TITLE

Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas

In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science in Psychology

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TITLE

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CHAPTER 1

INTRODUCTION

Research outputs can be stored, arranged, and made accessible through a centralized platform called a research repository. Repositories are essential for maintaining knowledge and promoting cooperation between teachers and students in educational institutions. More broadly, repositories are defined by Gupta (2023) as centralized storage systems that save all project data and resources in one location, guaranteeing their accessibility for later usage. According to Rosala (2024), a capstone development system improves knowledge-sharing capabilities by making user-research outputs and artifacts available throughout an organization.

In our world where information is vital, many types of repositories are emerging. It is a type of storage where you can store and retrieve files and data either physically or digitally. According to Rosala (2024), "Research Repositories organize user research in a central place, making research-related documentation easy to access and consume.". Research repositories help users to find materials or documents related to their research topics easily.

The student or researcher will present their capstone project title proposal, followed by capstone project 1 and 2 to the panelist. The panel member consists of chairman of defense, major and minor panel. The research coordinator will assign the panelist, prepare the schedule of defense and set the deadlines. They are also

responsible for preparing the tools and evaluation form. During the presentation of the capstone project, the panel members will check and review the submitted and presented documents of the researcher. they will evaluate and grade the presentation as well as the content of their research project. The chairman of the panel will collect the graded evaluation of the researcher and submit to the capstone project teacher. The researcher will submit the capstone project documents to their adviser to check and review the content of the documents, during these sessions, the capstone adviser reviews the contents of the capstone project, provides feedback, and suggests necessary revisions. The adviser makes sure the project follows the rules and helps the student meet deadlines and finish tasks on time. The research coordinator and chairman of the panel will check and validate the content and format of the documents. After the approval of the chairman, minor and major panelists of the capstone project, it will be passed to the capstone project coordinator, dean, originality index, and English critique for necessary evaluation and final checks. This includes verifying the academic integrity of the work through plagiarism screening, assessing the quality of writing and grammar, and ensuring the project meets institutional standards. They will sign an approval form indicating that the student's capstone project is approved and will be officially stored. The institution follows a manual process in storing student Capstone Project Outputs. After the evaluation and finalization of the capstone projects, physical copies are distributed to three key offices: the Dean's Office, the Library, and the Research Coordinator's Office. Each

office maintains a physical storage system cabinet for the Dean and the Research Coordinator, and bookshelves for the library where the outputs are sorted and arranged chronologically by academic year. The library acts as the central hub for student access requests and is primarily responsible for the safekeeping of the capstone outputs. Students who wish to view previous research outputs must visit the library and request permission through a manual log process. The Dean's Office holds copies primarily for accreditation purposes, ensuring that institutional standards are met and that quality student research is available for review by accrediting bodies. Meanwhile, the Research Coordinator is responsible for organizing the capstone outputs according to their respective academic programs and ensuring alignment with curriculum requirements.

The motivation for conducting the project entitled " Development of Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas" comes from the need for a centralized and accessible platform to manage capstone outputs. This capstone development system aims to assist users in securely storing, organizing, retrieving, and managing capstone projects, thus improving the accessibility and management of research outputs. Streamlining access will also support librarians, research coordinators, the Dean, IMACS faculty members, students, and researchers in overseeing the research outputs. Furthermore, the system will foster collaboration

and resource-sharing within the institution, allowing researchers to access past projects for reference, which may inspire new ideas and strengthen the quality of upcoming projects. This initiative is intended to promote a culture of academic excellence and innovation at Kolehiyo ng Lungsod ng Dasmariñas, creating a long-term capstone development system that contributes to the institution's growth and development in research capabilities.

Project Context

The Institute of Mathematical Applications and Computing Sciences of Kolehiyo ng Lungsod Dasmarinas consists of Professionals in Information Technology fields, graduates of Computer Sciences and Information Technologies. The Institute of Mathematical Applications and Computing Sciences faculty is located on the 6th floor of the first building of the Institution.

The Institute of Mathematical Applications and Computing Sciences is currently tackling and assessing different Research outputs and Research Proposals from both 3rd and 4th year Bachelor of Science in Information System's students.

The evaluation process is conducted through face-to-face meetings, scheduling consultations between students and advisers can be time-consuming and may delay project revisions. During the defense, panelists grade projects manually, and their comments and suggestions are written on paper, increasing the chance of lost or incomplete records. The absence of a centralized system to track project status,

revisions, and approvals can lead to miscommunication and difficulty in monitoring overall progress. Systems for manual repositories currently impact data management and overall efficiency. One of the primary issues is the risk of physical documents being damaged or misplaced, which can disrupt operations and result in the loss of critical information. Additionally, consolidating data outputs can be particularly challenging with physical storage, as it requires extensive manual organization and space management. The retrieval process for physical documents can also be challenging; locating specific files may take an excessive amount of time, thereby reducing productivity. Security concerns are another significant drawback, as physical papers are more vulnerable to theft or unauthorized access, increasing the risk of sensitive data being compromised. Finally, as the volume of documents grows, the demands for physical storage increase, often resulting in higher costs and limitations due to restricted space availability.

Purpose and Description

The study, titled “Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas” aims to develop a system that will store student capstone output and development that will benefit the following users;

Institute of Mathematical Application and Computing Science Faculty (IMACS)—These include faculty members and the Dean. They will benefit by having a digitalized capstone development system that has full access to documents regarding capstone projects, and will also serve as a backup or soft copy of the student research outputs.

Librarian will benefit from the system by having a system that can store student capstone outputs digitally and have access to the full content of capstone project outputs

Research Coordinator will benefit by having full access to the digitalized repository system that can easily view, store, generate reports, and retrieve various documents streamlining productivity.

Capstone Adviser will benefit by having a digitalized evaluation system for capstone development for the students and also a repository system to review past and ongoing capstone projects.

Panelists will benefit by having a digitalized evaluation system in evaluating IMACS student capstone projects and will enhance collaboration between the panelist and the students.

IMACS Students will benefit by having a digitalized evaluation system for capstone development and a digitalized repository system for researching past Capstone projects.

Researchers will benefit from the system by having access to Academic Outputs which include Capstone Titles and abstracts of the Academic Outputs. Researchers would also benefit from the study. It would help him "doing research" actually means. It increased personal knowledge, developed programming skills and interest.

Future researchers would benefit from this study as their reference and would help them in the future as they could use this study as the basis for their research. Also, this may serve as their stepping stones as they reach the main objective of the study.

Objectives of the Study

The general objective of this study is to develop a system entitled "Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas"that will help the System administrator, research coordinator, dean,

librarian, IMACS faculty and student, and researchers in evaluating, uploading, storing, and viewing student capstone projects,

Specifically, it aims to:

1. design the system that is capable of:

a) aImplementing Role-based Access Control (RBAC) accounts for different users (researchers, dean, research coordinator, librarian) with different access restrictions.

b) Organizing and categorizing the Capstone Documents.

c) Providing search engines with advanced search features to find specific student research output.

d) Providing system features that display the number of views for specific capstone project documents, with controlled access to the abstract and full content.

e) Providing a system that only accepts PDF format for student Capstone outputs.

f) Having a comments and suggestions section for ongoing Capstone Projects for the Panelists and Capstone Advisers.

g) Providing a citation generator for researchers.

h) Providing a user account features (password recovery, profile updates, and secure password storage).

i) Providing different dashboards for specific user roles (librarian, research coordinator, dean, capstone adviser, and panelist)

j) Providing an Evaluation module that evaluates student capstone projects.

k) Providing a list of ongoing and completed Capstone Titles

l) Providing a system that will help to improve the manual system for evaluating and storing the student capstone project

2. Develop the system using different hardware and software requirements

a) Computer

b) Laptop

c) Internet

d) Intel i3 3rd Gen, AMD Athlon 3000G

e) 4-8GB RAM

f) HTML: HTML5

g) CSS: CSS3

h) JavaScript: ECMAScript 2023

i) PHP: PHP 8.3

j) XAMPP: 8.2.4

k) Laravel: 11.x

l) MySQL: MySQL 8.1

m) VSCODE: VSCODE 1.95

3. Test the system using unit testing, integration testing, performance testing, and system testing.

4. Evaluate the system using ISO 25010 standard; and

5. Prepare an implementation plan for the deployment of the system.

Time and Place of the Study

The study was conducted from November 2024 to April 2026 at Kolehiyo ng Lungsod ng Dasmariñas, Proposal writing and submission occurred in November, followed by data gathering in December 2024. Data analysis and interpretation were completed in April 2025, and the manuscript was finalized by May 5, 2025. The project final defense was held on May 2026.

Scope and Limitations

The purpose of this study of "Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas" is to make it easier for academic institutions to evaluate, organize, store, and make available student

capstone outputs. The proposed system is intended for nine (9) users; System Administrator, Research Coordinator, Dean, Librarian, IMACS faculty members, Capstone Adviser, Panelists, IMACS Students, and researcher.

System Administrator is responsible for overseeing and maintaining the integrity of the system's user management. This includes the creation of new user accounts, updating user information as needed, and managing account statuses by activating or deactivating access to maintain security and control over system usage. The user also generates user account reports.

Research Coordinator is responsible for managing and overseeing all capstone project-related documents within the system. This includes uploading, updating, and printing capstone details to ensure accurate and up-to-date records. The research coordinator also plays a key role in user management by assigning roles such as advisers and panelists. For IMACS students, the coordinator can assign panel members and a chairperson, as well as manage the scheduling of capstone project defenses, ensuring a smooth evaluation process. Also, the research coordinator has a full accessed in the proposed system. The Research Coordinator is also responsible for importing and exporting capstone documents into and from the system.

Dean has access to the full content of Capstone Documents as well as having a history of recently viewed Capstone Outputs. They also have access to ongoing and completed Capstone titles to ensure that each project is unique and does not have any

duplicates. The Dean can also have additional roles like panelist which will add certain features when accessing the system. The dean also generates reports such as book of abstract, list of categories of the developed capstone projects, and the number of capstone project stored in the system.

Librarian can view the full content of the Capstone Documents. The Librarian is also the one responsible for granting permission to users to view the full content of Capstone Documents in the proposed system. The proposed system can be accessed fully through library computers. This ensures security, confidentiality, and privacy of research outputs. Also, the librarian generates reports such as the number of viewers or visitors and number of capstone projects stored in the proposed system. The librarian does not include in the capstone project document development and evaluation process in the proposed system.

IMACS Faculty can access and view the full content of Capstone Documents, as well as having a history of recently viewed Capstone Outputs. They can also view the ongoing and completed capstone title that will ensure that each project is unique and does not have any duplicates. The IMACS Faculty can also have additional roles like Capstone Adviser and Panelist which will add certain features when accessing the system.

Capstone Adviser is responsible for the creation of the IMACS Student's account. The Capstone Adviser can view the Capstone titles and the Documents of

students they are managing. They can also provide insights by leaving comments and suggestions on said Capstone Documents. The capstone adviser can browse the full content of the approved capstone project documents in the proposed system.

Panelist includes dean and IMACS faculty members. The Panelist role will be assigned by the Research Coordinator and will be able to provide comments and suggestions for evaluating the capstone projects. They will also be notified when and what group the defense will be and the schedules.

IMACS Students will be given an account by the Capstone Adviser where they can upload the documents of their ongoing capstone project which includes viewing the comments and suggestions provided by their Capstone Adviser and Panelists. They can also view their schedule of Defense as well as the members of the Capstone Guidance Committee. Also, with the permission given by the librarian of the institute. IMACS student can browse the capstone project documents in the proposed system.

Researchers can search and view completed Capstone Project in the system to aid in their studies or further research. However, access to the full copies of outputs is restricted and requires permission. They may request access through the Librarian and are expected to adhere to usage guidelines, maintaining the integrity and confidentiality of the information accessed.

There are (6) modules in the proposed system; user account management module, document management module, access and permission management module, record management module, research management module, and report management module.

User Account Management Modules this module handles everything related to the user's accounts. This includes creating, password and account recovery, and deactivating accounts.

Document Management Modules this module allows uploading, updating, and archiving capstone project documents. Only supports strictly PDF format. This module includes; manage user roles, and grants or denies request permissions.

Research Management Module this module allows IMACS students researchers to upload research capstone project documents, allows Dean, Adviser, and panelist to leave comments and suggestions, Stores student capstone project documents, Advanced search and filtering by title, author, year, category, and keywords, and generate reports for the librarian, dean, research coordinator, and system administrator.

Record Management Modules this module includes all record-keeping within the system, including the number of submitted student research outputs, user details, research submissions, and keywords related to the student research outputs. This module is the one responsible so there will be no duplicate research output can be

found in the system. This module acts as a search feature to find specific research topics in collaboration with the Research Management Module.

