated area of responsibility. At the same time, the LRC has its own set of controls to approve requests specific to library resources. Once the Dean or

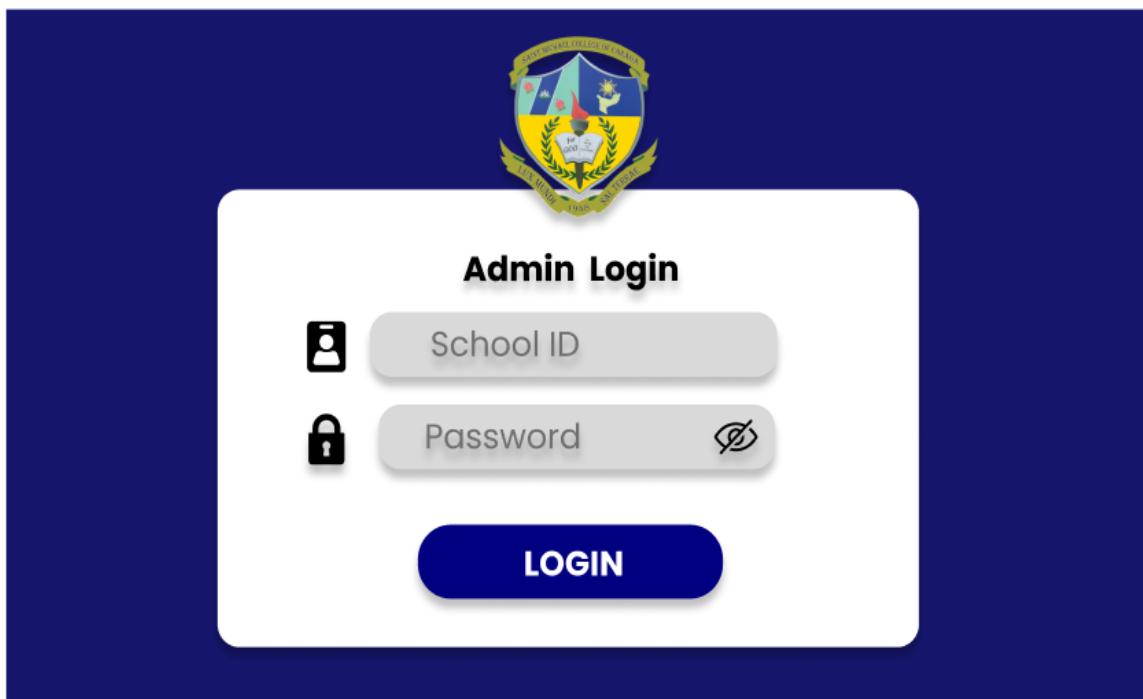
the LRC approves a request within their scope, the credential processing continues according to the institution's workflow. This tailored interface supports an organized, department-specific approval process, ensuring each request receives clearances before final issuance. In addition to the List of Requests for Credentials Forms, the Dean and LRC have access to a List of Approved Requests and a List of Disapproved Requests, similar to the Cashier's setup. However, the interface and functionality differ to suit their specific roles. For instance, while the Cashier handles financial verification, the Dean's interface is tailored to academic approvals, and the LRC's interface focuses on library-related clearances. Each department can only approve requests relevant to their area, ensuring a controlled, step- by-step approval process.

No.	Name	Course & Year	Date Requested	Status	Approval
1	Hinautan Angelo Masinag	BSIT 3	11/11/2024	DISAPPROVED	<span style="color: red;">APPROVED</span> <span style="color: blue;">DISAPPROVED</span>
2					
3					
4					
5					
6					
7					

Figure 29. User/Dean and LRC side – List of Disapproved Requests (User Interface Design)

Figure 29 illustrates the List of Disapproved Requests interface, specifically designed for the Dean and the Head of the Learning Resource Center (LRC). This interface manages and disapproves student clearances required for obtaining documents. It likely

displays a comprehensive list of students with their respective clearance statuses, indicating whether all institutional requirements have been met or if further action is necessary. The interface allows authorized users (such as deans, principals, or LRC heads) to disapprove or deny clearance requests, and ensure that students can access their documents only once they meet other institutional criteria.



