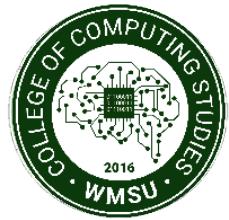




Republic of the Philippines
Western Mindanao State University
COLLEGE OF COMPUTING STUDIES
DEPARTMENT OF INFORMATION TECHNOLOGY



**Document Management Evaluation and Archiving Information
System for WMSU Research Papers**

A CAPSTONE PROJECT

Presented to the Faculty of the
College of Computing studies
Western Mindanao State University

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

By

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CERTIFICATE OF PANEL APPROVAL

The Capstone Project, attached hereto, entitled "**“Document Management Evaluation and Archiving Information System for WMSU Research Papers ”**", prepared and submitted by **Rel Ace A. Tenorio, Kayce R. Vergara, Mark Anthony N. Villiones** in partial fulfillment of the requirements for the degree **BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**, is hereby recommended for approval.

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EXECUTIVE SUMMARY

To address the increasing demand for effective management and distribution of research findings, this project suggests establishing an integrated web-based system of storage, submission, review, and retrieval of university research papers. Currently, the lack of a single and uniform platform significantly prevents the accessibility, organization, and distribution of intellectual products within the university community. This shortfall not only discourages joint research activity but also discourages the general agenda to promote innovation, academic progression, and exchange of knowledge.

The top priority of the project is to create and build an efficient, user-friendly system that will act as a central repository for all the research papers generated within the university. The system will grant users—students, instructors, and administrative personnel—the privilege to log in, submit their research for appraisal, appraise submissions via a standardized appraisal process, and retrieve published research papers. Through this centralized framework, the university will be in a position to ensure quality research work while significantly enhancing the convenience of information sharing and collaboration among its stakeholders.

The platform will be developed based on the current web technologies and industry best practices to provide high performance, scalability, and security. Protection of intellectual property, privacy of users, and integrity of data will be given prime importance, thereby providing a secure environment for the academic community of the university. User experience will also be given prime importance in developing the platform to provide high take-up and usage of the platform.

Besides serving the functional requirements of the moment, the system fits into the larger vision of the university of fostering a dynamic culture of research, cross-disciplinary collaboration, and scientific and academic excellence. In bringing research activities to a common platform, the university becomes a custodian of knowledge management and paves the way for other institutions to emulate. The expected outcomes of this project are multi-dimensional. It will not only ease the research submission and review management process but also enhance the public visibility and effect of the academic work of the university. With time, the system will be a crucial tool for collaborative scholarly work, curriculum development, grant proposals, and institutional reporting.

Investment in this project is a forward-looking investment in innovation, openness, and long-term academic excellence of the university. With a culture where scholarship is easily accessible and publicly available, the university will become an unparalleled center of excellence and cultivate a new generation of scholars who believe in collaboration, openness, and pursuit of knowledge.

DEDICATION

This study is dedicated to the students, faculty members, researchers, and the whole academic community of Western Mindanao State University (WMSU), whose deep passion for learning, discovery, and innovation continues to mold the future of knowledge within and beyond this institution.

To WMSU students, whose drive for questioning and pursuit of academic excellence gives life to research — let this site be your abiding home for ideas, where your efforts are safeguarded and where generations are inspired.

To the WMSU researchers, whose determination and vision expand the frontiers of knowledge — your work is a springboard for advancement and a source of pride for the university community.

This work is made possible through the guidance of our adviser, Mr. Ceed Lorenzo, and the insights of our panel members — Mr. Jason Catadman, Mr. Elvin Rey Saavedra, and Mr. Jhon Paul Arip. We also express our deepest gratitude to our parents for their unwavering support.

The system was developed by a dedicated team: Kayce Vergara as Project Manager and Documentation Manager, Rel Ace Tenorio as Tester, and Mark Anthony Villiones as Developer.

ACKNOWLEDGEMENT

Special appreciation is extended to the research guides and teaching faculty whose ideas, advice, and support shaped the creation of the system. The insight and feedback of each faculty member ensured the platform would address the research and academic requirements of the university community. We are especially grateful to our adviser, Mr. Ceed Lorenzo, for his guidance and mentorship throughout this endeavor, and to our panel members — Mr. Jason Catazman, Mr. Elvin Rey Saavedra, and Mr. Jhon Paul Arip — for their constructive evaluations and unwavering support.

Grateful appreciation is also given to WMSU students and researchers, whose enthusiasm for learning and commitment to their respective fields were a constant source of inspiration. The ensuing output will be the final measure of the success of this system.

To our loving parents, whose patience, support, and encouragement sustained us through each challenge — your belief in us has been our foundation.

We also recognize the dedicated efforts of the system's development team: Kayce Vergara as Project Manager, Rel Ace Tenorio as Tester, and Mark Anthony Villiones as Developer. Each of us contributed with dedication, resilience, and a shared vision of creating something meaningful for the WMSU academic community.

Lastly, to all those individuals who, in small and significant ways, helped complete this project — your encouragement has been appreciated immensely and will never be forgotten.

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CHAPTER 1

INTRODUCTION

1.1 Project Context

There is a need to develop a web-based system that shall act as a central repository for university research papers. In this way, it shall not only serve for the preservation of the intellectual output in the university but also to make it accessible to other audiences.

The main focus of this project lies in the design and implementation of a user-friendly, secure system for submission, review, and publication of research papers. This, fulfills one major requirement sharing knowledge across the university. While many researches have been supplied from the universities, accessing these resources remains highly problematic because there isn't a centralized system. This, too, is further worsened in an standardized process for submitting and reviewing research papers remains to be addressed. These are really serious factors against sharing knowledge and further collaborative learning and research.

This work will realize a web-based system using the state of the art technologies and following the best practices of both web development and information security. The expectation of the outcome is that of a basically functional system where users can log in, appeal for, evaluate, and view research papers. This system is envisioned to influence the culture of research at the university in aspects of transparency, collaboration, and sharing of knowledge. It could also act as a role model to the other universities. This therefore justifies the resources spent towards the project with the potential benefits that would be derived. By offering students, faculty, and the

academic community at large a central location for research papers, we not only preserve valuable academic work but also drive a culture of sharing and knowledge collaboration. This goes in line with the goals of the university in terms of fostering innovation and advancement of scientific research.

1.2 Statement of the Problem

It has also been noticed that many the research papers from students were not preserved, and, thus, lose their long-term value. Mostly, such work goes into oblivion since they are not stored; rather, either lost in disorganization in physical or in virtual. There is therefore lack of an organized storing mechanism, not only destroying the student efforts' recognition, but also their academic labor wasted. When research papers are stored unreliably and haphazardly, they cannot be easily searched for reference over the ages, which consequently disengages students, faculties, and even more potential scholars from the knowledge, discoveries, or innovations that may find residence there. With unorganized forms of storage, chances are rife for inevitable events-technical crashes or accidental deletes, or even damage and disuse if left or improperly so. This lack of preservation is one of the biggest challenges academic institutions face, because it prevents an institution from demonstrating the intellectual contributions its students have made. Such contributions, left unmanaged, are effectively lost to time, with no legacy for generations of students, researchers, or faculty members. This absence of an efficient archiving system also leaves gaps in the research database of the institution, which otherwise could be a very rich source for academic growth, reference, and further

study. Without easy access to past research, the academic community misses out on valuable insights that could inform future studies or inspire new projects.

This would also mean that outstanding student achievements cannot be identified and promoted, which is critical to academic institutions that need to encourage excellence. The current system needs to be efficient and well-organized so that it can manage, store, and preserve student research papers in an effective manner. Such a system would ensure that such works remain available for further use and at the same time provide an efficient way of cataloging and tracking academic contributions. A specific storage and management system will allow educational institutions to protect the long-term value of students' research work, increase their visibility, and thus promote the continued development of academic knowledge.

1.3 Purpose and Description

1.3.1 Purpose

The Document Archiving Management Information System for WMSU Research Papers primarily provides a centralized, effective, and secure management platform for the research output of Western Mindanao State University. It seeks to standardize the submission, review, and archiving processes, making the university's research output more visible and more accessible. This way, it was intended to raise the level of transparency, collaboration, and knowledge-sharing practices among WMSU's academic community.

1.3.2. Description

Document Archiving Management Information System for WMSU Research

Papers is a web-based system that offers the functionality of end-to-end management for research. The interface provides ease of use during paper submission by researchers, allows multiple file formats, and guides the user through the requirements based on university guidelines for submissions. The system institutionalizes double-blind peer review to ensure the integrity and quality of research. Upon acceptance, the papers are published, available within the system, and distributed in accordance with institutional policies under open or restricted access options. It provides filters like author, title, keywords, and publish date to enable users to easily select relevant papers. In addition, it incorporates user management features within RMIS, including access control and permission administration, which administrators can exercise at will depending on the user role. Besides, it offers analytical tools and reporting to build insights into the trends of research activities at the university.

1.4 Project Objectives

a. General Objective

The general objective of the study is to design and implement a web-based system that serves as a centralized repository for research papers of the university. The system aims to facilitate the sharing of knowledge and promote collaborative learning among students and faculty

b. Specific Objectives

- To design a user interface that allows easy navigation and usage of the system for all users, including students, faculty, and administrators.
- Implement user authentication and role-based access control to ensure that only authorized users can access the system and perform actions based on their roles.
- Develop a paper submission and approval workflow to allow students to submit their research papers and the faculty to review and approve them.
- Implement a search functionality to enable users to easily find relevant papers based on various criteria such as keywords, author names, and publication date.

1.5 Scope and Limitations

1.5.1. Scope

Document Management Evaluation and Archiving Information System for WMSU Research Papers is an online platform where the submission, review, and archiving of the bachelor degree research papers in WMSU can be managed. It allows students, and researchers, to submit work in portable document file format such that provide the needed result while keeping in mind the requirements put down by the university. The system ensures role-based user management, efficient long-

term archiving, and allows users to search and retrieve research papers with various filters.

1.5.2. Limitations

- Manual Data Migration
 - Research papers from existing papers must be imported manually, something that takes too much time.
- Limited Access
 - The system may only be used by WMSU faculty members, students, and staff members; external systems are limited under university policies.
- Resource and Training Dependency
 - Adequate utilization of the system depends on resources available in-house and proper user training.
- Lack of Full Integration
 - There is no integration of DAMIS with other systems within the university, which increases the likelihood of redundancy and having to transfer manually.
- Customization and Scalability Needs
 - Future modification could be necessary to accommodate more users, greater volumes of data, or some departmental demands.

1.6 Significance of the Study for WMSU's goals on research

The Document Management Evaluation and Archiving information system for WMSU research paper will be of significant importance to Western Mindanao State

University. The system will provide a single location that contains all university research outputs, thus giving access to its students, faculty, and other internal stakeholders. This could give WMSU better recognition from its research contributions and develop more collaboration within the university. Through its structured and efficient process of submission, reviewing, and publishing of research papers, the system will largely free such administrative burdens for the researchers and faculty of WMSU, ensuring that much needed valuable time is responsibly submitted to substantive research activities rather than to an administrative type of work. The built-in review and publication procedures offer rigid evaluation for any research submitted, foster transparency, and promote accountability that enhances credibility in the output of WMSU's research.

With a centralized repository, it will be easy to make all other ongoing research projects and potential collaborators known among the researchers of WMSU, hence making this information available for interdisciplinary research and various partnerships within the university. The RMIS will further act as a digital archive saving WMSU's intellectual output and ensure that valued research is not lost over some time; it will be available for succeeding generations of researchers at the university.

The reporting and analytics capabilities of this RMIS will supply meaningful insights into the universe of research activities that are taking place within WMSU walls. Such information can be capitalized on when driving strategic planning, resource allocation, and policy development supportive of continued growth in research efforts. With the system encouraging an atmosphere in which knowledge sharing and collaboration thrive, the RMIS would agree with WMSU's goals in promoting innovation and furthering scientific research. Although the system targets WMSU, with the successful

implementation of the system, it might also have an influence on other universities doing similar initiatives, which then will have a direct impact on the development in science and technology.

1.7 Definition of Terms

| Term | Definition |
|---|--|
| 1. User Registration and Authentication | Users can create an account, log in, and manage their profiles. This is crucial for identifying the authors of the papers and ensuring only authorized users can submit or review papers. |
| 2. Role-Based Access Control | Different users have different permissions based on their roles. For example, students can submit papers, faculty can review and approve papers, and administrators can manage the system. |
| 3. Paper Submission | Students can submit their research papers along with relevant metadata such as title, abstract, authors, keywords, etc. |
| 4. Paper Submission Classification | Students can submit their research papers from their specific college or department |

| | |
|------------------------------|---|
| 5. Paper Review and Approval | Submitted papers go through a review process. This could be a simple approval by a faculty member or a more complex peer review process. |
| 6. Search Functionality | Users can search the repository using various criteria such as keywords, author names, publication date, etc. This makes it easy to find relevant papers. |
| 7. Paper Access | Users can view the details of a paper, download it, or view it directly in the web application. |
| 8. Notifications | Users receive notifications about the status of their submissions |
| 9. Data Analytics | Administrators can view statistics about the repository such as the number of papers submitted, the number of users, etc. |
| 10. RMIS | A system for managing an organization's research activities, including submission, review, publication, and access to research papers. |
| 11. User Management | Administrative functions controlling access, permissions, and roles within the RMIS. |

| | |
|-----------------------|--|
| 12. User Information | This includes basic details such as name, email address, department, and academic position (e.g., faculty, student, staff). |
| 13. Security Measures | User profiles are managed securely to protect sensitive research data. |
| 14. Recommendation | The system suggests content based on users' past searches and interests. It analyzes what users have previously searched for and shown interest in to recommend relevant articles, research papers, and other content. |
| 15. WMSU | Is a leading public university in Zamboanga City, Philippines Founded in 1904. |

Table 1: Definition of Terms

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 Introduction

The review of related literature and systems for the Document Archiving Management Information System for WMSU Research Papers provides a comprehensive understanding of existing academic research tools, their functionalities, and the technological advancements that have shaped this field. This review identifies key features and methodologies used in similar systems, highlighting their strengths and limitations which inform the development of the current project. By analyzing prior works, we can better understand the landscape of research management systems and identify opportunities for innovation and improvement.

Research management systems have evolved significantly over the years, transitioning from manual paper-based processes to sophisticated automated solutions. These systems are designed to assist researchers and academic institutions in managing research outputs, ensuring compliance with publication standards, and promoting knowledge sharing. The primary goal of these systems is to enhance the efficiency and accessibility of academic research, thereby improving research outcomes and collaboration. The following literature and systems exhibit comparable structures and thematic relevance.

The following literature and systems exhibit comparable structures and thematic relevance.

2.1.1 ResearchGate

ResearchGate is a social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. It provides features such as paper submission, profile management, and search functionalities. Researchers can also follow specific topics and get notifications about new papers.

- Paper submission and sharing
- Profile management
- Search and discovery of research papers
- Topic following and notifications
- Q&A and collaboration tools

2.1.2 Google Scholar

Google Scholar provides a simple way to broadly search for scholarly literature. It indexes a wide range of academic papers, theses, books, and conference papers across various disciplines. Features include citation tracking, related articles, and the ability to save searches and papers.

- Comprehensive search functionality
- Citation tracking and metrics
- Related articles suggestions
- Saved searches and papers

- Access to diverse academic content

2.1.3 Academia.edu

Academia.edu is a platform for academics to share research papers. It allows users to follow other researchers, access papers, and receive recommendations based on their interests. The platform also provides analytics on paper views and downloads.

- Paper submission and sharing
- Researcher profiles
- Follow researchers and receive updates
- Recommendations based on interests
- Analytics on paper views and downloads

2.1.4 JSTOR

JSTOR is a digital library for academic journals, books, and primary sources. It provides a comprehensive search functionality, access to a wide range of scholarly content, and features for saving and organizing research.

- Comprehensive search functionality
- Access to journals, books, and primary sources
- Save and organize research
- Citation tools
- Integration with academic institutions

2.1.5 Zenodo

Zenodo is an open-access repository developed under the European OpenAIRE program and operated by CERN. It allows researchers to upload research outputs in any size, format, and across all disciplines. Features include DOI generation, metadata management, and the ability to search and access research data.

- Open-access repository
- DOI generation for research outputs
- Metadata management
- Search and access research data
- Support for diverse formats and disciplines

2.1.6 Figshare

Figshare is a repository where researchers can share their research outputs, including figures, datasets, images, and videos. It provides features such as DOI generation, detailed metadata management, and support for various formats.

- Research output sharing (figures, datasets, images, videos)
- DOI generation
- Detailed metadata management
- Search functionality
- Support for diverse formats

2.1.7 ORCID

ORCID provides a unique digital identifier that distinguishes researchers and connects their contributions across various platforms and institutions. It facilitates the management of research profiles, linking research outputs, and enhancing collaboration.

- Unique digital identifier for researchers
- Research profile management
- Integration with various platforms
- Linking of research outputs
- Enhanced collaboration and visibility

2.2 Synthesis

The review of related works showcases various innovative applications designed to enhance the management and dissemination of academic research through automation and advanced data management. ResearchGate exemplifies a social networking approach that integrates paper submission, profile management, and collaborative tools. Google Scholar demonstrates the power of comprehensive search functionality and citation tracking. Academia.edu and JSTOR highlight the benefits of profile management and access to a wide range of scholarly content. Zenodo and Figshare emphasize the importance of open-access repositories with DOI generation and support for diverse formats. ORCID provides a unique identifier system that enhances research visibility and collaboration. These systems collectively emphasize the importance of leveraging technology to create efficient, accurate, and user-friendly research management solutions, ultimately improving decision-

making for researchers and institutions. The WMSU RMIS aspires to integrate these strengths to create a comprehensive platform tailored to the needs of WMSU researchers

| Review of Related Works and System Comparison | | | | | | | | | |
|---|---------------|---------|---------------|--------|---------|-----------|--------|------------------|--|
| Features | Research Gate | Goo gle | Academia .edu | JST OR | Zeno do | Figsh are | ORC ID | Proposed project | |
| User Account | | | | | | | | | |
| Login/Logout | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Paper Classification | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| Paper Submission | ✓ | | ✓ | | ✓ | ✓ | | ✓ | |
| Dashboard | | | | | | | | ✓ | |
| Data visualization | ✓ | | ✓ | | | | | ✓ | |

| | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|
| Search | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Submission | | | | | | | | ✓ |
| Notification | ✓ | | | | | | | |
| Paper evaluation | | | | | | | | ✓ |
| Profile Management | ✓ | | ✓ | | | ✓ | ✓ | |

Table 2: Review of Related Works and System Comparison

2.3 Summary

ResearchGate, Google Scholar, Academia.edu, JSTOR, Zenodo, Figshare, and ORCID represent various approaches to managing and disseminating academic research. These platforms provide functionalities such as paper submission, profile management, comprehensive search, citation tracking, and research output sharing. They are designed to enhance the discoverability and accessibility of scholarly work, support collaboration, and streamline the research management process.

CHAPTER 3

TECHNICAL BACKGROUND

3.1 Conceptual Framework

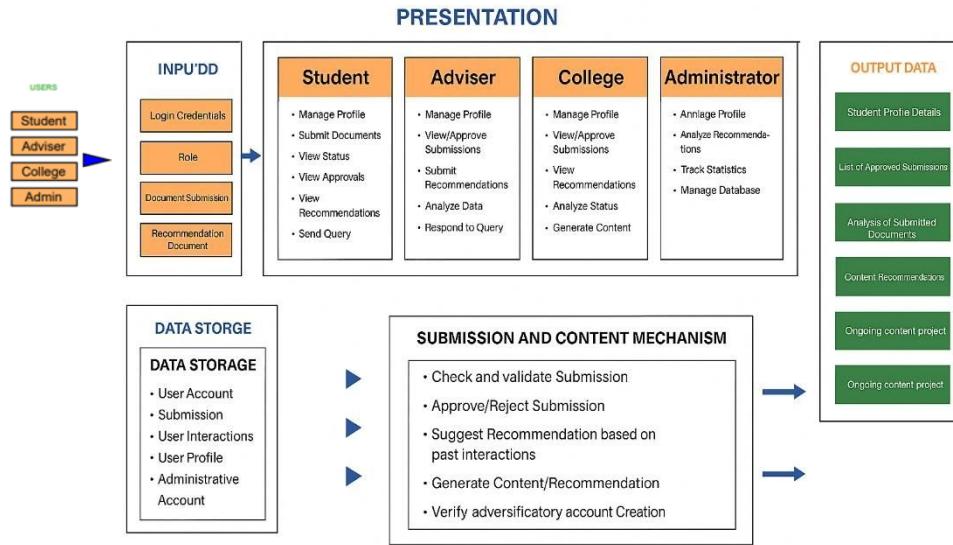


Figure 1: Conceptual framework
Document Management Evaluation and Archiving Information System for WMSU

Research Papers shall deal with four distinct groups of users: researchers, advisers, colleges and administrators. All activities between the different sets of users happen in a web browser; thus, an active Internet connection will be required for all operations. The system processes information, and data provided by users through HTTP requests, facilitating updating and interactions. Its architecture ensures the secure transmission and storage of data, and access controls have been ensured to protect information of the user.

It serves as the front-end interface for managing and evaluating detailed research. Through this interface, researchers can submit their papers, while reviewers can review them and administrators administrate the entire process. The other important function handled by this interface is the publication of research. It will process submissions and peer

reviews before publishing research papers. This functionality supports the researcher by providing accurate data insight that will enable him/her to make informed decisions, hence improving academic output. It is built on the backbone of a number of modern technologies, all of which provide strong and scalable solutions. The web application provides a fast and friendly user interface made with HTML, CSS, and JavaScript for all users. On the server-side, PHP will be used, providing efficient handling over all the operations of the server side. MySQL will be employed as the database management system to reliably store and fetch all data. The tech stack makes sure that the application is functional, efficient, secure, and ready for scaling in times of a huge user base.

The framework is divided into three main layers: Presentation, Application and Logic, and Database.

3.1.1 Presentation Layer

Presentation layer, which interfaces directly with the user. It contains modules for researchers, reviewers, and administrators who use different functionalities on this platform to manage their respective work in an atomic manner.

➤ Adviser/Faculty

Advisers can log in and log out securely, update and save their profiles, and review detailed student profiles. They have access to student research submissions, where they can provide feedback and decide on approval or rejection. They can also

view lists of both approved and rejected submissions and search for students or specific submissions.

➤ **Students**

Students can log in and log out securely, view and update their profiles, and save changes to their profiles. They have access to view notifications related to their submissions and other important updates. Students can also view their submitted research, check the status of their submissions, and receive feedback or decisions on their research submissions.

➤ **College**

College can log in and log out securely, view and update their profiles, and save changes to their profiles. They have access over adviser or faculty account. It can view analytics within the college domain submissions such as total submission per year, total submission per faculty and can accept or denied adviser or faculty account creation.

➤ **Administrators**

Administrators can set up and manage colleges, and department's faculty within the system. They have access to view lists of colleges, departments, advisers, and students. They are responsible for managing college's accounts and overseeing documents and submissions. Administrators can view analytics and generate reports to monitor system performance and user activity.

3.1.2 Application and Logic Layer

It is the application and logic layer that really embeds all the core processing and business logic of the system.

➤ Submission and Content Mechanism

System Processes and Functionalities:

- Submission Validation - The system validates every research paper to meet WMSU's required standards prior to proceeding.
- Approval Workflow - Submissions are evaluated and stamped for approval or rejection by authorized members of the faculty.
- Real-Time Status Tracking - Users can track the status of their submissions at any time and receive notifications for any change or update.
- Content Recommendations - The system recommends related research content based on users' past searches and academic interests.
- Secure User Authentication - User credentials are checked to allow correct access to submission functionality and archived material.

3.1.3 Database Layer

It is the database layer that will store all data used by the system user profiles, research submissions, review feedback, and so on.

➤ Data Storage

The system keeps important information to help manage students and their research. It saves details about students, like their grades, personal information, and

what research they are interested in. It also stores information about advisers, such as their work background and contact details, to help them guide students. Research submissions are kept so they can be reviewed and managed. The system also tracks the history of each submission, showing its progress over time. It logs what users search for to personalize their experience and improve the system. It keeps records of user activities for security and accountability. It remembers users' fields of interest to recommend relevant content and support their decision-making. All these data storage features help the system work smoothly and effectively for students and advisers.

3.2 Software and Hardware Requirements

The development and operation of the system necessitate specific software and hardware requirements to ensure optimal performance, security, and user experience.

3.2.1 Computers

The computer requirements for the system involve having a workstation or personal computer that can access and interact with the system efficiently. This includes capabilities to run a modern web browser, handle various file formats for research submissions, and provide a responsive user interface for tasks such as submission, review, and publication of research papers.

3.2.2 Web Server

The system requires a secure and reliable server infrastructure, which includes the hosting of the application through capabilities such as storing large volumes of research data, handling several user requests at the same time, ensuring

the security of the data through encryption and access controls, maintenance of up-times and availability by way of redundant systems, and regular backups

3.2.3 Internet

The internet requirements for the system involve having a stable and high-speed internet connection. This ensures that users can access the system from various locations, upload and download large files without delays, participate in collaboration and reviews, and ensure communication between the client computers and the server hosting the Document Archiving Management Information System for WMSU Research Papers.

CHAPTER 4

DESIGN AND METHODOLOGY

4.1 Introduction

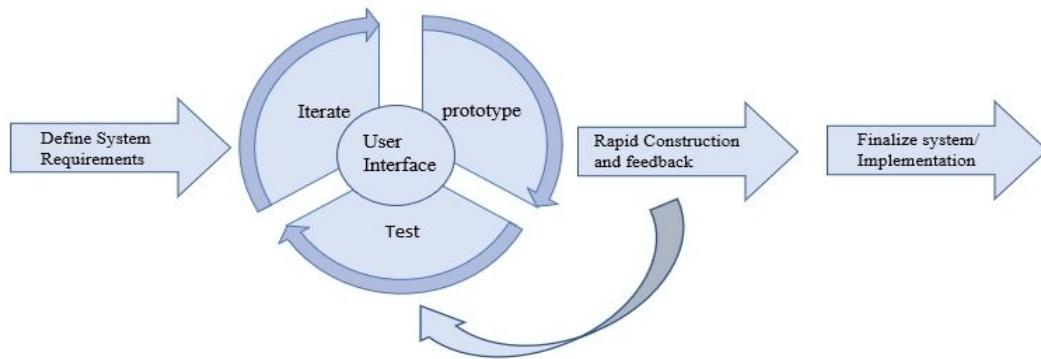


Figure 3: Methodology

Using Rapid Application Development (RAD) methodology, WMSU's Document Management Evaluation and Archiving Information System was designed and developed for an efficient and user-oriented environment. RAD promotes cooperation and active collaboration with users as the developers continually develop the product following rapid iterations. Thus, RAD is divided into four distinct phases that together yield a working and user-oriented platform.

The process started with the system Requirements Definition phase, which involved intensive consultation with WMSU administrators, faculty, and students to identify the core functionalities that should be implemented in the system, including secure submission, archiving, and retrieval of research papers as well as role-specific access controls for administrators, faculty, and students. Great effort was made to ensure the platform would be user friendly, mobile compatible, and could handle a high data volume.

This phase outcome was a clear and well detailed list of system requirements from which further stages were based.

In this User Design stage, initial prototypes were established and developed to help visualize both the system's interface as well as its workflows. Some key prototypes developed included the submission portal, document review dashboards, and administrative tools. Prototypes were shared with stakeholders for early feedback to ensure that designs met user expectations. These prototypes were also used for usability, navigation, and workflow efficiency by stakeholders. During this phase, feedback resulted in several iterations of design, where elements such as layout, accessibility, and ease of use were further refined. By the end of this phase, a complete blueprint of the system's design was ready, incorporating the needs both functional and aesthetical of its users.

The Rapid Construction and Feedback phase focused on transforming the prototypes into a working system. Development occurred incrementally as there was an effort to introduce basic functionalities, such as secure submission of documents, mechanisms for feedback, user authentication, and data encryption. The architecture of the system was designed using technologies such as HTML, CSS, JavaScript, PHP, and MySQL. This ensured that the system was responsive, efficient, and scalable. Beta testing was conducted regularly during this phase to allow real users to interact with the system and provide feedback. This loop of feedback was critical in identifying issues, such as minor bugs, performance bottlenecks, and usability challenges, and resolving them. Continuous testing and refinement during this stage ensured that every iteration of the system was better than the last, leading to a finished and functional product.

The final phase is implementation. This is when the system is finalized and prepared for deployment. All the feedback from beta testing was incorporated to address any outstanding issues and optimize system performance. Thorough end-to-end testing ensured that the system would be working flawlessly across many different scenarios, from a high user load to complex workflows. It was then deployed to ensure that administrators, faculty members, and other users knew how to navigate and effectively make use of the system with comprehensive training sessions. For post-deployment, the support and monitoring for prompt concerns were established in a way to smooth transition into the new system. Therefore, by following the RAD approach for system development, the developmental process was streamlined while upholding a focus on both user needs and continuous improvements. The collaborative and iterative approach allowed the development team to create a robust, scalable and, most importantly, user-friendly system that would meet the demands of WMSU at each stage, yet flexible for future enhancements.