Report Management Module this module generates reports such as list of research outputs based on academic year, general subjects such as Internet of Things (IoT), Artificial Intelligence, Augmented reality, Web-applications, Mobile application, most viewed research outputs, generate book of abstract, and number of recorded research outputs. This module also includes dashboards of Dean, Research Coordinator, Librarian, and System Administrator.

However, the proposed system only accepts Capstone Titles from the IMACS students. The proposed system does not include the Capstone projects of the faculty members. The proposed system is only for ongoing and completed Capstone Projects of IMACS students. The student capstone documents cannot be downloaded on any platform. The system does not allow users to edit any uploaded document files, as these documents are strictly for viewing purposes only to maintain their originality and authenticity and only accepts PDF format documents. The researchers can only view the full content of student capstone documents in the school Library with the Librarian's permission. The proposed system requires the internet to function. The proposed system only accepts files that do not exceed 300MB per file upload. Each user account has limited access based on assigned roles; IMACS students can only

upload and view their own submissions, while advisers and panelists can only access capstone projects assigned to them. The system does not allow account holders to edit or delete submitted evaluation results once finalized. For defense-related features, only authorized panelists can input grades and comments during scheduled defense sessions, and these records cannot be altered after submission to maintain academic integrity. Additionally, scheduling defenses must still be coordinated manually outside the system, as automated scheduling is not supported.

Framework

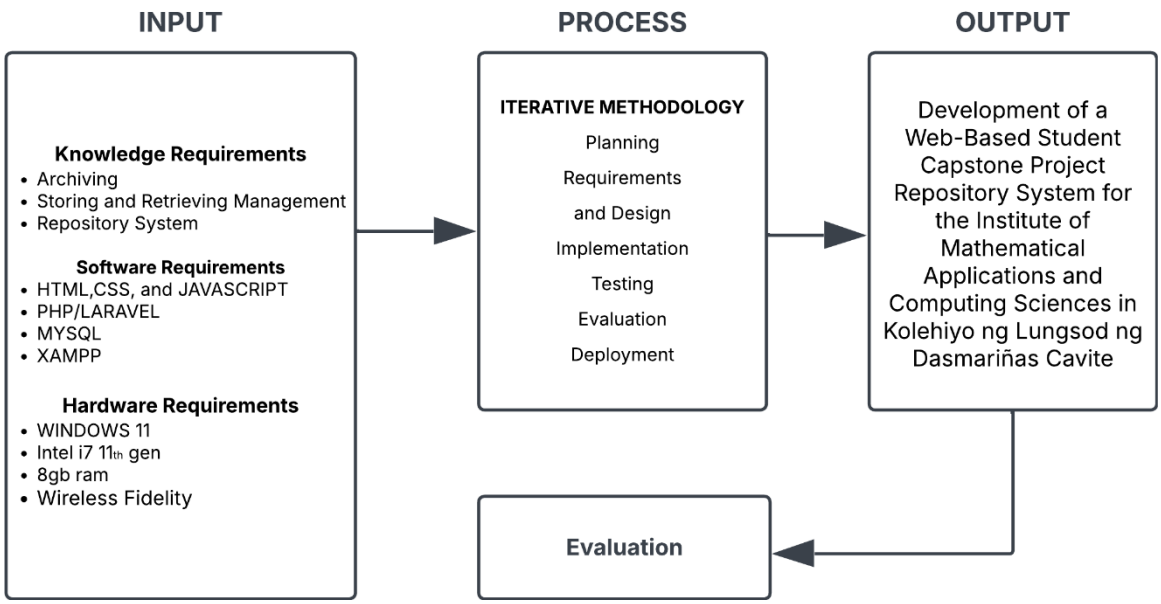

Figure 1. Conceptual Framework of "Development of Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas Cavite"

The figure 1 illustrates the IPO Model (Input-Process-Output) for the Development of Web-Based Student Capstone Project Repository System for the

Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas Cavite.

The Input section highlights the knowledge requirements and hardware requirements needed for the project. These include knowledge in archiving in understanding how to properly store and preserve digital documents. Storing and retrieving data management in efficiently managing data storage and retrieval , and familiarity to digital repositories on how they function to support capstone project data storage. And programming languages and tools such as HTML, CSS for front end and styling/designing, JavaScript and PHP/Laravel for Backend, authentication purposes, MySQL for databases storage, and XAMPP testing and local hosting. The system requires a computer with at least an Intel i3 3rd Gen processor, 4-8 GB RAM, and Windows 10, along with access to a laptop, personal computer, and a wireless fidelity.

The Process section presents Iterative Methodology, an approach that includes; planning, requirements gathering, analysis and design, implementation, testing, evaluation, and deployment. In the planning phase the researcher identified the project goals and setting roadmap, in the requirements gathering the researcher defined the system requirements and designing its structures, In the implementation the researcher will code and proceed to system development, In the testing phase the researcher will check for bugs and functionality issues, for evaluation the researcher

will analyze performances and making improvements, and lastly for deployment the researcher will make the system live and accessible. These steps ensure a systematic and thorough process for developing the repository system.

The Output of the process is the development of a Web-based Student Capstone and Development System. This system is designed to archive and manage research outputs, providing storage and retrieval capabilities for the institution.

The model also includes an Evaluation phase to assess the system's performance and ensure it meets the objectives and expectations of its users.

In the evaluation phase, the ISO25010 is use to measure the quality characteristics of the proposed system This international standard provides a framework for evaluating software quality across different dimensions. During this phase, the system will be assessed based on relevant criteria such as: Functionality, Reliability, Usability, Performance, Efficiency, Security, Maintainability, and Portability.

General Definitions of Terms

Archiving – Long-term storage and preservation of records.

Capstone – A final project that allows students to showcase the knowledge and skills they have gained throughout their academic program and apply them to real-world problems and issues.

Dean – Oversees the quality of stored research in academia.

Internet – A set of interconnected networks.

Librarian – Manages access to research documents.

Modules – Sections of a system for specific functions.

Research Coordinator – Evaluates and approves research for storage.

Repository – A type of centrally located storage where project files and resources are kept, according to Gupta, V. (2023).

Search Engine – A built-in feature that allows users to quickly find specific information, documents, or content by typing keywords into a search box.

System Administrator – Manages system functions and user accounts.

Technical Definitions of Terms

CSS – A stylesheet language for web design and layout.

HTML – Standard language for structuring web pages.

JavaScript – A programming language for interactive web features.

Laravel – A PHP web framework used for building robust, scalable web applications. It provides tools for routing, authentication, and database management.

MySQL – A database system for storing and managing web data.

PHP – A server-side scripting language used to create dynamic web pages.

VSCODE – An integrated development environment (IDE) developed by Microsoft for writing and editing code.

XAMPP – A local server package that includes Apache, PHP, and MySQL for web development.

CHAPTER 2

REVIEW OF RELATED LITERATURE AND STUDIES

Related Literature

Foreign Studies

According to Garcia et al. (2024) The iterative development process is often associated with Agile development, but they are not the same. Traditional project methodologies can also incorporate iterative development without adopting other Agile principles. In traditional approaches, a sequential process is followed, where project requirements are defined at the start and continuously developed and tested. After completing each development cycle, testing is performed, and improvements are made based on feedback. However, unlike Agile, new requirements cannot be added—only development and testing are repeated. Unlike Agile's time-boxed iterations, the iterative process does not have strict time constraints and may take days, weeks, or even months to complete. The project is considered finished only when all iterations are completed. Additionally, while customers provide input during the initial phase, they are not actively involved throughout the development process.

Instead, requirements are fixed from the beginning, and the final product is delivered only after all iterations are done.

Institutional Repositories and their Role in Knowledge Management: A Study of PAU Repository

Kumar (2022) stated in his conclusion "Institutional repositories contribute immensely to disseminating scholarly knowledge, thus playing a significant role in scholarly communication in the open era. They help preserve and disseminate institutional knowledge. Therefore, proper planning and management of Institutional repositories are necessary for effective knowledge management in institutions of higher learning. Academic libraries are becoming critical players in developing and successfully implementing institutional repositories. Librarians with expertise in publishing and copyright issues collaborate with teachers and researchers for more visibility and impact. They have redefined their role in Institutional Repositories and their Role in Knowledge Management: A Study of PAU Repository 67 Journal of Agricultural Extension Management Vol. XXI1 No. (2) 2021 from supporting teaching and learning to increased emphasis on research support services by spreading awareness about research and publication ethics through literacy programs of an institution. Every institution should work towards the growth and development of the

repository, be it content type or its promotion and dissemination, so that no one should be deprived of the required information"

Reusable Security Requirements Repository Implementation Based on Application/ System Components

Sonmez and Kilic (2021) conclude that collaborating with IT businesses that have extensive Software Requirements Specification (SRS) libraries can aid in the development of a public security library. A shared repository among developers on related projects could serve as a platform for improved internal SRS libraries. This repository could also incorporate features like function point measurements and vulnerability analysis levels. Further research into keyword sets and security concept diagrams could enhance the repository's data structure. Additionally, automating keyword generation from security-related concept seeds could help verify the presence of essential concepts in an SRS, although translating these concepts into application/system components requires further effort. A rule-based engine could potentially assist in this translation process.

A Web Based Digital Repository for Scholarly Publication

Okon et al. (2020) stated that an institutional repository (IR) is a system for collecting, preserving, managing, and accessing a community's intellectual products. Faculty work, student theses and dissertations, e-journals, datasets, and more can all be considered institutional intellectual products. IRs give an institution a way to display its research output, centralize and streamline the management of valuable digital documents, and proactively address the growing crisis in scholarly communication. IRs have proliferated globally, especially among academic and research institutions, thanks to the availability of open-source repository systems.

The researchers aimed to develop and implement the DSpace@IMSU repository system as a platform for collecting, preserving, and sharing scholarly research outputs at Imo State University (IMSU). Their primary goal was to address the challenges faced by the institution and its students in accessing and disseminating research materials. To achieve this, they chose DSpace, a free and open-source software, which not only helps overcome financial constraints but also benefits from continuous support and improvements from the global developer community.

Development of a responsive web-based Final-Year Project Repository System (FYPRS) for Nigerian Tertiary Institutions

Uzougbo and Kolade (2024) build an application using Laravel framework, which has been demonstrated to have good performance, usability, and development potential. It includes features like user authentication, project submission and evaluation, and a search engine. The program offers a more effective, dependable, and efficient way to manage final-year assignments by reducing the drawbacks and difficulties of the traditional, manual, paper-based method. By automating and simplifying the management of these projects, this program improves the final-year project process, which is an essential part of the undergraduate curriculum. The web-based Final-Year Project Repository System is presented in this paper as a complete solution. FYPRS provides a consolidated platform for faculty members to review and access student projects as well as for students to submit and preserve their work. The application, which was created with the Laravel framework, has a search engine, project submission and evaluation capabilities, and user authentication. The method improves the effectiveness and efficiency of final-year projects, which are essential parts of undergraduate curriculum, by overcoming the limits of traditional administration. Dependability, effectiveness, and high usability are demonstrated by its execution, which is founded on a rigorous methodology that includes a literature study, needs assessment, system design, analysis, testing, and evaluation.

Development of an Online Repository for Academic Research Works in FUTA

According to Itiola et al. (2021) research has shown that establishing an institutional repository will improve access to digital material as well as institutional data that has been managed, organized, stored, and disseminated. To increase the visibility and impact of research produced within the institution, the majority of institutions in developing nations have set up institutional repositories. An electronic system that records, maintains, and grants access to digital work products is called an institutional repository. It maximizes an institution's intellectual outputs by gathering, organizing, and sharing content created there. The study aims to develop an academic research repository for the Federal University of Technology Akure's Department of Computer Science. The design utilizes PHP (Hypertext pre-processor), MySQL, JavaScript, CSS (Cascading Style Sheet), and HTML (Hypertext mark-up language). In terms of maintaining student research and making materials accessible to users, the new system will prove to be beneficial to both students and other users. However, caution must be used when applying the system output, even if this research has made a significant contribution to the body of knowledge. It is only available at FUTA's Department of Computer Science. As a result, the study suggests that a more comprehensive repository system be created over time to record research from all of the institution's faculties or from other institutions throughout the nation.

DEVELOPMENT OF WEB-BASED REPOSITORY SYSTEM FOR YOUTH SCIENCE CLUB (YSC) IN SENIOR HIGH SCHOOL X

Repository for YSC in Senior High School X was designed to serve as the primary digital storage location for scientific paper work files, particularly those submitted for a scientific paper competition. All scientific papers that were previously dispersed among several locations and devices will be gathered by this program into a single primary storage location. There are three different user types in the repository: administrators, teachers, and students. Because this program is a web-based repository, it is easily accessible to all users through the internet using a web browser. This thesis aims to create a repository system with a variety of capabilities, including file management, uploading, viewing, searching, downloading, and reporting. The sole purpose of this repository software is to store scientific paper competition files(Lula & Rosalina, 2023).