*Figure 30. Admin Side/Registrar - Login Page (User Interface Design)*

Figure 30 shows the Admin Login interface, specifically intended for use by the Registrar, who is the system's administrator. The login page features fields for entering a School ID and Password, accompanied by icons representing each input. A visibility toggle is provided for the password field to enhance usability. The “Login” button below the input fields initiates access to the system. The administrator credentials for this system are securely stored in the database and can only be updated within the database to ensure

security. This login interface controls access to administrative functions, allowing the Registrar to manage credential requests and other system features.

No.	Name	Course & Year	Date Requested	Cashier	Head of LRC	Dean/Principal	Status	Approval
1	Baguio Angel Mae Labor	BSIT 3	11/11/2024	APPROVED	APPROVED	APPROVED	PENDING	<span style="background-color: blue; color: white; border-radius: 50%; padding: 2px;">APPROVED</span> <span style="background-color: red; color: white; border-radius: 50%; padding: 2px;">DISAPPROVED</span>
2								
3								
4								
5								
6								
7								

Figure 31. Admin Side/Registrar – Validation of Clearance (User Interface Design)

Figure 31 presents the Validation of Clearance for the Admin Side, tailored for the Registrar who manages the clearance process for credential requests. This list includes core columns like I.D. number, Name, Course and Year, Date Requested, and Status, along with additional columns for Cashier Approval, Dean Approval, and LRC Approval. These columns provide a comprehensive view of each department's clearance status. The Registrar can monitor all approval statuses and finalize requests through the Approval column, marking them as fully processed once approved. This functionality streamlines the Registrar's workflow, ensuring only requests meeting all institutional requirements are forwarded for document issuance.

No.	Name	Course & Year	Date Requested	Requested Credentials	Total Payment	Proof of Payment	Status	Approval
1	Hinautan Angelo Masinag	BSIT 3	11/11/2024		350		Pending	<input checked="" type="checkbox"/> <input type="checkbox"/>
2								
3								
4								
5								
6								
7								

**Send message:**  
You can claim your requested credentials on 11/23/2024 at 10:00 AM. To claim them, please submit the required documents before the deadline.

Figure 32. Admin Side/Registrar – Validation of User Payment (User Interface Design)

Figure 32 showcases the interface for managing credential requests that have been approved but still require validation by the admin or registrar. The table includes columns for ID #, Name, Course and Year, Date Requested, Requested Credentials, Total Payment, and Proof of Payment. The Proof of Payment column allows the admin to verify the uploaded proof of payment. The Status column initially displays "Pending" until the validation process is completed. The Approval column contains two buttons: a checkmark (✓) for approval and a cross (✗) for disapproval. If a request is disapproved, a comment prompt appears, enabling the admin to send feedback to the student or alumni, as shown in the comment bubble stating the release details and submission requirements. Once approved, the request is transferred to the Schedule of Release section, signifying it has passed validation and is ready for processing and document issuance. This design allows the Registrar to efficiently manage and validate approved requests, ensuring compliance

before finalizing the process.