4.2 Requirements Analysis

4.2.1 Context Diagram

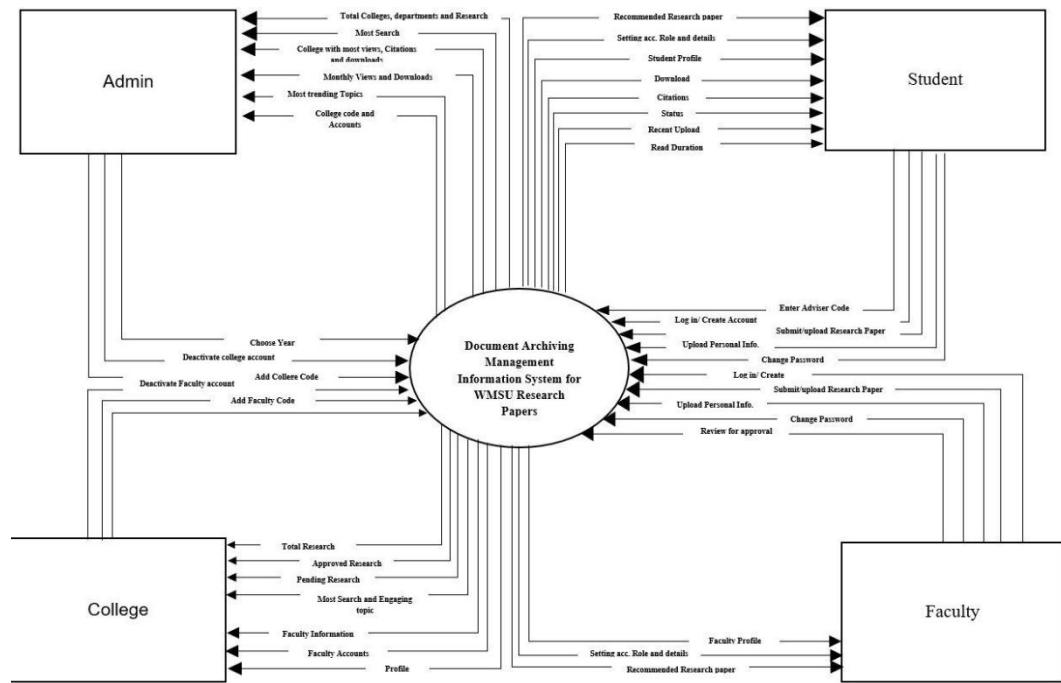


Figure 4: Context diagram

Document Archiving Management Information System for WMSU Research

Papers is a management information system by WMSU, designed to manage and archive the research paper within a very straightforward, yet efficient process between the students, the faculty and administrators who will inter-phase with the research documents.

Students are central users of the system. Students can create an account or login in an existing account which enables students to submit and upload the research papers. Besides submitting the research paper, a student fills an input sheet of personal information where the students can change the password whenever needed. The system follows up on tracking the status of research paper such as reviewing or approved and

submitted. Other benefits to be derived to the students include; access to some research papers recommended, access to documents download, monitored citations and info on recently published works. It even tracks the time spent in reading those papers, thus getting to know the research engagement.

The functionalities for the faculty and student users are also very similar in that both have log-in, submitting of papers, and management of personal information. However, faculty represents the more important part of the system since the faculty make decisions in the review and approval of research papers submitted by the students. Faculty have the power to approve or disapprove accounts held by the students based on the set criteria by either the system or institution. The staff can view recommendations for research papers, switch their account types, and manage their profiles. Their dashboard includes a sub-component that depicts submissions in approval, approved/declined, and recently approved requests.

The administrators, who manage all these activities, can access the higher functionality levels of this system. Admins track the total number of research papers archived by different colleges in the institution. Administrators could track the total read time for documents to track the amount of time users spend on specific papers. They can also track which topics are searched for most and what content is accessed most. The citation data will inform the administrators of the scholarly impact of the research paper published by the institution.

4.2.2 Data Flow Diagram

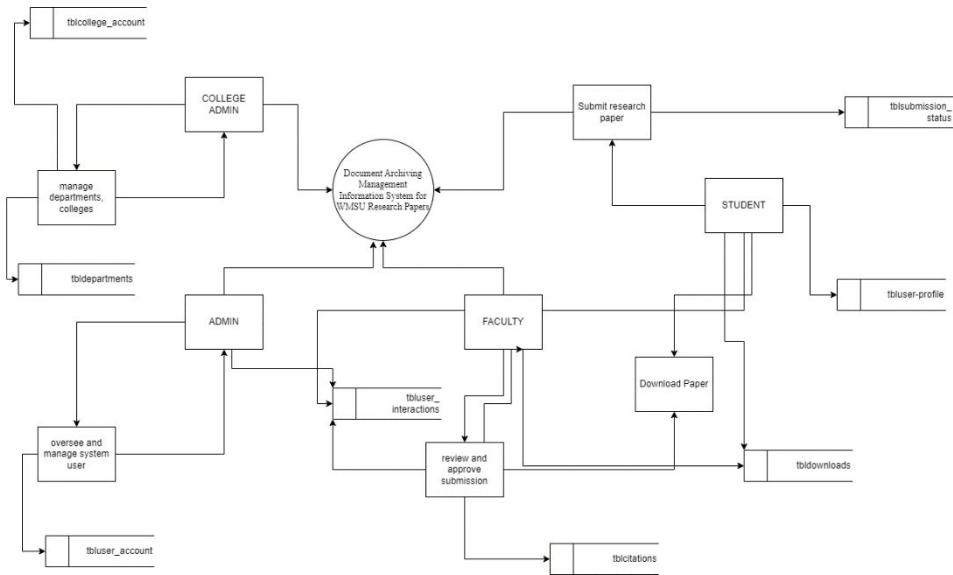


Figure 5: Data Flow diagram

In the Data Flow Diagram of the Document Archiving Management Information System, the `tblcollege_account` table is related to the process of the College Admin. The data in the `tblcollege_account` table pertains to the accounts in the colleges that make up the university; thus the college admin performs the process of updating this data. Since the college admin communicates with the system to keep track of details pertaining to the college account, the system captures this information as it is processed and stored in the database with the table name being `tblcollege_account`.

The `tbldownloads` table is associated with the Download Paper process, thus linked both to the Faculty and to the Students. This table keeps a record of all research paper downloads from the archive. Information entered each download occasion is stored in the `tbldownloads` table, so the system knows which papers are being accessed. The `tbluser_interactions` logs activities of the users within the system, such as submissions, reviews, or downloads. Because Faculty, Students, and Admins each

interact with the system differently-be it in submitting research, reviews of papers, or downloading various materials-these interactions are logged and saved in `tbluser_interactions`. Therefore, how the users engage with the system will be recorded and tracked to monitor the use of the system by the administrators.

4.2.3 Flowchart

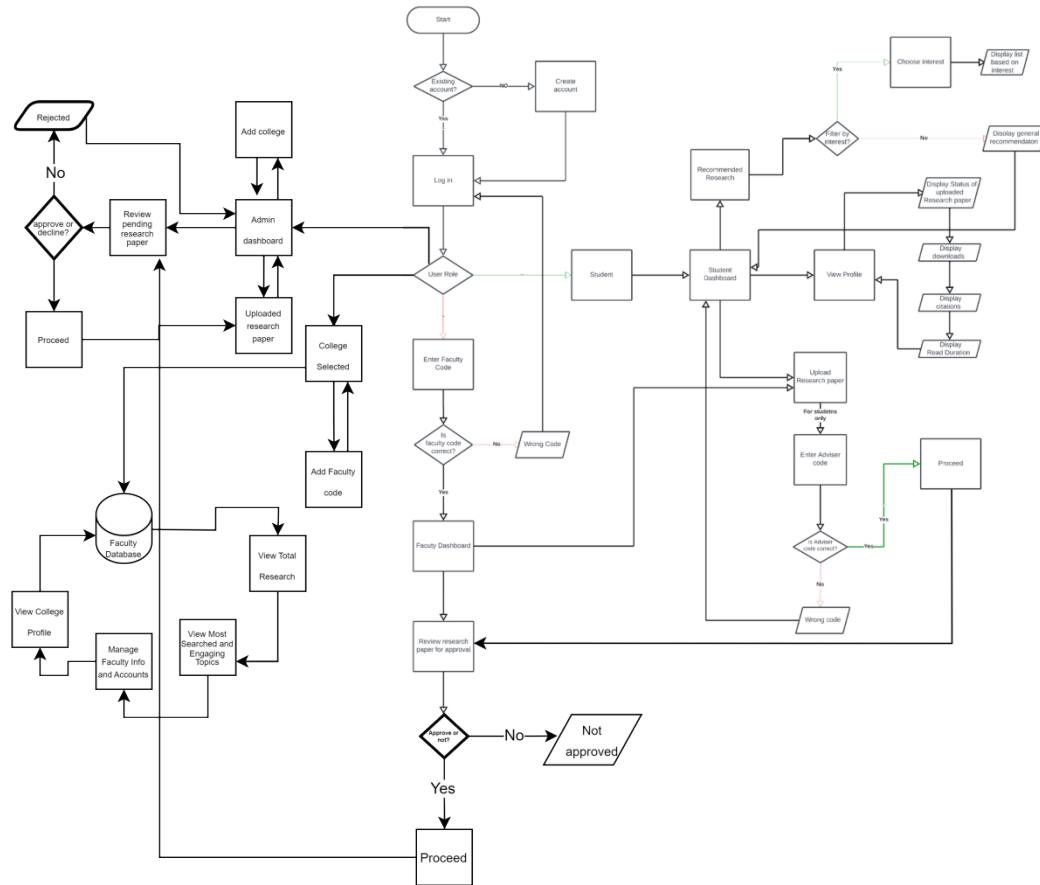


Figure 5: Flowchart

All the users go through a Start or Log In/Create Account process. Depending on the choice of account creation and log in, the system shall determine what role the particular user is to assume, that is, Student, Faculty, Admin, or College. At login time a student can upload or submit research paper, which will then be stored in the Research

Database. Alternatively, the student will also upload information that is personal and this shall be kept in the Student Profile Database. The student may also change the password, where the modification will be effects in the Account Database. On login, the student shall be required to input an adviser code that will subsequently be validated with the Faculty Database. Students can view research paper recommendations whose data is drawn from the Research Database. Students can set account role and details, saved in the Student Profile Database. Students can also view their profile, drawn from the Student Profile Database, and examine the status of their research, comprising information such as downloads, citations, and recent publications, sourced from the Research Database.

A faculty member, as the students, undergoes a similar process when logging in. A faculty may submit or upload research papers that will be saved in the Research Database; faculty may also upload personal information so that this will be saved in the Faculty Profile Database. The account database gets updated with the new password every time a faculty member changes. Most likely, the most important faculty functions have to do with the reviewing of the research papers of students. The faculty can then approve or reject submissions that will update the research status in the Research Database. The faculty can input faculty code validated against the Faculty Database. Can view the recommended research papers which data is fetched from the Research Database. Faculty can also set account role and details, can view profile which data is fetched from the Faculty Profile Database. Other information available to the instructors are recently accepted articles, which can be obtained from the Research Database.

Admins have unique capabilities within the system. After logging in, they can choose a year to filter data from the Usage Statistics Database. Admins have the ability to

deactivate college accounts, with updates saved in the College Database. Admin can also add college codes to the College Database and view statistics such as the total number of colleges, departments, and research activity, which is sourced from the College Database and Research Database. Admins are also able to view usage metrics, such as the most searched topics (from Search Logs), the college with the most views, citations, and downloads (from the Usage Statistics Database), and trending topics (from Search Logs). In addition, admins can manage college codes and accounts, updating, adding, or deleting records in the College Database.

For college administrators, after logging in, they are able to deactivate faculty accounts, with updates saved in the Faculty Database, and add faculty codes, which are inserted into the Faculty Database. The college admins can view total research statistics, including submissions, approvals, and pending research, with data pulled from the Research Database. College administrators also have access to view popular topics, based on search logs, and can manage faculty information and accounts, updating the Faculty Database. And can view their college profile, with data sourced from the College Profile Database.

Some databases manage the system operations. For example, the Research Database manages research paper, submission status, citations, downloads, and trending topics. The Student Profile Database corresponds to handling student details, and Faculty Profile Database manages their profile too. Finally, Account Database manages log in information and set up for every account. The College Database stores college-specific data, and the Usage Statistics Database captures statistics on views, downloads, and engagement. Lastly, Search Logs track searches and trending topics.

4.2.4 Use case

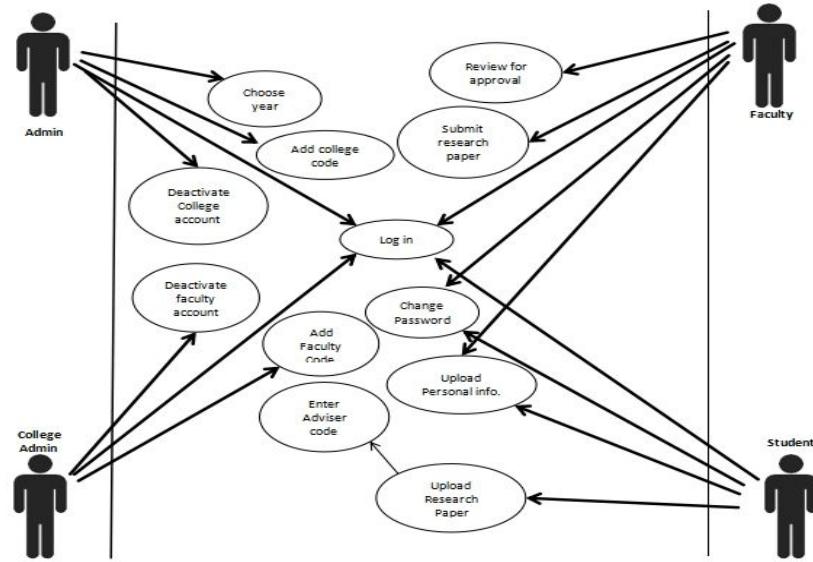


Figure 6: Use Case

| | |
|----------------|---|
| Use Case #1: | Log In |
| User: | Student, Faculty, Admin, College |
| Description: | The system allows the user to log in and gain access to their assigned module based on their role. |
| Fit Criterion: | The user inputs a valid username and password. If both values match the stored credentials, they will gain access to their specific module after login. |

| | |
|----------------|---|
| Use Case #2: | Upload Research Paper |
| User: | Student |
| Description: | The student uploads a research paper, requiring a valid adviser code for submission. The research paper is saved in the Research Database upon successful validation. |
| Fit Criterion: | The student uploads a valid file, provides required details, and enters a valid adviser code. The system confirms the submission if all criteria are met. |

| | |
|----------------|--|
| Use Case #3: | Upload Personal Info |
| User: | Student, Faculty |
| Description: | The user uploads personal information, which is saved in their respective profile database. |
| Fit Criterion: | The user fills out the required personal information fields and submits the form. The system confirms successful upload upon validation. |

| | |
|----------------|---|
| Use Case #4: | Change Password |
| User: | Student, Faculty, Admin |
| Description: | The user changes their account password to enhance security. |
| Fit Criterion: | The user provides the current password, a new password, and confirms the new password. The system updates the password if all criteria are met. |

| | |
|----------------|---|
| Use Case #5: | Submit Research Paper |
| User: | Student, Faculty |
| Description: | The user submits a research paper for review, which is stored in the Research Database. |
| Fit Criterion: | The user uploads a valid research file and provides required metadata. The system confirms successful submission if all criteria are met. |

| | |
|----------------|--|
| Use Case #6: | Review Research Paper for Approval |
| User: | Faculty, College admin |
| Description: | The faculty member and college admin reviews a submitted research paper and decides to approve or decline it. |
| Fit Criterion: | The faculty member accesses the paper, evaluates it, and submits a decision. The system updates the research status based on the decision. |

| | |
|----------------|---|
| Use Case #7: | Deactivate College Account |
| User: | Admin |
| Description: | The admin deactivates a college account, restricting access to the system for that college. |
| Fit Criterion: | The admin selects a college account to deactivate. The system confirms successful deactivation upon validation. |

| | |
|----------------|---|
| Use Case #8: | Deactivate College Account |
| User: | Admin |
| Description: | The admin deactivates a college account, restricting access to the system for that college. |
| Fit Criterion: | The admin selects a college account to deactivate. The system confirms successful deactivation upon validation. |

| | |
|----------------|--|
| Use Case #9: | Deactivate Faculty Account |
| User: | College Admin |
| Description: | The college admin deactivates a faculty account, restricting access to the system for that faculty member. |
| Fit Criterion: | The college admin selects a faculty account to deactivate. The system confirms successful deactivation upon validation.. |

| | |
|----------------|--|
| Use Case #10: | Add Faculty Code |
| User: | College Admin |
| Description: | The college admin adds a new faculty code to the system for managing faculty-specific data. |
| Fit Criterion: | The admin enters a valid faculty code and associated details. The system confirms successful addition upon validation. |

4.3 Requirement Specification

The Requirement Specification for the Document Archiving Management Information System for WMSU Research Papers outlines the detailed functional and nonfunctional requirements that the system must meet to fulfill its intended purpose. This document serves as a comprehensive guide for developers, stakeholders, and project managers to ensure that all aspects of the system are well defined and understood. The specification includes functional requirements, which describe the behaviors and functions of the system, and nonfunctional requirements, which detail the system's performance and operational criteria.

4.3.1 Functional Requirements

Functional requirements define the specific behaviors, functions, and capabilities that the system must possess. These requirements ensure that the system performs the tasks needed to support research management and academic collaboration effectively. Key functional requirements for the system include:

- **Software Functionality**

This section describes the modules that the RMIS uses to meet the goals and objectives of developing the application.

➤ **User Registration and Authentication**

This feature allows users to create an account, log in, and log out securely using their credentials. It supports the creation of accounts for different roles (student, faculty, college, and administrator) and ensures only authorized users can access the system.

- ✓ User Registration: Allows users to register by providing details such as name, email, role, and password.
- ✓ Login/Logout: Enables users to log in with their credentials and securely log out when done.

➤ **Role-Based Access Control**

This feature ensures that access to the system's functionalities is restricted based on the user's role (student, faculty, college, or administrator).

- ✓ Student Role: Can submit research papers, view submission status, and access published research.
- ✓ Faculty and College Role: Can review, approve, or reject research submissions and provide feedback.
- ✓ Administrator Role: Can manage all user accounts, system configurations, and content.

➤ **Paper Submission and Management**

This feature allows students to submit research papers with relevant metadata (title, abstract, authors, etc.) and ensures submissions meet the university's standards.

- ✓ Submit Research Paper: Allows students to upload papers in various formats (PDF, DOCX).
- ✓ Manage Submissions: Provides a submission status page where users can track the progress of their research.

➤ **Paper Review and Approval**

This feature enables faculty and adviser to review submissions, provide feedback, and approve or reject papers based on quality and guidelines.

- ✓ Review Papers: Facilitates doubleblind peer reviews to maintain confidentiality.
- ✓ Approve/Reject Papers: college can provide feedback and make decisions on submitted research.

➤ **Search and Retrieval of Research Papers**

This feature provides a search function allowing users to filter research papers by criteria such as keywords, author names, and publication dates.

- ✓ Advanced Search: Users can refine search results using filters like relevance, date, and author.
- ✓ Access Published Papers: Allows users to view or download approved research papers.

➤ Analytics and Reporting

This feature provides administrators and faculty with insights into submission trends, user activities, and research impact through analytical dashboards.

- ✓ Generate Reports: Allows administrators to generate reports on system usage, research trends, and performance metrics.

• User Characteristics

- Students: Primary users who submit research papers, track submission status, and access published works. They have limited access based on their role.
- Faculty and College: Users who review submissions, provide feedback, and approve research. They have access to review and management features.
- Administrators: Users with full access to all system functionalities, including user management, system settings, and analytics.

4.3.2 Non-Functional Requirements

Nonfunctional requirements define the system's performance and operational criteria, ensuring that it meets quality standards and provides a satisfactory user experience.

Key nonfunctional requirements include:

• Technical Requirements

The system will be developed as a web-based application accessible via modern browsers (e.g., Chrome, Firefox, Safari) on both desktop and mobile devices.

- Development Technologies: The system will use PHP for the server-side, HTML, CSS, and JavaScript for the frontend, and MySQL as the database.

- Hosting and Deployment: The system will be hosted on a cloud server with high availability and security measures to handle multiple requests concurrently.
- Device Compatibility: The application will be compatible with desktops, tablets, and smartphones, providing a responsive design for various screen sizes.

- **Performance Requirements**

- Response Time: The system should respond to user requests (e.g., login, search, submission) within 23 seconds under normal conditions.
- Scalability: The system must support up to 1,000 concurrent users without performance degradation.
- Data Throughput: The system must efficiently handle large data uploads, ensuring smooth processing of research submissions.

- **Assumptions and Dependencies**

Designing this project involves several assumptions related to the software, hardware, and environment.

- System Environment: The application will be deployed on a secure cloud environment with sufficient resources for processing and data storage.
- Technology Stack: The application will utilize PHP for backend development, MySQL for database management, and HTML/CSS/JavaScript for the frontend.
- Integration Needs: The system assumes integration with third-party services such as email notifications and data analytics platforms for enhanced functionality.

- **Security Requirements**

Given that the Project System will be hosted on a cloud server, data security and user privacy are paramount. Several measures are implemented to ensure the security of user data and prevent unauthorized access:

- User Authentication and Role Based Access Control: Secure login mechanisms ensure that only authorized users can access the system. Access is restricted based on user roles.
- Data Encryption: All sensitive data, including user credentials, are encrypted in transit and at rest using industry standard protocols (SSL/TLS).
- Input Validation and Error Handling: Rigorous input validation prevents malicious data entry, including protection against SQL injection attacks through parameterized queries.
- Access Control: Strict access control measures are implemented to ensure users can only view and interact with data pertinent to their roles.

These security measures ensure that the System enhances research management processes while protecting the integrity and confidentiality of the data it manages.

4.4 System Design

This is imperative in the building of DAMIS on WMSU Research Papers during the System Design phase as it explicates requirements into a structured design of the system from where the components will work and interact with each other. It will involve high-

level architectural and component design for an efficient system capable of being scaled up, secure, and low maintenance at the end.

The system architecture of the structure, the database of the plan, the design and interaction flow in user interfaces to ensure that the system meets up with the needs of its users-the students, faculties, and administrators.

4.4.1 Database Design

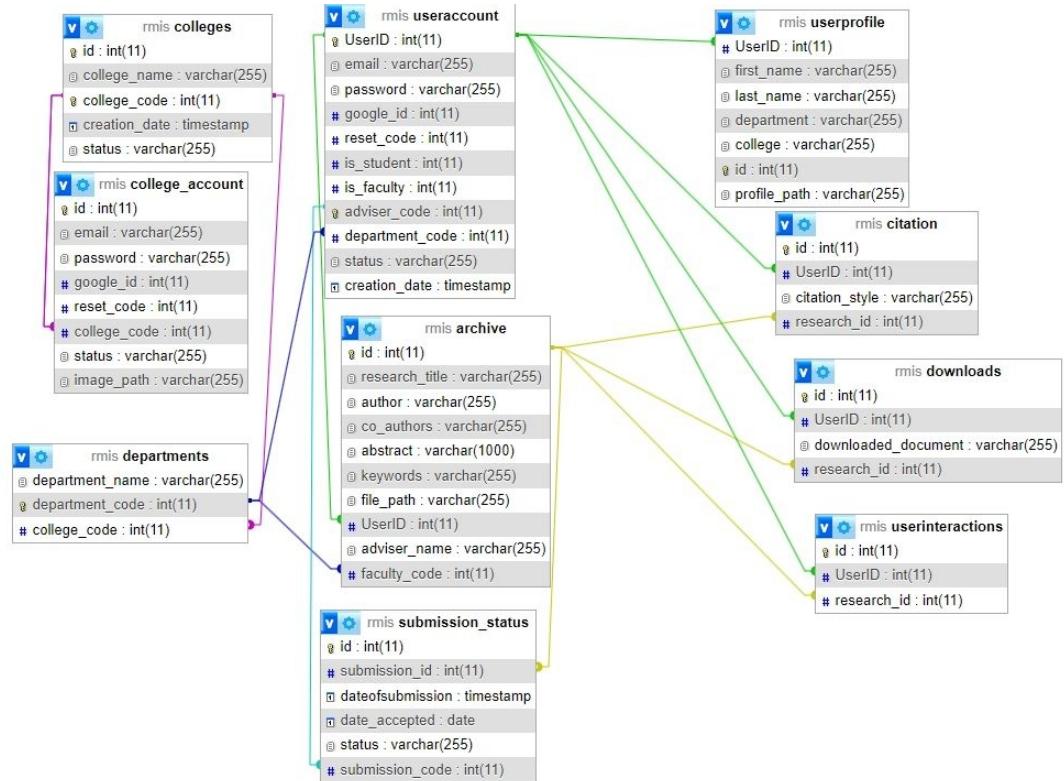


Figure 7: Database Design

All tables are interconnected to each other to ensure that all data is related to each other as user account table is connected to user profile as dedicated table to set or update a profile information such as first name, last name, department, college. Also user account table is connected to archive table, archive table is the main table to hold the documents and archived it. It is connected to user account to ensure the details and meta data of the

uploader of the document is connected as clear to be fetched also user account table is connected to other table such as citation, downloads and user interactions this is crucial to ensure that all the data activity of the user is properly stored in the database to use it in data analytics for the system to analyze and provide an overview.