Implementation of a Web-based Data Archival Management System.

The study aimed to create a web-based data archival management system for Veritas University, Abuja, focusing on long-term storage and file management. The system was designed to improve existing systems by implementing direct file transfer from one user to another. The system proved useful, reducing the use of hardcopy files and improving work flow. Although developed specifically for Veritas University,

the system can be used by anyone and in any organization. The researchers recommend its use in schools, banks, hospitals, and other institutions. The project achieved its initial goals, but some functions, such as online document editing and new message notifications, were not implemented as intended. To improve the ARCHIVO 1.0 system, password, notification, and file editing functions will be changed in the next version release. A summative usability study will be conducted to benchmark the system and for further improvement in future releases. The system's importance makes it a viable solution for making work environments more convenient, efficient, and productive (mkpojiogu, Akusu, Hussain and Hashim 2020).

Web-based Data Archival Management System

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Local Studies

WEB-BASED REPOSITORY OF RESEARCH OUTPUTS FOR CITY COLLEGE OF TAGAYTAY

Ronquillo et al. (2023) developed a web-based repository system for research outputs to assist the library in efficiently storing and retrieving research documents. The system was built using PHP/XAMPP for server-side development, HTML, CSS, and Bootstrap for the front-end, JavaScript and jQuery for the back-end, and MySQL for the database. The study utilized the Iterative Development Methodology, which consists of six phases: planning and requirements gathering, analysis and design, implementation, testing, evaluation, and deployment. This structured approach ensured continuous improvement and refinement of the system. The primary objective of the system was to enhance research document management techniques by providing a secure, web-based solution that simplifies the manual collection and archiving of research outputs. The system targeted five user roles: System

Administrator, Research Head, Research Coordinator, Librarian, and Students. By implementing this system, students at City College of Tagaytay can efficiently search for specific research documents without manually browsing through physical archives in the library.

Design and Development of the ASSET: A Web-Based Research Archiving System

Tindoc Jr et al. (2023) highlight the limitations of traditional archiving methods, which involve storing research papers in physical folders and filing cabinets, requiring significant space and offering limited archival capacity. To address these issues, the researchers developed an online storage system specifically for capstone projects and theses, allowing for organization by author, title, subject, and content. The primary goal of this system is to retain and preserve student research while ensuring long-term accessibility. The project aims to understand the current practices, problems, and policies related to archiving, and to create a solution that effectively addresses these challenges. Additionally, the system will be evaluated by IT specialists to ensure compliance with ISO 25010:2011 Software Quality Standards. The study also focuses on developing an efficient data recording and retrieval framework by optimizing research information input through file uploads and implementing effective indexing methods for easy access. Ultimately, the system aims to facilitate the long-term

storage and accessibility of various research papers, theses, and capstone projects completed by undergraduate students at Cagayan State University Aparri.

R2S: A REPOSITORY PLATFORM FOR RESEARCH OFFICES IN THE HIGHER EDUCATION INSTITUTION (HEI's) IN THE PHILIPPINES

Cofino et al. (2022) Develop a System using Bootstrap for the front-end/user interface, Laravel for the back-end features, and MySQL for the database. XAMPP 7 was used as the local server environment for the development of the R2S platform. The compatibility with all browsers has been ensured by the researchers. Additionally, the design was simultaneously evaluated on mobile devices and in other browsers for compatibility. The study's goal was to create a research repository system as a databank for undergraduate and graduate students' thesis documents that provides a secure, efficient, and reliable repository; develop a user-friendly design; and demonstrate that the developed design complies with the system requirements and specifications. In order for the development to be effective and for the user to value the project, the researchers employed a model. In order to check and validate the application, it adhered to the Software Development Life Cycle's (SDLC) Agile model approach.

Developing Digital Research Portal for Bukidnon State University's Scholarly Work

Caseres et al. (2020), created a system that would be used as a tool for all of the research papers that BukSU instructors and students have published. The researchers conducted extensive testing and evaluation before gathering the results. Based on their discussion, the study was able to create the BukSU Research Record Management System, which serves as a functional system for all BukSU researchers and provides reliable information. The evaluation of the end user's response to the BukSU RRMS testing process provided positive feedback, suggesting that the system has achieved its goals. The researchers came to the conclusion that the Research Record Management System's design and development met the anticipated functional requirements based on the system's development process and evaluation data. The Research Unit of Bukidnon State University now uses the Research Record Management System. The system's total average score was 97.90%, indicating that all respondents approved of its usability, functionality, reliability, and efficiency.

THESISIT: WEB-BASED UNIVERSITY THESIS MANAGEMENT PORTAL WITH A DEFENSE SCHEDULING SYSTEM

Chio et al. (2022) developed a project of an online repository for university theses, where students enrolled in the course can upload and submit relevant materials as part of the course requirements. Through the portal, the assigned adviser and panel members can then examine and comment on the documents that have been submitted. Additionally, the department chairman can automatically create a calendar for oral defenses and keep track of each group's status and development. The genetic algorithm is being used to create the automated timetable. The college dean and research director might then review completed theses in order to discuss potential future research collaborations.

Design and Development of Romblon State University Romblon Campus Accreditation Data Warehouse. Romblon State University

Accreditation is a process that assesses and improves the educational quality of higher education institutions and programs. It requires complete documents for expert review, and data preservation is crucial for compliance. This study developed a data warehouse to incorporate all documents for college accreditation, using a five-step process. The system was developed using the Systems Development Life Cycle model and evaluated using the ISO/IEC 25010:2011 standard. Sub-characteristics such

as suitability, efficiency, compatibility, usability, reliability, security, and maintainability were applied to ensure the system meets user preferences and meets essential features like uploading, viewing, and system maintenance. The parameters created by the system can be used by other satellite campuses of Romblon State University and other universities applying for accreditation from the Accrediting Agency of Chartered Colleges and Universities in the Philippines (AACCUP) (Mariño et al., 2023).

Web-based document management system for shop drawings [Master's thesis, De La Salle University]. Animo Repository.

The Solaire Metro North Project's construction project management team is focusing on improving their documentation system to enhance productivity and focus on actual work. The intern has identified gaps and weaknesses in the existing manual document management system, particularly in submission, routing, consolidating, and inventory of shop drawings. The proposed system uses chat boxes for communication, file storage, and approval, making submission paperless. The system requires training for staff and capacity building to ensure awareness and ease the workload of document controllers, admin assistants, and engineers. This web-based document management system aims to streamline processes and improve efficiency (Tabernilla, 2020).

Development of a Web-based records management system: an ERMS initiative for the Office of Senior Citizen Affairs in the Philippines. Records Management Journal.

The Office of Senior Citizen Affairs in the Philippines has developed a web-based Electronic Records Management System (ERMS) to improve record management efficiency and address challenges related to manual record-keeping. The system, developed using modern technologies and methodologies, offers a robust solution for effective record handling. The methodology, including problem identification, feasibility analysis, and process and data flow diagrams, ensures a comprehensive understanding of the organization's needs. The system, using MySQL for the database and Laravel for the web interface, is well-designed and functional (Botangen et al., 2025).

Web-Based Management System for Joseph Precast Ornaments. AMA Computer College

The system allows registered users to view and explore products, but only registered users can use and order. The system's efficiency is enhanced by a graphical interface and database, which requires correct username and password input. The web-based management system for Joseph Precast Ornaments is a significant improvement over the manual system, allowing customers to access the site with an

internet connection for viewing products and ordering via a secure payment gateway. Survey data from IT and non-IT indicates that the project is efficient and user-friendly for customers and personnel (Siang, 2022).

System Technical background

According to Corbo (2022) PHP is a programming language that runs on servers and is frequently integrated into HTML. Its code, which carries out server tasks, is encapsulated in unique start- and end-processing instructions. After HTML is created by the server and sent back to the client, the user can interact with the page.

According to Christensson (2023) Style sheet language CSS is used to format HTML webpage content. Separate from the content itself, CSS style sheets can specify how text, tables, and other elements should look and be formatted. Styles can be found in the HTML file of a webpage or in a different document that is referred to by several webpages.

According to Team (2023) JavaScript is an interpreted, high-level programming language that is mostly used for creating web pages and web applications' front ends. It is a flexible scripting language that web browsers can run when embedded in HTML code. Programmers can interact with web elements, improve user experience, and add functionality to websites with JavaScript.

According to Lutkevich (2020) Hypertext Markup Language, or HTML, is a text-based method for specifying the structure of the content that is contained in an HTML file. This markup instructs a web browser on how to present multimedia on a webpage, including text and images.

According to Jalli (2022) Laravel includes useful built-in features such as the Artisan command-line interface (CLI), native authentication, and model-view-controller (MVC) architecture. These characteristics are the primary cause of the framework's popularity and make it simple to use.

According to Training (2024) XAMPP is a free and open-source cross-platform web server solution stack package created by Apache Friends. It includes the Apache HTTP Server, the MariaDB database, and interpreters for PHP and Perl scripts. Cross-Platform (X), Apache (A), MariaDB (M), PHP (P), and Perl (P) are the acronyms for XAMPP.

“MySQL, which stands for "My Structured Query Language," is an open-source relational database management system (RDBMS) renowned for its speed, dependability, and versatility. The proper pronunciation of MySQL is a topic of frequent discussion among programmers. Let's settle this argument once and for all. Oracle claims that MySQL can be pronounced as "my sequel" or "my ess-cue-el"(*What Is MySQL? Definition, Comparision With SQL, Benefits & Features Explained - Intuji | Creating Tomorrow®*, 2023)

Synthesis

The development of web-based repository systems is crucial for improving digital document management in academic and institutional contexts. Studies by Garcia et al. (2024) and Okon et al. (2020) emphasize the importance of iterative development and open-source platforms like DSpace for creating sustainable repositories that enhance scholarly communication and accessibility. Kumar (2022) and Sonmez & Kilic (2021) highlight the role of institutional repositories in knowledge management and security, advocating for collaboration and structured repositories. In Nigeria, research by Uzougbo & Kolade (2024) and Itiola et al. (2021) showcases practical implementations of web-based systems using Laravel and PHP, improving final-year project submissions and archiving. The ARCHIVO system (Akusu et al., 2020) demonstrated enhancements in document flow and usability, despite some limitations. Local projects like THESISIT (Chio et al., 2022) and R2S (Cofino et al., 2022) focus on comprehensive platforms for submission, review, and feedback. Usability, security, and efficiency are emphasized in systems like ASSET (Tindoc Jr et al., 2023) and the BukSU Research Portal (Caseres et al., 2020), which received positive user evaluations. Ronquillo et al. (2023) developed a system at City College of Tagaytay using iterative models to create robust platforms with tailored features. Specialized repositories, such as the Youth Science Club repository (Lula & Rosalina, 2023) and the Romblon State University Accreditation Warehouse (Mariño et al., 2023), show

adaptability beyond higher education. Finally, repository systems for Veritas University, De La Salle University, and the Office of Senior Citizen Affairs (Botangen et al., 2025) illustrate the growing need to transition from manual, paper-based systems to efficient, secure, and sustainable digital platforms.