 <b>Clearance</b>  Validation of User Payment  Schedule of Release  Released Credentials  Log Out	 <b>Saint Michael College of Caraga</b> Brgy. 4, Nasipit, Agusan del Norte, Philippines District 8, Brgy. Triangulo, Nasipit, Agusan del Norte, Philippines Tel. Nos. +63 085 343-3251 / +63 085 283-3113 <a href="http://www.smccnasipit.edu.ph">www.smccnasipit.edu.ph</a>	 <small>ISO 9001</small>  <small>PAC ACCREDITED FOR DOCUMENTATION</small>																																																																																																								
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Name</th> <th>Requested Credentials</th> <th>Process to Claim</th> <th>Requirements</th> <th>Release Schedule</th> <th>Walk-in/Deliver</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>Hinautan Angelo Masinog</td><td>Diploma</td><td>Complete Address</td><td><input checked="" type="checkbox"/> <input type="checkbox"/></td><td>11/01/2024</td><td>Delivery</td><td><span style="color: green;">Done</span></td></tr> <tr><td>2</td><td>Baguio Angel Mae Labor</td><td>TOR</td><td>Claim stub</td><td><input checked="" type="checkbox"/> <input type="checkbox"/></td><td>11/01/2024</td><td>Walk-in</td><td><span style="color: green;">Done</span></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> <tr><td>12</td><td></td><td></td><td></td><td></td><td></td><td></td><td><span style="color: green;">Done</span></td></tr> </tbody> </table>			No.	Name	Requested Credentials	Process to Claim	Requirements	Release Schedule	Walk-in/Deliver		1	Hinautan Angelo Masinog	Diploma	Complete Address	<input checked="" type="checkbox"/> <input type="checkbox"/>	11/01/2024	Delivery	<span style="color: green;">Done</span>	2	Baguio Angel Mae Labor	TOR	Claim stub	<input checked="" type="checkbox"/> <input type="checkbox"/>	11/01/2024	Walk-in	<span style="color: green;">Done</span>	3							<span style="color: green;">Done</span>	4							<span style="color: green;">Done</span>	5							<span style="color: green;">Done</span>	6							<span style="color: green;">Done</span>	7							<span style="color: green;">Done</span>	8							<span style="color: green;">Done</span>	9							<span style="color: green;">Done</span>	10							<span style="color: green;">Done</span>	11							<span style="color: green;">Done</span>	12							<span style="color: green;">Done</span>
No.	Name	Requested Credentials	Process to Claim	Requirements	Release Schedule	Walk-in/Deliver																																																																																																				
1	Hinautan Angelo Masinog	Diploma	Complete Address	<input checked="" type="checkbox"/> <input type="checkbox"/>	11/01/2024	Delivery	<span style="color: green;">Done</span>																																																																																																			
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12							<span style="color: green;">Done</span>																																																																																																			

Figure 33. Admin Side/Registrar - Schedule of Release (User Interface Design)

Figure 33 provides the Registrar with a detailed view of students and alumni whose document requests are ready for release. The interface includes columns for # (Index), Name, Requested Credentials, Process to Claim, Requirements, Release Schedule, Walk-in/Delivery, and Status. It specifies document types, instructions for claiming (e.g., address for delivery or claim stub for walk-ins), required documents, release dates, retrieval methods, and status. A Done button marks completed requests, moving them to the Credential Released Monitoring section. This interface streamlines credential issuance, ensuring efficient management, accurate documentation, and timely distribution.

**Saint Michael College of Caraga**  
Brgy. 4, Nasipit, Agusan del Norte, Philippines  
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**OFFICE OF THE REGISTRAR**  
RELEASED CREDENTIALS

No.	Released Date	Name	Requested Credentials	Walk-in/Delivery
1	11/01/2024	Hinaultan Angelo Masinag	Diploma	Delivery
2	11/01/2024	Baguio Angel Mae Labor	TOR	Walk-in
3				
4				
5				
6				
7				
8				
9				
10				
11				

Search

Figure 34. Admin Side/Registrar – Released Credentials (User Interface Design)

Figure 34 shows the Released Credentials, which provides the Registrar with a detailed record of completed credential requests. It tracks processed and released requests for transparency and accountability. The table includes columns for # (Index), Released Date, Name, Requested Credentials, and Walk-in/Delivery. The Released Date shows when credentials were issued, Name lists recipients, Requested Credentials specifies the document type (e.g., diploma, TOR), and Walk-in/Delivery indicates the retrieval method. A Search feature enables quick access to specific entries. This system ensures organized and reliable tracking of issued credentials.