4.4.2 Entity Relationship Diagram

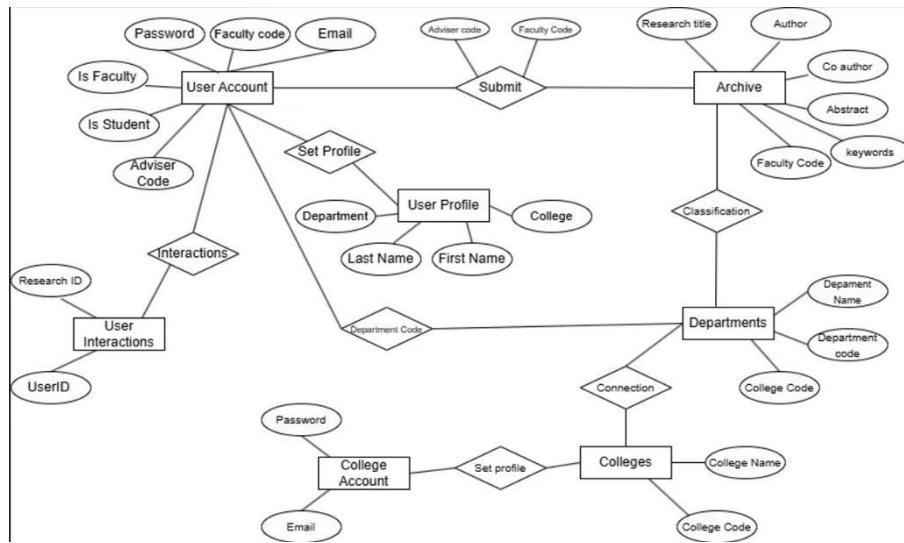


Figure 8: Entity Relationship Diagram

In this entity relationship diagram the user account will submit a document and stored it in archive entity showing the relation that it include the faculty code of the user account to be stored in the faculty code of archive entity which then connected to the departments table department code, in this way the archive can have a classification of which department it is came from, and then the departments entity have a connection to colleges entity via college code attribute same name for both table. And college's entity is connected to college account entity college's entity serves as profile table for college account where profile information of college is saved in the attribute's college name

4.4.3 Database Fields

In the Document Archiving Management Information System for WMSU Research Papers , the data structure for storing research papers is designed with well-defined fields, organized into records. Each record represents a research paper, containing relevant information about the paper, the author(s), and the review process. To maintain consistency and ensure data integrity, appropriate data types are assigned to each column. The primary key (PK) is set to the AutoNumber data type, automatically generating a unique identifier for each record.

| Column | Type | Attributes | Null | Default | Extra | Links to |
|----------|---------------|------------|------|---------|----------------|----------|
| admin_id | int(11) | | No | | auto_increment | |
| email | varchar(255) | | No | | | |
| password | varchar(255) | | No | | | |

Table 3.Admin

| Column | Type | Attributes | Null | Default | Extra | Links to |
|-----------------|-----------|------------|------|---------------------|-------------------------------|----------|
| id | int(11) | | No | | auto_increment | |
| UserID | int(11) | | Yes | NULL | | |
| research_id | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | |
| department_code | int(11) | | Yes | NULL | | |
| cited_at | timestamp | | No | current_timestamp() | on update current_timestamp() | |

Table 4.citations

| Column | Type | Attributes | Null | Default | Extra | Links to |
|---------------|---------------|------------|------|---------------------|----------------|----------|
| id | int(11) | | No | | auto_increment | |
| college_name | varchar(255) | | No | | | |
| college_code | int(11) | | Yes | NULL | | |
| creation_date | timestamp | | No | current_timestamp() | | |
| status | varchar(255) | | Yes | No Account | | |

Table 5.colleges

| Column | Type | Attributes | Null | Default | Extra | Links to |
|--------------|---------------|------------|------|---------|----------------|---|
| id | int(11) | | No | | auto_increment | |
| email | varchar(255) | | No | | | |
| password | varchar(255) | | No | | | |
| google_id | int(11) | | Yes | NULL | | |
| reset_code | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | -> colleges.colleg e_code ON UPDATE RESTRICT ON DELETE RESTRICT |
| status | varchar(255) | | Yes | NULL | | |
| image_path | varchar(255) | | Yes | NULL | | |

Table 6.college_account

| Column | Type | Attributes | Null | Default | Extra | Links to |
|----------------|----------------|------------|------|---------|----------------|--|
| id | int(11) | | No | | auto_increment | |
| research_title | varchar(255) | | Yes | NULL | | |
| author | varchar(255) | | Yes | NULL | | |
| co_authors | varchar(255) | | Yes | NULL | | |
| abstract | varchar(100 0) | | Yes | NULL | | |
| keywords | varchar(255) | | Yes | NULL | | |
| file_path | varchar(255) | | Yes | NULL | | |
| UserID | int(11) | | Yes | NULL | | -> useraccount .UserID ON UPDATE RESTRICT ON DELETE RESTRICT |
| adviser_name | varchar(255) | | Yes | NULL | | |
| faculty_code | int(11) | | Yes | NULL | | -> departments.depart ment_cod e ON UPDATE RESTRICT ON DELETE RESTRICT |

Table 7.archive

| Column | Type | Attributes | Null | Default | Extra | Links to |
|-----------------|--------------|------------|------|---------|-------|---|
| department_name | varchar(255) | | No | | | |
| department_code | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | -> colleges.college_code ON UPDATE RESTRICT ON DELETE RESTRICT |

Table 8.departments

| Column | Type | Attributes | Null | Default | Extra | Links to |
|-----------------|-----------|------------|------|---------------------|----------------|----------|
| id | int(11) | | No | | auto_increment | |
| UserID | int(11) | | Yes | NULL | | |
| research_id | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | |
| department_code | int(11) | | Yes | NULL | | |
| downloaded_at | timestamp | | No | current_timestamp() | | |

Table 9.downloads

| Column | Type | Attributes | Null | Default | Extra | Links to |
|------------------|------------|------------|------|---------|----------------|--|
| id | int(11) | | No | | auto_increment | |
| submission_id | int(11) | | Yes | NULL | | -> submission_status.id ON UPDATE RESTRICT ON DELETE RESTRICT |
| research_title | text | | Yes | NULL | | |
| author | text | | Yes | NULL | | |
| co_authors | text | | Yes | NULL | | |
| abstract | mediumtext | | Yes | NULL | | |
| keywords | text | | Yes | NULL | | |
| file_path | text | | Yes | NULL | | |
| UserID | int(11) | | Yes | NULL | | |
| adviser_name | text | | Yes | NULL | | |
| faculty_code | int(11) | | Yes | NULL | | |
| dateofsubmission | datetime | | Yes | NULL | | |
| comments | mediumtext | | Yes | NULL | | |

Table 10.submission_history

| Column | Type | Attributes | Null | Default | Extra | Links to |
|----------------------|------------------|------------|------|-------------------------|-----------------------------------|---|
| id | int(11) | | No | | auto_increment | |
| submission_id | int(11) | | Yes | NULL | | -> archive.id ON UPDATE RESTRICT ON DELETE RESTRICT |
| dateofsubmissi on | timestamp | | No | current_tim estamp() | on update curre nt_timestamp() | |
| date_accepted | date | | Yes | NULL | | |
| status | varchar(255) | | Yes | NULL | | |
| submission_cod e | int(11) | | Yes | NULL | | |
| comments | mediumtext | | Yes | NULL | | |

Table 11.Submission_status

| Column | Type | Attributes | Null | Default | Extra | Links to |
|---------------------|------------------|------------|------|-------------------------|-----------------------------------|--|
| UserID | int(11) | | No | | auto_increment | |
| email | varchar(255) | | No | | | |
| password | varchar(255) | | No | | | |
| google_id | int(11) | | Yes | NULL | | |
| reset_code | int(11) | | Yes | NULL | | |
| is_student | int(11) | | Yes | NULL | | |
| is_faculty | int(11) | | Yes | NULL | | |
| adviser_code | int(11) | | Yes | NULL | | |
| department_co de | int(11) | | Yes | NULL | | -> departments.depart ment_cod e ON UPDATE RESTRICT ON DELETE RESTRICT |
| status | varchar(255) | | Yes | NULL | | |
| creation_date | timestamp | | No | current_tim estamp() | on update curre nt_timestamp() | |
| is_emailverified | int(11) | | Yes | 0 | | |
| otp | int(11) | | Yes | NULL | | |
| is_verified | int(11) | | Yes | 0 | | |
| otp_timeout | datetime | | Yes | NULL | | |

Table 12.useraccount

| Column | Type | Attributes | Null | Default | Extra | Links to |
|-----------------|-----------|------------|------|---------------------|-------------------------------|----------|
| id | int(11) | | No | | auto_increment | |
| UserID | int(11) | | Yes | NULL | | |
| research_id | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | |
| department_code | int(11) | | Yes | NULL | | |
| time | timestamp | | No | current_timestamp() | on update current_timestamp() | |

Table 13.userinteractions

| Column | Type | Attributes | Null | Default | Extra | Links to |
|--------------|--------------|------------|------|---------|----------------|--|
| UserID | int(11) | | Yes | NULL | | -> useraccount. UserID ON UPDATE RESTRICT ON DELETE RESTRICT |
| first_name | varchar(255) | | No | | | |
| last_name | varchar(255) | | No | | | |
| department | varchar(255) | | Yes | NULL | | |
| college | varchar(255) | | Yes | NULL | | |
| id | int(11) | | No | | auto_increment | |
| profile_path | varchar(255) | | Yes | NULL | | |
| middle_name | varchar(50) | | Yes | NULL | | |
| id_number | varchar(11) | | Yes | NULL | | |
| cor | varchar(255) | | Yes | NULL | | |
| advisor_code | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | |

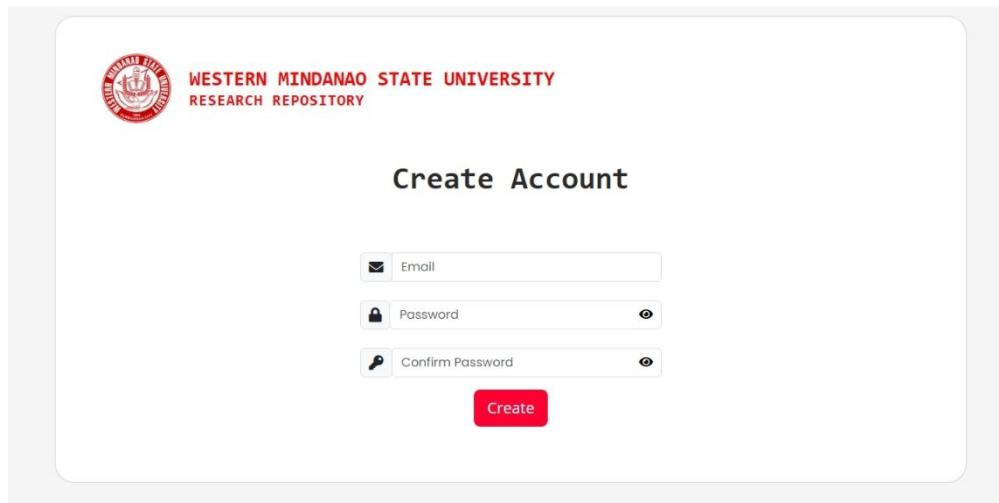
Table 14.userprofile

| Column | Type | Attributes | Null | Default | Extra | Links to |
|-----------------|-----------|------------|------|---------------------|----------------|----------|
| id | int(11) | | No | | auto_increment | |
| UserID | int(11) | | Yes | NULL | | |
| research_id | int(11) | | Yes | NULL | | |
| college_code | int(11) | | Yes | NULL | | |
| department_code | int(11) | | Yes | NULL | | |
| duration | int(11) | | Yes | NULL | | |
| viewed_at | timestamp | | No | current_timestamp() | | |

Table 15.views

4.4.4 User Interface Prototype

➤ CREATE ACCOUNT



The screenshot shows a web-based account creation form. At the top left is the university's logo, followed by the text "WESTERN MINDANAO STATE UNIVERSITY" and "RESEARCH REPOSITORY". Below this, the title "Create Account" is centered. The form contains three input fields: "Email" (with a small icon of an envelope), "Password" (with a small lock icon), and "Confirm Password" (with a small keyhole icon). To the right of each password field is a small circular icon with an "eye" symbol, indicating a password strength checker or visibility option. A red "Create" button is located at the bottom right of the form area.

Figure 9: Web View Create Account

This feature allows the user to create account and access to the application functionality such as submission of research paper and documents.

✓ **Accessing the Account Creation Page:**

- Open your web browser and navigate to the login button in the home page of the WMSU Research Management Information System from there you can see the create account button.

✓ **Set User Credentials:**

- Once on the account creation page, you will typically see fields prompting you to enter your user details.
- Enter your username or email address in the designated field. Ensure that you input the correct username associated with your account.

✓ **Set Password:**

- After entering your username, navigate to the password field.
 - Set your password carefully, and you will prompt to confirm your password make sure they matched
- ✓ **Clicking the Create Button:**
- Once you have set your username and password, locate the "Create" button on the page.
 - Click on the "Create" button to initiate the creation process.

➤ CHOOSE ROLE

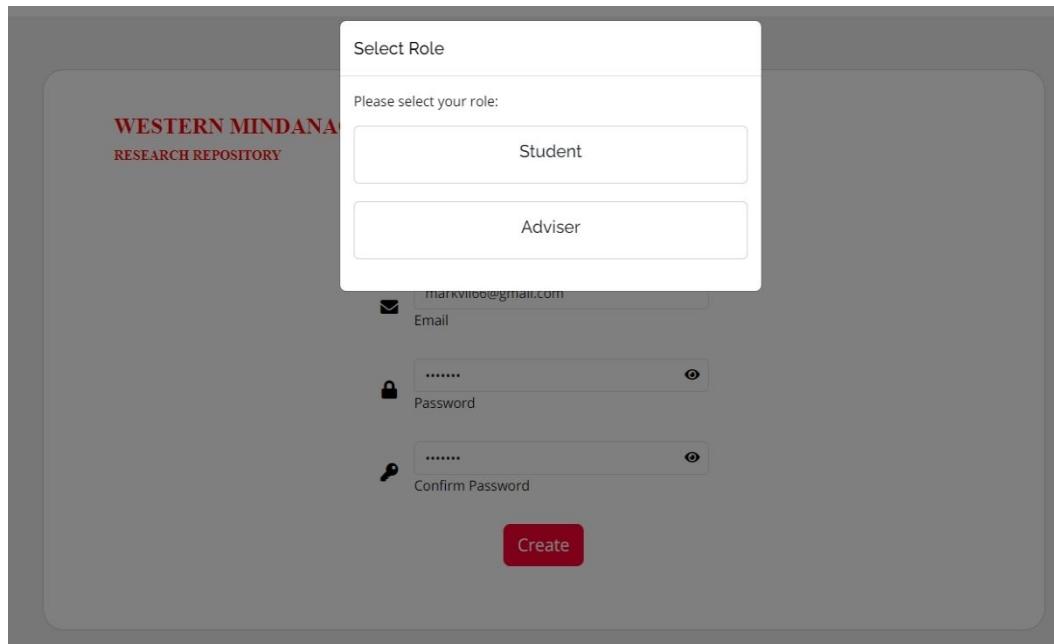


Figure 9.1: Web View choose
Role

- ✓ **Setting Account and Details:** After you clicked the “Create” button you will prompt to choose a role.
- ✓ **Confirm Selection:** Once you clicked the “Confirm” and the successful account creation you will be automatically logged in redirected to your homepage.

➤ **Email Verification**

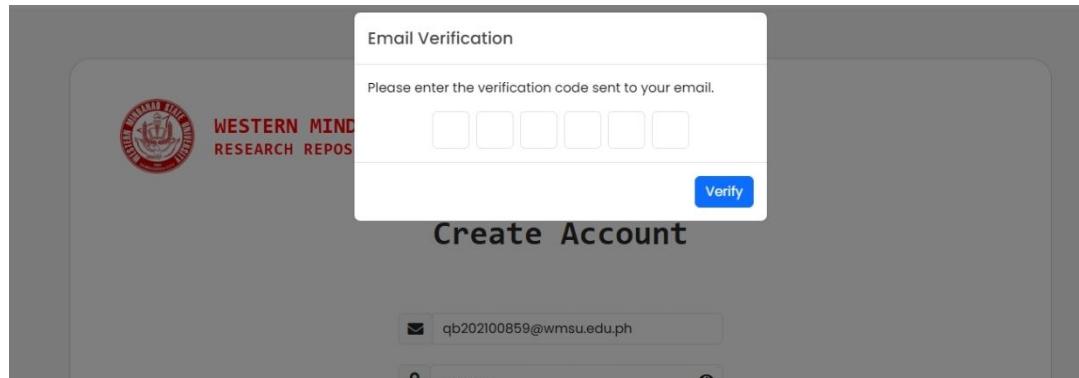


Figure 9.2: Web View Email Verification

- ✓ **Receive Verification Email:** After clicking "Create Account," check your inbox for a verification email.
- ✓ **Verify Your Email:** Click the link in the email to confirm your account.
- ✓ **Set Account Details:** Choose your role when prompted.
- ✓ **Confirm & Access:**
 - Click "Confirm" to complete setup.
 - You'll be logged in and redirected to your homepage.

➤ LOGIN

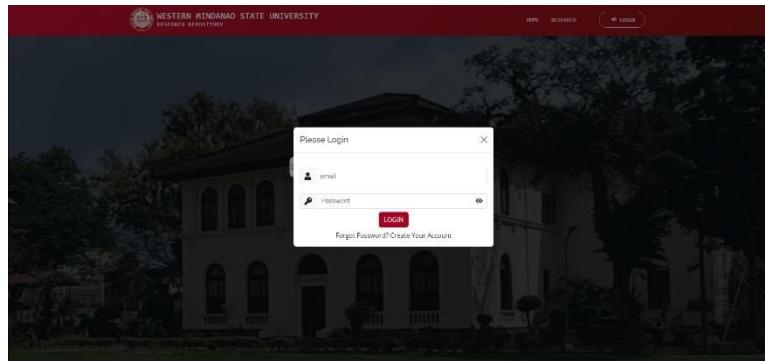


Figure 9.3: Web View Log in account

This feature allows the user to login an account and access to the application functionality, content and dashboard.

- ✓ **Accessing the Login Page:** Open your web browser and navigate to the login button in the home page of WMSU Research Management Information System
- ✓ **Entering User Credentials:**
 - Once on the login page, you will typically see fields prompting you to enter your user credentials.
 - Enter your username and password in the designated field. Ensure that you input the correct username associated with your account.
 - You can also use automated google login for faster login to the system.
- ✓ **Inputting Password:**
 - After entering your username, navigate to the password field.
 - Input your password carefully, ensuring that it matches the password associated with your username.

✓ **Clicking the Login Button:**

- Once you have entered your username and password, locate the "Login" button on the page.
- Click on the "Login" button to initiate the authentication process and access the system.

✓ **Accessing Dashboard (Upon Successful Login):**

- Upon successful authentication, you will be granted access to your dashboard and content
- Depending on your user role and permissions, you may be directed to a personalized dashboard or landing page displaying relevant information and options.

➤ **PERSONAL HOMEPAGE**

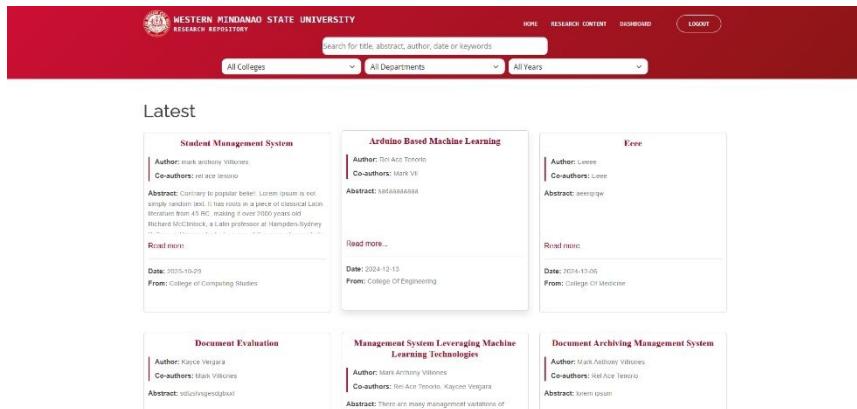


Figure 9.4: Web View Successful Log in

Upon successful login you can have your personal homepage with recommended content based on latest upload.

✓ **Accessing the Dashboard:**

- On your personal homepage clicked the button “Dashboard” Dashboard Content:

- Upon clicking the “Dashboard” button you will be redirected to your dashboard.
- Depending on your user role and permissions, you may have different dashboard content.

✓ Navigating the Dashboard:

- Once you are in your dashboard you can submit/review research document based on your role.
- Explore the different sections of the system as needed to perform your tasks and access relevant information.

➤ DASHBOARD CONTENT (Verified account)

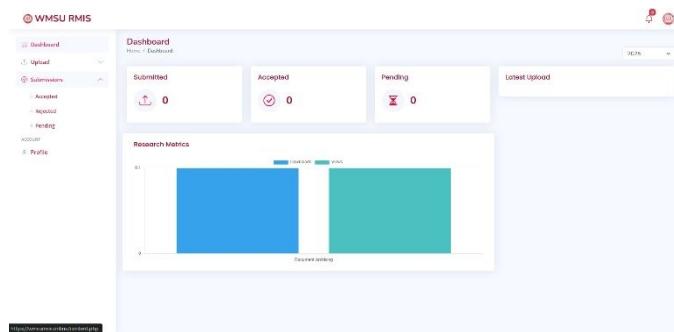


Figure 9.6: Web View student/researcher dashboard (verified)

This feature gives the user a bird’s eye view of his submitted research paper such as number of downloads, citation, number of views and recent submitted paper etc.

- ✓ **Accessing the Submission page:** Navigate to the dashboard toggle the publish on the sidebar and from there you will see a selection button click the “Submit/Upload”.
- ✓ **Entering Submission Page:** Once you clicked the “Submit/Upload” button you will be redirected to the submission page.

➤ DASHBOARD CONTENT (Unverified account)

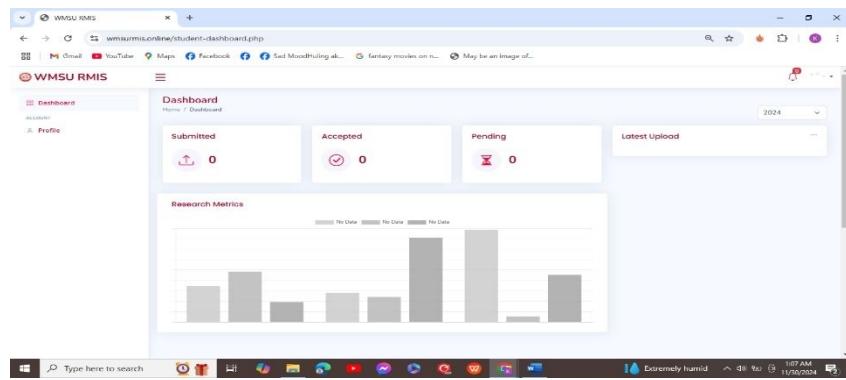


Figure 9.6: Web View student/researcher dashboard (unverified)

✓ Accessing the Dashboard for Unverified Users:

- After creating an account, unverified users can access their Dashboard and Profile sections.
- The Dashboard will display a message indicating the account verification status and instructions on how to complete verification.
- The Profile section allows users to update their personal information and upload necessary verification documents, such as a COR (for WMSU students).
- Other features and functionalities will remain restricted until the account is verified.

SUBMISSION PAGE (Verified account)

The screenshot shows the submission dashboard for WMSU RMIS. The left sidebar includes links for Dashboard, Upload, Submit, Submissions, Account, and Profile. The main area is titled 'Submission Details' and contains the following fields:

- Research Title:** Enter Your Full Research Title
- Author:** Enter Your Full Name
- Co-Author:** Enter Co-Author Full Name
[Add Co-Author]
- Advisor:** Enter Advisor Submission Code
[Enter Advisor Submission Code]
- Research Advisor:** Enter Advisor Submission Code
[Enter Advisor Submission Code]
- Abstract:** Enter Your Research Abstract
- Keywords:** Enter Keywords
[Add Keywords]
- Upload:** Upload (Select file) Only
Choose file No file chosen
- Submit:** [Submit button]

Figure 9.7: Web View student/researchers submission dashboard

This feature allows the student/researcher to upload his/her research paper by providing author details, abstract of the research, and keywords.

✓ **Submitting Paper:**

- Once you are on the submission page provide appropriate details for each input.
- After you inputted necessary details choose your research document file for upload.

✓ **Entering Status Page:**

- Upon successful submission you will be automatically redirected to status page.
- In the status page you will see the status of your submission.

STATUS PAGE (Verified account)

Figure 9.8: Web View
student/researchers status dashboard

This feature allows the student to view his/her submission status.

✓ Navigating to Status Page:

- Once you are on your dashboard toggle the “Publish” button on the sidebar.
- After you toggle the “Publish” button click the “Status” button.
- After you are redirected to status page you will see the status of your submission.

➤ FILL UP FORM (Unverified account)

Figure 9.9: Web View student/researchers fill
up form (unverified account)

✓ Fill-Up Form Details:

- When creating an account or completing your profile, the following fields are required:
 1. First Name (F-Name): Enter your given name.
 2. Middle Name (M-Name): Provide your middle name (optional, if not applicable).
 3. Last Name (L-Name): Enter your family name or surname.
 4. ID Number: Input your unique identification number (e.g., student ID or faculty ID).
 5. Profile Picture: Upload a clear photo for your profile (ensure it meets the maximum 10MB limit).
 6. College Department: Select your college department from the dropdown list.

Ensure all fields are accurately completed to avoid delays in account verification.

PROFILE SETTING

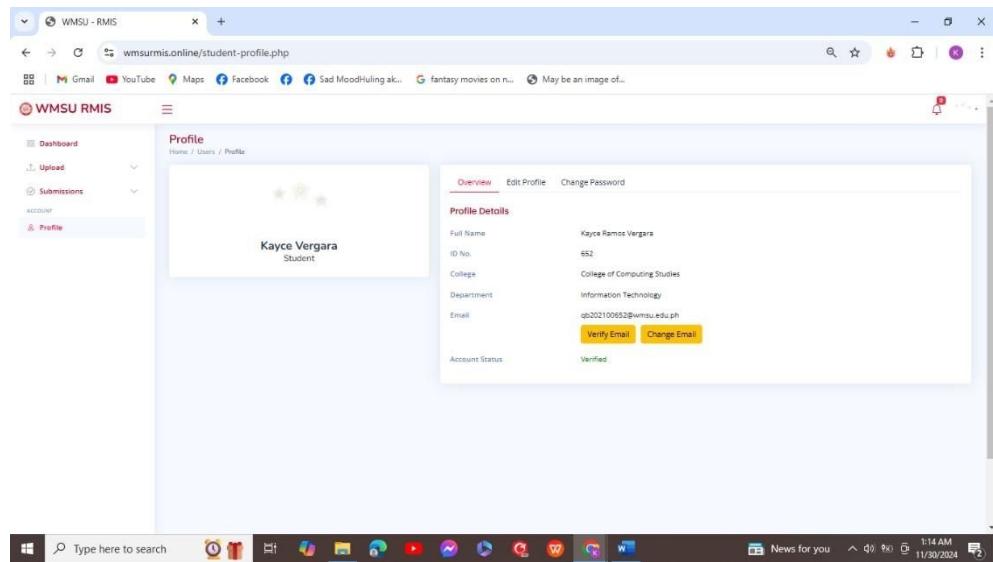


Figure 9.10: Web View account profile setting

This feature will allow you to set and modify your profile information and details.

- ✓ **Accessing the Profile Setting:** Once you are on your student dashboard click the “Profile” button and you will be redirected to the profile setting.
- ✓ **Setting Profile:**
 - In your profile setting you can directly edit your profile picture and basic information such as full name, address and email address.
 - After you set your new profile information click the “Save Changes” button to save your new information.

➤ CHANGING PASSWORD

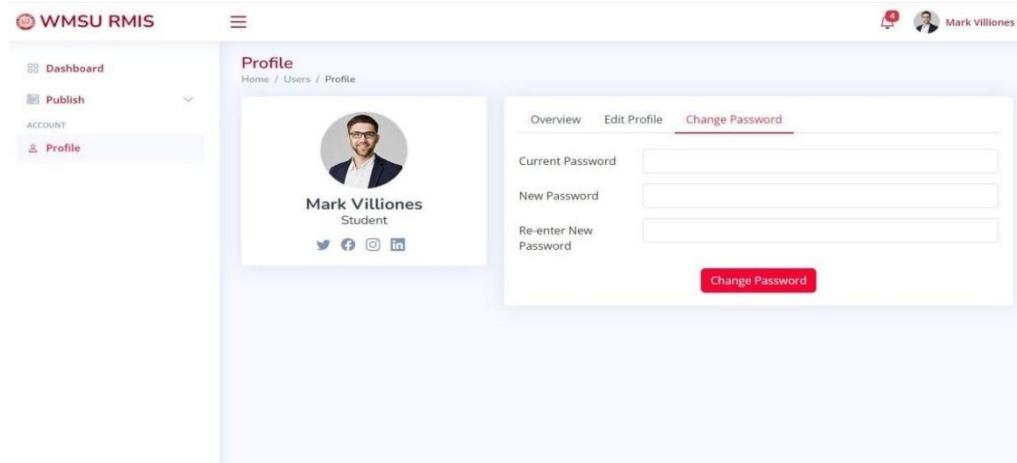


Figure 9.11: Web View changing account password

This feature allows you to change the password of your account.

✓ Accessing the Change Password:

- Once you are on your student dashboard click the “Profile” button and you will be redirected to the profile setting.
- From there click on the small tab “Change Password” and your tab will change to change password setting.

✓ Changing Password:

- Once you are on the change password table fill the necessary detail such as current password
- After you fill the current password input your new password and reenter it.
- After inputting all necessary details and credentials click the “Change Password” button to save your new password.

➤ FACULTY CREATE ACCOUNT

The screenshot shows a web-based account creation form. At the top left is the university's logo and name, "WESTERN MINDANAO STATE UNIVERSITY RESEARCH REPOSITORY". Below the logo is a red circular seal. The main form area has a light gray background. At the top right of the form is a text input field labeled "Enter Your Department Code" with the placeholder "Please enter your department code". Below it is another text input field labeled "Department Code". A blue "Submit" button is located at the bottom right of this section. In the center of the form is a large, bold "Create Account" button. Below this button are three input fields: an email field containing "qb202100859@wmsu.edu.ph", a password field containing "Hakdogka20", and a confirmation password field also containing "Hakdogka20". At the bottom right of the form is a red "Create" button.

Figure 10: Web View college account creation

This feature allows the department to create their college account for the college dashboard

✓ **Creating Faculty Accounts Page:**

- This page is exclusive only to faculty and departments of colleges and should not be explicitly available to the public.
- After all departments successfully created their accounts this page will not be available

➤ COLLEGE DASHBOARD

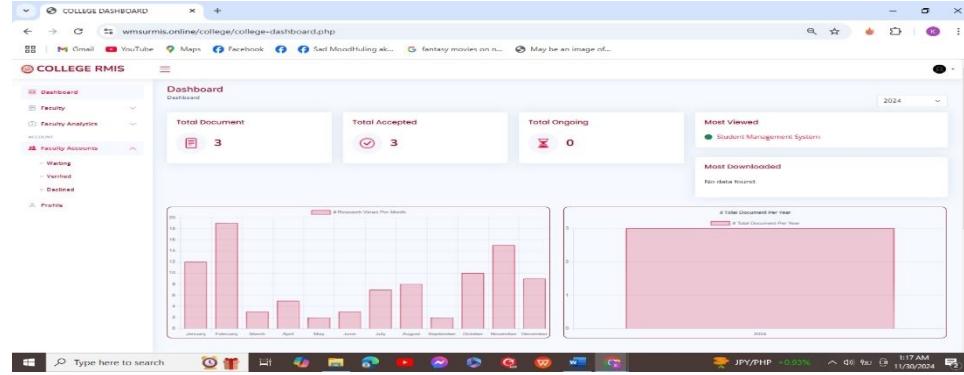


Figure 10.1: Web View college dashboard

This feature allows the college to view overall analytics of their department's student submissions and analytics such as views per month, total submitted research per year approved, pending and etc.