Table 1. Table of Comparison

Title	Category	Author/ Year	Features	Similarities	Differences	Source
Institutional Repositories and their Role in Knowledge Management: A Study of PAU Repository	Repository system	Kumar (2022)	disseminate scholarly knowledge. publishing, copyright, and research support.	Academic management Repository system	Evaluation system	Kumar, S. (2022). Institutional repositories and their role in knowledge Management:
Reusable Security Requirements Repository Implementation Based on Application/ System Components	Security and repository	Sonmez and Kilic (2021)	shared security requirements repository. automating keyword generation.	Repository system	Security application Academic evaluation	Sonmez (2021). Reusable Security Requirements Repository implementation based on Application/System

A Web Based Digital Repository for Scholarly Publication	Repository	Okon et al. (2020)	- Uses open-source solutions.	repositories to preserve and share student research works.	Evaluation system	components Okon, R., (2020). A web based digital repository for scholarly publication. *Journal of Software Engineering and Applications*,
Development of a responsive web-based Final-Year Project Repository System (FYPRS) for Nigerian Tertiary Institutions	Reponsive repository system	Uzougbo and Kolade (2024)	Repository using Laravel framework. - Includes project submission, evaluation, search, and authentication.	project submission and evaluation features. utilized Laravel framework	Nigerian tertiary institutions broadly, while the proposed system is targeted to IMACS faculty only.	Uzougbo, N. O. I., & Kolade, N. a. M. (2024). Development of a responsive web-based Final-Year Project Repository System (FYPRS) for Nigerian Tertiary

						Institutions.
Development of an Online Repository for Academic Research Works in FUTA	Online repository system	Itiola et al. (2021)	Improved access to student research materials. Focused initially on one department.	Archiving student research work digitally.	Evaluation system	Itiola,(2021). Development of an online repository for academic research works in FUTA.
DEVELOPMENT OF WEB-BASED REPOSITORY SYSTEM FOR YOUTH SCIENCE CLUB (YSC) IN SENIOR HIGH SCHOOL X	Repository system	Lula & Rosalina (2023)	Upload, view, search, download, reporting.	multi-user access roles. centralized research outputs.	Evaluation system	Lula, A., & Rosalina, R. (2023). A DEVELOPMENT OF WEB-BASED REPOSITORY SYSTEM FOR YOUTH SCIENCE CLUB (YSC) IN SENIOR HIGH SCHOOL
Implementation of a Web-based Data	Data archival system	(mkpojiogu, Akusu, Hussai	data archival management system (ARCHIVO 1.0)	Data management	The proposed system is specifically targeted	Mkpojiogu, Emmanuel & Akusu,

Archival Management System.		n and Hashim 2020).	- Focused on long-term file storage and file transfer between users.		toward managing academic capstone projects.	Efe & Hussain, Azham & Hashim, Wahidah. (2020). Implementation of a Web-based Data Archival Management System
WEB-BASED REPOSITORY OF RESEARCH OUTPUTS FOR CITY COLLEGE OF TAGAYTAY	Research repository system	Ronquillo et al. (2023)	- Provides secure access and simplifies research document management.	Improve the management and accessibility of academic research and easily accessible for users.	Focuses on developing repository system while the proposed system includes evaluation system and approvals	Ronquillo, R. A. U., Viscaya, M. L. A., Nuestro, M. H., Tuballa, J. H., & Vida, B. B. (2023). *WEB-BASED REPOSITORY OF RESEARCH OUTPUTS FOR CITY COLLEGE OF TAGAYTAY*. CITY COLLEGE OF

						TAGAYTAY.
Design and Development of the ASSET: A Web-Based Research Archiving System	Archiving system	Tindoc Jr et al. (2023)	Aims for long-term storage and easy access to student research. - Focus on optimizing research information input and effective indexing.	Development of web-based systems for archiving and managing student research in compliance with ISO 25010:2011 Software Quality Standards.	The proposed system includes specific components for defense and evaluation of capstone projects.	Tindoc Jr, F. P. T. Jr., Torres, R. G. T., Corpuz, K. a. C. C., Salem, J. T. S., & Paliuanan, L. P. P. (2023). *Design and Development of the ASSET: A Web-Based Research Archiving System*
R2S: A REPOSITORY PLATFORM FOR RESEARCH OFFICES IN THE HIGHER EDUCATION INSTITUTION (HEI's) IN THE	REPOSITORY PLATFORM FOR RESEARCH	Cofino et al. (2022)	- Developed a research repository - Ensures compatibility with all browsers and mobile devices.	Archive and manage student research work while prioritizing secure, reliable, and efficient data storage solutions.	The proposed system is focused specifically on capstone projects with a defense and evaluation feature.	Cofino, C. C., Enquilino, D. B. E., & Salao, M. J. S. (2022). R2S: A REPOSITORY PLATFORM FOR RESEARCH OFFICES IN THE

PHILIPPINES						HIGHER EDUCATION INSTITUTION (HEI's) IN THE PHILIPPINES [Central Philippines State University, Kabankalan City, Negros Occidental, Philippines.]
Developing Digital Research Portal for Bukidnon State University's Scholarly Work	Digital portal	Caseres et al. (2020)	- Developed the Research Record Management System for storing research papers. - Achieved an average score of 97.90% in evaluation.	Repository for academic research papers.	The proposed system specifically targets student's capstone projects with a defense and evaluation process for students at IMACS.	Caseres, K. J. R., Cruz, R. P., Gonzales, L. A. T., Tapayan, P. G. M. L., & Aribe Jr, S. G. (2020). Developing digital research portal for Bukidnon state university's

						scholarly work.
THESISIT: WEB-BASED UNIVERSITY THESIS MANAGEMENT PORTAL WITH A DEFENSE SCHEDULING SYSTEM	Management Portal	Chio et al. (2022)	- Developed an online repository for university theses. - Assigned advisers and panel members can comment on documents. - Allows the college dean and research director to review completed theses.	Development of web-based systems for thesis and project submissions with feedback by assigned users (advisers/panel members).	The proposed system includes a defense/evaluation component specific to student capstone projects at IMACS.	Chio, M. E. C., Garrido, J. G., Dal, P. M. D., & Baldelovar, A. B. (2022). *THESISIT: WEB-BASED UNIVERSITY THESIS MANAGEMENT PORTAL WITH A DEFENSE SCHEDULING SYSTEM*
Design and Development of Romblon State University Romblon Campus Accreditation Data Warehouse. Romblon State University	Data Warehouse	Mariño et al. (2023)	- Developed a data warehouse for college accreditation. - Features include document uploading, viewing, and system maintenance.	Development of a system to organize and store academic documents.	System is tailored specifically for student capstone projects, including evaluations and defenses.	Mindoro-Mesana, J. M., Mesana, J. P., & Mariño, L. (2023). Design and Development of Romblon State University Romblon

						Campus Accreditation Data Warehouse. Romblon State University Tabernilla, J. P. (2020). Web-based document management system for shop drawings [Master's thesis, De La Salle University]. Animo Repository.
Web-based document management system for shop drawings [Master's thesis, De La Salle University]. Animo Repository.	Document management	Tabernilla (2020)	- Focus on submission, routing, consolidation, and inventory of shop drawings. - Uses chat boxes for communication and approval, making the submission paperless.	Web-based systems aimed at improving document management efficiency that enhances workflow and improve processes.	System is centered around student capstone projects with an evaluation and defense feature.	
Development of a Web-based records management system: an ERMS initiative for the Office of Senior Citizen	Record management system	(Botangen et al., 2025).	- Developed a web-based management system - Registered users can view products but only order after registration. - Efficient system with a graphical	Development of a web-based platform that enhances user interaction and accessibility, improving user experience	The proposed system is tailored for managing student academic projects, including evaluation	Libadia, M., Botangen, K. A., Lucero, P. J., & Tecson, J. (2025). Development of a Web-based

Affairs in the Philippines. Records Management Journal.			interface and secure payment gateway.	and efficiency in managing and processing data.	s and defenses.	records management system: an ERMS initiative for the Office of Senior Citizen Affairs in the Philippines. Records Management Journal.
Web-Based Management System for Joseph Precast Ornaments. AMA Computer College	Management System	(Siang, 2022).	- Web-based data archival system - Long-term storage and file management. - Implements direct file transfer between users.	Web-based systems for organizing and improving document management aim to reduce reliance on physical files and improve workflow.	The proposed system is specifically for managing academic projects, including evaluation and defense components.	Siang, K. C. (2022). Web-Based Management System for Joseph Precast Ornaments. AMA Computer College - Cavite Campus

CHAPTER 3

METHODOLOGY

Requirement Analysis

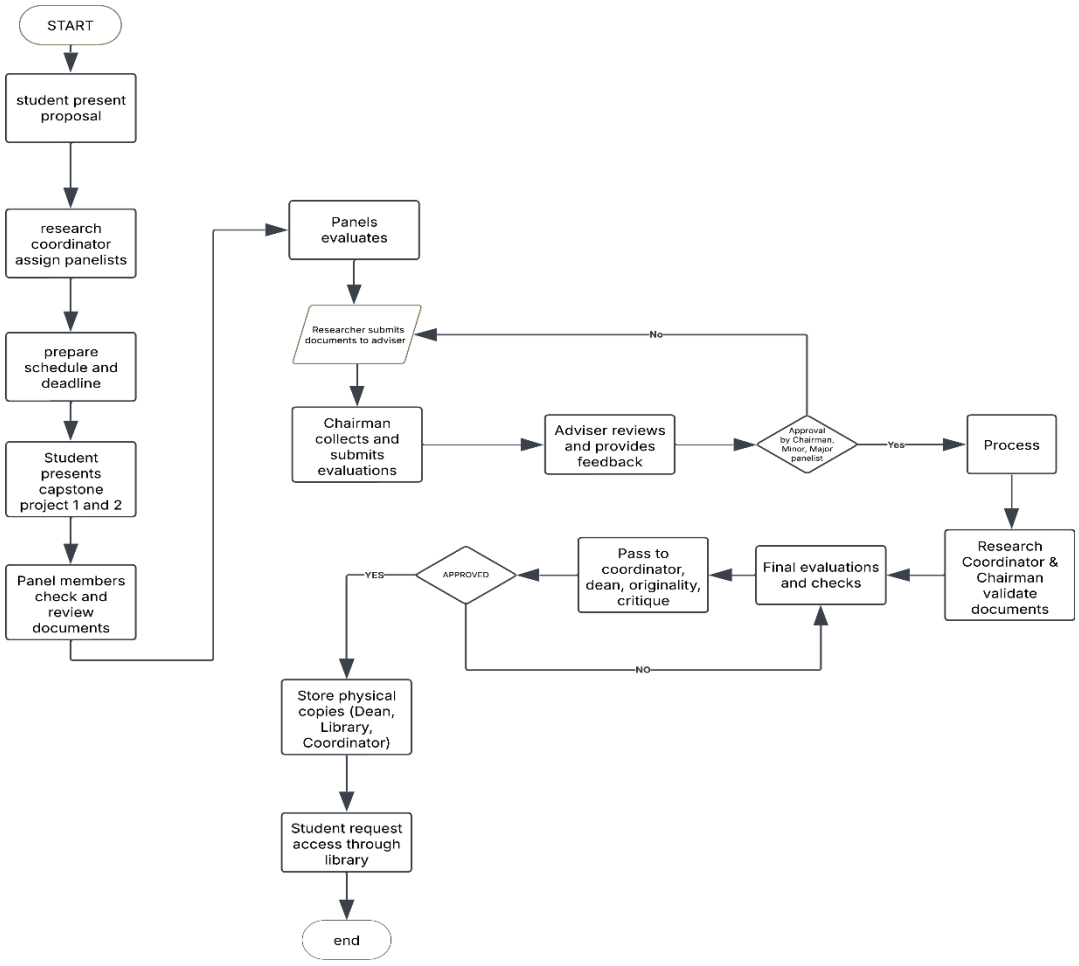

Figure 2. Flowchart of the process of Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas

The figure 2 illustrates the step-by-step manual capstone process, starting with the student's project proposal. The research coordinator assigns panelists, schedules the defense, and sets deadlines. After presenting Capstone Projects 1 and 2, the panel

reviews and evaluates the work. The chairman collects the evaluations, and the student submits the documents to the adviser for review and feedback. Once approved by the panel, the research coordinator and chairman validate the documents. Final checks, including plagiarism and grammar reviews, are conducted. If passed, the project is approved and printed copies are stored in the Dean's Office, Library, and Research Coordinator's Office. Students may access these projects through manual requests at the library.

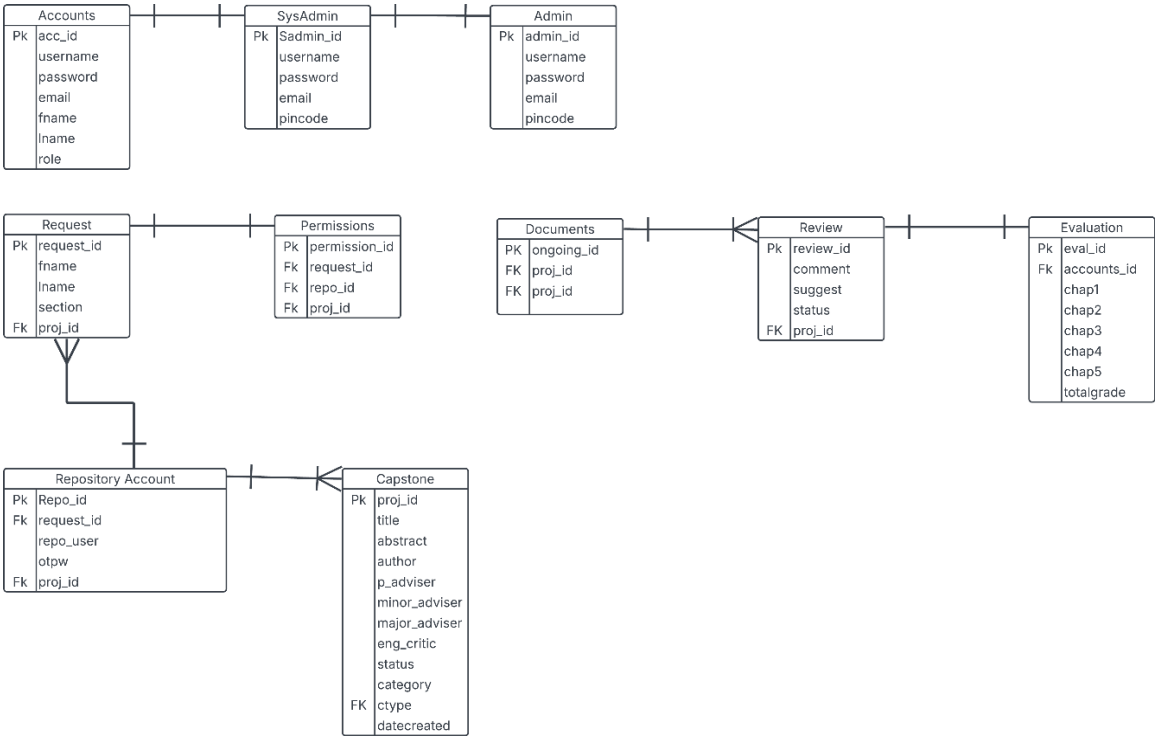

Figure 3. Entity Related Diagram of Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas

Figure 3 illustrates the Entity Relationship Diagram (ERD) for Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas. The Accounts, SysAdmin, and Admin Entity represents the user accounts. The Capstone Entity represents the completed Capstone Documents that is stored in the Repository System and can be accessed by multiple users, for the Students or Researchers to view the full content of Capstone Documents, they must request access to said Documents that will be subjected to reviews. The Documents Entity in the ERD represents the ongoing Capstone Projects, the said projects will then be subjected to reviews and will be evaluated.