**Table 1****Software Requirements**

<b>Components</b>	<b>Specification</b>	<b>Usage</b>
Internet Browser	Any	The internet browser simplifies access to web pages and enables users to navigate the World Wide Web. It connects to the web server, which links users to the GCMS and grants access to its features after a successful login.
Front-end	HTML	HTML serves as the structural foundation of web pages, enabling the organization and arrangement of content components such as text, images, and forms.
	CSS	CSS enhances the visual design of HTML elements, allowing developers to customize layouts, colors, fonts, and spacing, which results in aesthetically pleasing and responsive designs.
	JavaScript	JavaScript adds functionality and interactivity to web pages, empowering developers to implement features such as animations and quick updates that respond to user input.
	Bootstrap	Bootstrap is an HTML, CSS and JS library that focuses on simplifying the development of informative web pages (as opposed to web applications).
	jQuery	jQuery is a fast, lightweight JavaScript library that simplifies HTML document traversal, event handling, animation, and AJAX interactions to make web development easier and more efficient.

Back-end	MySQL (Database)  PHP	MySQL is an open-source software that offers various features for efficient data management. phpMyAdmin provides a user-friendly interface for tasks like managing databases and running queries.  PHP, a server-side programming language, enables dynamic content generation from static web pages and connects the front end to the backend (database) through an MVC architectural design.
Server	Apache	The XAMPP Control Panel manages XAMPP components, ensuring smooth operation and easy access to Apache and MySQL servers.

**Table 2**  
**Hardware Requirements**

Components	Specification	Usage
Device	RAM	Electronic devices like computers, laptops, smartphones, and tablets use Random Access Memory (RAM) to quickly access stored information and serve as temporary storage.
	Processor	The Central Processing Unit (CPU) is the brain of a computing device, responsible for processing data and executing instructions. It has multiple cores for handling different tasks simultaneously.
	HDD	
	SSD	
	Flash Storage	Computers and laptops use Hard Disk Drives (HDD) or Solid State Drives (SSD) for storage, while mobile devices rely on flash storage for applications, multimedia, and operating systems.
Printer	Any Ink Jet Printer Units	An inkjet printer is a device that prints text, images, and graphics on paper using ink. It is commonly used and usually more affordable than other types of printers. This reliable option is perfect for everyday printing tasks, as it can produce high-quality prints for a variety of documents and images.

## **Ethical Standard**

In this research entitled "Online Request of Credentials for Saint Michael College of Caraga", several ethical considerations will be addressed to ensure that the study meets the required standards for research integrity and protection of participants.

### **A. Protection of Intellectual Property Rights (IPR)**

The "Online Request of Credentials for Saint Michael College of Caraga" system incorporates innovative processes to streamline the credential request procedure. All materials produced during this project, including system documentation, source code, and technical designs, will be safeguarded through copyright protection to ensure proper attribution and prevent unauthorized use. The logo of Saint Michael College of Caraga will be used in the system to represent the institution. It will be protected under applicable trademark and copyright laws to prevent misuse. Proper permissions will be secured to ensure compliance with intellectual property standards.

### **B. Informed Consent**

The capstone project involves interviewing office heads such as the Registrar, Cashier, LRC, Deans/Principals, students and alumni to gather feedback for developing a web-based system that enhances the online credential request process at Saint Michael College of Caraga. The interview guide was designed based on the study's objectives and the specific information needed to achieve them, focusing on themes such as current workflows, challenges, user experiences, and confidentiality practices. Participants were informed about the objectives, procedures, minimal risks, and potential benefits, including how their feedback could improve system functionality. Prior to the interviews,

a letter of consent was secured to ensure that participants fully understood the purpose of the study and voluntarily agreed to take part. Additionally, they were informed of their right to withdraw from the study at any time without facing any penalty. All collected data was kept confidential and used exclusively for project development.

### **C. Data Privacy and Confidentiality**

The system will ensure data protection by using strong security measures, such as encryption and Role-Based Access Control (RBAC). Only authorized personnel will have access to sensitive information, including student credentials and request statuses. User data will be kept safe and not disclosed to unauthorized individuals. For performance analysis, anonymized and aggregated data may be used while maintaining strict confidentiality for all users.

### **D. Voluntary Participation and Freedom to Withdraw**

Participation in the development and testing of the Online Request of Credentials System was entirely voluntary, with participants fully informed of their right to withdraw from the project at any time without any impact on their professional roles. To maintain the integrity of the process, no coercion, undue influence, or financial incentives were used, ensuring that participation was unbiased and voluntary. Clear and transparent communication about the study's objectives, procedures, and participants' rights was provided to foster mutual respect and understanding throughout the project.