✓ Accessing the College Dashboard:

- After you created a college account you can access your own dashboard.
- From there you can view all analytics and documents associated for that college account.
- View analytics such as submitted per month, views per month, approved, and total research.

ACCOUNT REVIEW PAGE

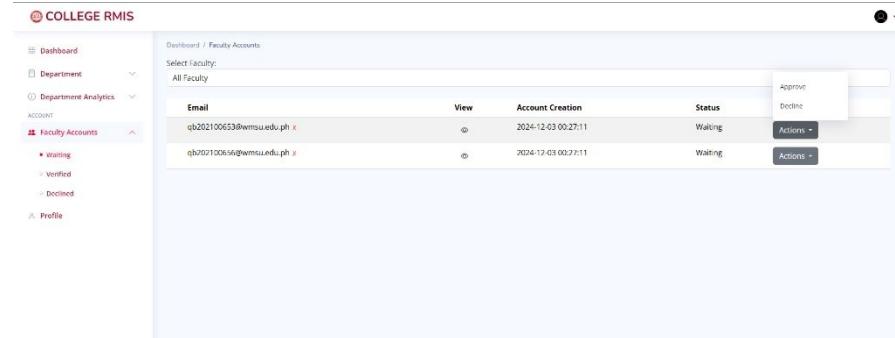


Figure 10.2: Web View faculty review dashboard

This feature allows the college to view and review faculty account or adviser account creation.

➤ DOCUMENT REVIEW PAGE

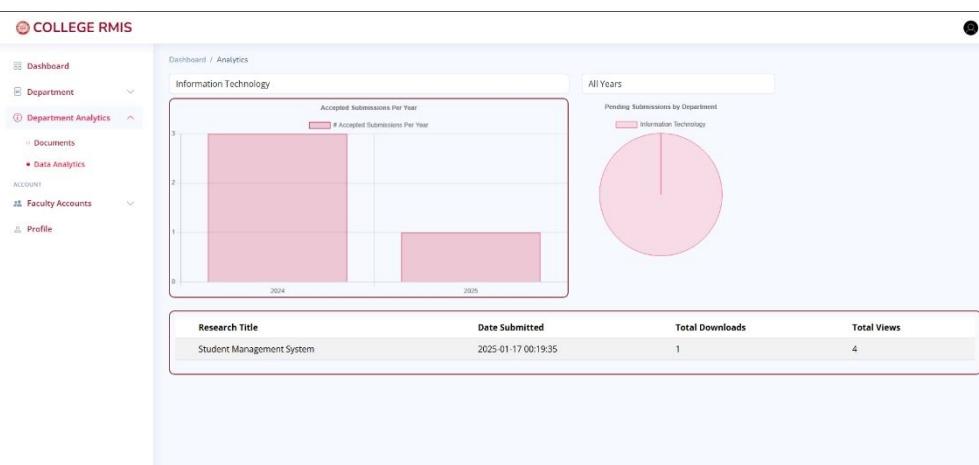


Figure 10.3: Web View faculty Document review dashboard

✓ Accessing the Document Review Page:

- Once logged in, navigate to the Document Review section of your dashboard.
- From this page, you can review all research papers assigned to you for evaluation.
- View detailed information about each submission, such as the author's details, submission date, and the research abstract.

- Approve, reject, or request revisions for each document, with the ability to add comments or feedback for the author

➤ FACULTY ACCOUNT APPROVED

The screenshot shows the COLLEGE RMIS dashboard with the sidebar expanded. Under the 'ACCOUNT' section, 'Faculty Accounts' is selected. The main content area displays a table titled 'Faculty Accounts' with one row. The row contains the following data:

| Name | Email | Account Creation | Status | Action |
|----------------|---------------------|---------------------|--------|-----------------------------|
| Mark Villiones | markvil64@gmail.com | 2024-09-14 23:37:44 | Active | <button>Deactivate</button> |

Figure 10.4: Web View faculty approved account

This feature allows the faculty to view approved research paper by the research adviser

➤ FACULTY ACCOUNT REJECTED

The screenshot shows the COLLEGE RMIS dashboard with the sidebar expanded. Under the 'ACCOUNT' section, 'Faculty Accounts' is selected. The main content area displays a table titled 'Faculty Accounts' with one row. The row contains the following data:

| Name | Email | Account Creation | Status | Action |
|----------------|---------------------|---------------------|----------|--------|
| Mark Villiones | markvil64@gmail.com | 2024-09-23 00:47:13 | Declined | |

Figure 10.5: Web View rejected account

This feature allows the college to decline or reject faculty account creation

✓ Faculty Rejected Page:

Rejecting faculty or adviser account creation make the account inaccessible.

➤ ADMIN DASHBOARD

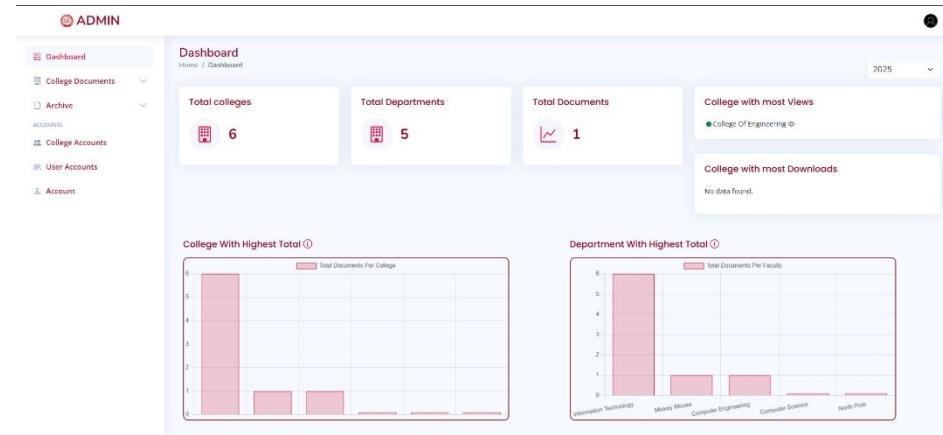


Figure 11: Web View admin overview dashboard

This feature allows the admin of the system to view all analytics reports.

➤ COLLEGE ACCOUNT OVERVIEW

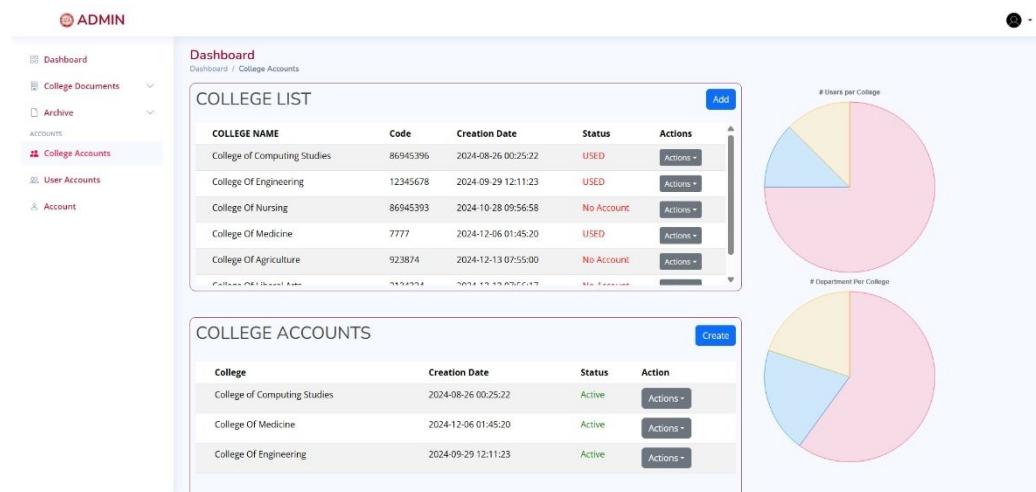


Figure 11.1: Web View admin college overview dashboard

This feature allows the admin of the system to view all analytics reports for each college department.

➤ COLLEGE VIEW SUBMISSION REPORTS

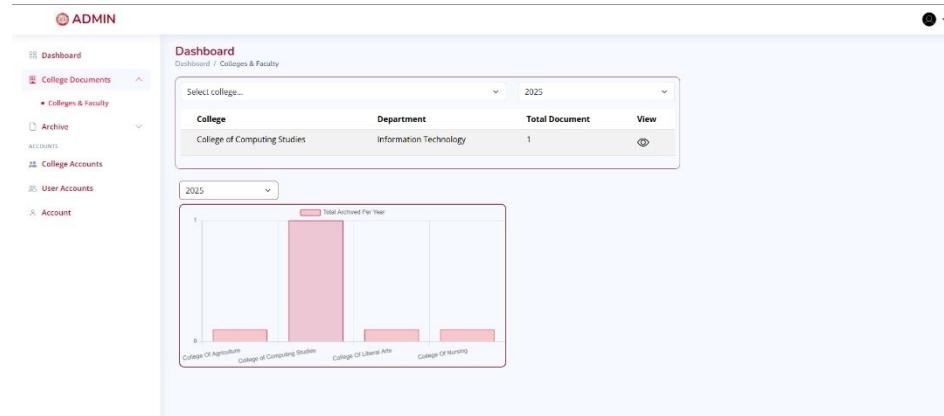


Figure 11.2: Web View admin college submission reports

This feature allows the admin of the system to view colleges and

faculty total document submission per year.

➤ ADMIN DOCUMENT VIEWING

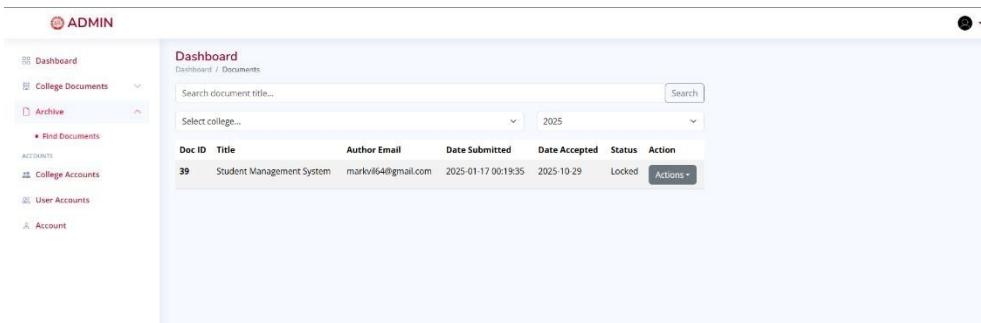


Figure 11.3: Web View admin document viewing dashboard

This feature allows the admin of the system to view and search all

document in the system and can choose action.

➤ RESEARCH CONTENT OVERVIEW

The screenshot shows a web interface for the Western Mindanao State University Research Repository. At the top, there is a red header bar with the university's logo and name. Below the header, the main content area has a white background. On the left, there is a sidebar with a dark blue header containing the text "Student Management System". The main content area contains several sections: "Additional Details" (with author, co-authors, date accepted, and college/faculty information); "Abstract" (describing the history of Lorem Ipsum); "Keywords" (Management System); and "Date" (2025-10-29). Below these, there are two sections titled "You may like to visit" and "You might also like", each featuring a thumbnail image of a person and a title. The "You may like to visit" section is for "College of Computing Studies", and the "You might also like" section is for "Document Archiving Management System" and "Management System Leveraging Machine Learning Technologies".

Figure 11.4: Web View research content overview

This is the research paper content overview

✓ Research Paper Content Overview

- This is the research paper content overview once you click a research paper you will be redirected here.
- You can also see other details of the document here such as author, co-author and date.

CHAPTER 5

DEVELOPMENT AND TESTING

5.1 Development

5.1.1 Introduction

The Document Management Evaluation and Archiving Information System for WMSU Research Papers was developed based on the Rapid Application Development methodology, which is a framework that emphasizes user-centric design, fast prototyping, iterative refinement, and continuous client engagement. This methodology allowed the development team to deliver a working system in a shorter time frame that could fulfill the specific requirements of its diverse user group which are the admin, faculty, students, and college roles. In the RAD approach, the system is broken down into smaller modules, with each module corresponding to one specific role. These modules were developed iteratively, from basic functionalities to more sophisticated features, based on the feedback of the users. For instance, the faculty module was initially designed to allow review of documents but later evolved into providing a mechanism for feedback for detailed evaluation of research papers.

Prototypes were pivotal in the RAD process since it allowed the team to seek early feedback from key stakeholders. These consisted of different WMSU faculty, students, and personnel in the administration who gave valuable insights about the requirements. Admin users wanted system wide monitoring tools, such as logs with details about document downloads and user activities. Faculty members opined that feature should assist in streamlining the review process through tools providing

structured feedback and submission status tracking. Students required an intuitive and a user interface that is understandable and easy to navigate. It should make the process of submission easier and provide one with the ability to monitor the status of reviewing the research in real-time. The iterative approach ensured that the system evolved to accommodate diverse needs of its users, while at the same time aligning with the objectives of the institution.

To hasten up the development cycle and sustain the momentum, the team embraced parallel development strategies. The teams worked parallelly on modules like user management, document evaluation, and archiving functionalities. Parallelization shortened the overall time for development to a significant extent. Integration cycles were conducted regularly to ensure that the modules interacted with each other without causing any compatibility problems. At every step, testing was performed to catch possible problems and correct before proceeding to the next step.

The RAD methodology was by no means without problems in its development. One of the biggest problems, perhaps, was getting disparate stakeholders' conflicting and sometimes inconsistent needs aligned. While faculties would be concerned about the feature that was to facilitate in-depth review, admins would raise the importance of monitoring as well as analytics. It would require a conscious effort with gradual release not to disturb any of these groups at once. Scalability and performance turned out to be major concerns also.

5.1.2 Development Stage

| Activities | | Dependencies | Required Resources | Person(s) in charge | Duration | | | | | |
|--|--|--------------|--------------------------------|---------------------|-------------|--------------|-------|--|--|--|
| | Activities | | | | start | End | Days | | | |
| PHASE I: REQUIREMENTS ANALYSIS | | | | | | | | | | |
| <i>STEP I: INITIATE REQUIREMENTS COLLECTIONS</i> | | | | | | | | | | |
| 1.1.1 | Review any preliminary project documentation and gather relevant materials before the meeting. | --- | Laptop and Internet Connection | All member | Aug. 12 '24 | Aug . 12 '24 | 1 day | | | |
| 1.1.2 | Conduct an Initial interview with the adviser. | 1.1.1 | Laptop and Internet Connection | All Member | Aug. 12 '24 | Aug . 12 '24 | 1 day | | | |
| 1.1.3 | Requirements Elicitation. | --- | Laptop and Internet Connection | All Member | Aug. 13 '24 | Aug . 13 '24 | 1 day | | | |
| | | | | | | | | | | |
| 1.2.1 | Identifying possible user | 1.1.3 | Laptop and Internet Connection | All member | Aug. 14 '24 | Aug 15'24 | days | | | |

| | | | | | | | |
|-------|----------------------|-----|--------------------------------|------------|-------------|-------------|-------|
| 1.2.2 | Adviser's Validation | --- | Laptop and Internet Connection | All member | Aug. 16 '24 | Aug. 17 '24 | 1 day |
| 1.2.3 | Documents Gathering | --- | Laptop and Internet Connection | All member | Aug. 19 '24 | Aug. 19 '24 | 1 day |

PHASE II: SYSTEM DESIGN

STEP I: DESIGN SYSTEM SPECIFICATION

| | | | | | | | |
|-----------|------------------------------------|-------|--------------------------------|----------|----------------|----------------|------|
| 2.1. 1 | Create Context Diagram | 2.2.1 | Laptop and Internet Connection | Villones | Aug. 20 '24 | Aug. 22 '24 | days |
| 2.1. 2 | Create Database Design | 2.1.1 | Laptop and internet Connection | Villones | Aug. 23 '24 | Aug. 26 '24 | days |
| 2.1. 3 | Create Data Flow Diagram | 2.1.2 | Laptop and Internet Connection | Villones | Aug. 27 '24 | Aug. 29 '24 | days |
| 2.1. 4 | Create Entity-Relationship Diagram | 2.1.3 | Laptop and Internet Connection | Villones | Aug. 30 '23 | Sept. 2 '23 | days |
| 2.1. 5 | Create Flowcharts and HIPO | 2.1.4 | Laptop and Internet Connection | Villones | Sept. 3 '24 | Sept. 5 '24 | days |
| 2.1. 6 | Design System Modules | 2.1.5 | Laptop and internet Connection | Villones | Sept. 6 '24 | Sept 10 '24 | days |

| | | | | | | | |
|-----------|----------------------------|---------------|-----------------------------------|----------|----------------|----------------|------|
| 2.1. 7 | Design Initial Graphic U/I | 2.2.6 | Laptop and Internet Connection | Villones | Sept 11 '24 | Sept 13 '24 | days |
| 2.1. 8 | Document System Design | 2.1.1 - 2.1.7 | Laptop and Internet Connection | Vergara | Sept 14 '24 | Sept. 16 '24 | days |

| PHASE III: PROGRAM DESIGN AND IMPLEMENTATION | | | | | | | |
|--|--------------------------|-------|--------------------------------|----------|-----------------|-----------------|--------|
| STEP I: PROGRAMMING | | | | | | | |
| 3.1.1 | Distribute Modules | ----- | Laptop and Internet Connection | Villones | Sept. 17 ‘24 | Sept. 24 ‘24 | 7 days |
| 3.1.2 | Pre-Final System Coding | 3.1.1 | Laptop and internet Connection | Villones | Sept. 24 ‘24 | Sept. 28 ‘24 | 3 days |
| 3.1.3 | Integrate Modules | 3.1.2 | Laptop and Internet Connection | Villones | Sept. 30 ‘24 | Oct. 2 ‘24 | 2 days |
| STEP II: DEBUGGING PROCESS AND VALIDATION | | | | | | | |
| 3.2.1 | Review System Codes | 3.1.3 | Laptop and Internet Connection | Villones | Oct. 3 ‘24 | Oct. 5 ‘24 | 2 days |
| 3.2.2 | Consolidate System Codes | 3.2.1 | Laptop and Internet Connection | Villones | Oct. 7 ‘23 | Oct. 9 ‘23 | 2 days |
| 3.2.3 | Document System Codes | 3.2.2 | Laptop and internet Connection | Villones | Oct. 10 ‘23 | Oct. 12 ‘23 | 2 days |
| PHASE IV: TESTING | | | | | | | |

| STEP I: TEST PLANS | | | | | | | |
|-----------------------------|---|-------|--------------------------------|---------|-------------|-------------|--------|
| 4.1.1 | Define Test Objectives, Procedures and Strategies | ---- | Laptop and Internet Connection | Tenorio | Oct. 14 '24 | Oct. 16 '24 | 2 days |
| 4.1.2 | Polish Test Plans | 4.1.1 | Laptop and Internet Connection | Vergara | Oct. 17 '24 | Oct. 19 '24 | 2 days |
| STEP II: FUNCTIONAL TESTING | | | | | | | |
| 4.2.1 | Static Testing | 4.1.2 | Laptop and internet Connection | | Oct. 21 '24 | Oct. 23 '24 | 2 days |
| 4.2.2 | Unit Testing | 4.2.1 | Laptop and Internet Connection | | Oct. 24 '24 | Oct. 26 '24 | 2 days |
| 4.2.3 | Integration Testing | 4.2.2 | Laptop and Internet Connection | | Oct. 28 '24 | Oct. 30 '24 | 2 days |
| 4.2.5 | System Testing | 4.2.4 | Laptop and Internet | | Oct. 31 '24 | Nov. 4 '24 | 2 days |

| | | | | | | | |
|---|--|-------|--------------------------------|-----------------------|------------|-------------|--------|
| | | | Connection | | | | |
| STEP III: NON-FUNCTIONAL TESTING | | | | | | | |
| 4.3.1 | Performance Testing | 4.2.5 | Laptop and Internet Connection | | Nov 5 '24 | Nov. 8 '24 | 3 days |
| 4.3.2 | Beta Testing | 4.3.1 | Laptop and Internet Connection | All member | Nov 9 '24 | Nov 14 '24 | 4 days |
| 4.3.3 | Alpha Testing | 4.3.2 | Laptop and Internet Connection | Villiones and Vergara | Nov 15 '24 | Nov 20 '24 | 4 days |
| 4.3.4 | Document Test Plans and Testing Result | 4.3.3 | Laptop and internet Connection | All member | Nov 21 '24 | Nov 22 '24 | 1 day |
| PHASE V: Deployment | | | | | | | |
| STEP I: MAINTENANCE | | | | | | | |
| 5.1.1 | Implement the modification or enhancements | ----- | Laptop and Internet Connection | Villiones | Nov 23 '24 | Nov. 27 '24 | 3 days |

| | | | | | | | |
|---------------------------------------|--|-------|--------------------------------|---------------------|-------------|------------|--------|
| 5.1.2 | Document the modification or enhancements | 5.1.1 | Laptop and internet Connection | Vergara and Tenorio | Nov. 28 '24 | Nov 29 '24 | 1 day |
| 5.1.3 | Training Plan | 5.1.2 | Laptop and Internet Connection | All Members | Nov. 30 '24 | Dec 03 '24 | 3 days |
| <i>STEP 2: CLOSING PROJECT</i> | | | | | | | |
| 5.2.1 | Ensure all the documentation and deliverables are up-to-date | 5.1.3 | Laptop and Internet Connection | All member | Dec 4 '24 | Dec 5 '24 | 1 day |
| 5.2.2 | Successful completion and approval from all of the involved stakeholders | 5.2.1 | Laptop and internet Connection | All member | Dec 6 '24 | Dec 6 '24 | 1 day |
| 5.2.3 | Release Resources | ----- | Laptop and Internet Connection | All member | Dec 7 '24 | Dec 7 '24 | 1 day |

Table 13. Development stage

5.1.2 Roles and Responsibilities

A. Project manager

➤ Kayce R. Vergara

The Project Manager is responsible for planning projects, assigning resources, scheduling, risk assessment, and coordinating teams. Is also serves as a bridge between different groups, ensuring that everyone understands the project objectives. The Project Manager's leadership and strategic decision-making skills are essential for project success, making sure that client requirements are met or exceeded.

- ✓ Allocate resources effectively to meet project requirements.
- ✓ Control project schedules and guarantee compliance with deadlines.
- ✓ Evaluate and lessen project risks to reduce interruption.
- ✓ Coordinate communication and collaboration among project team members.
- ✓ Serve as a point of contact for clients, addressing concerns and providing updates.
- ✓ Monitor project progress and performance, making adjustments as necessary to achieve objectives.
- ✓ Provide leadership and guidance to the project team, fostering a collaborative and productive work environment.

B. Programmer/Designer

➤ Mark Anthony N. Villiones

The role of the programmer/designer is essential in the development of digital solutions. The programmer/designer takes ideas and needs and develops them into software or a digital product that performs well and is user-friendly. Write, test, and troubleshoot code to ensure it works properly. Also collaborate closely with project managers and clients to understand the scope of the project. Translate conceptual designs and requirements into software applications.

- ✓ Write, test, and debug code to ensure functionality and performance
- ✓ Collaborate with project manager and client to project goals and requirements
- ✓ Provide technical expertise and guidance throughout the development process.
- ✓ Stay updated on emerging technologies and industry trends for continuous improvement

C. System Analyst

➤ Rel Ace A. Tenorio

The role of the System Analyst is to bridge the gap between the technical side of the project and the business side. The analyst listens to the needs of the clients and translates those needs into plans for IT solutions. The analyst looks for ways to improve the performance of existing systems. The analyst works closely with the programmer and ensures that projects are completed correctly, on time, and on budget.

- ✓ Analyzing and interpreting the requirements of the clients.
- ✓ Conducting research and evaluations to identify system improvements.
- ✓ Collaborating with the programmer to ensure project success.
- ✓ Ensuring projects are delivered on time and within budget.
- ✓ Facilitating communication within the team.
- ✓ Providing ongoing support for implemented solutions.

5.1.3 Evaluation of Work Style

| Name | Roles | Work Style | Strengths | Description | Responsibilities |
|--------------------------|-----------------|---------------|---|---|---|
| Kayce R. Vergara | Project Manager | collaborative | Strong interpersonal skills, foster creativity. | Prefers closely to work with others. | In charge of planning, executing and completing the project. |
| Mark Anthony N. Villones | Programmer | Independent | Self-motivated, focused and efficient. | Works well alone, prefers to take full ownership of the | Writes, tests and maintains the code that builds the system. Collaborates with the rest |

| | | | | | |
|--------------------|----------------|------------|---|--|--|
| | | | | task and projects. | of the team to make sure the system is functional. |
| Rel Ace A. Tenorio | System Analyst | Structured | Organized, detailed oriented, reliable. | Thrives in environment with clear guideline s and procedure s. | Reviews and develops solutions, making sure the system runs smoothly and performs optimally. |

Table 14. Evaluation of workstyle

5.2 Integration of Technology

The Document Management Evaluation and Archiving Information System for WMSU Research Papers has been developed using a combination of modern, reliable technologies, each one chosen to address specific functional, performance, and scalability needs of the system. The thoughtful selection of technologies would ensure that the platform not only flexible but also capable of addressing the growing demands of the institution as it continues to expand. By integrating a variety of web-based technologies, a reliable and scalable database system, and third-party tools selectively chosen and implemented, the project shall deliver an extremely efficient, and secure experience to its incredibly diverse user base: administrators, faculty members, students, and college staff. These technologies were chosen because of the need to ensure high performance and security with an easy-to-use interface. It is also designed to be scalable so that future enhancements may be added without affecting the existing infrastructure. For this integration, the system is not only satisfying the present needs of WMSU but also gives a foundation for long-term success and adaptability to the ever-changing academic environment.

5.2.1 Choice of Technologies

1. Web Application Development

The web application is the main system and enables the interface to the document management system among users. The front end was created with HTML, CSS, and JavaScript to make sure it is interactive. Such technology was used to allow web pages to be dynamic with abilities to display data as well as accept user input efficiently. To improve the user interface and make sure that the

design is consistent and responsive, the development team used Bootstrap, a front-end framework. Bootstrap allowed the team to ensure accessibility across devices, including desktops, tablets, and mobile phones. This was especially important in catering to the varied technological capabilities of the WMSU community. PHP was chosen on the back-end due to its flexibility, its ability to handle server-side logic, and its integration capabilities with MySQL. It efficiently handles tasks such as processing research submissions, implementing user authentication, and enabling the system's role-specific functionalities, which include admin, faculty, student, and college. Its community support and built-in functions make it a natural choice for the project's needs.

2. Database Management

The system uses MySQL as the database management system, selected for its efficiency in handling large amounts of structured data. MySQL acts as the backbone of the application, securely storing essential data, including user profiles, research documents, system logs, and feedback. Its performance ensures that the system can efficiently handle the demands of multiple users while maintaining data integrity. It has followed industry standards in its design, taking into consideration normalization to limit data redundancy and ensure a consistent system. The careful structuring of data will actually allow for faster querying as well as smooth updates on the system, which will be critical because of its support for large volumes of documents and users. The scalability of the database ensures that with a growing number of users and research submissions, the system will accommodate increased traffic and data storage without degrading its

performance. This design approach guarantees the long-term efficiency and reliability of the system to accommodate future growth and evolution of WMSU's academic needs.

3. Integration with Mobile Platforms

Although the system is web-based, it was developed with mobile compatibility in mind through responsive design principles. These principles ensure that users can access the platform from smartphones or tablets without sacrificing functionality or ease of use. The responsive design dynamically adjusts the layout and elements to provide an optimal viewing experience across a variety of screen sizes, ensuring accessibility and a smooth user experience, whether on desktop, tablet, or mobile devices. Towards future scalability, the design architecture of the system has kept enough room for developing a future scalable mobile application, such as an Android app. Since that would involve using RESTful APIs on Android, this mobile application is developed to interact efficiently with its database system. This would further extend the platform's accessibility, enabling users mostly students and faculty to access, upload, and review research documents on the go to improve the overall user experience, and ensure that the system adapts to the changing needs of the academic community.

4. Third-Party Tools

Custom solutions were implemented to handle file management and ensure password security. For enhancing interactivity and client-side scripting, jQuery was used. jQuery simplified tasks such as dynamic content updates, form validation, and event handling, offering a more lightweight solution compared to

other libraries. This approach allowed the development team to retain full control over the system's behavior and ensure it met the institution's specific requirements and technical constraints, without relying on external libraries for core functionalities like file uploads or password handling.

5.2.2 System Architecture and Data Flow

The architecture of the system follows a multi-tier design, comprising the presentation layer (front-end), the application layer (server-side logic), and the data layer (database).

