

## **GradLink: Alumni Tracer and Record Management System for the School of Graduate Studies of Saint Mary's University**

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### **ABSTRACT**

GradLink is a web application developed for the School of Graduate Studies at Saint Mary's University to simplify and improve student and alumni record management, utilizing the MERN stack (MongoDB, Express, React, Node.js) and technologies like TypeScript, Tailwind CSS, and Docker. Following the Rapid Application Development (RAD) methodology, the application focused on managing student and alumni records and facilitating alumni tracing with tools for data collection and visualization using Radix UI charts. Evaluated by two administrative staff, four department heads, and three IT experts, the system was assessed for ISO 25010 compliance, achieving an overall mean rating of 4.42, indicating high compliance and effectiveness in improving record management efficiency, enhancing alumni tracking, and providing a strong technical foundation for future growth. It is expected to strengthen alumni engagement and support institutional record-keeping.

*Keywords:* Alumni tracer, graduate studies, attrition rate, record management, rapid application

### **RATIONALE**

Fresh graduates often enter the workforce, competing for jobs in both private and public sectors. Academic institutions provide them with the knowledge and experience needed to develop their skills in their chosen profession and to be ready to join the workforce. However, as years pass, tracking alumni information has become more challenging for universities, as they may not regularly contact their alumni. Thus, having a system that allows an institution to trace and record alumni's whereabouts becomes essential.

Tracking graduates is the responsibility of the university, which maintains and records information on the status of graduate students and collects feedback on their career progress and job experiences. The employability of graduate students is one of the measures of an institution's success. It signifies the quality of education a university provides to its stakeholders. Academic institutions have been widely adopting alumni tracers to gather information about their graduates, which helps both graduate students and the academe identify areas for improvement to meet industry standards and increase students' employability after graduation. This enables universities to provide higher-quality education and maintain better communication with their graduate students.

The attrition rate is the percentage of students who drop out or do not continue their academic program. It is an important metric for universities as it reflects the effectiveness of their academic programs. Tracking and analyzing attrition rates in university programs and courses can help identify common challenges students face. By addressing these issues, universities can improve retention rates and support more students in completing their programs successfully.

The outcomes of this study provide valuable benefits to the following:

**Saint Mary's University.** With this platform, Saint Mary's University has a more structured system to engage graduate students and alumni. It maintains accurate data, fosters alumni

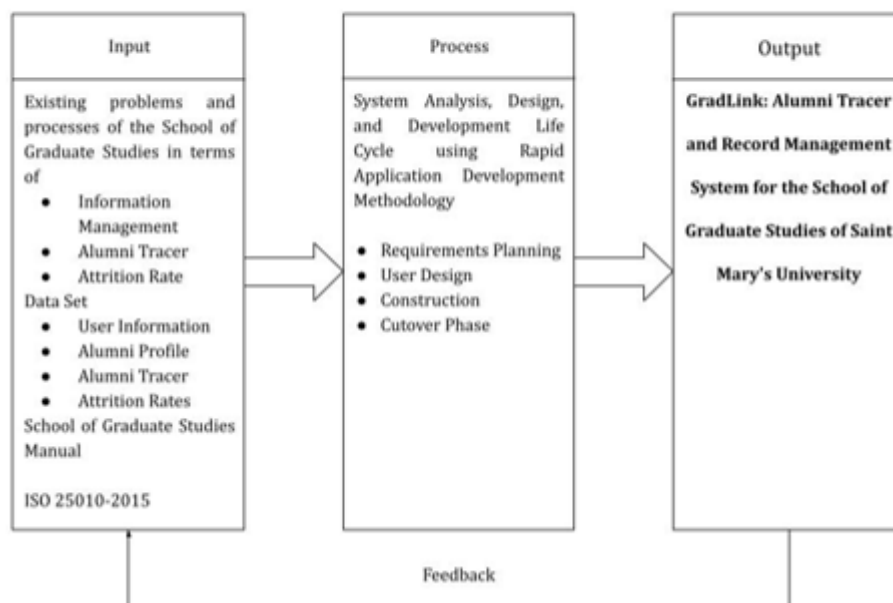
relationships, identifies potential donors, and locates resource speakers. Additionally, it supports ISO 9001:2015 compliance, ensuring efficient management of institutional processes.