Requirement Documentation

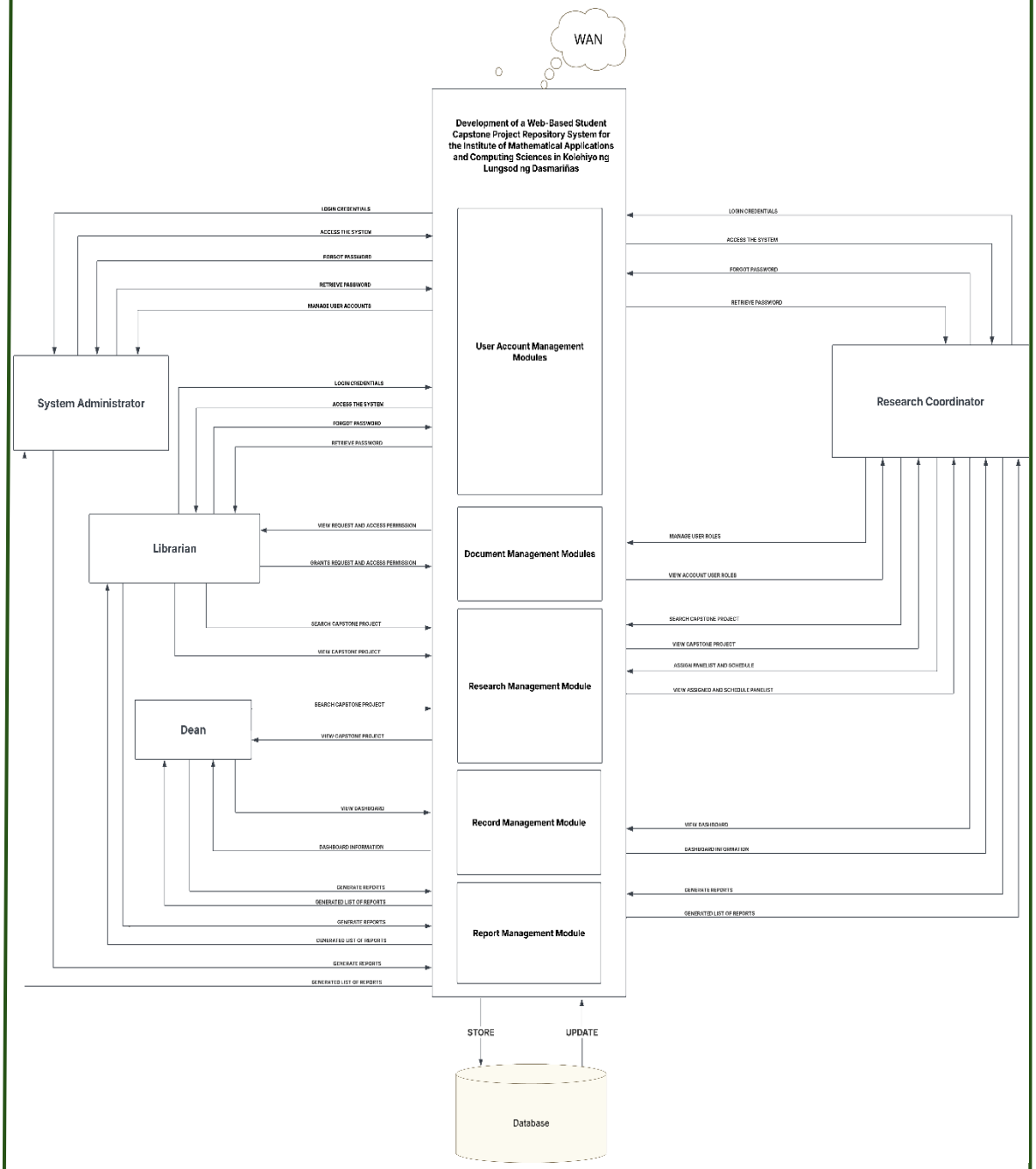

Figure 4.0. Theoretical Frameworks for Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas

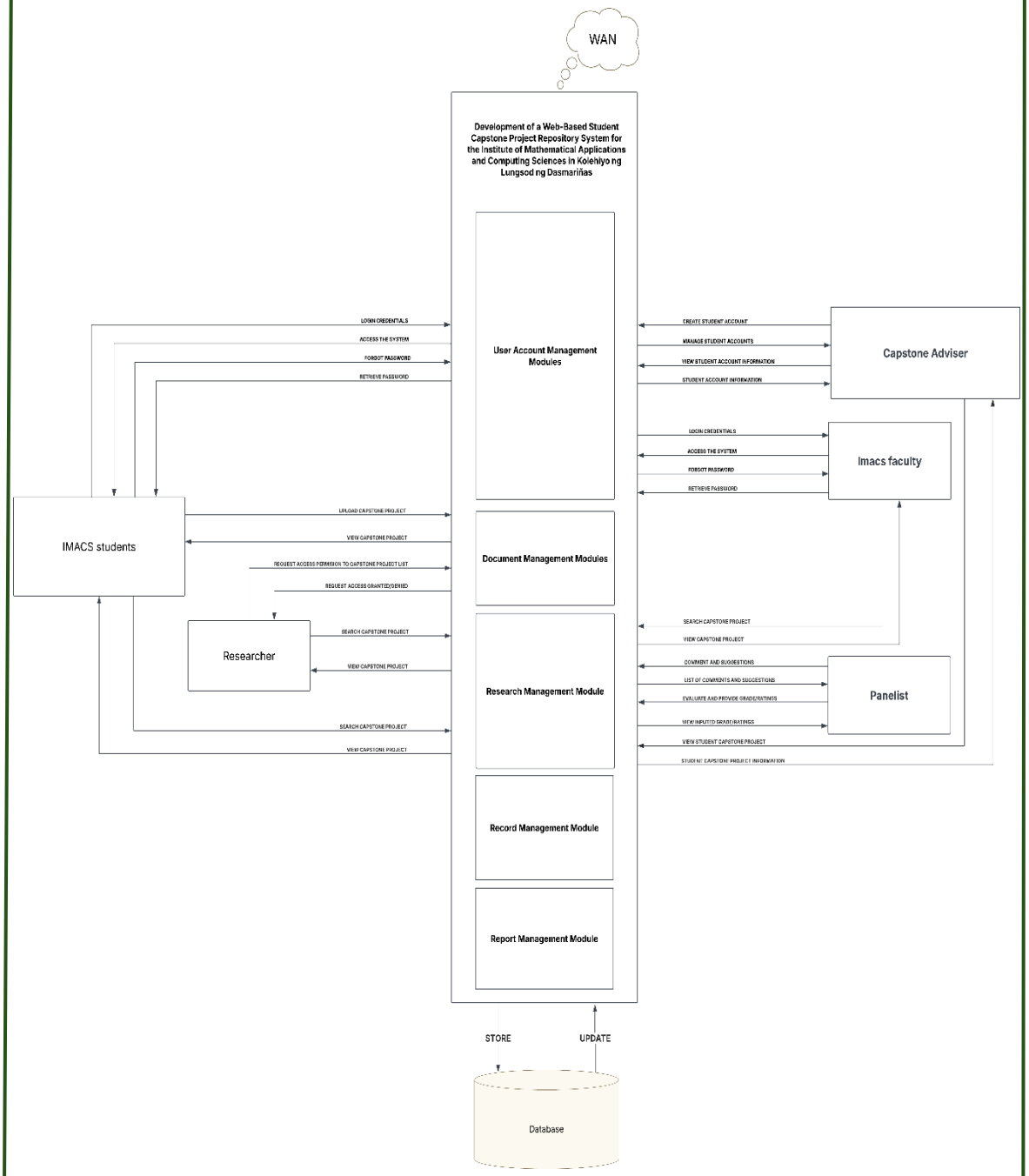

Figure 4.1. Theoretical Frameworks for Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas

Figure 4.0 and 4.1 illustrates the Theoretical framework of Development of a Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences in Kolehiyo ng Lungsod ng Dasmariñas which consist of (6) modules in the proposed system;

The **User Management Module** is responsible for user authentication and account access. Through this module, users can log into their accounts to access the system based on their assigned roles. The System Administrator has the authority to manage all user accounts within the platform. Additionally, the Capstone Adviser is specifically responsible for creating accounts for IMACS students, enabling them to participate in the system and upload their projects (see Figure 4.1).

The **Document Management Module** handles the submission and permission process for capstone projects. Within this module, IMACS students are able to upload their capstone documents. The Librarian plays a crucial role by granting or denying access to these documents for other users, particularly researchers. Meanwhile, the Research Coordinator manages user roles within this module, including the assignment of Capstone Advisers and Panelists who are part of the evaluation process (see Figure 4.1).

The **Research Management Module** serves as a repository of all approved and ongoing capstone projects. These projects can be accessed by authorized users such as faculty and panelists. A key feature of this module is the Panelist Evaluation,

where panelists are able to rate and provide feedback on student projects. In addition, IMACS faculty members can review the status of ongoing and approved projects for academic purposes (see Figure 4.1). This module also includes the scheduling in the system.

The **Record Management Modules** This module also includes dashboard functionalities tailored for the Dean, Research Coordinator, System Administrator, and Librarian.

The **Report Management Module** provides tools for report generation and data monitoring. System Administrators, Research Coordinators, and Librarians can generate reports such as the list of capstone projects, project categories, and the book of abstracts.

The system operates through a Wide Area Network (WAN), indicating that a stable internet connection is required to access and utilize the system. Lastly, the Database is the central repository where all system data is securely stored and updated, ensuring consistent data integrity across all modules.

Project Design

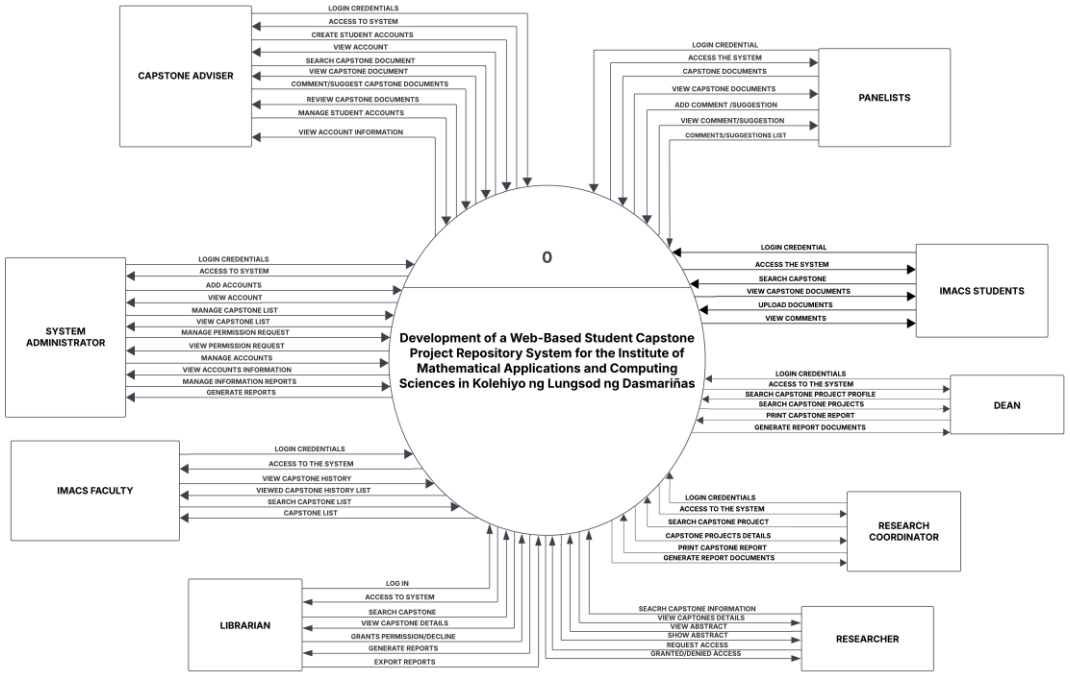

Figure 5. Context Diagram of Web-Based Student Capstone Project Repository System for the Institute of Mathematical Applications and Computing Sciences

The figure 5 illustrates how different users interact with the Web-Based Capstone Repository System. The System Administrator manages user accounts and system access. The Capstone Adviser creates student accounts, reviews documents, and gives feedback. Panelist's view and comment on capstone submissions. IMACS Students upload and view capstone documents and comments. The IMACS Faculty and Dean access capstone histories and generate reports. The Librarian handles access requests and organizes capstone records. The Research Coordinator manages user roles, schedules defense, assigns panelists, and finalizes reports. Lastly, Researchers search and request access to past capstone projects. The scheduling

process is part of the Research Management Module handled by the Research Coordinator.