5.2.3 Importance of Security in System Integration

Security was a major concern at every stage of the system development to ensure that sensitive data remains protected at all stages. Prepared statements and parameterized queries were used in the database, which helped remove vulnerabilities for SQL injection attacks, which is one of the most common security risks in which the attackers try to manipulate database queries. There is input validation on every form and data submission. This avoids invalid or unauthorized information entering the system, thus guaranteeing only formatted and secure information gets processed. To encrypt the data during its transference through the internet, the system uses the HTTPS encryption protocols. HTTPS ensures that all forms of communication between users - that is, clients - and the server are encrypted, rendering it much more difficult to intercept or tamper with data by malicious actors. User passwords are not stored as plain text but are rather hashed using a secure approach. This makes it much harder for anyone, even if accessing the database, to regain the original passwords. The system balances functionality, performance, and data protection by integrating these security technologies. This thoughtful approach ensures that

the Document Management Evaluation and Archiving Information System for WMSU can handle sensitive information safely, while also providing a reliable and efficient service. Further, the system is ready for future updates and enhancements by giving security priority from the start, thus ensuring that it can scale to meet the growing needs of the institution without compromising on security

5.3 Testing

Testing is an essential development and deployment phase of the Document Management, Evaluation, and Archiving Information Management System for WMSU research paper. The purpose of testing is to ensure that the system will perform according to expectations, meet the stated functional requirements, and bring out a reliable and seam experience by all users. This phase is crucial for identifying and resolving any problems, validating performance standards, and ensuring that the system is stable and secure before it is fully deployed. During testing, there will be various types of tests conducted, each focusing on different aspects of the system. Functional testing will ensure that the core features, such as document submission, evaluation, and retrieval, work as intended. Performance testing will test the system's ability to handle large numbers of users and documents, ensuring that response times remain optimal under load. Security testing will test the system's defenses against potential threats and vulnerabilities, ensuring the protection of sensitive academic data. Lastly, usability testing will ensure that the user interface is intuitive and easy to navigate for all user roles, including students, faculty, and administrators. During the testing phase, it would include UAT; the real users will actually simulate their typical interactions with the system to ensure that it meets their expectations and needs. Continuous feedback will be gathered all through this phase and necessary

improvements to the entire system. In that regard, WMSU will test the system to identify any problem and resolve it before it happens, and in so doing, ensure data integrity while optimizing system performance. Such an approach will help build confidence in the reliability of the system in serving the expectations of all parties to the research paper submission and evaluation process. In doing this, WMSU will be able to deploy a fully functional, secure, and user-friendly system for enhancing the university's capabilities for managing research papers.

5.3.1 Alpha Testing

➤ Unit testing

| Unit Testing | |
|--------------------------|---|
| Project Number: | 1.0 |
| Project Name: | Document Management Evaluation and Archiving Information System for WMSU Research Papers |
| Test Type: | Unit Testing |
| Test Description: | Unit testing is a method of testing individual units or components of a software application. |
| Date: | From October to November 2024 |
| App Version No: | N/A |
| Total Duration: | 6 days |

| | |
|--|----|
| Total no. of passed test cases: | 91 |
| Total no. of failed test cases: | 4 |
| Total no. of tested test cases: | 95 |
| Total no. of test cases: | 11 |

Table 18. Unit testing

| Status | |
|----------------------------|--------|
| % Passed Test Cases | 95.79% |
| % Failed Test Cases | 4.21% |
| % Tested Test Cases | 100% |

Table 19. Unit testing Status

A. Create account Module

| Create Account Module | |
|-------------------------------|---|
| Project Name: | Document Management Evaluation and Archiving Information System for WMSU Research Papers |
| Test Case #: | 1 |
| Type of Test Case: | Unit Testing |
| Test Case Description: | The Create Account module allows users to register for a new account on the platform. This module is crucial for onboarding new students or faculty members by collecting essential personal information, validating the inputs, and providing a confirmation once the account is successfully created. |
| Date Created | Oct 21 2024 |
| Completed Date: | Oct 21 2024 |
| Executed By: | Kayce R. Vergara |

| Test Case ID | Test Scenario / Case Condition | Expected Result | Actual Result | Status | Remarks |
|-------------------------------|--|---|---|--------|---------|
| A. Successful Scenario | | | | | |
| CA-01 | Valid user input: Username, Password, and email provided. After submission, a pop-up appears asking if the user is a Faculty or a Student. | The system prompts the user with a pop-up asking to choose between Faculty or Student. | The system correctly displays the pop-up asking whether the user is Faculty or Student. | Pass | |
| CA-02 | User selects Student from the pop-up. | The system proceeds with the account creation process, and the user is successfully registered as a Student. | The system creates the account and registers the user as a Student. | Pass | |
| CA-03 | User selects Faculty from the pop-up. | The system proceeds with the account creation process, and the user is successfully registered as a Faculty member. | The system creates the account and registers the user as a Faculty member. | Pass | |
| CA-04 | User chooses Faculty during account creation and enters a valid 8-digit Faculty Code. | The system accepts the Faculty Code and proceeds to the next step in account creation. | The Faculty Code is validated, and the process continues. | Pass | |

| B. Declined Scenario | | | | | |
|----------------------|---|---|---|------|--|
| CA-05 | User provides invalid or incomplete input: Missing Username or Password. | The system displays an error message, and the user is unable to proceed to the pop-up screen. | The system displays an error message: "Username and password are required." and does not proceed. | Pass | |
| CA-06 | User provides a valid username and password but includes a phone number in the email address. | The system creates the account but shows a warning | The system successfully creates the account, but displays the warning: "Account created successfully! But your email is not a WMSU-provided email. Your administrator may choose to reject your account." | Pass | |
| CA-07 | User enters mismatched passwords (e.g., "Password123" and "Password321"). | The system displays an error message: "Passwords do not match!" and does not proceed to the pop-up. | The system displays an error message: "Passwords do not match!" and blocks the account creation process. | Pass | |
| CA-08 | User selects Student or Faculty after filling in valid data, but | The system displays a message indicating that | The system shows a message: "Username is | Pass | |

| | | | | | |
|-------|--|---|---|------|--|
| | registration fails due to a duplicate username. | the username is already taken. | already taken. Please choose another username." | | |
| CA-09 | User clicks Cancel or closes the pop-up after filling in valid data. | The system cancels the account creation and does not proceed to the registration completion page. | The system cancels the process and returns the user to the previous screen without saving any data. | Pass | |
| CA-10 | User chooses Faculty during account creation but enters an invalid Faculty Code. | The system should display: "Wrong Faculty Code" and block further progress until a valid code is entered. | The system incorrectly displays: "Oops.. password do not match." | Fail | |

Table 20. Create account Module

B. Log in Module

| Log in Module | | | | | |
|------------------------|--------------------------------|---|---------------|--------|---------|
| Test Case #: | | 2 | | | |
| Type of Test Case: | | Unit Testing | | | |
| Test Case Description: | | The Log In module is designed to allow users (students, faculty, or administrators) to securely log in to the system using their credentials. The module handles authentication, validates user details, and directs them to the appropriate dashboard or landing page based on their role. | | | |
| Date Created | | Oct 21 2024 | | | |
| Completed Date: | | Oct 21 2024 | | | |
| Executed By: | | Kayce R. Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |

| | | | | | |
|-------|---|---|--|------|--|
| LI-01 | User enters valid Username, valid Password, and the account is active. | The user is successfully logged in and redirected to the landing page or dashboard. | The user is successfully redirected to the landing page. | Pass | |
| LI-02 | User logs in from different devices with valid credentials. | The user is able to log in on multiple devices simultaneously without any issues. | User successfully logs in from multiple devices. | Pass | |
| LI-03 | User enters valid Username and Password for an account with administrator access. | The user is successfully logged in and redirected to the admin dashboard or landing page. | The user is logged in and redirected to the admin page. | Pass | |

B. Declined Scenario

| | | | | | |
|-------|--|---|---|------|--|
| LI-06 | User enters invalid Username (does not exist in the system). | The system shows an error message: "No Account found" and prevents login. | The system shows "No Account found." error message. | Pass | |
| LI-07 | User enters valid Username but invalid Password. | The system shows an error message: "Incorrect Email or password." and prevents login. | The system shows "Incorrect email or password." error message. | Pass | |
| LI-08 | User attempts to log in but has no internet connection. | The system shows an error message: "An error occurred. Please try again."" error message. | The system shows "An error occurred. Please try again."" error message. | Pass | |

Table 21. Log in module

C. Student Account Module

| Student Account Module | | | | | |
|------------------------|--|---|---|--------|---------|
| Test Case #: | 3 | | | | |
| Type of Test Case: | Unit Testing | | | | |
| Test Case Description: | The Student Account module is designed to manage the functionality for student users on the platform. It enables students to log in, view their profile, update personal information, interact with the research content, and manage submissions or uploads. The module is an essential part of the system, providing students with access to their account details and resources available to them based on their role. | | | | |
| Date Created | Oct 22 2024 | | | | |
| Completed Date: | Oct 22 2024 | | | | |
| Executed By: | Kayce R. Vergara | | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| SA-01 | Student logs in and is redirected to the Home page. | The student is successfully logged in and redirected to the home page, where research papers are displayed. | The student is successfully redirected to the home page with research papers shown. | Pass | |
| SA-02 | Student clicks Home in the navigation menu. | The home page displays the uploaded research papers. | The home page shows the list of research papers. | Pass | |
| SA-03 | Student clicks Dashboard in the navigation menu and is prompted to fill out a profile form. | A pop-up appears with fields for First Name, Middle Name, Last Name, ID #, Profile Image, | The system shows the profile form with the required fields. | Pass | |

| | | | | | |
|-----------------------------|---|--|--|------|--|
| | | and Department. | | | |
| SA-04 | Student fills out the profile form and clicks Submit. | A success pop-up appears saying: "Profile updated successfully." | The profile is updated and the success message is displayed. | Pass | |
| SA-05 | Student clicks Dashboard after profile update. | The system shows the updated profile with the new information. | The updated profile is displayed in the dashboard. | Pass | |
| B. Declined Scenario | | | | | |
| SA-06 | Student clicks Dashboard but does not fill in all required fields in the profile form (First Name, Middle Name, Last Name, ID #). | The system displays a message: "Fill out this field" for the missing fields. | The system shows "Fill out this field" for missing fields. | Pass | |
| SA-07 | Student uploads an image that is larger than 10MB in the profile form. | The system should show an error: "Error: Image is larger than 10MB." | The system incorrectly displays: "1st Name is required." | Fail | |
| SA-08 | Student submits the profile form without uploading a profile picture. | The system should show an error: "Profile picture is required." | The system incorrectly displays: "Profile updated successfully" and redirects to the fill-up form. | Fail | |

Table 22. Student account module

D. Student Dashboard Module

| Student Dashboard Module | | | | | |
|--------------------------|---|---|---|--------|---------|
| Test Case #: | | 4 | | | |
| Type of Test Case: | | Unit Testing | | | |
| Test Case Description: | | The Student Dashboard Module is a key feature that provides students with an overview of their academic activities and research involvement within the system. This module acts as a central hub for students, allowing them to access their personal information, view and submit research papers, track the status of their submissions, manage their profiles, and more. | | | |
| Date Created | | Oct 22 2024 | | | |
| Completed Date: | | Oct 22 2024 | | | |
| Executed By: | | Kayce Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| SDA-01 | Student is not verified and navigates to the Dashboard. | The Dashboard only displays the options: "Dashboard" and "Profile". | The dashboard displays only "Dashboard" and "Profile". | Pass | |
| SDA-02 | Student is verified and navigates to the Dashboard. | The Dashboard displays additional options: "Upload" and "Submissions". | The dashboard displays "Upload" and "Submissions" along with other options. | Pass | |

Table 23. Student dashboard module

E. Verify Module (Student Account)

| Verify Module | | |
|------------------------|--|--|
| Test Case #: | | 5 |
| Type of Test Case: | | Unit Testing |
| Test Case Description: | | The Verify Module is designed to facilitate the verification process for students and faculty members in the system. It enables users to verify their academic status, ensuring that their accounts are authenticated before they can proceed with |

| | specific actions, such as submitting papers or accessing advanced features in the system. The verification process involves multiple stages, including entering an advisor code and submitting a certificate of registration (COR) document. | | | | |
|-------------------------------|--|--|---|--------|---------|
| Date Created | Oct 23 2024 | | | | |
| Completed Date: | Oct 23 2024 | | | | |
| Executed By: | Kayce Vergara | | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| VSA-01 | Student clicks Verify after filling out the profile. | A pop-up appears asking for an Advisory Code and to upload the COR (Certificate of Registration). | The system correctly shows the verification pop-up with required fields (Advisory Code and COR upload). | Pass | |
| VSA-02 | Student enters valid Advisory Code and uploads the COR file (under 1MB). | The system processes the information and verifies the student's account. A success message appears: "Account verification request successful." | The system successfully verifies the account and displays "Account verification request successful." | Pass | |
| VSA-03 | After verification, the student's Dashboard updates to show "Upload and Submissions." | The system updates the dashboard to show "Upload and Submissions" after successful | The dashboard shows "Upload and Submissions." | Pass | |

| | | | | | |
|-----------------------------|--|--|---|------|--|
| | | account verification. | | | |
| B. Declined Scenario | | | | | |
| VSA-04 | Student enters invalid Advisory Code during verification. | The system shows an error message: "Invalid advisor code." | The system shows "Invalid advisor code." error message. | Pass | |
| VSA-05 | Student does not upload a COR file during verification. | The system shows an error message: "Please select a file." | The system shows "Please select a file." error message. | Pass | |
| VSA-06 | Student uploads a COR file larger than 1MB. | The system shows an error message: "File should be less than 1MB." | The system displays "File should be less than 1MB." error message. | Pass | |
| VSA-07 | Student clicks Verify but the Advisory Code field is left blank. | The system shows an error message: "Advisory code is required." | The system shows "Advisory code is required." error message. | Pass | |
| VSA-08 | Student clicks Verify but the Advisory Code and COR file are both missing. | The system shows an error message: "Advisory code is required" and "Please select a file." | The system shows both errors: "Advisory code is required" and "Please select a file." | Pass | |
| VSA-09 | Student uploads a COR file under 1MB but the Advisory Code is invalid. | The system shows an error message: "Invalid advisor code." | The system shows "Invalid advisor code." error message. | Pass | |

Table 24.Verify module (student account)

F. Faculty account module

| Faculty Account Module | | | | | |
|------------------------|---|---|--|--------|---------|
| Test Case #: | | 6 | | | |
| Type of Test Case: | | Unit Testing | | | |
| Test Description: | | The Faculty Account Module is designed to provide faculty members with the tools they need to manage their academic responsibilities and interact with the student submission system. Faculty members have access to advanced features such as reviewing research papers, providing feedback, approving or rejecting submissions, and managing their own profile information. | | | |
| Date Created | | Oct 23 2024 | | | |
| Completed Date: | | Oct 23 2024 | | | |
| Executed By: | | Kayce Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| VFA-01 | Faculty logs in for the first time. | A pop-up form appears requiring the Faculty to fill in their Profile Image, First Name, Middle Name, Last Name, ID #, and Advisor Code. | A pop-up form is displayed correctly. | Pass | |
| VFA-02 | Faculty completes the profile form with all valid details, including a unique Advisor Code. | The system displays a success pop-up: "Success. Wait for verification." and prevents further actions until verified. | The success message is displayed, and actions are restricted until verification. | Pass | |
| VFA-03 | Faculty is verified and | The Dashboard | The dashboard reflects the | Pass | |

| | | | | | |
|-----------------------------|--|---|---|------|--|
| | accesses the Dashboard. | updates to display the additional options: "Upload," "Review," and "History". | verified status and displays the additional options. | | |
| B. Declined Scenario | | | | | |
| VFA-04 | Faculty skips any mandatory field (e.g., First Name, Last Name, ID #) in the profile form. | The system displays an error: "This field is required" and prevents the form submission. | The system blocks the submission and displays the error for missing fields. | Pass | |
| VFA-05 | Faculty uploads a profile image larger than 10MB in the profile form. | The system displays an error: "Error: Invalid input." | The system correctly shows the error message for oversized images. | Pass | |
| VFA-05 | Faculty enters an invalid Advisor Code during profile submission. | The system displays an error: "Invalid Advisor Code" and blocks further progress until corrected. | The system displays: "Invalid Advisor Code". | Pass | |
| VFA-06 | Faculty skips uploading a profile photo during profile completion. | The system displays an error: "Profile image is required" and blocks form submission. | The system displays "Profile updated successfully" but redirects to the form again. | Fail | |

Table 25. faculty account module

G. Paper Submission Module

| Paper Submission Module | | | | | |
|-------------------------|---|---|---|--------|---------|
| Test Case #: | | 7 | | | |
| Type of Test Case: | | Unit Testing | | | |
| Test Case Description: | | The Paper Submission Module allows students to submit their research papers to the system for review by faculty members. This module provides a structured process for submitting papers, confirming advisor information, and awaiting approval. Faculty members then review the papers, and the system tracks the status of each submission. It ensures that the submission process is efficient, secure, and validated for accurate data entry and file handling. | | | |
| Date Created | | Oct 24 2024 | | | |
| Completed Date: | | Oct 24 2024 | | | |
| Executed By: | | Kayce Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| PS-01 | User fills up the form with valid data for all fields, including Research Title, Author, Advisor Submission Code, and uploads a valid PDF file. | A pop-up displays the Advisor's Profile for confirmation, then submission is marked as pending approval. | The system displays the Advisor's profile for confirmation and marks the submission as pending. | Pass | |
| PS-02 | User confirms the Advisor's Profile after submission. | The system records the submission and displays a message: "Submission successful." | The system correctly records the submission and shows the confirmation message. | Pass | |
| PS-03 | Faculty verified and | The Dashboard updates to display the | The dashboard reflects the verified status and | Pass | |

| | | | | | |
|-----------------------------|---|---|--|------|--|
| | accesses the Dashboard. | additional options: "Upload," "Review," and "History". | displays the additional options. | | |
| B. Declined Scenario | | | | | |
| PS-04 | User leaves the Research Title field blank and tries to submit the form. | The system displays an error: "Research Title is required" and blocks submission. | The system correctly displays the error and prevents submission. | Pass | |
| PS-05 | User leaves the Advisor Submission Code field blank and tries to submit the form. | The system displays an error: "Advisor Submission Code is required" and blocks submission. | The system correctly displays the error and prevents submission. | Pass | |
| PS-06 | User uploads a file in a format other than PDF (e.g., .docx, .jpg). | The system displays an error: "Invalid file format. Please upload a PDF file." and blocks submission. | The system correctly displays the error and prevents submission. | Pass | |
| PS-07 | User inputs an invalid or mismatched Advisor Submission Code. | The system displays an error: "Invalid Advisor Submission Code" and blocks submission. | The system correctly displays the error and prevents submission. | Pass | |
| PS-08 | User submits a form without | The system displays an | The system correctly displays | Pass | |

| | | | | | |
|--|---|---|------------------------------------|--|--|
| | filling in the Research Abstract field. | error: "Research Abstract is required" and blocks submission. | the error and prevents submission. | | |
|--|---|---|------------------------------------|--|--|

Table 26. Paper Submission module

H. Paper Classification Module

| Paper Classification Module | | | | | |
|-----------------------------|---|--|--|------|--------|
| Test Case #: | | 8 | | | |
| Type of Test Case: | | Unit Testing | | | |
| Test Case Description: | | The Paper Classification Module is designed to categorize and organize research papers based on various criteria. This module enables students, faculty, and administrators to classify papers by different academic topics, departments, and other relevant categories for better management, review, and retrieval. The system ensures that papers are appropriately classified upon submission and that they can be easily accessed, searched, and tracked. | | | |
| Date Created | | Oct 24 2024 | | | |
| Completed Date: | | Oct 24 2024 | | | |
| Executed By: | | Kayce Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | | Status |
| A. Successful Scenario | | | | | |
| PC-01 | User submits a paper with relevant Research Title, Keywords, and Research Abstract. | The system classifies the paper under the appropriate research category based on the content. | The paper is successfully classified into the correct research category. | Pass | |
| PC-02 | User submits a paper and the system uses Keywords or Research | The system uses predefined algorithms or manual | The paper is correctly assigned to a category based on keywords or abstract. | Pass | |

| | | | | | |
|-----------------------------|--|--|--|------|--|
| | Abstract to categorize the paper correctly. | classification to assign the paper to the correct category. | | | |
| PC-03 | The user submits a research paper and the system classifies the paper under a user-specified category (if applicable). | The system displays the message "Paper successfully classified under [category]" after submission. | The paper is classified into the category chosen by the user or based on system recommendations. | Pass | |
| B. Declined Scenario | | | | | |
| PC-04 | User submits a paper without providing Research Title, Keywords, or Abstract. | The system displays an error: "Research Title, Keywords, and Abstract are required." | The system correctly prevents submission and displays the required field's error message. | Pass | |
| PC-05 | The user uploads a paper in the wrong format (e.g., image files, Word documents). | The system displays an error: "Invalid file format. Please upload a PDF file." | The system prevents submission and displays an error message for invalid file format. | Pass | |

Table 27. Paper Classification module

I. Data Visualization Module

| Data Visualization Module | |
|---------------------------|---|
| Test Case #: | 9 |
| Type of Test Case: | Unit Testing |
| Test Case Description: | The Paper Classification Module is designed to categorize and organize research papers based on various criteria. This module |

| | | enables students, faculty, and administrators to classify papers by different academic topics, departments, and other relevant categories for better management, review, and retrieval. The system ensures that papers are appropriately classified upon submission and that they can be easily accessed, searched, and tracked. | | | |
|-------------------------------|--|--|---|--------|---------|
| Date Created | | Oct 25 2024 | | | |
| Completed Date: | | Oct 25 2024 | | | |
| Executed By: | | Kayce Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| DV-01 | User submits valid data (e.g., most search, research data, etc.) to generate a bar chart. | The system generates the correct Bar Chart representing the data. | The system correctly generates the Bar Chart with appropriate labels and data points. | Pass | |
| DV-02 | User submits valid data to generate a Pie Chart. | The system generates a Pie Chart representing the percentage distribution of data categories. | The system generates a Pie Chart that accurately displays the data distribution. | Pass | |
| DV-03 | User accesses the dashboard with valid data, including information about colleges, departments, documents, views, and downloads. | The dashboard correctly displays the total colleges, total departments, and total documents. | Total colleges, total departments, and total documents are displayed correctly. | Pass | |
| DV-04 | The system calculates and displays the | The dashboard displays the college with | The college with the most views is | Pass | |

| | | | | | |
|-------|--|--|--|------|--|
| | college with most views based on uploaded document views. | the highest number of document views. | displayed correctly. | | |
| DV-05 | The system calculates and displays the college with most downloads based on uploaded document download counts. | The dashboard displays the college with the highest number of document downloads. | The college with the most downloads is displayed correctly. | Pass | |
| DV-06 | User views the Total Colleges metric and verifies that it shows the correct number of colleges in the dataset. | The total number of colleges is calculated and displayed correctly based on available data. | The system correctly displays the total number of colleges. | Pass | |
| DV-07 | User views the Total Departments metric and verifies that it shows the correct number of departments. | The system correctly calculates and displays the total number of departments across all colleges. | The system correctly displays the total number of departments. | Pass | |
| DV-08 | User views the Total Documents metric and verifies that it shows the correct number of uploaded documents. | The system correctly calculates and displays the total number of documents uploaded across all colleges. | The system correctly displays the total number of documents. | Pass | |

| B. Declined Scenario | | | | | |
|----------------------|--|--|--|------|--|
| DV-09 | The system tries to calculate metrics when no data is available (i.e., no colleges, no departments, and no documents). | The system displays a message: "No data." | The system correctly shows a "No data" message when there are no records. | Pass | |
| DV-10 | The system calculates college with most views but encounters an issue with missing or corrupt view data. | The system displays an error: "Unable to calculate views data. Please check data integrity." | The system correctly handles missing or corrupt data and displays an error message. | Pass | |
| DV-11 | The system calculates college with most downloads but encounters missing or corrupt download data. | The system displays an error: "Unable to calculate downloads data. Please check data integrity." | The system correctly handles missing or corrupt download data and displays an error message. | Pass | |
| DV-12 | The dashboard shows incorrect totals (e.g., total colleges, departments, etc.) due to mismatched data in the database. | The system shows an error: "Data mismatch detected. Please verify the input data." | The system identifies data mismatches and prevents inaccurate displays of totals. | | |
| DV-13 | User tries to generate the dashboard without selecting the data range (e.g., for a | The system displays a message: "Please select a valid date | The system prompts the user to select a valid data range before generating the dashboard. | Pass | |

| | | | | | |
|--|--|--------------------------|--|--|--|
| | specific date range of document views or downloads). | range to view the data." | | | |
|--|--|--------------------------|--|--|--|

Table 28. Data Visualization module

J. Submission Notification Module

| Submission Notification Module | | | | | |
|--------------------------------|---|--|---|--------|---------|
| Test Case #: | | 10 | | | |
| Type of Test Case: | | Unit Testing | | | |
| Test Case Description: | | A feature that alerts users about the status of their research paper submissions through automated notifications, ensuring transparency and efficiency in the process. | | | |
| Date Created | | Oct 25 2024 | | | |
| Completed Date: | | Oct 25 2024 | | | |
| Executed By: | | Kayce Vergara | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks |
| A. Successful Scenario | | | | | |
| SN-01 | User submits a research paper and the submission is successful. A notification should be sent indicating success. | A notification is sent with the message: "Your submission has been successfully received." | The user receives a notification confirming the submission success. | Pass | |
| SN-02 | User submits a research paper, and the submission goes for review. Notification indicates the review status. | A notification is sent with the message: "Your research paper is under review." | The user receives a notification confirming the review status. | Pass | |
| SN-03 | Faculty receives a notification | Faculty receives a | Faculty receives the correct | Pass | |

| | | | | | |
|-----------------------------|---|---|---|------|--|
| | when a student's paper is submitted and is awaiting their review. | notification with the message: "A research paper is awaiting your review." | notification for review. | | |
| SN-04 | User's paper is approved and the system sends a notification confirming approval. | A notification is sent with the message: "Your research paper has been approved." | The user receives a notification confirming paper approval. | Pass | |
| SN-05 | User's paper is rejected, and the system sends a notification indicating rejection. | A notification is sent with the message: "Your research paper has been rejected." | The user receives a notification confirming paper rejection. | Pass | |
| B. Declined Scenario | | | | | |
| SN-06 | User submits a research paper, but there is a system error and the submission fails. | A notification is sent with the message: "Submission failed. Please try again later." | The user receives a failure notification. | Pass | |
| SN-07 | User tries to submit a paper with invalid file format (e.g., non-PDF) and is not allowed to submit. | A notification is sent with the message: "Invalid file format. Please upload a PDF file." | The user receives an error message about the invalid file format. | Pass | |
| SN-08 | User tries to submit a paper with missing required fields (e.g., missing title, author name). | A notification is sent with the message: "Please fill out all required fields before submitting." | The user is notified about the missing fields. | Pass | |

Table 29. Submission notification module

K. Paper Evaluation Module

| Paper Evaluation Module | | | | | | |
|---|---|--|---|--------|---------|--|
| Test Case #: 11 Type of Test Case: Unit Testing | | | | | | |
| Test Case Description: Allows faculty members to review, assess, and provide feedback on submitted research papers. This module streamlines the evaluation process, enabling reviewers to assign ratings, leave comments, and approve or request revisions. It ensures a structured and efficient review workflow, promoting academic rigor and quality assurance in research outputs. | | | | | | |
| Date Created | | Oct 26 2024 | | | | |
| Completed Date: | | Oct 26 2024 | | | | |
| Executed By: | | Kayce Vergara | | | | |
| Test Case ID | Test Case Scenario / Condition | Expected Result | Actual Result | Status | Remarks | |
| A. Successful Scenario | | | | | | |
| PE-01 | Faculty reviews the submitted paper and approves it. | The paper is marked as approved, and a notification is sent to the user indicating approval. | The paper is approved, and the user receives a notification confirming the approval. | Pass | | |
| PE-02 | Faculty reviews the submitted paper and rejects it. | The paper is marked as rejected, and the user receives a notification indicating rejection. | The paper is rejected, and the user receives a notification confirming the rejection. | Pass | | |
| PE-03 | Faculty provides feedback on the submitted paper but does not approve or reject | A notification is sent to the user with a message: "Paper | The user receives a feedback notification indicating revisions needed. | Pass | | |

| | | | | | |
|-------|---|--|---|------|--|
| | it yet (e.g., needs further revisions). | requires further revisions. Please address the feedback." | | | |
| PE-04 | Faculty marks the paper as approved after revisions are completed successfully. | The paper is marked as approved, and the user receives a notification confirming approval. | The paper is approved, and the user receives the approval notification. | Pass | |
| PE-05 | Faculty reviews the paper and marks it as rejected after assessment. | The paper is marked as rejected, and a notification is sent to the user with the rejection status. | The paper is rejected, and the user receives a rejection notification. | Pass | |
| PE-06 | User checks the status of their paper after it has been reviewed. | The evaluation status (approved or rejected) is visible in the user's dashboard or evaluation history. | The user sees the correct evaluation status in the dashboard. | Pass | |