**School of Graduate Studies of Saint Mary's University.** With the help of this study, the School of Graduate Studies of Saint Mary's University can view students' attrition rates and alumni employability, helping to improve student skill development. It streamlines record management, simplifies alumni tracking, and provides insights into alumni outcomes and industry representation, enabling data-driven curriculum enhancements.

**Alumni.** With a platform like this, alumni can easily update their information via a Google Form, enabling better communication, networking opportunities, and involvement in university events. By sharing their data, they help the university enhance its programs and increase the value of their degrees.

**Future researchers.** This study will provide future researchers with insights into the university's challenges and processes, guide the development of improved record management systems, and lay the foundation for new technologies to preserve graduate information and support the university's growth.

**Figure 1**  
*Conceptual Framework*



### Statement of the Problem

This capstone project implemented a record management and alumni tracing system for the School of Graduate Studies to track alumni employment status, record attrition rates, and manage alumni records from implementation onward.

This study sought to answer the following questions:

What are the existing problems and practices of the School of Graduate Studies in terms of?

- 1.1. Information Management
- 1.2. Alumni Tracer
- 1.3. Attrition Rate

2. What system can be developed to solve the problems encountered by the School of Graduate Studies and Alumni?
3. What is the extent of compliance of GradLink: Alumni Tracer and Record Management System for the School of Graduate Studies of Saint Mary's University with ISO 25010:2015 Software Quality Standards, as assessed by the IT professionals in terms of?
  - 3.1. Functional Suitability,
  - 3.2. Performance Efficiency,
  - 3.3. Compatibility,
  - 3.4. Usability,
  - 3.5. Reliability,
  - 3.6. Security,
  - 3.7. Maintainability, and
  - 3.8. Portability?

## METHODOLOGY

### Research Design

To ensure the study's effectiveness, descriptive and developmental research methods were used to develop GradLink, an alumni tracer and record management system for the School of Graduate Studies at Saint Mary's University. The descriptive method helped define current processes, attrition rates, and necessary documents, while also facilitating data collection through observations, interviews, and document reviews. The system was developed in accordance with ISO 25010:2015 for quality management and ISO 9001:2015. Rapid Application Development (RAD) was chosen for its flexibility and feedback-driven approach, which included phases of requirements planning, user design, construction, and cutover to ensure the system met user needs and quality standards. (Varatiya, 2023; Patel, 2024; Masih, 2023).

### Research Locale

The School of Graduate Studies at Saint Mary's University is committed to promoting academic excellence and guiding professionals by equipping them with the values, skills, and insights necessary for professional development and global competence. The Graduate School was established in 1962 with the introduction of the Master of Arts in Education Major in Guidance and Counseling program. Over the years, it has expanded its offerings to include various specializations in education, business, public administration, and other fields. It has continually adapted its curriculum to meet the evolving demands of various industries. Currently, the School of Graduate Studies offers four doctoral programs and twenty-three master's programs across fields such as business, information technology, and education. As of May 2021, the School of Graduate Studies has seventeen accredited programs recognized by the Federation of Accrediting Associations of the Philippines (FAAP) through the Philippine Accrediting Association of Schools, Colleges, and Universities (PAASCU). The School of Graduate Studies is located on the 2nd Floor of Rev. John Van Bauwel Hall, SMU Main Campus, Ponce Street, Don Mariano Marcos, Bayombong, 3700 Nueva Vizcaya, Philippines. It served as the pilot client for "GradLink: Alumni Tracer and Record Management System for the School of Graduate Studies of Saint Mary's University."