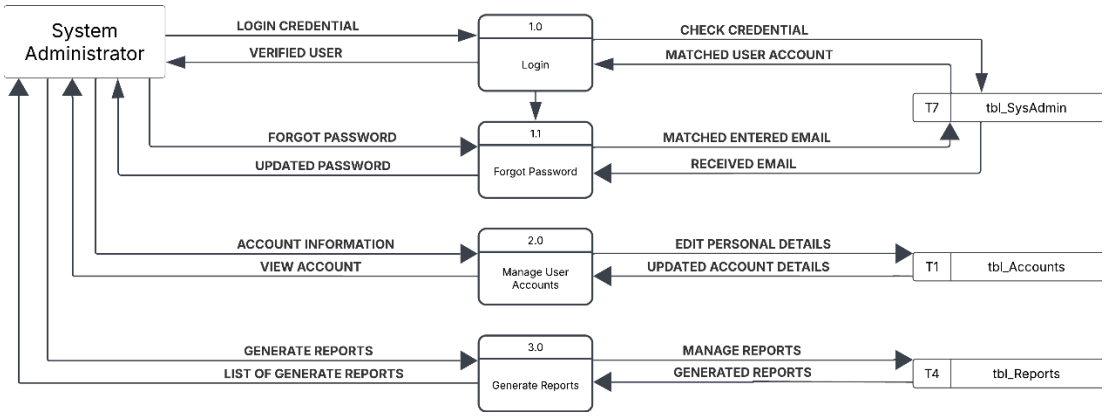

Figure 6. Data Flow Diagram of System Administrator

Figure 6 illustrates the Data Flow Diagram of the System Administrator. The system allows the System Administrator to manage different user accounts, this includes the Research Coordinator, Dean, IMACS Faculty Members, and Librarian. This includes creating and archiving accounts and resetting or changing passwords. The system also grants the user to generate reports based on the Capstone Documents.

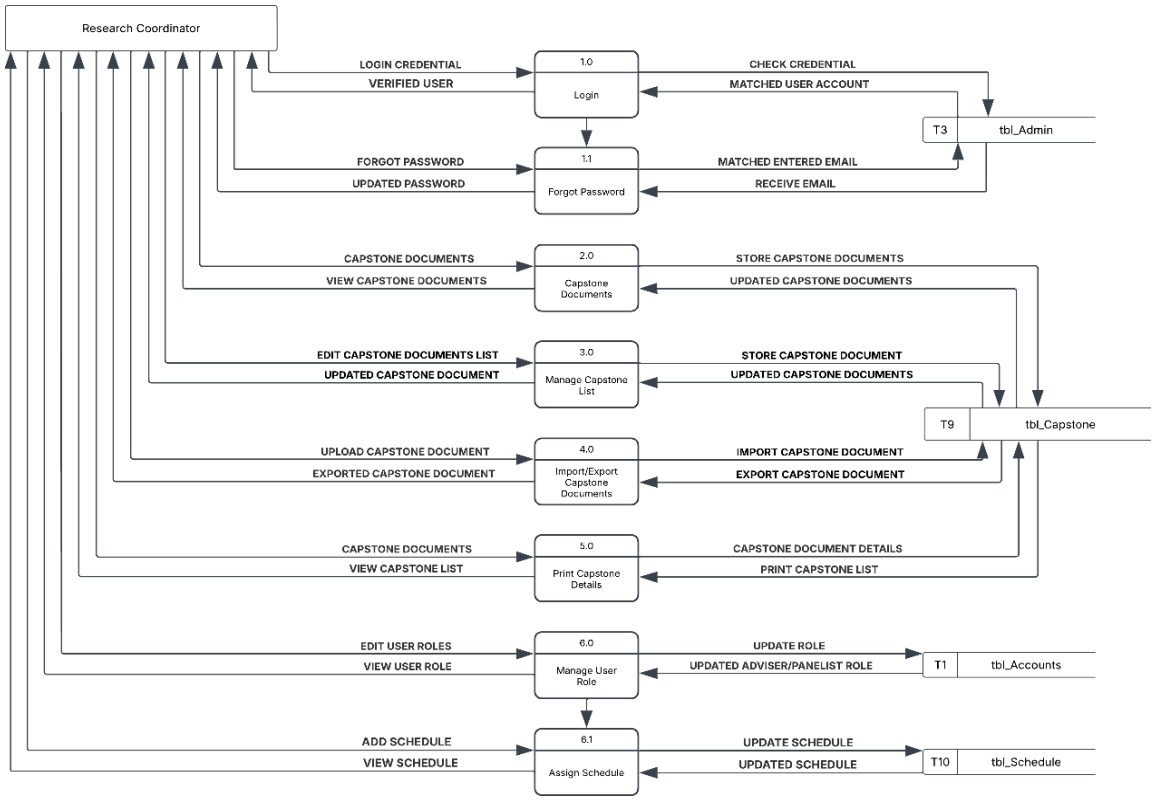

Figure 7. Data Flow Diagram of Research Coordinator

Figure 7 illustrates the Data Flow Diagram (DFD) of the Research Coordinator (Admin) System. The system enables the Administrator to manage Capstone Documents, this includes uploading, importing and exporting, viewing and printing the Capstone Documents List, assigning panelist and scheduling defense. Furthermore, the system provides user role management, allowing the administrator to assign and update roles to the IMACS faculty members which includes the Capstone Adviser, and Panelists role.

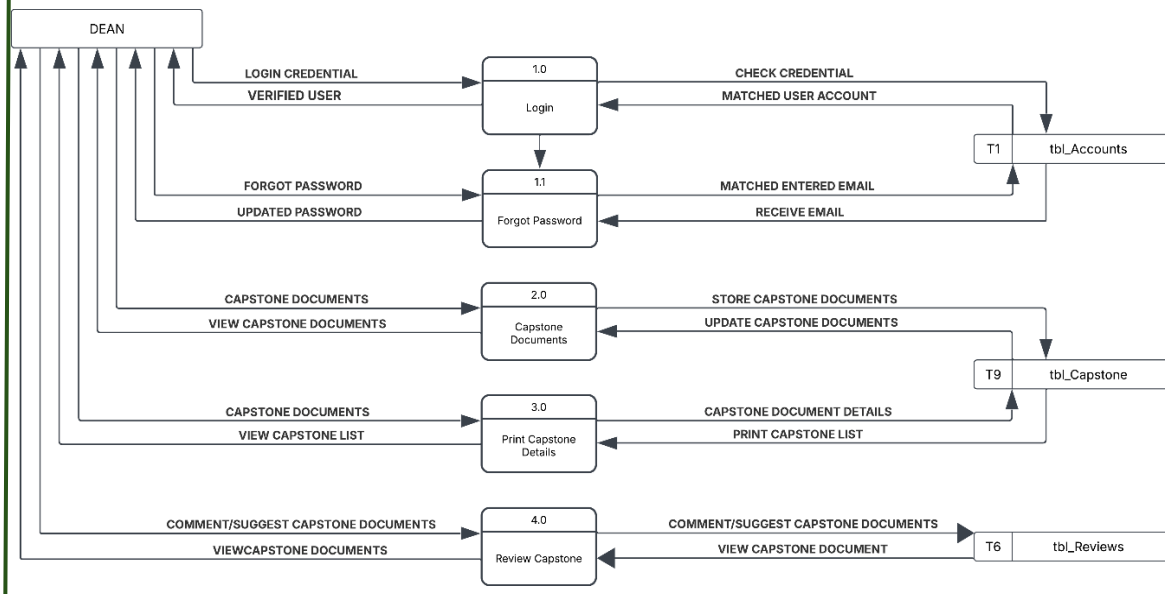

Figure 8. Data Flow Diagram of Dean

Figure 8 illustrates the Data Flow Diagram (DFD) of the Dean's System. This system allows the Dean to manage capstone documents, student accounts, and capstone reviews efficiently. The Dean has the capability to verify login credentials, reset passwords, and manage user authentication. The system enables the storage, updating, and retrieval of capstone documents while maintaining a structured database. The Dean can review capstone documents and provide comments or suggestions to improve research quality. Furthermore, it provides the ability to print capstone document details and lists, ensuring efficient documentation and record-keeping.

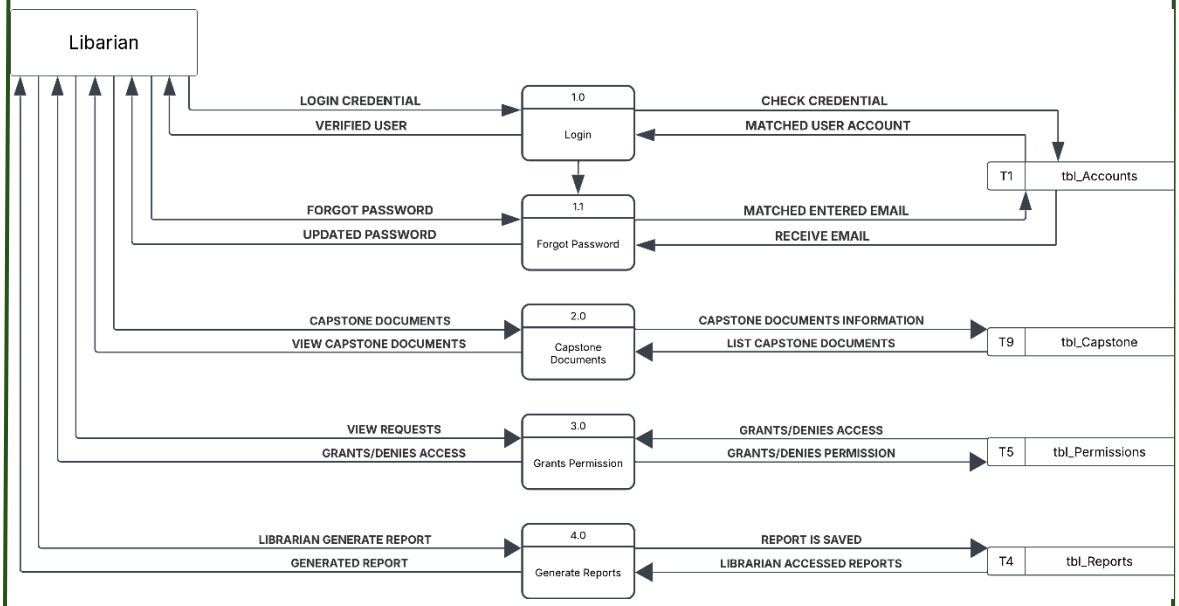

Figure 9. Data Flow Diagram of Librarian

Figure 9 illustrates the interaction between the librarian and the system, focusing on authentication, capstone document management, report generation, and permission handling. The librarian logs in using their credentials, which are verified against the user database. If they forget their password, they can reset it by verifying their email, ensuring secure access management. The librarian can access capstone documents, retrieving detailed information from the document database. Additionally, they have the ability to generate reports, which are stored in the system for future reference. Another critical function is handling access requests librarians review and either grant or deny permissions based on system policies. These functionalities ensure efficient document management, secure authentication, and controlled access to capstone resources