B. Declined Scenario

| | | | | | |
|-------|---|---|--|------|--|
| PE-07 | Faculty attempts to evaluate the paper without selecting Approve or Reject as the final decision. | The system should prompt the faculty: "Please select an action: Approve or Reject." | The system prevents the submission and prompts for the final decision. | Pass | |
| PE-08 | Faculty attempts to approve the | The system should | The system prevents | Pass | |

| | | | | | |
|-------|--|--|--|------|--|
| | paper without marking the paper as Approved or Rejected. | prompt: "Please confirm the approval status before submitting." | submission without confirming approval status. | | |
| PE-09 | Faculty attempts to reject the paper without marking the status as Rejected. | The system should prompt: "Please confirm the rejection status before submitting." | The system prevents submission without confirming rejection status. | Pass | |
| PE-10 | Faculty encounters an error (e.g., system crash or timeout) while submitting the evaluation. | A notification is sent: "Error submitting evaluation. Please try again." | The system handles the error and displays the error message. | Pass | |
| PE-11 | Faculty attempts to approve the paper with incomplete or missing evaluation data. | The system should flag the evaluation as incomplete and prompt the faculty to provide the necessary information. | The system prevents approval without completing the evaluation data. | Pass | |

Table 30. Paper evaluation module

➤ **Integration Testing**

| Integration Testing | |
|----------------------------|--|
| Project Number: | 1.0 |
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Type: | Integration Testing |
| Test Description: | Integration testing is a method of testing how different units or components of a software application interact with each other. |

Table 31. Integration testing

| | |
|--|------------------|
| Date: | December 1, 2024 |
| App Version No: | Version 2 |
| Total Duration: | 1 Month |
| Total no. of passed test cases: | 13 |
| Total no. of failed test cases: | 0 |
| Total no. of tested test cases: | 13 |
| Total no. of test cases: | 13 |

Table 32. Integration testing status

| College Admin Account Module and Log-in Module | | | |
|---|--|---|---------|
| Project Name: | Document Management Evaluation and Archiving Information System | | |
| Test Case #: | 1 | | |
| Type of Test Case: | Integration Testing | | |
| Test Case Description: | The Administrator with college create account module is integrated to be able to show if the email and password that is created by the admin is accessible in the college log-in module. | | |
| Date Created | November 30, 2024 | | |
| Completed Date: | December 1, 2024 | | |
| Executed By: | Mark Anthony Villiones | | |
| Test Case | Expected Result | Actual Result | Remarks |
| Successful Scenario | | | |
| Integration of College Account Module and Log-in Module | The valid email and password that has been added by the administrator in the College Account module will be accessible in the college log-in module. | The email and password that has been added in the college account module was accessible in the college log-in module. | PASSED |

Table 33. College Admin Account
Module and Log-in Module

| College Admin Log-in Module and Dashboard Module | | | |
|---|--|---|---------|
| Project Name: | Document Management Evaluation and Archiving Information System | | |
| Test Case #: | 2 | | |
| Type of Test Case: | Integration Testing | | |
| Test Case Description: | This test case verifies the functionality of the system login process and ensures that college admin can access the dashboard and other features after logging in. | | |
| Date Created | November 30, 2024 | | |
| Completed Date: | December 1, 2024 | | |
| Executed By: | Mark Anthony Villiones | | |
| Test Case | Expected Result | Actual Result | Remarks |
| Successful Scenario | | | |
| Integration of College Admin Log-in Module and Dashboard Module | Before logging into the system, college admin expect to access the dashboard and other features seamlessly once logged in. | After logging into the system, college admin successfully access the dashboard and other features seamlessly. | PASSED |
| Denied Scenario | | | |
| Invalid college admin account email and password | Invalid credentials of admin account will be denied from logging in preventing of accessing the dashboard. | After logging with invalid credentials the user will be denied to access the college admin dashboard. | PASSED |

Table 34. College Admin Log-in Module and Dashboard Module

| Verification Of Faculty Accounts By College Admin | | | |
|--|--|---|---------|
| Project Name: | Document Management Evaluation and Archiving Information System | | |
| Test Case #: | 3 | | |
| Type of Test Case: | Integration Testing | | |
| Test Case Description: | This test case verifies the functionality of the system verification process of faculty account and college admin | | |
| Date Created | November 30, 2024 | | |
| Completed Date: | December 1, 2024 | | |
| Executed By: | Mark Anthony Villiones | | |
| Test Case | Expected Result | Actual Result | Remarks |
| Successful Scenario | | | |
| Successful creation of adviser/faculty account automatically subjected for verification by college admin | Adviser account can still access the dashboard but should not be able to access other feature until verified by college admin. | Other feature will not be accessible until verified by college admin. | PASSED |

Table 35. Verification Of Faculty Accounts By College Admin

| College Admin Verify Faculty Accounts | | | |
|---|---|---|---------|
| Project Name: | Document Management Evaluation and Archiving Information System | | |
| Test Case #: | 4 | | |
| Type of Test Case: | Integration Testing | | |
| Test Case Description: | This test case verifies the functionality of the system verification process of faculty account and college admin. | | |
| Date Created | November 30, 2024 | | |
| Completed Date: | December 1, 2024 | | |
| Executed By: | Mark Anthony Villiones | | |
| Test Case | Expected Result | Actual Result | Remarks |
| Successful Scenario | | | |
| College admin click the approve button in faculty waiting selection tab | Adviser account can have access now to other feature such as evaluating document research paper,of its student and verification of student accounts | Adviser account have access to other evaluation and verification feature. | PASSED |
| Declined Scenario | | | |
| College admin click the Decline button in faculty selection tab | Adviser account cannot be able to login to the system anymore | Adviser account cant be able to login to the system. | PASSED |

Table 36. College Admin Verify Faculty Accounts

Faculty Account Verify Student Account

| Project Name: | Document Management Evaluation and Archiving Information System | | |
|---|--|---|---------------|
| Test Case #: | 5 | | |
| Type of Test Case: | Integration Testing | | |
| Test Case Description: | This test case verifies the functionality of the system verification process of students and faculty accounts | | |
| Date Created | November 30, 2024 | | |
| Completed Date: | December 1, 2024 | | |
| Executed By: | Mark Anthony Villiones | | |
| Test Case | Expected Result | Actual Result | Remarks |
| Successful Scenario | | | |
| Student account request for verification following the submission if his/her cor to his/her adviser submission code | Adviser account can view requests of verification in student verification tab | Adviser account can view request n student verification tab | PASSED |
| Adviser click the approve button after reviewing the application | Student can now be able to access features in the dashboard such as document submission and viewing of additional information of others research document. | Student can now be able to access features such as document submission and viewing of additional information of others research document. | PASSED |
| Declined Scenario | | | |

| | | | |
|--|---|---|---------------|
| Adviser click the decline button after reviewing the verification application if due to various reason | Student can still access the dashboard but not additional features and should be able to request again for verification | Student cant access additional feature of being verified and able to request again for verification if proven by adviser. | PASSED |
|--|---|---|---------------|

Table 37. Faculty Account Verify
Student Account

Student Account Submission Of Research Document To Adviser

| Project Name: | Document Management Evaluation and Archiving Information System | | |
|--|--|--|----------------|
| Test Case #: | 6 | | |
| Type of Test Case: | Integration Testing | | |
| Test Case Description: | This test case verifies the functionality of the system submission process of student to its adviser | | |
| Date Created | November 30, 2024 | | |
| Completed Date: | December 1, 2024 | | |
| Executed By: | Mark Anthony Villiones | | |
| Test Case | Expected Result | Actual Result | Remarks |
| Successful Scenario | | | |
| Student fill the submission form in submission tab with necessary details including the submission code of the adviser | Adviser account can view and evaluate the details of submitted document by student | Adviser account can view and evaluate the details of submitted document by student and decide if its going to accept or revise some information of it. | PASSED |
| Adviser click the approve in action button in review tab | The document is now archived in the system and the student can see its status accepted | Document is archived after adviser clicked the approved button and student can see it in his submission tab | PASSED |
| Revision Scenario | | | |
| Adviser click the revise in action button in review tab and provide revise comments | Student can see the status of its submission if its revise he/she allowed to update the submission regarding to its revision information | Student can update the submission to comply with the revision request by his adviser. | PASSED |
| Reject Scenario | | | |

| | | | |
|---|--|--|---------------|
| Adviser clicked the reject in the action button | Student cannot be able to update the submission and subjected for new submission | Student cannot be able to update the submission and subjected for new submission | PASSED |
|---|--|--|---------------|

Table 38. Student Account Submission Of Research Document To Adviser

➤ **System Testing**

| System Testing | |
|--|---|
| Project Number: | 1 |
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Type: | System Testing |
| Test Description: | System testing tests all the processes of the system. |
| Date: | December 2, 2024 |
| App Version No: | Version 2 |
| Total Duration: | 2 Weeks |
| Total no. of passed test cases: | 9 |
| Total no. of failed test cases: | 0 |
| Total no. of tested test cases: | 9 |
| Total no. of test cases: | 9 |

Table 39. System Testing

| STATUS | |
|---------------------|-----|
| % Passed Test Cases | 99% |
| % Tested Test Cases | 99% |

Table 40. System Testing

| Adviser Account Verification Process | |
|--------------------------------------|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 1 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in creating adviser account and verification process with college admin. |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Verified adviser account can access the additional feature such as accepting document submission and verification of student |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |
| Step 1 | Create and set up adviser profile with faculty code – Set profile information in dashboard modal fill necessary information. |

| | |
|--------|--|
| Step 2 | College admin verification – College admin should see profile information of the user including the email he uses and whether to approve or decline it |
| Step 3 | Adviser Account Valid – If proven by college admin that the account is valid he/she will approve it otherwise decline it. |
| Step 4 | Adviser Account Verified – If the adviser account is verified by college admin he can access additional feature of the adviser accounts including accepting document submission and verification of student account. |

Table 41. Adviser Account Verification
Process

| Student Creation And Verification Of Account | |
|--|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 2 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in creating student account and verification process with adviser account |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Verified student can access feature such as document submission and viewing of others additional research information such as the manuscript(if not locked by owner) |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |

| | |
|--------|---|
| Step 1 | Create and set up student profile – Set profile information in dashboard modal fill necessary information. |
| Step 2 | Adviser verification – Student can request a verification of its account with his cor to the adviser via submission code of adviser account. |
| Step 3 | Adviser approval – Adviser can see the request in his dashboard and decide whether to approve it or denied based on the cor provided by the student in the request. |
| Step 4 | Verified student account – If the student account is verified he can access the feature of document submission to the adviser otherwise not. |

Table 42. Student Creation And Verification
Of Account

| Student Document Submission To The Adviser | |
|--|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 3 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in submitting research document to the adviser. |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Successful submission can be evaluated by the adviser and archived |
| Status: | Completed |
| Remarks: | Passed |

| Test Case ID | Test Case Scenario / Condition |
|---------------------|--|
| A. Scenario | |
| Step 1 | Student Submission - Fill necessary information in submission form with the pdf manuscript. Including the adviser submission code |
| Step 2 | Adviser evaluation – After successful submission the adviser can see submission evaluation request in review tab. |
| Step 3 | Adviser approval – Adviser can see the request in his dashboard and decide whether to accept it or revise based on the information in the document submission such as the manuscript itself or other relevant information. |
| Step 4 | Accepted Submission – If accepted by adviser the document is now archived in the system and can be viewed in the home page. |

**Table 43. Student Document Submission
To The Adviser**

| Verified and Non Verified Account Access | |
|---|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 4 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in accessible feature if account is verified or not |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Verified account can access additional feature |
| Status: | Completed |
| Remarks: | Passed |

| Test Case ID | Test Case Scenario / Condition |
|--------------------|---|
| A. Scenario | |
| Step 1 | Student Account Status – View account status in profile tab |
| Step 2 | Verified Status – If the account status is verified student can view other research document additional information or feature such as cite,view pdf and download |
| Step 3 | Declined status – If the account status is denied or declined he cant access additional feature of the system. |

**Table 44. Verified and Non Verified
Account Access**

| Research Document Availability in Homepage | |
|--|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 5 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in accepted document submission |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Accepted submission or document can be view in the systems home page |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |

| | |
|--------|---|
| Step 1 | Student visit the website – He can view the latest accepted research document in the homepage. |
| Step 2 | Accepted Document – Only accepted document are available in homepage. |
| Step 3 | Document status – If the document is locked by the owner the pdf manuscript of it will not be available including the citation and download for the document. |

Table 45. Research Document Availability
in Homepage

| Admin Viewing of Archived Documents | |
|-------------------------------------|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 6 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in viewing the document in admin archives of document |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Document submitted will be fully viewed by admin in archives filtered by colleges name |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |
| Step 1 | Admin viewing – Admin can view the submitted document regardless of its status and filtered by college. |

| | |
|--------|--|
| Step 2 | Admin access of additional document information – Admin can view full information of document in archives including the complete manuscript of the document. |
|--------|--|

Table 46. Admin Viewing of Archived Documents

| College Admin Dashboard Information | |
|-------------------------------------|---|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 7 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in college admin dashboard analytics |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | College admin can view its analytics information including how many number of documents per faculty and what research has the most citation or total number of downloads. |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |
| Step 1 | College admin viewing analytics – College admin can view its dashboard analytics including what faculty have the highest total of document submitted. |
| Step 2 | College admin viewing of faculty accounts – college admin can have authority in its faculty/adviser accounts such as deactivating it. |

Table 47. College Admin Dashboard Information

| Admin Dashboard Information | |
|-------------------------------|--|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 8 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in college admin dashboard analytics |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Admin can view its analytics information including how many number of documents per colleges and what college has the most viewed or downloaded documents. |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |
| Step 1 | Admin viewing analytics – Admin can view its dashboard analytics including what college have the highest total of document submitted. |
| Step 2 | Admin viewing of college accounts – Admin can have authority in its colleges accounts such as deactivating it or update its college name. |

Table 48. Admin Dashboard Information

| Finding Document in Homepage | |
|-------------------------------|---|
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Case #: | 9 |
| Type of Test Case: | System Testing |
| Test Case Description: | This test case verifies the system's functionality in finding or searching documents in home page |
| Date Created | November 30, 2024 |
| Completed Date: | December 2, 2024 |
| Executed By: | Mark Anthony Villiones |
| Expected Result: | Can search document based on specific filters in search page such as college and departments or year. |
| Status: | Completed |
| Remarks: | Passed |
| Test Case ID | Test Case Scenario / Condition |
| A. Scenario | |
| Step 1 | User search – User should see document in search page when searching a document with applied filters |
| Step 2 | Document Accessibility – Based on account status you can access the document information availability |

Table 49. Finding Document in
Homepage

5.3.2. Beta Testing

Beta testing is an essential phase in the development process, where the system is released to a select group of external users to gather feedback and identify any remaining issues before the final release. This testing stage allows developers to evaluate how the system performs in real-world scenarios and to ensure that the software meets the needs and expectations of its intended users.

- **Selection of Beta Testers**

The selection of beta testers was a crucial step in the testing process to ensure that the feedback received was comprehensive, relevant, and valuable for refining the system before its wider release. The goal was to gather insights from a diverse group of users who could assess the system's functionality, usability, and overall user experience from various perspectives. A carefully selected group of participants was chosen from different categories of stakeholders, including faculty members, students, and administrators at WMSU. The testers were selected not only based on their familiarity with the system's features but also on their willingness to actively engage in the testing process.

To ensure that the feedback covered a wide range of use cases and experiences, the selection process considered the following criteria:

1. **User Role Representation:** A balanced group was essential to get feedback from all the main user roles in the system—administrators, faculty, students, and college staff. By including testers from all these categories, the team ensured that each group's needs and expectations were adequately represented. Feedback from administrators helped assess system management and access controls, while

faculty testers provided insights into the research review process. Students contributed valuable input on document submission and general user interface navigation.

2. **Experience with Similar Systems:** The selection process included users with varied experience levels, some of whom had used similar document management or research platforms. These testers were chosen for their ability to provide feedback on system comparisons and highlight areas where the system could improve or differentiate itself. Additionally, testers who were less familiar with such platforms were included to assess the system's ease of use and its accessibility for first-time users. This ensured that the system was intuitive and user-friendly, catering to both novice and experienced users.
3. **Willingness to Provide Constructive Feedback:** Another important factor in choosing beta testers was their willingness to provide detailed and honest feedback. The goal was not only to gather positive comments but also to identify any areas where the system could be improved. Testers were selected based on their ability to critically evaluate the system's performance, functionality, and user experience, and provide both positive and constructive criticism. Their feedback was essential for making informed decisions about potential improvements and addressing any issues that arose during testing.

- **Scope of Testing**

The scope of beta testing was designed to encompass a wide range of functionalities to thoroughly assess the system's performance, usability, and overall effectiveness. The primary areas tested included:

- ✓ User Interface (UI) and Usability
- ✓ Core Functionalities
- ✓ Performance and stability
- ✓ Security

- **Methods used to collect feedbacks**

To ensure comprehensive and actionable feedback, a combination of structured and informal methods was employed during the beta testing phase. These methods enabled the development team to gather both quantitative data and qualitative insights, helping to refine the system based on real user experiences.

1. Bug Reports

An essential part of the beta testing process was identifying any technical issues. Testers were actively encouraged to report bugs, errors, or system crashes they encountered. A dedicated channel for bug submissions was set up, allowing users to:

- ✓ Report issues immediately after they occurred.

Provide detailed descriptions of the bug, including steps to reproduce the issue, screenshots, and logs when available.

Track the status of the reported bugs to ensure timely resolution.

2. Surveys

Structured surveys were provided to all beta testers to capture both quantitative and qualitative feedback. The questioners are as follows:

Sample Questionier

Dear Participant,

Thank you for participating in the evaluation of the Document Management Evaluation and Archiving Information System for WMSU Research Papers as part of the proponent's Capstone Project and Research course. Your feedback is invaluable in guiding the future enhancements of the system. Your input is deeply appreciated.

This evaluation form employs a rating scale to capture your experiences and insights regarding various aspects of the Document Management Evaluation and Archiving Information System for WMSU Research Papers. Your constructive feedback aids in recognizing the system's strengths and identifying areas for improvement.

Please rate your interaction with the Document Management Evaluation and Archiving Information System for WMSU Research Papers using a 4-point rating scale. Choose the answer that best reflects your usage and perspective. Evaluate each element before providing your rating, and your authentic feedback is highly appreciated. Your assessment will help refine the project, and your comments are confidential. Once finished, please return the form to the proponent.

Instruction: Please indicate your response by checking the corresponding rating number.

| Part I. Graphical User Interface | Ratings | | | |
|---|-----------------------------|-----------------|--------------|--------------------------|
| Questions | 1 (Strongly Disagree) | 2 (Disagree) | 3 (Agree) | 4 (Strongly Agree) |
| The design elements (e.g., buttons, icons) are consistent throughout the interface. | | | | |
| The font size and style used in the GUI are clear and readable. | | | | |
| Overall, I find the interface easy to use. | | | | |
| The design of the system is visually appealing | | | | |
| Font style and size is easy to read | | | | |
| The colors used in the interface were pleasing and appropriate. | | | | |
| Buttons and icons are easy to identify. | | | | |
| The layout of the pages is consistent and well-structured. | | | | |
| The onboarding process (e.g., log in, sign up) is straightforward. | | | | |
| The steps for uploading documents are clear and easy to follow. | | | | |

Comments:

Instruction: Please indicate your response by checking the corresponding rating number.

| Part II. Usability | Ratings | | | |
|---|--------------------------|-----------------|--------------|-----------------------|
| Questions | 1 (Strongly Disagree) | 2 (Disagree) | 3 (Agree) | 4 (Strongly Agree) |
| The DSMIS is easy to learn. | | | | |
| Error messages within the system are clear and help me understand what went wrong. | | | | |
| Overall, I am satisfied with the usability of the DSMIS system for my role or responsibilities. | | | | |
| The system loads quickly when first accessed. | | | | |
| The system responds quickly when interacting with the features. | | | | |
| There were no delays in completing tasks. | | | | |
| The system runs smoothly without any crashes. | | | | |
| The system performs consistently well under normal use. | | | | |
| The system performs well when handling large files or data. | | | | |
| The system handles simultaneous operations (e.g., uploads, searches) efficiently. | | | | |
| The system is stable even with multiple users. | | | | |

Comments:

Instruction: Please indicate your response by checking the corresponding rating number.

| Part III. Functionality | Ratings | | | |
|---|-----------------------------|-----------------|--------------|------------------------------|
| Questions | 1 (Strongly Disagree) | 2 (Disagree) | 3 (Agree) | 4 (Stron gly Agree) |
| The search and filtering features in the Document Management Evaluation and Archiving Information System for WMSU Research Papers effectively locate information. | | | | |
| The real-time reporting and dashboard capabilities of the Document Management Evaluation and Archiving Information System for WMSU Research Papers are reliable and accurate. | | | | |
| The Document Management Evaluation and Archiving Information System for WMSU Research Papers effectively handles data analysis and reporting for nonconformities, customer satisfaction, and customer complaints. | | | | |
| The User Account Login/Logout feature provides a reliable experience. | | | | |
| The Paper Submission feature is intuitive and user-friendly. | | | | |
| The Dashboard offers a clear and well-structured interface for users. | | | | |
| The Data Visualization tools are clear and useful for understanding information | | | | |
| The Search functionality is effective and efficient. | | | | |
| Profile Management is easy to use and comprehensive. | | | | |
| The User Account Login/Logout feature provides a reliable experience. | | | | |
| Please indicate how satisfied you are with the DSMIS's overall features and capabilities. | | | | |

Comments:

3. User Interviews

Follow-up interviews were conducted with a select group of beta testers, especially those who had provided valuable insights during the survey process. These interviews allowed the team to:

Dive deeper into specific aspects of the user experience, particularly areas related to usability and the user interface.

Gain qualitative insights that might not have been fully captured in the surveys.

Ask testers for specific suggestions on how to improve the interface, enhance workflow, or add features that would improve user satisfaction.

The interviews were structured but allowed for open-ended feedback, encouraging testers to speak freely about their experience.

4. Usage Analytics

To supplement the subjective feedback provided by testers, usage analytics tools were integrated into the system. These tools tracked:

- ✓ **User Actions:** The system recorded which features were accessed the most, where users spent the most time, and which tasks were completed successfully.
- ✓ **Problem Areas:** Analytics identified where users encountered issues, such as high dropout rates during specific tasks or long page load times on certain features.

- ✓ Behavioral Insights: Data such as clicks, scroll patterns, and time spent on pages provided insight into how users interacted with the system, which areas they struggled with, and what they found most useful. The data gathered from usage analytics was particularly useful in pinpointing problem areas that users might not have explicitly mentioned in their feedback.

➤ **Goals of Beta Testing**

The main goals of the beta testing phase were to thoroughly assess various aspects of the system's functionality and user experience. It aimed to assess usability, ensuring that users could easily navigate the platform, understand its features, and complete their tasks without confusion. The testing also focused on evaluating performance, particularly how the system performed under real world conditions, such as handling multiple users interacting with the platform simultaneously while maintaining speed, stability, and reliability. Another key objective was to gather user satisfaction feedback to determine if the system met the needs and expectations of stakeholders. Beta testing also provided an opportunity to identify bugs and issues that might have been overlooked in earlier development stages, ensuring that any technical problems were addressed before the final release. Finally, the phase aimed to validate feature functionality, confirming that all core features, including document submission, review, feedback, and approval processes, worked as intended. These goals collectively ensured that the system was ready for full-scale deployment.

➤ **User Acceptance Test (UAT) Document**

The purpose of this User Acceptance Test (UAT) is to validate that the Research Management Platform and Document Archiving Management Information System for WMSU Research Papers meet defined business requirements and function as intended for end-users, including WMSU faculty, students, and external users.

This UAT focuses on testing core features such as faculty review and approval workflows, COR-based verification for student account creation, abstract visibility restrictions for non-WMSU users, file upload size limitations, and download logging. Testing ensures these functionalities align with stakeholder expectations and user needs.

The scope includes:

- ✓ Verification of system workflows.
- ✓ Ensuring compliance with business rules (e.g., COR verification).
- ✓ Testing system usability and functionality from the perspective of actual end-users.

All major defects from prior testing phases have been resolved. The test environment is configured to simulate production, and test cases have been approved. Testing concludes when all high-priority scenarios pass, critical defects are resolved or have workarounds, and stakeholders provide sign-off.

5.4 Implementation Plan

The Implementation of a Document Management, Evaluation, and Archiving Information Management System for WMSU research paper is proposed to help the university improve research paper and academic document management, ensuring a more efficient, secure, and organized process for students, faculty, and administrators. This system would include the submission, evaluation, storage, and retrieval of research papers to enhance the management capacity of the university with respect to its growing body of academic work.

This system will enable the university to centralize its research paper processes, reduce administrative workload, and ensure that all academic documents are stored in a secure and easily accessible manner. This will also help to promote transparency in the evaluation process because the statuses of the reviews and documents can be traced.

This plan, therefore, gives a holistic view of how the system design, development, deployment, and maintenance will be handled. It outlines the needed resources, timelines, key milestones, and roles to ensure the project aligns with WMSU's strategic goals and ensures a reliable solution for academic document management. With this system in place, WMSU will be able to handle the increasing demand for document management in this digital age.

5.4.1 Infrastructure/Deployment

The Infrastructure and Deployment plan outlines the technical setup, resources, and steps required to deploy the Document Management, Evaluation, and Archiving Information Management System (DMA-IMS) at Western Mindanao State University (WMSU). This section covers the hardware, software, network requirements, and deployment process to ensure the system runs smoothly and securely.

➤ **Infrastructure Requirements**

A. Hardware Requirements:

To support the system, the following hardware infrastructure will be needed:

1. Servers:

- ✓ Primary Server: For hosting the system application, database, and file storage. It should have sufficient CPU, RAM (16GB or more), and storage capacity (500GB or more, depending on expected file volume).
- ✓ Backup Server: For data redundancy and backup purposes, ensuring business continuity in case of server failure.
- ✓ Load Balancer: To distribute traffic evenly across multiple servers if the system needs to scale.

2. End-user Devices:

- ✓ Computers or laptops (with Windows or Mac OS) for the university's staff, researchers, and administrators.
- ✓ Tablets and smartphones (with iOS or Android) for mobile access to the system.

B. Software Requirements:

- 1. Operating System:** The servers will run on a Linux-based OS (Ubuntu or CentOS) for stability and security.
- 2. Web Server:** Infinity free for hosting the application.
- 3. Database:** MySQL (version 5.7 or higher) as the relational database management system for storing and managing research papers, metadata, user roles, and submission history. Document Management Software: A custom-built system or an open-source document management solution to manage the storage, categorization, and retrieval of documents.
- 4. Backup Software:** For creating regular backups of system data and ensuring data redundancy.

C. Network Requirements:

- ✓ **Internet Connection:** High-speed internet for stable communication between users and the server.

➤ Deployment Process

The Deployment Process for the Document Management, Evaluation, and Archiving Information Management System for WMSU research paper is an important phase in the system's implementation and the smooth transition from development to live operation. This phase consists of configuring the necessary infrastructure, deploying the application and database, migrating data, and setting up essential components for system functionality.

The process of deployment is aimed to ensure that the DMA-IMS system is stable, secure, and functional. The modern infrastructure is exploited through the

database management system MySQL, so that the system is built according to the performance, scalability, and security requirements. Throughout the process of deployment, the technical features—such as server configuration, data migration, and optimization—will be balanced with user experience, which ensures stakeholders' access to and interaction with the system.

➤ **Deployment Timeline**

- **Gantt Chart**

| Activities | | Duration | | | Week | | | | | | | | |
|------------|--------------------------------|--------------|-------------|---------|------|----|----|----|----|----|----|----|----|
| # | Task | Start | End | Days | W1 | W2 | W3 | W4 | W5 | W6 | W7 | W8 | W9 |
| 1 | Final Code Review | Sept. 30 '24 | Oct. 12 '24 | 2 weeks | | | | | | | | | |
| 2 | Environment Setup | Sept. 30 '24 | Oct. 12 '24 | 2 weeks | | | | | | | | | |
| 3 | Backup Plan and Backup Process | Oct. 14 '24 | Oct. 19 '24 | 1 week | | | | | | | | | |
| 4 | Prepare QA Testing Plan | Oct. 14 '24 | Oct. 19 '24 | 1 week | | | | | | | | | |
| 5 | Database Migration Testing | Oct. 21 '24 | Oct. 26 '24 | 1 week | | | | | | | | | |
| 6 | QA Testing | Oct. 28 '24 | Nov. 9 '24 | 2 weeks | | | | | | | | | |
| 7 | Performance Testing | Oct. 28 '24 | Nov. 9 '24 | 2 weeks | | | | | | | | | |
| 8 | Security Testing | Oct. 28 '24 | Nov. 9 '24 | 2 weeks | | | | | | | | | |
| 9 | Update Documentation | Nov. 11 '24 | Nov. 16 '24 | 1 week | | | | | | | | | |
| 10 | Deployment Training | Nov. 18 '24 | Nov. 23 '24 | 1 week | | | | | | | | | |
| 11 | Pre-deployment Communication | Nov. 25 '24 | Nov. 30 '24 | 1 week | | | | | | | | | |
| 12 | Deployment Dry Run | Nov. 25 '24 | Nov. 30 '24 | 1 week | | | | | | | | | |
| 13 | Final Security Audits | Nov. 25 '24 | Nov. 30 '24 | 1 week | | | | | | | | | |

Table 50. Gantt chart

5.4.2 Processes/Policies/Personnel

➤ Processes and Policies

1. Working Hours, Attendance and Punctuality

- ✓ Members must adhere to the designated 50-hour workweek.
- ✓ Any changes to working hours must be communicated and documented, ensuring a minimum of 8 hours worked per day.
- ✓ Regular attendance and punctuality are essential for maintaining productivity and team effectiveness.
- ✓ Arrive on time for meetings, and appointments of the group must be followed.
- ✓ Task deadlines must be strictly followed

2. Conflict Resolution and Communication

- ✓ Record the outcomes and understandings reached during conflict resolution sessions to maintain a record for future use and ensure accountability.
- ✓ Maintain respectful communication with colleagues, and clients at all times.
- ✓ Member's conflicts or disagreements should be settled in a positive and respectful way.