## Research Participants

In this study, there were six participant categories: the Dean of Graduate Studies, the Secretary of the Dean, GPCDH, Alumni, Registrar, and IT Experts. The Dean led the study, provided insights into alumni relations, and will serve as the system administrator. The Secretary contributed knowledge of existing practices and challenges to align the system with office operations. GPCDH (department heads) identified gaps in current processes and will oversee system deployment. Alumni provided valuable perspectives through purposive sampling to ensure the system meets their needs. The Registrar's office offered data on demographics, program completion, and attrition rates, ensuring accuracy. IT Experts evaluated the system against ISO 9001:2015 standards to ensure compliance and effectiveness.

## Software development

The Rapid Application Development (RAD) method proved to be an effective approach in building GradLink, an Alumni Tracer and Record Management System for the School of Graduate Studies at St. Mary's University. RAD offers several benefits, including accommodating changes in system requirements, measuring progress efficiently, reducing evaluation time through automation, and enabling early integration for faster problem-solving (Permana et al., 2020).

## RESULTS AND DISCUSSION

### Section 1. Existing problems and practices of the School of Graduate Studies

#### 1.1. Information Management

##### a. Lack of Centralized System

According to the Registrar, manually tracking student enrollment is labor-intensive, error-prone, and delays accreditation reports. The Dean also highlighted the absence of an integrated database, with reliance on inefficient paper-based methods that risk data loss. Alumni feedback confirmed that the outdated data collection methods, which rely on informal channels such as social media and surveys, make it difficult to maintain accurate, up-to-date records.

##### b. Inefficient Data Collection

The Registrar and Dean of Graduate Studies highlighted major inefficiencies in data collection resulting from the lack of a computerized system. Manual processes cause delays, human errors, and extended processing times, especially for reports needed for accreditation or reviews. The paper-based methods are time-consuming, burdensome, and prone to inaccuracies. Alumni echoed these concerns, noting that outdated methods, like repetitive forms, further delay effective alumni data management.

#### 1.2. Alumni Tracer

##### a. Absence of Dedicated Alumni Management System

As noted by the Registrar and the Dean, the lack of a structured process for managing alumni data leads to fragmented records. The reliance on data from the registrar's office and on informal channels, such as occasional surveys, limits alumni engagement and the university's ability to maintain meaningful relationships for various initiatives.

##### b. Limited Communication Channels

The respondents noted the limited communication channels with alumni, mainly through social media and occasional surveys, which are inconsistent and ineffective. The

Dean confirmed that the university's communication with alumni is ad hoc and lacks a centralized platform, hindering continuous and effective engagement.

**c. Lack of Systematic Alumni Engagement**

A significant problem identified in the interviews is the lack of systematic engagement with alumni. The Dean noted that engagement is driven by immediate needs or personal connections, rather than a structured approach, limiting the university's ability to maintain relationships and leverage alumni support for projects.

**1.3. Attrition Rate**

**a. No Formal Tracking System**

The interviewees highlighted the absence of a tracking system for attrition rates. The Registrar and Dean noted that attrition is tracked manually with incomplete records, making it difficult to assess trends or identify reasons for student discontinuation.

**b. Lack of Student Exit Information**

The respondents mentioned the gap in collecting and analyzing student exit information. The Registrar and the Dean noted that withdrawal reasons are not systematically recorded or analyzed, making it difficult to understand the causes of attrition. GPCDH also highlighted that the collected data is often incomplete, lacking a comprehensive view of student departures.

**c. Reliance on Enrollment Data**

According to the interviewees, the university relied primarily on enrollment data to understand attrition, which limits its ability to analyze retention and develop strategies to address student discontinuation. This approach provides an incomplete picture of student retention and attrition.

**Section 2. System to be Developed to Solve the Problems Encountered by the School of Graduate Studies and Alumni**

The interviews and feedback highlighted key areas for improving the School of Graduate Studies' data management and alumni engagement. Suggestions included automating data entry and reporting to reduce errors and improve efficiency, integrating the system with existing tools for consistency, and developing a comprehensive alumni management system. A module for tracking attrition and student exit information was recommended to analyze retention patterns. Alumni emphasized the need for a centralized system to manage data and improve engagement. These improvements aim to streamline processes, enhance alumni communication, and provide better insights into attrition trends and alumni involvement.