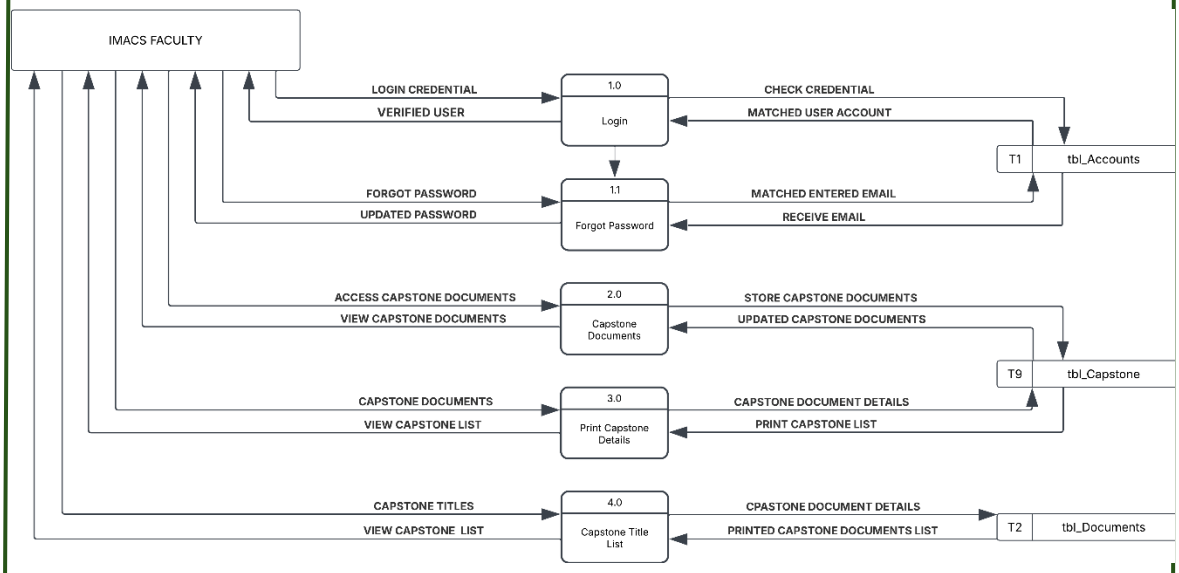

Figure 10. Data Flow Diagram of IMACS Faculty

Figure 10 illustrates the Data Flow Diagram (DFD) of the IMACS Faculty System. This system enables IMACS Faculty members to manage capstone documents, authenticate users, and retrieve capstone-related information efficiently. The IMACS Faculty has the capability to verify login credentials, reset passwords, and manage user authentication. The system allows faculty members to store, update, and view capstone documents, ensuring a well-organized document management process. the system provides printing functionalities, allowing faculty members to generate capstone document details and capstone lists for reference. The capstone title list feature enables faculty to view and print capstone document titles, ensuring systematic documentation of research projects.

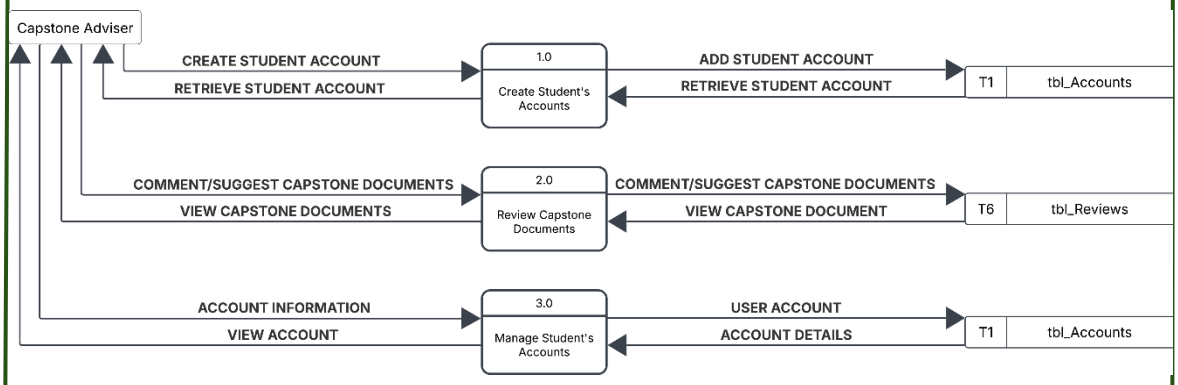

Figure 11. Data Flow Diagram of Capstone Adviser

Figure 11 illustrates the Data Flow Diagram (DFD) of the Capstone Adviser System. This system allows the Capstone Adviser to manage student accounts, review capstone documents, and oversee authentication processes efficiently. The system enables the creation and retrieval of student accounts, allowing advisers to manage students effectively. Additionally, the adviser can search for capstone documents in the system and retrieve necessary records for evaluation. The system also includes a capstone review feature, allowing the adviser to comment and suggest improvements on submitted capstone documents. The system provides account management functionalities, enabling the adviser to view and manage student accounts by updating user details. These features contribute to a structured and efficient workflow in handling capstone projects and student records.

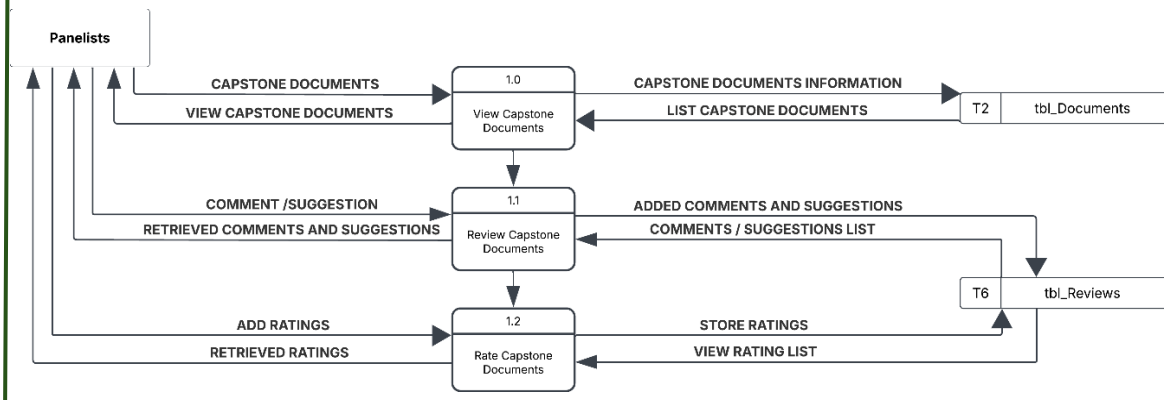

Figure 12. Data Flow Diagram of Panelist

Figure 12 illustrates the panelists' interaction with the system, focusing on authentication, capstone document evaluation, commenting, and grading. Panelists can access and review capstone documents, retrieving information and listings from the document database. They have the ability to add comments and suggestions, which are stored in the review database for future reference. Additionally, they can assign grades to defense documents, ensuring a structured and documented evaluation process. These functionalities enable panelists to efficiently review and assess capstone projects while maintaining secure and organized records within the system.

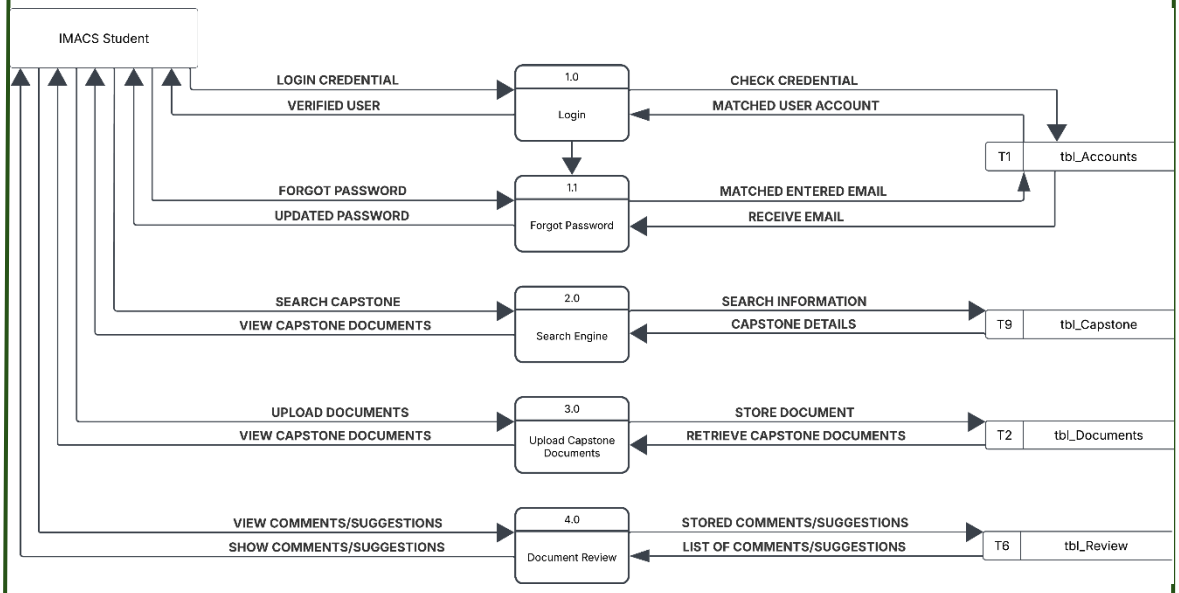

Figure 13. Data Flow Diagram of IMACS student

Figure 13 illustrates the Data Flow Diagram (DFD) of the IMACS Student System. This system enables IMACS students to authenticate user credentials, search capstone projects, upload documents, and view comments efficiently. The IMACS Student has the capability to log in, change passwords, and reset passwords through a secure authentication system. The system verifies login credentials and manages password recovery via email authentication. Additionally, the system includes a search engine, allowing students to search for capstone projects and view capstone documents stored in the database. The system also provides an upload feature, enabling students to submit their capstone documents for evaluation and record-keeping.

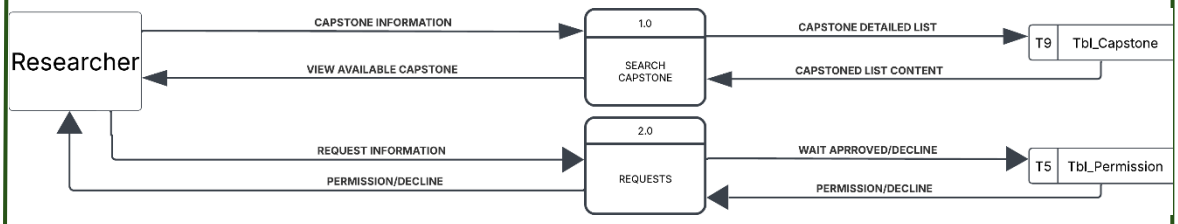

Figure 14. Data Flow Diagram of Researcher

Figure 14 illustrates the interaction between researchers and the system, focusing on how they search for and request access to capstone projects. Researchers can search for available capstone documents, and the system retrieves relevant details and content from the database. If researchers require additional information beyond what is publicly accessible, they can submit a request for access, which is recorded in the request database. The system then processes the request and determines the researcher's access rights. An authorized entity reviews the request and decides whether to grant or deny access. If permission is granted, the researcher can view and access the requested capstone documents. If access is denied, they receive a notification of the declined request. This module ensures that researchers can efficiently explore and access capstone projects while maintaining controlled access to sensitive information.

Project Development Procedure

Iterative methodology in software development is a cyclical process where the software is developed in successive iterations or cycles. Each iteration includes phases; planning, requirements, analysis and design, implementation, testing, evaluation, and deployment allowing for continuous improvement and adaptation based on feedback

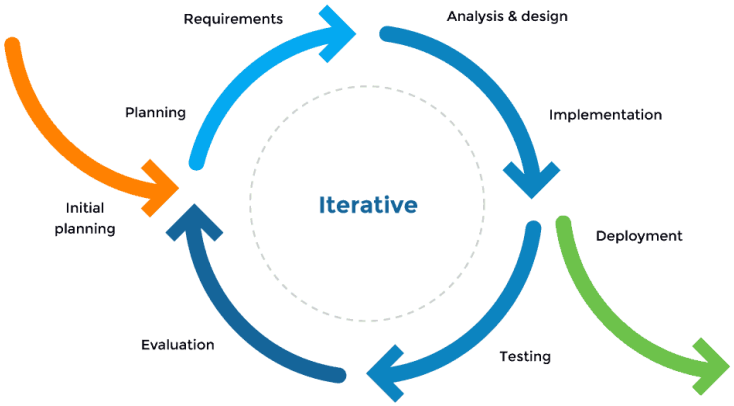

Figure 15. Iterative Methodology (Ho, 2025)

Planning

In the planning phase, the researcher identified the needs to create a system that: store, manage, and archived capstone projects, ensuring accessibility for research coordinator, dean, faculty, librarians, and researchers. The researchers conducted an interview to gather data for the development of the proposed system. Additionally, the researcher analyzed existing web-based repository systems,

such as Emerald, Google Scholar, and RMIT, to gain insights into best practices and features that could enhance the proposed system.