3. Funding's

- ✓ Each member is required to contribute 500 pesos for expenses.
- ✓ Funding must be properly documented.
- ✓ Transparent documentation of all financial transactions is required.

4. Penalties

- ✓ Excessive absences or tardiness without valid reasons may result in kick out from the team.
- ✓ Member who does not meet their responsibilities may receive three warnings before being removed from the Team.
- ✓ Not meeting specific deadlines leads to progressive disciplinary measures, warning and possible to expulsion from the team.
- ✓ Any violation by a member will incur a fine of 100 pesos per offense.
- ✓ All funds collected from penalties will be allocated to the team's finances.

➤ Organizational Structure

i. Overall Structure

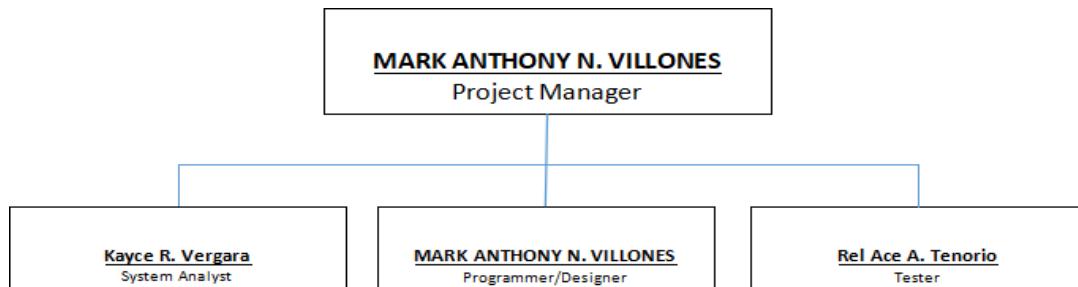


Figure 12: Over All Structure

ii. Management Team

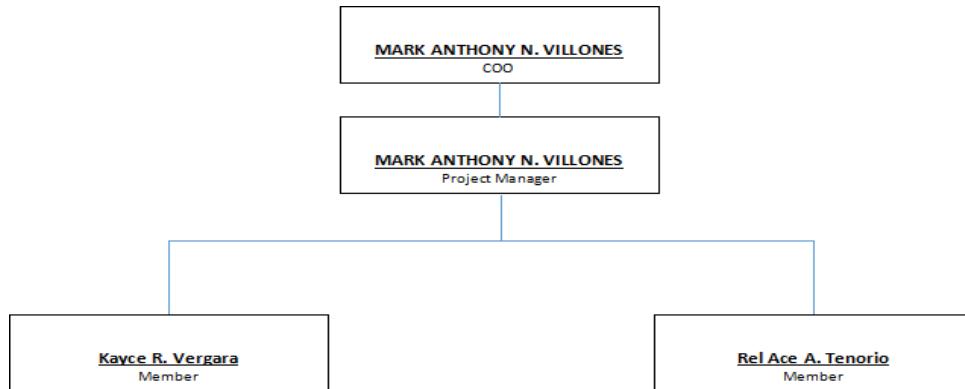


Figure 13: Management Team

iii. System Design Team

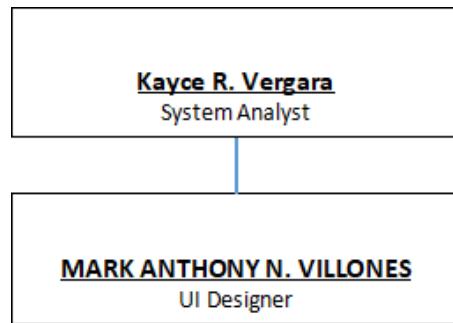


Figure 14: System Design Team

iv. Programming Team



Figure 15: Programming Team

v. ***Testing Team***

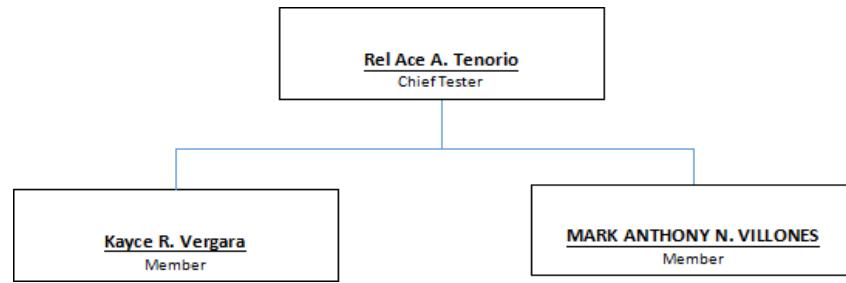


Figure 16: Testing Team

vi. ***Training Team***

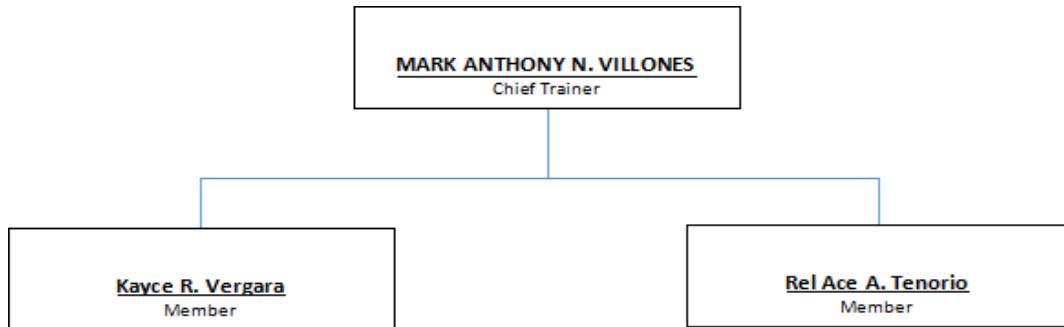


Figure 17: Training team

vii. ***Documentation Team***

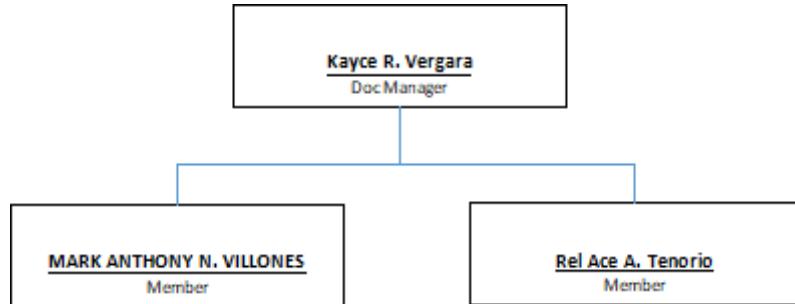


Figure 18: Documentation team

CHAPTER 6

RESULT AND DISCUSSIONS

6.1 Introduction

This section delves into the findings gathered from the implementation and testing phases of the system, analyzing their implications in meeting user expectations and operational requirements. It systematically presents the results, discussing the strengths and weaknesses observed during the testing process.

The primary purpose of this section is to determine whether the system fulfills the objectives outlined during the project planning phase. Key functionalities, such as faculty approval workflows, student registration with COR verification, abstract visibility restrictions for non-WMSU users, upload size limitations, and download logging mechanisms, are thoroughly assessed to ensure they operate seamlessly. The findings are further interpreted to understand how effectively these features meet the needs of WMSU faculty, students, and external users.

This section also emphasizes the defects identified during testing, their root causes, and the measures taken to address them. Issues such as form redirection errors, inaccurate error messages, and broken workflows are analyzed in detail. The discussion highlights how resolving these defects contributes to the system's overall stability and usability. Moreover, the results shed light on any recurring patterns or limitations in the system's design or implementation that may require further refinement.

To evaluating functionality, this section examines the system's performance in terms of user experience, accessibility, and compliance with organizational policies. These factors are integral to determining the system's readiness for deployment and

identifying areas for improvement. Through this analysis, stakeholders gain insights into how well the system supports WMSU's research management and archiving goals, as well as its potential for scalability and adaptability to future needs.

By providing a detailed interpretation of the results, this section not only validates the success of the project but also offers recommendations for further enhancements. It serves as a guide for addressing any remaining gaps and ensuring that the system achieves its full potential in supporting research management and archiving processes.

6.2 Summary of Findings

This section highlights key observations related to the system's functionality, performance, and user experience, as well as the identification and resolution of defects encountered during testing. The findings provide insight into how well the system meets its objectives, addresses user needs, and adheres to expected standards of operation.

The system was designed to streamline research management processes, such as paper submissions, faculty approvals, and document archiving, while ensuring secure and efficient handling of sensitive data. During testing, both successful functionality and certain challenges were identified, with particular attention to issues such as user interface errors, workflow interruptions, and incorrect system responses. By detailing these findings, this section aims to offer a clear picture of the system's current state, highlight areas for improvement, and outline recommendations to enhance its overall performance and usability before full-scale deployment.

6.3 Testing Result:

6.3.1 Alpha Testing Results:

- Unit Testing Results

A. Create Account Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|---|--|------------------------------------|--------|---------|
| TC01 | Test account creation with valid data | Account should be created successfully, with confirmation email sent | Account created, confirmation sent | Passed | - |
| TC02 | Test account creation with invalid email format | Error message: "Invalid email format" | Error message displayed | Passed | - |
| TC03 | Test account creation with existing email | Error message: "Email already in use" | Error message displayed | Passed | - |
| TC04 | Test account creation with missing fields | Error message: "Please fill out all required fields" | Error message displayed | Passed | - |
| TC05 | Test account creation with weak password | Error message: "Password too weak" | Error message displayed | Passed | - |

Table 51. Create Account Module Result

B. Log in Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|------------------------------|-----------------------|---------------|--------|---------|
| TC01 | Test login with valid | User should be logged | Successfully | Passed | - |

| | | | | | |
|------|---|---|-------------------------|--------|---|
| | credentials | in and redirected to dashboard | logged in | | |
| TC02 | Test login with invalid credentials | Error message: "Incorrect username or password" | Error message displayed | Passed | - |
| TC03 | Test login with empty fields | Error message: "Please enter both username and password" | Error message displayed | Passed | - |
| TC04 | Test login with locked account | Error message: "Account locked due to multiple failed login attempts" | Error message displayed | Passed | - |
| TC05 | Test login with invalid token (e.g., expired session) | Error message: "Session expired. Please log in again." | Error message displayed | Passed | - |

Table 52. Log in Module Result

C. Student Account Module

| Test Case ID | Test Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|---|--|-------------------------------------|--------|---------|
| TC01 | Test viewing student account details | Student's account information should be displayed | Account details displayed correctly | Passed | - |
| TC02 | Test updating student account information | Account information should be updated and saved successfully | Information updated successfully | Passed | - |

| | | | | | |
|------|--|---------------------------------------|-------------------------|--------|---|
| TC03 | Test updating account with invalid data (e.g., invalid phone number) | Error message: "Invalid phone number" | Error message displayed | Passed | - |
|------|--|---------------------------------------|-------------------------|--------|---|

Table 53. Student Account Module Result

D. Student Dashboard Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|---|---|-----------------------------|--------|---------|
| TC01 | Test student dashboard loading | Dashboard should load with student's research submissions and notifications | Dashboard loaded correctly | Passed | - |
| TC02 | Test dashboard with no research submissions | "No research papers submitted yet" message should be displayed | Message displayed correctly | Passed | - |

Table 54. Student Dashboard Module Result

E. Verify Module (Student Account)

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|--|---|----------------------------------|--------|---------|
| TC01 | Test student verification with COR (Certificate of Registration) | Student verification should succeed if COR is valid | Verification passed successfully | Passed | - |
| TC02 | Test student verification with invalid COR | Error message: "Invalid COR. Please upload a valid | Error message displayed | Passed | - |

| | | | | | |
|--|--|-----------|--|--|--|
| | | document" | | | |
|--|--|-----------|--|--|--|

Table 55. Verify Module (Student Account) Result

F. Faculty Account Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|---|---|-------------------------------------|--------|---------|
| TC01 | Test viewing faculty account details | Faculty's account information should be displayed correctly | Account details displayed correctly | Passed | - |
| TC02 | Test updating faculty account information | Account information should be updated successfully | Information updated successfully | Passed | - |

Table 56. . Faculty Account Module Result

G. Paper Submission Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|--|--|------------------------------|--------|---------|
| TC01 | Test submitting a paper with valid data | Paper should be successfully submitted and saved in the system | Paper submitted successfully | Passed | - |
| TC02 | Test submitting a paper with invalid file format | Error message: "Invalid file format. Please upload a PDF or Word file" | Error message displayed | Passed | - |
| TC03 | Test submitting a paper with missing fields | Error message: "All fields must be | Error message displayed | Passed | - |

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|--|--|------------|--|--|--|
| | | completed" | | | |
|--|--|------------|--|--|--|

Table 57. Paper Submission Module Result

H. Paper Classification Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|--|---|-------------------------------|--------|---------|
| TC01 | Test paper classification by research topic | Paper should be classified into the correct research category | Paper classified correctly | Passed | - |
| TC02 | Test automatic classification with no manual input | Paper should be classified automatically based on keywords or content | Classification done correctly | Passed | - |

Table 58. Paper Classification Module Result

I. Data Visualization Module

| Test Case ID | Test Case Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|---|---|--------------------------------|--------|---------|
| TC01 | Test data visualization for submission statistics | Graphs should display submission trends correctly | Visualization loaded correctly | Passed | - |
| TC02 | Test data visualization with no data | "No data available" message should be displayed | Message displayed correctly | Passed | - |

Table 59. Data Visualization Module Result

J. Submission Notification Module

| Test Case ID | Test Scenario/Condition | Expected Result | Actual Result | Status | Remarks |
|--------------|--|---|---------------------------------|--------|---------|
| TC01 | Test notification after paper submission | Faculty and student should receive a notification | Notifications sent successfully | Passed | - |
| TC02 | Test notification with invalid email address | Error message: "Invalid recipient address" | Error message displayed | Passed | - |

Table 60. Submission Notification Module Result

➤ Integration testing results

| Test Case | Expected Result | Actual Result | Remarks |
|--|---|--|---------|
| 1. Integration of College Account Module and Log-in Module | Valid email and password created by the admin are accessible in the College Log-in Module. | The email and password created in the College Account module were accessible in the Log-in module. | PASSED |
| | Invalid credentials prevent login and dashboard access. | Invalid credentials correctly denied access. | PASSED |
| 2. College Admin Log-in Module and Dashboard Module | College Admin should seamlessly access the dashboard after logging in with valid credentials. | Admin successfully accessed the dashboard and features after logging in. | PASSED |
| | Invalid credentials prevent dashboard access. | Admin login attempts with invalid credentials were | PASSED |

| | | | |
|---|---|--|---------------|
| | | correctly blocked. | |
| 3. Verification of Faculty Accounts by College Admin | Newly created faculty accounts are pending verification, with limited access until approved. | Faculty accounts could not access restricted features until verified by College Admin. | PASSED |
| | College Admin clicks "Approve" to verify the faculty account. | Verified faculty gained full access to features like document evaluation and student account verification. | PASSED |
| | College Admin clicks "Decline" to reject the faculty account. | Rejected faculty accounts were unable to log in to the system. | PASSED |
| 4. Faculty Verification of Student Accounts | Students request verification by submitting their COR to their adviser. | Adviser could view and process student verification requests. | PASSED |
| | Adviser clicks "Approve" to verify the student account. | Verified students gained access to submission and additional dashboard features. | PASSED |
| | Adviser clicks "Decline" to reject verification. | Rejected students retained basic dashboard access but could reapply for verification. | PASSED |
| 5. Student Research Document Submission | Students fill out the submission form with necessary details and their adviser's submission code. | Adviser viewed and evaluated submitted documents successfully. | PASSED |
| | Adviser clicks "Approve" to | Document was archived and | PASSED |

| | | | |
|--|---|--|---------------|
| | accept the document. | the status updated to "Accepted" for the student. | |
| | Adviser clicks "Revise" to request updates. | Students could update their submission based on revision comments. | PASSED |
| | Adviser clicks "Reject" to reject the submission. | Rejected documents could not be updated, requiring a new submission. | PASSED |

Table 61. Integration testing results

➤ System Testing Results

| Test Case # | Test Case Description | Expected Result | Actual Result | Status |
|-------------|--|--|---|--------|
| 1 | Adviser Account Verification Process | Verified adviser accounts can access advanced features like document submission review and student verification. | Verified adviser accounts gained access to all features, while unverified accounts were restricted. | Passed |
| 2 | Student Creation and Verification of Account | Verified students can access features like document submission and additional research document viewing. | Verified students gained access to features; unverified accounts remained restricted. | Passed |
| 3 | Student Document Submission to Adviser | Adviser can evaluate and archive submitted documents after approval. | Submitted documents were visible for evaluation, and approved ones were archived successfully. | Passed |
| 4 | Verified and Non- | Verified accounts can access | Verified accounts accessed | Passed |

| | | | | |
|---|--|--|--|--------|
| | Verified Account Access | additional system features; non-verified accounts have restricted access. | additional features, while non-verified accounts were restricted as expected. | |
| 5 | Research Document Availability in Homepage | Accepted documents are visible on the homepage, with access based on ownership settings. | Only accepted documents were displayed; locked documents restricted access as per user settings. | Passed |
| 6 | Admin Viewing of Archived Documents | Admin can view archived documents filtered by college, including full manuscript details. | Admin successfully accessed full details of archived documents filtered by college. | Passed |
| 7 | College Admin Dashboard Information | College admin dashboard displays analytics like documents per faculty and top research papers by citation. | Dashboard analytics accurately displayed all required data and visualizations. | Passed |
| 8 | Admin Dashboard Information | Admin dashboard shows analytics by college, including most-viewed and downloaded documents. | Admin dashboard successfully displayed analytics and allowed college account management. | Passed |
| 9 | Finding Document in Homepage | Users can search documents with filters like college, department, or year. | Search functionality worked correctly, and document access depended on account status. | Passed |

Table 62. System Testing Results

1. Usability Problems

- Confusing Navigation in Student Dashboard:

A recurring issue during testing was that students found it difficult to navigate their dashboard, especially when trying to view or track the progress of their paper submissions. The layout was cluttered, and important actions were buried in menus.

✓ Resolution: Based on this feedback, the layout was redesigned to make it more intuitive. The "My Submissions" section was given a more prominent position on the dashboard, and additional contextual guidance (like tooltips) was added to ensure that students understood how to interact with the system.

- Inconsistent Error Messages:

Some error messages displayed by the system were too technical and not user-friendly. Testers found it hard to understand what went wrong when they encountered issues (e.g., "Error code: 505" or "Invalid input").

✓ Resolution: The error message system was standardized across the platform. Now, messages are simple and actionable. For instance, instead of a technical error code, users might see “Please enter a valid email address” or “Your password must contain at least 8 characters.”

2. Security Issues

- Weak Password Handling:

Initially, the platform allowed weak passwords (e.g., simple strings like "password123"), which posed a security risk, particularly with sensitive academic data.

- ✓ **Resolution:** A stronger password policy was introduced, requiring users to create passwords with a mix of uppercase letters, numbers, and special characters. Additionally, a password strength meter was added during account creation to visually guide users on how to create secure passwords.

3. Performance Issues

- Slow Page Load Times with Large Data:

Pages that displayed large amounts of data, such as research paper listings or submission history, loaded slowly. This negatively impacted the user experience, particularly for users with slow internet connections or older devices.

- ✓ **Resolution:** The system was optimized by implementing **lazy loading**, which only loads data when it's needed (i.e., when the user scrolls down the page). Additionally, caching mechanisms were introduced to store frequently accessed data, reducing the need to reload data each time. These optimizations improved page load speeds significantly.

- Performance Under High Load:

When multiple users accessed the platform simultaneously (e.g., during peak submission periods), the system experienced performance degradation, with some users seeing delays or timeouts.

- ✓ **Resolution:** Load balancing was introduced to distribute user traffic across multiple servers. Additionally, database queries were optimized to handle large numbers of concurrent users more efficiently. After these fixes, the platform performed much better under high loads.

4. Functional Issues

- Paper Classification Errors:

The automatic classification system for papers, which categorizes them based on topics, sometimes misclassified papers, especially when the titles or abstracts were ambiguous or unclear.

- ✓ **Resolution:** The classification algorithm was adjusted by using machine learning models to better analyze paper content and match it with the appropriate categories. Additional rules were created for edge cases to minimize misclassifications.

6.3.2. Beta Testing Results

| Question | R- 1 | R- 2 | R- 3 | R- 4 | R- 5 | R- 6 | Average Rating |
|---|---------|---------|---------|---------|---------|---------|-------------------|
| P-1: Graphical User Interface | | | | | | | |
| The design elements (e.g., buttons, icons) are consistent throughout the interface. | 3 | 3 | 3 | 3 | 3 | 4 | 3.17 |
| The font size and style used in the GUI are clear and readable. | 2 | 4 | 3 | 3 | 4 | 4 | 3.33 |
| Overall, I find the interface easy to use. | 3 | 4 | 3 | 3 | 3 | 4 | 3.33 |
| The design of the system is visually appealing. | 2 | 4 | 2 | 3 | 3 | 4 | 3.0 |
| Font style and size is easy to read. | 3 | 3 | 2 | 3 | 4 | 4 | 3.17 |
| The colors used in the interface were pleasing and appropriate. | 3 | 2 | 2 | 2 | 4 | 4 | 2.83 |
| Buttons and icons are easy to identify. | 3 | 3 | 3 | 3 | 4 | 4 | 3.33 |
| The layout of the pages is consistent and well-structured. | 3 | 4 | 3 | 4 | 3 | 4 | 3.5 |
| The onboarding process (e.g., log in, sign up) is straightforward. | 3 | 3 | 4 | 4 | 4 | 4 | 3.67 |
| The steps for uploading documents are clear and easy to follow. | 3 | 3 | 4 | 3 | 4 | 4 | 3.5 |
| P-2: Usability | | | | | | | |
| The DSMIS is easy to learn. | 3 | 3 | 4 | 3 | 3 | 3 | 3.33 |
| Error messages within the system are clear and help me understand what went wrong. | 4 | 3 | 4 | 4 | 3 | 3 | 3.5 |
| Overall, I am satisfied with the usability of the DSMIS system for my role or responsibilities. | 4 | 3 | 3 | 3 | 3 | 3 | 3.33 |
| The system loads quickly when first accessed. | 3 | 2 | 2 | 3 | 3 | 3 | 2.83 |
| The system responds quickly when interacting with the features. | 3 | 3 | 2 | 3 | 3 | 4 | 3.0 |
| There were no delays in completing tasks. | 2 | 3 | 2 | 2 | 3 | 4 | 2.67 |
| The system runs smoothly without any crashes. | 2 | 3 | 2 | 2 | 3 | 4 | 2.67 |
| The system performs consistently well under normal use. | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 |
| The system performs well when handling max files or data. | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 |
| The system handles simultaneous operations (e.g., uploads, searches) efficiently. | 3 | 3 | 3 | 3 | 2 | 3 | 2.83 |
| The system is stable even with multiple users. | 4 | 3 | 2 | 2 | 3 | 4 | 3.33 |

| P-3: Functionality | | | | | | | |
|--|---|---|---|---|---|---|------|
| The search and filtering features effectively locate information. | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 |
| The real-time reporting and dashboard capabilities are reliable and accurate. | 4 | 3 | 4 | 4 | 3 | 3 | 3.5 |
| The DSMIS effectively handles data analysis and reporting for nonconformities, customer satisfaction, and customer complaints. | 4 | 3 | 3 | 3 | 3 | 3 | 3.33 |
| The User Account Login/Logout feature provides a reliable experience. | 3 | 2 | 2 | 3 | 3 | 4 | 3.0 |
| The Paper Submission feature is intuitive and user-friendly. | 3 | 3 | 2 | 3 | 3 | 4 | 3.17 |
| The Dashboard offers a clear and well-structured interface for users. | 2 | 3 | 2 | 2 | 3 | 4 | 2.67 |
| The Data Visualization tools are clear and useful for understanding information. | 2 | 3 | 2 | 3 | 4 | 4 | 3.0 |
| The Search functionality is effective and efficient. | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 |
| Profile Management is easy to use and comprehensive. | 3 | 3 | 3 | 3 | 3 | 3 | 3.0 |
| The User Account Login/Logout feature provides a reliable experience. | 3 | 3 | 3 | 3 | 3 | 4 | 3.33 |
| Please indicate how satisfied you are with the DSMIS's overall features and capabilities. | 4 | 3 | 2 | 2 | 2 | 4 | 3.17 |

Table 62. Beta Testing Results Summary Table

The beta testing results for the system reveal several key areas where the system can be improved to enhance user experience and overall functionality. In terms of Graphical User Interface (GUI), users generally found the design elements like buttons and icons to be consistent, but some noted issues with font readability and the color scheme. There were also reports of inconsistencies in design elements across different pages, which can cause confusion. To address these, it is recommended to improve the clarity and

consistency of font styles, refine the color palette for better contrast, and standardize UI elements to ensure a cohesive and intuitive interface.

In the Usability section, users indicated that the system's load times and performance could be improved, as some respondents experienced delays when interacting with features or completing tasks like document uploads. Additionally, although error messages were generally helpful, there were instances where they were unclear or lacking sufficient detail. To improve usability, efforts should be made to optimize system performance by enhancing backend processes, minimizing load times, and refining error messages to make them more informative. Streamlining workflows and reducing unnecessary steps could also improve task completion efficiency.

For Functionality, while many users were satisfied with the system's core features, there were concerns regarding the effectiveness of search and filtering functions, which users found could be more accurate, especially when handling large datasets. The dashboard layout also received mixed reviews, with some users finding it difficult to navigate or understand. Additionally, the data visualization tools were seen as unclear or unhelpful in displaying meaningful insights. Improving search algorithms for more accurate results, redesigning the dashboard for better usability, and enhancing data visualization tools would help make the system more efficient and intuitive. Overall, while the DSMIS performs well in most areas, addressing these issues will help improve its reliability, ease of use, and performance under various conditions.

6.3.3. User Acceptance Testing Result

1. System Functionality

- ✓ **Faculty Approval Workflow:** The functionality for faculty to review, approve, and reject student research papers was successfully tested by actual faculty members. There were no reported issues, and faculty users expressed satisfaction with how the approval process was executed.
- ✓ **Student Registration & COR Verification:** Students were able to register using the COR verification process without any major issues. However, a few students encountered difficulties when the system did not clearly indicate the need to upload a profile photo. After feedback, this was addressed by adding more descriptive error messages.
- ✓ **Non-WMSU User Access:** Non-WMSU users were able to view only the abstracts of research papers, as required. This feature worked as expected and received positive feedback from external users who appreciated the clear access limitations.
- ✓ **File Upload and Size Limitation:** The system correctly handled image uploads, but users faced an issue when uploading files near the 10 MB size limit. The system showed an incorrect error message ("1st name required") instead of one indicating that the file size exceeded the limit. This error was identified during the UAT phase, and the development team promptly fixed it to display a more relevant error message.
- ✓ **Download Logging:** The download logs worked as expected, capturing user actions such as paper downloads and timestamp details. Both faculty

and administrators were satisfied with the logging system, finding it useful for tracking research access.

2. System Performance

- ✓ The system's performance was generally stable during the final testing phase. Some users experienced minor delays when multiple files were uploaded simultaneously or when searching large datasets. Based on this feedback, performance optimization was prioritized. The development team worked to enhance the platform's ability to handle larger loads, ensuring it would perform optimally under real-world conditions.

3. Usability & User Interface

- ✓ **User Interface:** The overall design and flow of the system were found to be intuitive by most users. However, a few users suggested that some error messages and instructions could be clearer, especially during the registration process and file upload.
- ✓ **User Feedback:** The system was generally well-received, but users recommended small improvements for even smoother navigation, including more explicit guidance for filling out forms and clearer error notifications.

4. Acceptance Criteria Evaluation

- ✓ **Core Functionalities:** The core features, such as the submission and approval of research papers, file upload management, and download tracking, all met the expected requirements and functioned correctly.
- ✓ **Error Handling:** While the system did handle most errors appropriately, there were a few instances where error messages were either unclear or

incorrect (e.g., file size error message). These were addressed based on user feedback.

- ✓ User Experience: The overall user experience was positive, with end-users finding the system intuitive and easy to use. The primary areas of concern were related to error handling and file upload limitations, which were subsequently improved.
- ✓ Performance: The system met performance expectations during typical use cases, but minor performance issues arose when handling large file uploads or large datasets. These issues were flagged for optimization.
- ✓ Security and Access Control: The system adhered to the security requirements, ensuring that WMSU students were verified via their COR and that non-WMSU users only had access to abstracts.