**Section 3. Degree of Adherence of GradLink: Alumni Tracer and Record Management System for the School of Graduate Studies of Saint Mary's University to the Standards of ISO 25010**

GradLink: Alumni Tracer and Record Management System for the School of Graduate Studies of Saint Mary's was evaluated based on the ISO 25010 Software Quality Standards. This evaluation aimed to verify the system's alignment with key quality attributes, including functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. The review assessed whether the application successfully fulfills its functional requirements, operates efficiently, ensures compatibility across various platforms, offers a user-friendly interface, maintains consistent reliability and robust security, is straightforward to maintain, and supports portability.

### 3.1. ISO 25010:2015 EVALUATION RESULTS

**Table 1**  
*Evaluation Results*

<b>ISO 25010</b>	<b>Mean</b>	<b>Description</b>
<b>Functional Suitability</b>	4.45	Very Great Extent
<b>Performance Efficiency</b>	4.65	Very Great Extent
<b>Compatibility</b>	4.56	Very Great Extent
<b>Usability</b>	4.43	Very Great Extent
<b>Reliability</b>	4.54	Very Great Extent
<b>Security</b>	4.51	Very Great Extent
<b>Maintainability</b>	4.40	Very Great Extent
<b>Portability</b>	4.65	Very Great Extent
<b>Overall Mean</b>	<b>4.52</b>	<b>Very Great Extent</b>

The evaluation results demonstrate high compliance with these standards, with an overall mean score of 4.52. GradLink has proven to effectively meet user requirements, deliver consistent and reliable performance, ensure robust data security, and maintain operational excellence. These findings highlight GradLink as a dependable, efficient, and user-friendly solution for managing alumni records and tracking graduate data for the School of Graduate Studies.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusion

Based on the study's results, the researchers addressed the challenges faced by the School of Graduate Studies in record management, attrition tracking, and alumni engagement. Using data collection methods including face-to-face interviews with recording, document reviews, and observations, the study identified inefficiencies in current processes and proposed a localized system as a solution. This system provides a platform that enables record management, tracks attrition rates per course and program, and features an alumni tracer with an alumni map for visualizing alumni locations. These features were implemented to improve record management, insights regarding attrition rates, and alumni connectivity, thereby improving the School of Graduate Studies operations. The findings emphasize that implementing this solution will support better alumni engagement and insights, student records, including attrition rates, and enhance the quality of services offered to graduate students by the Graduate School and to the University as a whole.

## Recommendations

The following suggestions are proposed for future studies to enhance and expand the system.

1. Future researchers could integrate the system with the Center for Information and Communications Technology (CICT) to automate record management, reducing the need for manual data input and improving efficiency.
2. The system could be integrated with a public domain, making it accessible over the internet for greater convenience and wider usability.
3. A dedicated alumni module could be developed, including a messaging system, an alumni tracer, and other essential features to facilitate direct interaction between alumni and the Graduate School, eliminating the reliance on third-party applications such as Google Forms.
4. Incorporating graphs into the system to visualize attrition rates could provide clearer insights and better data representation for decision-making.
5. A separate module for handling the training needs assessment form could be developed, replacing the current image upload functionality for a more streamlined process.
6. Implementing a numeric grading system could replace the current process that categorizes results as 'Pass,' 'Fail,' 'Dropped,' or 'INC,' providing more detailed evaluations for students.
7. The system could include details of the current professor assigned to each course in the list of courses offered per semester for every academic year, enhancing transparency and organization.
8. Modifications could be made to allow the University's highers-up to access the system, ensuring broader oversight and involvement.
9. A dedicated module specifically for doctoral students and alumni could be implemented to cater to their unique needs and requirements.

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