Requirements

In the requirement phase, the researcher identified the systems functionalities based on the needs of the users. Features such as secure user authentication, capstone document uploads, advanced search filters, and access restrictions were identified. The different user roles are: System Administrator, research coordinator, dean, panelist, capstone adviser, librarians, IMACS faculty, and IMACS students—were defined, along with their respective permissions. Hardware and software requirements were also assessed, ensuring compatibility with web technologies like PHP, MySQL, Laravel, and JavaScript.

Analysis and Design

In the Analysis and Design phase, the researcher developed the technical architecture of the system was developed. A database schema was designed to organize research documents effectively, incorporating metadata such as titles, authors, and publication years. The user interface was planned through wireframes using Figma, ensuring an intuitive experience for users. Additionally, security

measures, document storage and role-based access control, were incorporated into the design.

Implementation

The Implementation phase, the researcher will develop the capstone project repository system. The backend was built using PHP, Laravel and MySQL for authentications, data processing and storage, while the frontend utilized HTM, CSS, and JavaScript for user interactions. Key functionalities, such as document upload, search, and filtering, were coded and integrated. User authentication mechanisms, ensuring secure access to research documents, were also implemented at this stage.

Testing

In the testing phase, to ensure the systems functionality the researcher will undergo multiple evaluations and security. The system was tested using unit testing, integration testing, system testing, and performance testing. User testing will also perform, where the users; system administrator, research coordinator. Dean, librarian, capstone adviser, panelist, IMACS faculty, IMACS student, and researchers provide usability and experience, and identify areas that requires improvement. Bugs and performance issues will also resolve before proceeding to the next phase.

Evaluation

The Evaluation phase, the researcher will focus on assessing the effectiveness and reliability of the system using the ISO2510. During this phase, the system will evaluate based on key criteria: Functionality ensures it meets requirements; Reliability checks for consistent performance; Usability assesses user-friendliness; Performance and Efficiency measure speed and resource use; Security ensures data protection; Maintainability looks at ease of updates; and Portability checks if it works across different environments.

Deployment

In the Deployment phase, the researcher will finalized capstone project repository system and will launch for faculty use. The system was deployed on a web server, making it accessible to researchers, faculty, dean, research coordinators and librarians. Training sessions were conducted to familiarize users with the platform's features. Ongoing maintenance and monitoring were established to address future updates, security enhancements, and user concerns, ensuring continuous system improvement.

Project Testing Procedure

Unit Testing. In this testing, every module with procedures and control data are tested to determine if it can be used for the system. This testing will check each unit of individual module to show whether it is correct with no such problems.

Integration Testing. After unit testing, this testing performed. Individual modules are combined as a group and turned into input modules. Input modules are tested and processed. It is delivered as output modules which are ready for system testing.

System Testing. This system-wide testing was conducted. The goal of system testing is to test the entire system in accordance with its defined requirements. This testing's objective is to find any system flaws.

Performance Testing. The researchers tested the system on different browsers and devices such as PC/laptop and mobile phone to see if the system works and functions properly.

Project Evaluation Procedure

In the preliminary evaluation, the researcher will review all the necessary things/factors that will need in the completion of the system based on the system.

Results will be analyzed to determine if the desire output is met through the given input. For the final evaluation sheet given to the respondents. The comments, suggestions, and recommendations use to improve and enhance the system. The study use the Evaluation Criteria for software.

Table 2. System Evaluation Sheet Numerical and Descriptive Scale.

NUMERICAL SCALE	INTERPRETATION	Definition
4.21 – 5.00	Excellent	The system fully meets and far exceeds the most expectations.
3.41 – 4.20	Very Good	The system fully meets all exceeds several expectations.
2.61 – 3.40	Good	The system fully meets all expectations.
1.81 – 2.60	Fair	The system does not fully meet all expectations.
1.00 – 1.80	Poor	The system fails to meet expectations to significant degree in several areas.

Project Evaluation Procedure

What is the researcher implementation plan.

Phase	Activities	Responsible Party	Timeline
1. Account Setup	Receive login credentials from the Capstone Adviser.	Student, Adviser	Week 1
2. Proposal Upload	Submit project title and proposal through the system.	Student	Week 2
3. Panel Review	Wait for assigned panelists; prepare for schedule.	Research Coordinator	Week 3
4. Project Upload (Capstone 1 & 2)	Upload the documents for Capstone 1 and Capstone 2.	Student	Week 4–Week 6
5. Feedback & Revisions	Receive evaluations from adviser and panelists; apply revisions.	Student, Panel, Adviser	Week 6–Week 8
6. Final Submission	Submit revised project for final	Student	Week 9

	checks (plagiarism, format, etc.).		
7. Approval & Archiving	Await approval and official storing of the document.	Dean, Librarian	Week 10
8. Access Requests (Post-Submission)	Allow future students to request access to your project.	Library, Researchers	Ongoing

References;

Caseres, K. J. R., Cruz, R. P., Gonzales, L. A. T., Tapayan, P. G. M. L., & Aribe Jr, S. G. (2020). Developing digital research portal for Bukidnon state university's scholarly work. *International Journal on Emerging Technologies*, *11*(4), 27-38.

Chio, M. E. C., Garrido, J. G., Dal, P. M. D., & Baldelovar, A. B. (2022). *THESISIT: WEB-BASED UNIVERSITY THESIS MANAGEMENT PORTAL WITH A DEFENSE SCHEDULING SYSTEM* [University of Science and Technology of Southern Philippines]. https://www.researchgate.net/publication/374192375_THESISIT_WEB-BASED_UNIVERSITY_THESIS_MANAGEMENT_PORTAL_WITH_A_DEFENSE_SCHEDULING_SYSTEM

Christensson, P. (2023, March 7). *CSS*. https://techterms.com/definition/css

Cofino, C. C., Enquilino, D. B. E., & Salao, M. J. S. (2022). R2S: A REPOSITORY PLATFORM FOR RESEARCH OFFICES IN THE HIGHER EDUCATION INSTITUTION (HEI's) IN THE PHILIPPINES [Central Philippines State University, Kabankalan City, Negros Occidental, Philippines.]. In *Cosmos An International Journal of Art & Higher Education* (Vol. 11, Issue 1, p. 8). https://d1wqtxts1xzle7.cloudfront.net/85797748/CAHE_111_JJ22_2_Chester_Cofino-libre.pdf?1652177638=&response-content-disposition=inline%3B+filename%3DR2S_A_REPOSITORY_PLATFORM_FOR_RESEARCH_O.pdf&Expires=1741490188&Signature=FfPp8UicyYH~CMYijWkrAOnJo5Np0O5dl3e883jZMEvbo3gZSMFa0OELmL8IiT6m138TUH~cIpI1X~3P9bKlgTn47HW8n6DibInrSa0OrsNvRZVNeeT5nhauxIL1dLhKlwvB6V6V2~GKrrukwB9n8i9x56Wh-ZUQ0YsQrrBDTQgvkUoJw0YBAAtJq5zi~8JNeaXKDiglIcZlYDz8yepoOJYtEmweRHMQgzd7Uil3bbamvQY4TaJk0-cK~UjsOrgRchWYnfcfNAgaigd~QB2KIh8jrmxdla3RsbgZt~HNXnBqMfywglaehqpxyow-zWX9iaqxB-XQCBlwMaC8daTErQ__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA

Corbo, A. (2022, December 29). *What is PHP?* Built In. https://builtin.com/software-engineering-perspectives/php

Garcia, R. G., Herrity, J. H., Eads, A. E., & Murray, J. K. M. (2024, July 2). *What is iterative methodology and why is it useful?* Indeed. https://uk.indeed.com/career-advice/career-development/what-is-iterative-methodology

Gupta, V. (2023, February 7). *What Is a Repository?* Built In. https://builtin.com/software-engineering-perspectives/repository

Ho, D. (2025, March 5). Top 7 SDLC methodologies: What they are and how to use them - TECHVIFY Software. *TECHVIFY Software*. https://techvify-software.com/sdlc-methodologies/

Iterative Development vs Agile Development. (n.d.). https://premieragile.com/agile-vs-iterative-model/

Itiola, C. O., Iwasokun, B. G., & Adetooto, J. D. (2021). Development of an online repository for academic research works in FUTA. *International Journal of Sustainability Management and Information Technologies*, *7*(1), 22. https://doi.org/10.11648/j.ijsmit.20210701.14

Jalli, A. (2022, December 21). *What is Laravel?* Built In. https://builtin.com/software-engineering-perspectives/laravel

Kumar, S. (2022). Institutional repositories and their role in knowledge Management: A study of PAU Repository. *Journal of Agricultural Extension Management Vol. XXII No. (2) 2021*.

Libadia, M., Botangen, K. A., Lucero, P. J., & Tecson, J. (2025). Development of a Web-based records management system: an ERMS initiative for the Office of Senior Citizen Affairs in the Philippines. Records Management Journal. https://doi.org/10.1108/rmj-06-2023-0031

Lula, A., & Rosalina, R. (2023). A DEVELOPMENT OF WEB-BASED REPOSITORY SYSTEM FOR YOUTH SCIENCE CLUB (YSC) IN SENIOR HIGH SCHOOL x. *IT For Society*, *6*(2). https://doi.org/10.33021/itfs.v6i2.4526

Lutkevich, B. (2020, February 17). *HTML (Hypertext Markup Language)*. TheServerSide.com. https://www.theserverside.com/definition/HTML-Hypertext-Markup-Language

Mindoro-Mesana, J. M., Mesana, J. P., & Mariño, L. (2023). Design and Development of Romblon State University Romblon Campus Accreditation Data Warehouse. Romblon State University Research Journal, 4(2), 17-24. Retrieved from https://ojs.rsu.edu.ph/index.php/rsurj/article/view/54

Mkpojiogu, Emmanuel & Akusu, Efe & Hussain, Azham & Hashim, Wahidah. (2020). Implementation of a Web-based Data Archival Management System. 29. 307-319.

Okon, R., Eleberi, E. L., & Uka, K. K. (2020). A web based digital repository for scholarly publication. *Journal of Software Engineering and Applications*, *13*(04), 67–75. https://doi.org/10.4236/jsea.2020.134005

Ronquillo, R. A. U., Viscaya, M. L. A., Nuestro, M. H., Tuballa, J. H., & Vida, B. B. (2023). *WEB-BASED REPOSITORY OF RESEARCH OUTPUTS FOR CITY COLLEGE OF TAGAYTAY*. CITY COLLEGE OF TAGAYTAY.

Rosala, M. (2024, November 4). *Research Repositories 101*. Nielsen Norman Group. https://www.nngroup.com/articles/research-repositories/

Shahibi, Mohd. (2017). The Influence of Internet Usage on Student's Academic Performance. International Journal of Academic Research in Business and Social Sciences. 7. 10.6007/IJARBSS/v7-i8/3301.

Shahibi, Mohd. (2017). The Influence of Internet Usage on Student's Academic Performance. International Journal of Academic Research in Business and Social Sciences. 7. 10.6007/IJARBSS/v7-i8/3301.

Siang, K. C. (2022). Web-Based Management System for Joseph Precast Ornaments. AMA Computer College - Cavite Campus. https://www.cliffsnotes.com/study-notes/13344754

Sonmez, F. O., & Kilic, B. G. (2021). Reusable Security Requirements Repository implementation based on Application/System components. *IEEE Access*, *9*, 165966–165988. https://doi.org/10.1109/access.2021.3133020

Tabernilla, J. P. (2020). Web-based document management system for shop drawings [Master's thesis, De La Salle University]. Animo Repository. https://animorepository.dlsu.edu.ph/etd_masteral/6358/

Team, D. R. (2023, October 12). What is Javascript? Programming Language Explained. *PubNub*. https://www.pubnub.com/guides/javascript/

Tindoc Jr, F. P. T. Jr., Torres, R. G. T., Corpuz, K. a. C. C., Salem, J. T. S., & Paliuanan, L. P. P. (2023). *Design and Development of the ASSET: A Web-Based Research Archiving System* [Cagayan State University –Aparri CampusAparri, Cagayan, Philippines]. https://csu.org.ph/jpas/article/view/32/21

Training, I. O. I. (2024, May 23). What is XAMPP? - ITU online IT training. *ITU Online IT Training*. https://www.ituonline.com/tech-definitions/what-is-xampp/

Uzougbo, N. O. I., & Kolade, N. a. M. (2024). Development of a responsive web-based Final-Year Project Repository System (FYPRS) for Nigerian Tertiary Institutions. *World Journal of Advanced Engineering Technology and Sciences*, *12*(1), 454–462. https://doi.org/10.30574/wjaets.2024.12.1.0246

What Is MySQL? Definition, Comparision with SQL, Benefits & Features Explained - Intuji | Creating Tomorrow®. (2023, November 8). Intuji. https://intuji.com/what-is-mysql-definition-comparision-with-sql-benefits-features-explained/