5. Final Adjustments Based on User Feedback

- ✓ **Improved Error Messaging:** Based on feedback, the error messages related to missing profile photos during student registration and the file upload error messages for exceeding the size limit were updated to be clearer and more relevant.
- ✓ **Performance Enhancements:** To address the minor performance issues encountered with file uploads and large dataset queries, the development team made optimizations to enhance the platform's responsiveness under high-load conditions.

- ✓ **User Interface Refinements:** A few minor tweaks were made to improve the clarity of instructions and form field labels, particularly in the registration process, to help users avoid common mistakes.
- ✓ **Further Testing for High-Load Scenarios:** Performance under heavy usage (e.g., bulk uploads or large queries) was optimized, and additional stress testing was performed to ensure the system could handle peak loads without degradation.

6.4 Evaluation Result:

6.4.1 Graphical User Interface (GUI) and User Experience (UX)

- **Design Consistency**

The system's design was consistent across different pages and modules, ensuring a cohesive user experience. Consistent color schemes, button styles, fonts, and iconography were used throughout, providing a uniform and professional appearance. This consistency helped users quickly familiarize themselves with the interface, reducing cognitive load and improving overall usability.

- ✓ **Positive Feedback:** Users appreciated the cohesive design, which allowed them to navigate the system without confusion.
- ✓ **Minor Adjustments:** Some users suggested making certain icons and buttons more distinguishable to further enhance clarity, particularly for new users unfamiliar with the platform.

- **Ease of Navigation**

The navigation structure was designed to be intuitive, with clear menu options, breadcrumbs, and easy-to-understand labels. Key actions such as research paper submission, approval, and file uploads were easily accessible from the main dashboard.

- ✓ **Positive Feedback:** Users found the system easy to navigate, especially faculty and students who were familiar with the platform's core processes.
- ✓ **Suggestions for Improvement:** A few users requested that navigation elements be slightly more streamlined for quicker access to frequently used features (e.g., a more prominent "Submit Research" button).

- **User Engagement**

The aesthetic design of the platform was visually appealing, with a professional and clean layout. The use of whitespace, modern fonts, and minimalistic design principles contributed to an engaging and pleasant experience.

- ✓ **Positive Feedback:** Many users reported that the visual design made the platform more engaging and less overwhelming, encouraging them to use the system regularly.
- ✓ **Suggestions for Improvement:** A small percentage of users suggested adding more interactive elements (e.g., hover animations) to make the experience feel more dynamic.

- **Responsiveness**

The system was tested across a variety of devices, including desktops, tablets, and smartphones, ensuring that the platform's layout adjusted well to different screen sizes. The responsiveness of the system was essential for users who needed to access the platform on the go.

- ✓ **Positive Feedback:** Users were impressed with the responsiveness, particularly when using mobile devices. The layout adapted well across devices, with no significant issues.
- ✓ **Suggestions for Improvement:** A few users mentioned that the mobile interface could benefit from more compact menus for quicker access to key functions.

6.4.2 System Usability

- **User Feedback on Ease of Use**

Most users found the system to be easy to use, with intuitive workflows for tasks like paper submission, approval, and accessing research. The forms and buttons were straightforward, making the platform user-friendly even for those with limited technical expertise.

- ✓ **Positive Feedback:** End-users, including faculty and students, expressed satisfaction with the platform's ease of use. They appreciated the clear instructions and quick access to key features.
- ✓ **Minor Suggestions:** Some users mentioned that the student registration process could be simplified further, especially for first-time users.

- **Error Rate and Error Handling**

The system was designed with effective error handling in mind, providing users with clear and actionable error messages. However, a few issues were identified during testing, such as incorrect error messages for file uploads (e.g., "1st name required" instead of a file size error message). These errors were addressed post-testing.

- ✓ **Positive Feedback:** Most users found error handling effective, with messages that were clear and helpful in guiding them to resolve issues.
- ✓ **Defects Identified:** Some errors, especially during the registration process and file upload, were initially unclear, leading to confusion. These were fixed, and the system was re-tested.

6.4.3 System Functionalities

- **Core Features**

The system's core features, including research paper submission, faculty approval, and document archiving, were tested and validated by actual users. All critical workflows functioned as expected. The platform handled paper submissions and approvals efficiently, and the research paper database was easy to search and navigate.

- ✓ **Positive Feedback:** Faculty users appreciated the streamlined approval process, while students valued the simplicity of submitting their research papers. The system's ability to track and archive research was also praised.

- ✓ **Suggestions for Improvement:** Some users suggested adding more robust search and filtering capabilities to help faculty and students find specific research papers more efficiently.
- Performance and Reliability

The system's performance was generally stable, with minimal lag or downtime during real-world usage. The platform performed well under typical workloads, such as submitting research, reviewing papers, and downloading documents. Performance issues were mostly related to high-load scenarios, such as bulk uploads or large queries.
- ✓ **Positive Feedback:** Users noted that the system was responsive during normal use and did not encounter significant slowdowns.
- ✓ **Defects Identified:** Some performance degradation was observed during testing with large file uploads or complex searches. This was flagged for future optimization.
- User Satisfaction with Functionalities

Overall, users were satisfied with the system's functionality, particularly in terms of its ease of use, ability to manage research, and document tracking. The core features met expectations, though a few minor enhancements were requested to improve navigation and search.
- ✓ **Positive Feedback:** The majority of users were happy with the functionalities provided, especially the ease of managing research submissions, approvals, and access restrictions.

- ✓ **Suggestions for Improvement:** Users requested additional features such as automated notifications for faculty approvals and more detailed analytics for administrators.

Chapter 7

Conclusion and Recommendations

Conclusion

The Research Management Platform and Document Archiving Management Information System has delivered on its primary objectives. Indeed, it fills an urgently needed gap in the overall management of research papers in universities. The system presents the central repository for submission, review, and archiving of research papers that solves the mishandling problem of improper storage and ensures the preservations of students' work for future references. This centralized approach removes the risk of losing or forgetting research papers and ensures their access over time. It therefore has not only improved the visibility of academic work but also contributed to the reputation of the university as one that promotes and conserves intellectual output.

The organization and preservation challenges, the platform has promoted a culture of collaboration and knowledge sharing within the university. Standardized processes for submitting, reviewing, and publishing research papers streamlined workflows, making it easier for faculty, students, and other stakeholders to engage with the platform. This has created a transparent and efficient research ecosystem where knowledge can be disseminated across departments, fostering interdisciplinary collaboration and collective academic growth. By providing a clear, accessible platform for academic exchange, the system also aligns with the university's broader goals of innovation and research advancement.

The system's effectiveness has been confirmed through thorough testing, including unit

testing, alpha testing, and user acceptance testing (UAT). During these phases, the system met or exceeded the functional requirements, demonstrating its robustness and usability. User feedback during the UAT indicated a positive response to the platform's interface and functionality, with minor issues addressed promptly during the testing phases. This process validated the system's capability to improve research management and enhance the academic experience at the university. Therefore, the successful implementation of the system has contributed to streamlining research workflows, improving the sharing of academic knowledge, and supporting the university's mission of fostering an innovative research culture.

Recommendation

Although the Research Management Platform has successfully achieved its core goals, several areas of potential improvement have been identified during the testing phase. First, the system needs to improve mobile responsiveness so it is able to perform properly on many types of devices. Since more people are accessing the site via cell phones, optimizing the application for mobile utilization will enable greater accessibility among students and faculty, who require access to the system at different times and locations. Improved mobile usability will also enhance the overall user experience, increasing flexibility for those who may not always have access to desktop devices.

Another key area for improvement is the error handling mechanisms. While the system performs well in most cases, more informative and actionable error messages would help users resolve issues quickly and effectively, particularly when submitting or reviewing research papers. Additionally, enhancing error prevention features could

reduce user mistakes, improving the platform's overall efficiency. Providing real-time error feedback during submission, such as file size or format issues, could also streamline the process.

With more and more research submissions, it has become important to look into how the system will perform about handling large files and how it will manage queries from bulk data. Such performances should be optimized by incorporating load balancing and database optimization to make the platform stay responsive even under heavy usage. This will be important when the system becomes large and many more papers are uploaded and accessed by numerous users.

The introduction of collaborative features would be enhancing the functionality of the platform. Features like peer review or the capacity to leave comments and feedback about the submitted research papers on the site will encourage further collaboration and academic interaction. This kind of feature will create a dynamic platform in which academics can interact more and carry out research discussion in an objective manner. The platform shall be upgraded to be more accessible in terms of accessibility. While it has helped immensely improve academic workflows on how to submit, review, and publish research work, there is much that can be done. Improving its mobile responsiveness, error handling, performance optimization, collaborative features, and accessibility will continue to satisfy the changing needs of the academic community at this university. In addressing the recommendations, the platform can further strengthen its role in being a central hub for academic collaboration and innovation.

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APPENDICES

Appendix A : DATA GATHERING

➤ Methods Used to Collect Feedback

To ensure comprehensive and actionable feedback, a combination of structured and informal methods was employed during the beta testing phase. These methods enabled the development team to gather both quantitative data and qualitative insights, helping to refine the system based on real user experiences.

1. Bug Reports

An essential part of the beta testing process was identifying any technical issues. Testers were actively encouraged to report bugs, errors, or system crashes they encountered. A dedicated channel for bug submissions was set up, allowing users to:

Report issues immediately after they occurred.

Provide detailed descriptions of the bug, including steps to reproduce the issue, screenshots, and logs when available.

Track the status of the reported bugs to ensure timely resolution.

This structured approach helped the development team address issues quickly and efficiently, ensuring that the final system was as stable as possible.

2. User Interviews

Follow-up interviews were conducted with a select group of beta testers, especially those who had provided valuable insights during the survey process. These interviews allowed the team to:

- Dive deeper into specific aspects of the user experience, particularly areas related to usability and the user interface.

- Gain qualitative insights that might not have been fully captured in the surveys.

- Ask testers for specific suggestions on how to improve the interface, enhance workflow, or add features that would improve user satisfaction.

- The interviews were structured but allowed for open-ended feedback, encouraging testers to speak freely about their experience.

Appendix B : TESTING

| Unit Testing | |
|--|---|
| Project Number: | 1.0 |
| Project Name: | Document Management Evaluation and Archiving Information System for WMSU Research Papers |
| Test Type: | Unit Testing |
| Test Description: | Unit testing is a method of testing individual units or components of a software application. |
| Date: | From October to November 2024 |
| App Version No: | N/A |
| Total Duration: | 6 days |
| Total no. of passed test cases: | 91 |
| Total no. of failed test cases: | 4 |
| Total no. of tested test cases: | 95 |
| Total no. of test cases: | 11 |

| Status | |
|----------------------------|--------|
| % Passed Test Cases | 95.79% |
| % Failed Test Cases | 4.21% |
| % Tested Test Cases | 100% |

| Integration Testing | |
|--------------------------|--|
| Project Number: | 1.0 |
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Type: | 5.3.1.2 Integration Testing |
| Test Description: | Integration testing is a method of testing how different units or components of a software application interact with each other. |

| | |
|--|------------------|
| Date: | December 1, 2024 |
| App Version No: | Version 2 |
| Total Duration: | 1 Month |
| Total no. of passed test cases: | 13 |
| Total no. of failed test cases: | 0 |
| Total no. of tested test cases: | 13 |
| Total no. of test cases: | 13 |

| STATUS | |
|----------------------------|-----|
| % Passed Test Cases | 99% |
| % Tested Test Cases | 99% |

| System Testing | |
|--------------------------|---|
| Project Number: | 1 |
| Project Name: | Document Management Evaluation and Archiving Information System |
| Test Type: | System Testing |
| Test Description: | System testing tests all the processes of the system. |

| | |
|--|------------------|
| Date: | December 2, 2024 |
| App Version No: | Version 2 |
| Total Duration: | 2 Weeks |
| Total no. of passed test cases: | 9 |
| Total no. of failed test cases: | 0 |
| Total no. of tested test cases: | 9 |
| Total no. of test cases: | 9 |

| STATUS | |
|----------------------------|-----|
| % Passed Test Cases | 99% |
| % Tested Test Cases | 99% |

Appendix C : EVALUATION FORM

Introduction

Dear Participant,

Thank you for participating in the evaluation of the Document Management Evaluation and Archiving Information System for WMSU Research Papers as part of the proponent's Capstone Project and Research course. Your feedback is invaluable in guiding the future enhancements of the system. Your input is deeply appreciated.

This evaluation form employs a rating scale to capture your experiences and insights regarding various aspects of the Document Management Evaluation and Archiving Information System for WMSU Research Papers. Your constructive feedback aids in recognizing the system's strengths and identifying areas for improvement.

Please rate your interaction with the Document Management Evaluation and Archiving Information System for WMSU Research Papers using a 4-point rating scale. Choose the answer that best reflects your usage and perspective. Evaluate each element before providing your rating, and your authentic feedback is highly appreciated. Your assessment will help refine the project, and your comments are confidential. Once finished, please return the form to the proponent.

Instruction: Please indicate your response by checking the corresponding rating number.

| Part I. Graphical User Interface | Ratings | | | |
|---|--------------------------------------|-------------------------|----------------------|--|
| Questions | 1 (Strongly Disagree) | 2 (Disagree) | 3 (Agree) | 4 (Strongl y Agree) |
| The design elements (e.g., buttons, icons) are consistent throughout the interface. | | | | |
| The font size and style used in the GUI are clear and readable. | | | | |
| Overall, I find the interface easy to use. | | | | |
| The design of the system is visually appealing | | | | |
| Font style and size is easy to read | | | | |
| The colors used in the interface were pleasing and appropriate. | | | | |
| Buttons and icons are easy to identify. | | | | |
| The layout of the pages is consistent and well-structured. | | | | |
| The onboarding process (e.g., log in, sign up) is straightforward. | | | | |
| The steps for uploading documents are clear and easy to follow. | | | | |

Comments:

Instruction: Please indicate your response by checking the corresponding rating number.

| Part II. Usability | Ratings | | | |
|---|--------------------------------------|-------------------------|----------------------|-----------------------------------|
| | 1 (Strongly Disagree) | 2 (Disagree) | 3 (Agree) | 4 (Strongly Agree) |
| The DSMIS is easy to learn. | | | | |
| Error messages within the system are clear and help me understand what went wrong. | | | | |
| Overall, I am satisfied with the usability of the DSMIS system for my role or responsibilities. | | | | |
| The system loads quickly when first accessed. | | | | |
| The system responds quickly when interacting with the features. | | | | |
| There were no delays in completing tasks. | | | | |
| The system runs smoothly without any crashes. | | | | |
| The system performs consistently well under normal use. | | | | |
| The system performs well when handling max files or data. | | | | |
| The system handles simultaneous operations (e.g., uploads, searches) efficiently. | | | | |
| The system is stable even with multiple users. | | | | |

Comments:

Instruction: Please indicate your response by checking the corresponding rating number.

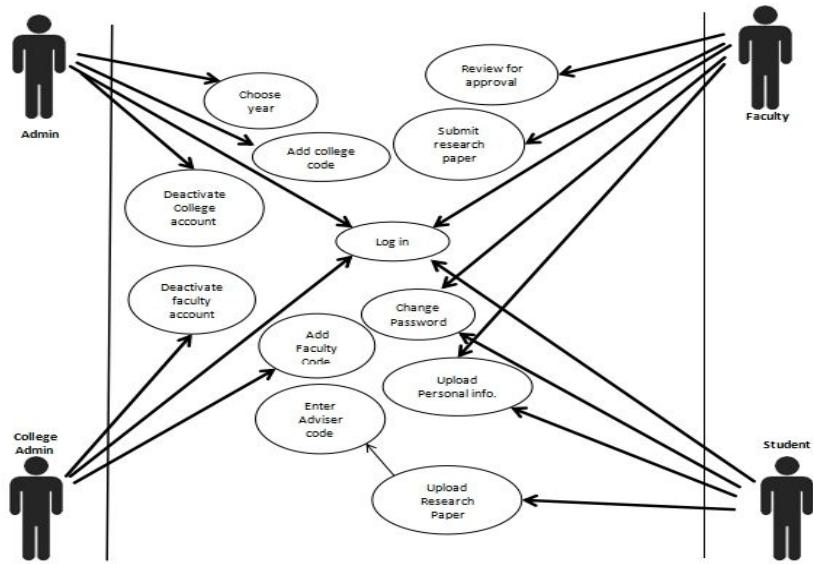
| Part III. Functionality | Ratings | | | |
|---|-----------------------------|-----------------|--------------|--------------------------|
| Questions | 1 (Strongly Disagree) | 2 (Disagree) | 3 (Agree) | 4 (Strongly Agree) |
| The search and filtering features in the Document Management Evaluation and Archiving Information System for WMSU Research Papers effectively locate information. | | | | |
| The real-time reporting and dashboard capabilities of the Document Management Evaluation and Archiving Information System for WMSU Research Papers are reliable and accurate. | | | | |
| The Document Management Evaluation and Archiving Information System for WMSU Research Papers effectively handles data analysis and reporting for nonconformities, customer satisfaction, and customer complaints. | | | | |
| The User Account Login/Logout feature provides a reliable experience. | | | | |
| The Paper Submission feature is intuitive and user-friendly. | | | | |
| The Dashboard offers a clear and well-structured interface for users. | | | | |
| The Data Visualization tools are clear and useful for understanding information | | | | |
| The Search functionality is effective and efficient. | | | | |
| Profile Management is easy to use and comprehensive. | | | | |
| The User Account Login/Logout feature provides a reliable experience. | | | | |
| Please indicate how satisfied you are with the DSMIS's overall features and capabilities. | | | | |

Respondent: _____
Signature over printed name

Appendix D : GANTT CHART

| Activities | | Duration | | | Week | | | | | | | | |
|------------|--------------------------------|--------------|-------------|---------|------|----|----|----|----|----|----|----|----|
| # | Task | Start | End | Days | W1 | W2 | W3 | W4 | W5 | W6 | W7 | W8 | W9 |
| 1 | Final Code Review | Sept. 30 '24 | Oct. 12 '24 | 2 weeks | | | | | | | | | |
| 2 | Environment Setup | Sept. 30 '24 | Oct. 12 '24 | 2 weeks | | | | | | | | | |
| 3 | Backup Plan and Backup Process | Oct. 14 '24 | Oct. 19 '24 | 1 week | | | | | | | | | |
| 4 | Prepare QA Testing Plan | Oct. 14 '24 | Oct. 19 '24 | 1 week | | | | | | | | | |
| 5 | Database Migration Testing | Oct. 21 '24 | Oct. 26 '24 | 1 week | | | | | | | | | |
| 6 | QA Testing | Oct. 28 '24 | Nov. 9 '24 | 2 weeks | | | | | | | | | |
| 7 | Performance Testing | Oct. 28 '24 | Nov. 9 '24 | 2 weeks | | | | | | | | | |
| 8 | Security Testing | Oct. 28 '24 | Nov. 9 '24 | 2 weeks | | | | | | | | | |
| 9 | Update Documentation | Nov. 11 '24 | Nov. 16 '24 | 1 week | | | | | | | | | |
| 10 | Deployment Training | Nov. 18 '24 | Nov. 23 '24 | 1 week | | | | | | | | | |
| 11 | Pre-deployment Communication | Nov. 25 '24 | Nov. 30 '24 | 1 week | | | | | | | | | |
| 12 | Deployment Dry Run | Nov. 25 '24 | Nov. 30 '24 | 1 week | | | | | | | | | |
| 13 | Final Security Audits | Nov. 25 '24 | Nov. 30 '24 | 1 week | | | | | | | | | |

Appendix E : USE CASE



Use Case #1: Log In

User: Student, Faculty, Admin, College

Description: The system allows the user to log in and gain access to their assigned module based on their role.

Fit Criterion: The user inputs a valid username and password. If both values match the stored credentials, they will gain access to their specific module after login.

Use Case Scripts:

1. The Log In form is loaded.
2. The user enters their username and password
3. When the Log In button is clicked, the system verifies the entered credentials.
 - If the username or password is incorrect, a message box prompts:
“ACCESS DENIED: Incorrect username and/or password.”
 - If the credentials are correct, the system identifies the user's role (Student, Faculty, Admin, or College).
 - A message box prompts:
“ACCESS GRANTED: You have successfully logged in.”
 - The user is then directed to their assigned module based on their role (e.g., Student Dashboard, Faculty Dashboard).

Use Case #2: Upload Research Paper**User:** Student**Description:** The student uploads a research paper, requiring a valid adviser code for submission. The research paper is saved in the Research Database upon successful validation.**Fit Criterion:** The student uploads a valid file, provides required details, and enters a valid adviser code. The system confirms the submission if all criteria are met.**Use Case Scripts:**

1. The Upload Research Paper form is loaded.
2. The student selects a research paper file, fills in metadata (e.g., title, abstract), and enters the adviser code.
3. The student clicks upload.
4. The system verifies the file, metadata, and adviser code:
 - If invalid, a message prompts:
“UPLOAD FAILED: Check file, required fields, or adviser code.”
 - If valid, a message prompts:
“UPLOAD SUCCESSFUL: Research paper submitted.”
5. The system saves the submission to the Research Database.

Use Case #3: Upload Personal Info**User:** Student, Faculty**Description:** The user uploads personal information, which is saved in their respective profile database.**Fit Criterion:** The user fills out the required personal information fields and submits the form. The system confirms successful upload upon validation.**Use Case Scripts:**

1. The Upload Personal Info form is loaded.
2. The user enters required details (e.g., name, email, contact number).
3. The user clicks the Submit button.
4. The system verifies that all required fields are completed:
 - If any fields are incomplete, a message prompts:
“UPLOAD FAILED: Please fill in all required fields.”
 - If all fields are valid, a message prompts:
“UPLOAD SUCCESSFUL: Your personal information has been updated.”
5. The system saves the updated information to the appropriate profile database.

Use Case #4: Change Password

User: Student, Faculty, Admin

Description: The user changes their account password to enhance security.

Fit Criterion: The user provides the current password, a new password, and confirms the new password. The system updates the password if all criteria are met.

Use Case Scripts:

1. The Change Password form is loaded.
2. The user enters the current password, new password, and confirm new password.
3. The user clicks the Submit button.
4. The system verifies:
 - If the current password is incorrect, a message prompts:
“CHANGE FAILED: Current password is incorrect.”
 - If the new passwords do not match, a message prompts:
“CHANGE FAILED: New passwords do not match.”
 - If all details are valid, a message prompts:
“CHANGE SUCCESSFUL: Your password has been updated.”
5. The system updates the password in the Account Database.

Use Case #5: Review Research Paper for Approval

User: Faculty

Description: The faculty member reviews a submitted research paper and decides to approve or decline it.

Fit Criterion: The faculty member accesses the paper, evaluates it, and submits a decision. The system updates the research status based on the decision.

Use Case Scripts:

1. The Review Research Papers interface is loaded.
2. The faculty member selects a research paper to review.
3. The faculty member reads the paper and evaluates the content.
4. The faculty member clicks either Approve or Decline:
 - If Decline is selected, a prompt asks for feedback (optional).
5. After submitting the decision, the system updates the research status in the Research Database:
 - A message prompts:
“APPROVAL SUCCESSFUL: The research paper has been approved” (if approved)
or “DECLINE SUCCESSFUL: The research paper has been marked as rejected” (if declined).
6. The system records the decision and any feedback provided.

Use Case #6: Add College Code**User:** Admin**Description:** The admin adds a new college code to the system for managing college-specific data.**Fit Criterion:** The admin enters a valid college code and associated details. The system confirms successful addition upon validation.**Use Case Scripts:**

1. The Add College Code form is loaded.
2. The admin enters the college code and any required details (e.g., college name, address).
3. The admin clicks the Submit button.
4. The system verifies:
 - If the college code already exists, a message prompts:
“ADD FAILED: College code already exists.”
 - If any required fields are incomplete, a message prompts:
“ADD FAILED: Please fill in all required fields.”
 - If all details are valid, a message prompts:
“ADD SUCCESSFUL: College code has been added.”
5. The system saves the new college code and details in the College Database.

Use Case #7: Submit Research Paper**User:** Student, Faculty**Description:** The user submits a research paper for review, which is stored in the Research Database.**Fit Criterion:** The user uploads a valid research file and provides required metadata. The system confirms successful submission if all criteria are met.**Use Case Scripts:**

1. The Submit Research Paper form is loaded.
2. The user selects a research paper file (e.g., PDF, DOC) and fills in required metadata (e.g., title, abstract)
3. The user clicks the Submit button.
4. The system verifies:
 - File type and completeness of required fields.
 - If any criteria are not met, a message prompts:
“SUBMISSION FAILED: Please ensure all fields are filled and the file is in a supported format.”
 - If all details are valid, a message prompts:
“SUBMISSION SUCCESSFUL: Your research paper has been submitted for review.”
5. The system saves the submission to the Research Database.



PERSONAL PROFILE

📞 +639533043414

✉️ relacetenorio@gmail.com

📍 Galve Road,
Toron Drive, Sta
Maria Zamboanga
City
Zip code 7000

EDUCATION ATTAINMENTS

tertiary:

Bachelor of science in information technology
Normal Road, Baliwasan, Zamboanga City
Western Mindanao State University
2021-2025

Secondary:

Science Technology Engineering Mathematics (STEM)
Ateneo De Zamboanga University
2019-2021

Primary:

Sta. Maria Central School
Saavedra ext, Sta. Maria, Zamboanga City
2015

Tenorio

Rel Ace, A.

SUMMARY

I am a fourth-year Bachelor of Science in Information Technology (BSIT) student at Western Mindanao State University, eager to present my curriculum vitae. As a dedicated student with aspirations for a successful career in the IT field, I am committed to continuous learning and growth. Thank you for taking the time to review my CV. Please feel free to reach out if further information is required.

EXPERIENCE

CAPSTONE PROJECT | WESTERN MINDANAO STATE UNIVERSITY • WMSU Research Archive Management System

March 2024 - Present

SOFTWARE ENGINEERING | WESTERN MINDANAO STATE

UNIVERISTY • Coffee Station Time Tracker System

2024 - April 2024

References

College Dean

Engr. Odon A. Maravillas Jr.

College Adviser

MIT. Whesly Timpangco



KAYCE R. VERGARA

Profile

I am an aspiring IT professional with technical skills acquired through practical experience and self-learning. My knowledge includes basic database management, and UI design. A fast learner and detail-oriented individual, I am adept at problem solving and adapting to new challenges. I am enthusiastic about advancing my career in IT while continuing my formal education.

- 09976317588
- vergarakayce24@gmail.com
- facebook.com/kayceRamosVergara
- San Jose Gusu, Baliwasan, Zamboanga city

Expertise

Specific Skill

- UI Designing
- Drafting

Computer Skill

- Autocad
- Animation
- Technical Drafting

Interest

- Video/Photo Editing
- Travelling
- Making tiktok contents
- Learning new things
- Adventure

Certification

- | | |
|-------------|----------------------------------|
| 2024 | Civil Service Exam Passer |
| | Professional Eligibility |
| 2021 | Code Red |
| | Online learning program |

Education

Tertiary

- | | |
|-------------|---|
| 2021 | Undergraduate |
| - | • Western Mindanao State University |
| 2025 | • Bachelor of Science in Information Technology |

Secondary

- | | |
|-------------|---------------------------------|
| 2019 | Senior High School (ICT) |
| - | • Vitali National High School |
| 2021 | • GPA: 92 |
| | • With Honor |

Junior High School

- | | |
|-------------|-------------------------------|
| 2015 | • Vitali National High School |
| - | • GPA: 91 |
| 2019 | • With Honor |

Projects

2024 Capstone Project

- "Document Management evaluation and archiving information system for WMSU Research paper"

2023 Software Engineering project

- "Western Mindanao State University-Library Attendance with real-time text dection"

2022 Elective 2

- Terra (e-commerce system)

Web Application and Development

- Echoglow (e-commerce system)



Mark Anthony Villiones

S U M M A R Y

Versatile web developer with hands-on experience in PHP, Django, and React.js, delivering functional and visually appealing web applications. Skilled at creating efficient back-end logic, integrating APIs, and building dynamic user interfaces. Adept at debugging and troubleshooting to ensure smooth performance across platforms.

C O N T A C T :

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Phillipines,
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S K I L L S :

- o PHP
- o Bootstrap 5
- o Tailwind 4
- o React JS
- o Django

E X P E R I E N C E

CAPSTONE PROJECT | WESTERN MINDANAO STATE UNIVERSITY

- WMSU Research Archive Management System
March 2024 - Present

SOFTWARE ENGINEERING | WESTERN MINDANAO STATE UNIVERSITY

- Teacher Evaluation Management Tool
February 2024 – April 2024

ECOMMERCE WEBSITE | WESTERN MINDANAO STATE UNIVERSITY

- Coffeetearia
February 2024 – April 2024

E D U C A T I O N

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

WMSU 2021 – 2025

PASONANCA NATIONAL HIGHSCHOOL

SENIOR HIGHSCHOOL | WMSU 2021 – 2025