### **E. Minimization of Harm and Risk Management**

The research team is committed to ensure the safety and well-being of all participants by minimizing potential risks during the development and implementation of

the online credential request system. Careful consideration has been taken to address any technical, emotional, or social concerns that may arise during system testing or user feedback collection. If participants encounter any issues, the research team and designated support personnel will be readily available to provide assistance and user guidance to help navigate the system. Additionally, all collected data, including user inputs and records, will be securely stored and treated with strict confidentiality to prevent unauthorized access and ensure that no participant experiences negative consequences as a result of their involvement. Since the study does not involve animal subjects, the 3Rs principle (Replacement, Reduction, and Refinement) was not applicable.

#### **F. Beneficence and Contribution to Knowledge**

The development of this online credential request system aims to improve the efficiency of requesting and processing academic records at Saint Michael College of Caraga, benefiting students, alumni, and the Office of the Registrar. By reducing processing time and minimizing manual errors, the system supports enhanced service delivery, providing a user-friendly and accurate experience for stakeholders. This system aligns with the institution's commitment to technological innovation and modernized administrative processes.

A summary of the findings and subsequent improvements to the system will be made available to participants upon request. The project will be presented to the participants through a comprehensive dissemination strategy, including demonstrations, and informational materials. These efforts aim to raise awareness of the system's purpose and benefits while addressing questions or concerns.

#### **G. Justice and Fair Participant Selection**

The participants for this project will be selected through a fair and transparent process to promote inclusiveness and diversity. The selection will be guided by predefined criteria, focusing on their roles as stakeholders, such as students, alumni, staff from the Office of the Registrar, Office of the Learning Resource Center, Office of the Cashier, and the Deans or Principals. Participants will be chosen based on their ability to provide valuable insights into the system's development. The process will ensure that no discrimination occurs and that individuals from various backgrounds and statuses are included. This approach guarantees that all stakeholders have an equal opportunity to offer meaningful contributions to the project.

#### **H. Data Integrity and Accuracy**

All data related to the design, testing, and evaluation of the Online Request of Credentials System were gathered with the highest standards of accuracy and integrity. The research team followed standardized procedures to ensure that all feedback and performance data were systematically documented and properly interpreted. To support the research process, ChatGPT was used during the preliminary analysis phase to organize ideas and summarize initial insights, while Grammarly was employed to ensure the grammatical accuracy and clarity of the final research report. Every AI-generated output was carefully reviewed and validated by the research team to eliminate errors, inaccuracies, or misinterpretations, thereby ensuring the reliability and credibility of the study's outcomes.

## **I. Transparency and Honesty in Reporting**

All findings, including system performance data and user feedback, will be presented accurately and without any form of manipulation. Any potential conflicts of interest will be reported transparently to maintain credibility. Additionally, any third-party materials cited, such as research papers, tools, or frameworks, will be properly referenced to uphold integrity and transparency in reporting. This approach ensures that all stakeholders are fully informed and that the project's outcomes remain unbiased and reliable.

## **J. Use of Patented or Copyrighted Materials**

The project did not involve the use of any patented technologies, and as a result, no clearance from patent holders was required. It focused on developing a web-based system to enhance the credential request process using open-source and standard technologies that do not require proprietary rights. Additionally, the study utilized copyrighted materials, such as literature and previous research, all of which were appropriately cited to ensure that due credit was given to the original authors, thereby upholding intellectual property rights and ethical research standards.

## **K. Considerations for Human Subjects**

The project involved human participants, specifically teachers, students and alumni, who were fully informed about their rights, the minimal risks involved, and the benefits of their participation. Ethical clearance for the use of animals was not applicable, as no animals were involved in the study. To ensure confidentiality and protect the professional standing of the participants, any feedback provided by the teachers, students

and alumni was anonymized, maintaining ethical standards throughout the research process.

#### **L. Responsible Use of AI and Other Related Technologies**

AI tools like Grammarly, paraphrasing tools, and ChatGPT were used to improve the quality of the written content. Grammarly helped correct grammar and syntax errors, ensuring accuracy throughout the text. Paraphrasing tools enhanced readability by rephrasing sentences for better clarity. ChatGPT contributed by generating ideas, refining the wording, and suggesting alternative ways to present the content. Together, these tools ensured the paper was clear, professional, and well-organized, allowing the research team to focus more on the technical aspects of the study.

#### **M. Ethical Clearance and Institutional Approval**

The research project shall obtain ethical approval from the Institutional Review Board at Saint Michael College of Caraga. This process guarantees that the study complies with established ethical standards, thereby safeguarding participants' rights, ensuring data confidentiality, and protecting intellectual property.

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## APPENDICES

### A. System Source Code

### B. User's Manual

### C. Letter of Permission



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December 11, 2024

**Mr. Cecilio C. Arriola**  
**Head of Registrar's Office**  
Saint Michael College of Caraga  
Nasipit, Agusan del Norte, 8602

Dear Mr. Arriola,

Greetings!

We, the undersigned, are currently working on our capstone project titled "**Online Request of Credentials for Saint Michael College of Caraga**" as part of the requirements for the Bachelor of Science in Information Technology degree. This study aims to comprehensively design, develop, and implement an online system for requesting credentials.

In line with this, we respectfully seek your permission to conduct interviews with you and the staff of the SMCC Registrar's Office. These interviews aim to gather insights into the challenges associated with the manual credential request process and explore how these issues can be addressed through automation and paperless solutions.

We believe your approval of this request will significantly contribute to the success of our research and, ultimately, help in providing a valuable solution to streamline this process.

Thank you for considering our request. We are hopeful for your favorable response.

Sincerely,  
  
**Rcel Ad S. Villarin**  
Research Leader

Received by:  
  
**Cecilio C. Arriola**  
Head, SMCC Registrar

Member:



[info@smccnasipit.edu.ph](mailto:info@smccnasipit.edu.ph)

## C. Letter of Permission



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December 11, 2024

**Ms. Jane Roselyn A. Cagula**  
**Head of Cashier's Office**  
Saint Michael College of Caraga  
Nasipit, Agusan del Norte, 8602

Dear Ms. Cagula,

Greetings!

We, the undersigned, are currently working on our capstone project titled "**Online Request of Credentials for Saint Michael College of Caraga**" as part of the requirements for the Bachelor of Science in Information Technology degree. This study aims to comprehensively design, develop, and implement an online system for requesting credentials.

In line with this, we respectfully seek your permission to conduct interviews with you and the staff of the SMCC Registrar's Office. These interviews aim to gather insights into the challenges associated with the manual credential request process and explore how these issues can be addressed through automation and paperless solutions.

We believe your approval of this request will significantly contribute to the success of our research and, ultimately, help in providing a valuable solution to streamline this process.

Thank you for considering our request. We are hopeful for your favorable response.

Sincerely,  
  
Riel Ady S. Villarin  
Research Leader

Received by:  
  
Jane Roselyn A. Cagula  
Head, SMCC Cashier

Member:



info@smccnasipit.edu.ph

## C. Letter of Permission



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December 11, 2024

**Ms. Renel S. Maneja**  
**Head of Learning Resource Center's Office**  
Saint Michael College of Caraga  
Nasipit, Agusan del Norte, 8602

Dear Ms. Maneja,

Greetings!

We, the undersigned, are currently working on our capstone project titled "**Online Request of Credentials for Saint Michael College of Caraga**" as part of the requirements for the Bachelor of Science in Information Technology degree. This study aims to comprehensively design, develop, and implement an online system for requesting credentials.

In line with this, we respectfully seek your permission to conduct interviews with you and the staff of the SMCC Registrar's Office. These interviews aim to gather insights into the challenges associated with the manual credential request process and explore how these issues can be addressed through automation and paperless solutions.

We believe your approval of this request will significantly contribute to the success of our research and, ultimately, help in providing a valuable solution to streamline this process.

Thank you for considering our request. We are hopeful for your favorable response.

Sincerely,  
  
**Rcel Ada S. Villarin**  
Research Leader

Received by:  
  
**Renel S. Maneja**  
Head, SMCC LRC

Member:



[info@smccnasipit.edu.ph](mailto:info@smccnasipit.edu.ph)

#### D. Documented Undertakings



Researchers successfully passed one title during the title hearing.



Researchers working on the formulation of Chapters 1 and 2.



Researchers designing the system's user interface, creating diagrams, and specifying software and hardware requirements for Chapter 3.



Researchers consulting with their adviser prior to the proposal defense.



Researchers successfully defended Chapters 1 to 3 during the proposal defense.



Researcher working on the revision of the manuscript for routing.

**E. Certificate of Implementation**

**F. Research Locale**

**SAINT MICHAEL COLLEGE OF CARAGA**



## G. Curriculum Vitae

**Name** : Richel Ada S. Villarin

**Address** : D-6 Camagong, Nasipit, ADN

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### Personal Details

**Date of Birth** : November 01, 2003

**Gender** : Female

**Civil Status** : Single

**Age** : 21

**Citizenship** : Filipino

### Educational Background

**Elementary** : Camagong Elementary School

**Junior High School** : Saint Michael College of Caraga

**Senior High School** : Saint Michael College of Caraga

### Skills

- Microsoft Office Suite
- Photoshop and Illustrator for Graphic Design

### Membership School Organization

- Michaelinian Cybersecurity Guild

## G. Curriculum Vitae



**Name** : Angel Mae L. Baguio

**Address** : D-2 Camagong, Nasipit, ADN

**Contact No.** : 09652165845

**Email** : [angelmaebaguio16@gmail.com](mailto:angelmaebaguio16@gmail.com)

### Personal Details

**Date of Birth** : February 21, 2004

**Gender** : Female

**Civil Status** : Single

**Age** : 20

**Citizenship** : Filipino

### Educational Background

**Elementary** : Camagong Elementary School

**Junior High School** : Nasipit National Vocational School

**Senior High School** : Nasipit National Vocational School

### Skills

- Microsoft Office Suite
- Video Editing

### Membership School Organization

- N/A

## G. Curriculum Vitae



**Name** : Angelo M. Hinautan

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**Contact No.** : 09098549424

**Email** : [angelohinautan45@gmail.com](mailto:angelohinautan45@gmail.com)

### Personal Details

**Date of Birth** : November 23, 2000

**Gender** : Male

**Civil Status** : Single

**Age** : 24

**Citizenship** : Filipino

### Educational Background

**Elementary** : Libertad Central Elementary School

**Junior High School** : Libertad National High School

**Senior High School** : Philippine Electronics and Communication  
Institute of Technology

### Skills

- Microsoft Office Suite
- Basic Web Development

### Membership School Organization

- N/A

## G. Curriculum Vitae



**Name** : Rom Jones Y. Salem

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**Contact No.** : 09667622508

**Email** : [rjsgwapo123@gmail.com](mailto:rjsgwapo123@gmail.com)

### Personal Details

**Date of Birth** : May 20, 2003

**Gender** : Male

**Civil Status** : Single

**Age** : 21

**Citizenship** : Filipino

### Educational Background

**Elementary** : Nasipit Central Elementary School

**Junior High School** : Nasipit National Vocational School

**Senior High School** : Nasipit National Vocational School

### Skills

- Microsoft Office Suite
- Video Editing

### Membership School Organization

- N/A

## G. Curriculum Vitae

**Name** : Jay A. Bongado

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**Contact No.** : 09925745557

**Email** : [jbongado5@gmail.com](mailto:jbongado5@gmail.com)



### Personal Details

**Date of Birth** : January 25, 2004

**Gender** : Male

**Civil Status** : Single

**Age** : 20

**Citizenship** : Filipino

### Educational Background

**Elementary** : Nasipit Central Elementary School

**Junior High School** : Northwestern Agusan Colleges

**Senior High School** : Northwestern Agusan Colleges

### Skills

- Animation
- Digital Art

### Membership School Organization

- N/A