Thesis Archiving: A Web Based Repository for Educational Institution

A Thesis Presented by

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In partial fulfillment of the requirement for the

Degree of Bachelor of Science in

Computer Science

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APPROVAL SHEET

This research and development titled, **A Comprehensive Automated Enrollment System for Academic** prepared and submitted by **Juan Dela Cruz** and **Kris Santos** in partial fulfillment of the requirements for the degree **Bachelor of Science in Computer Science** has been examined and recommended for acceptance and approval for Oral Communication.

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DEDICATION

This thesis is dedicated to the endeavor of achieving high academic standards and advancing technical advancements in education. We express our deep appreciation and respect to all who have played a crucial role in making this project a reality.

To the Administrators of Manuel S. Enverga University Foundation-Candelaria, Inc., particularly in the High School Department, we appreciate your consistent support and confidence in the skills we have. The initiative has been propelled by your dedication to developing an atmosphere that promotes development and advancement.

We express our sincere appreciation to our families and friends, who have provided us with constant encouragement and appreciation. Your support has served as a crucial source of strength, inspiring us to overcome obstacles and persist in our pursuit of academic objectives.

Lastly, I hope that this Web-Based Grading System will improve the educational experience and demonstrate our collective dedication to excellence to the entire Manuel S. Enverga University Foundation-Candelaria, Inc. community.

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COMPUTER SCIENCE THESIS

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Profile of Researchers :

Name of Researchers : Limbo, Althea M.
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Degree : Bachelor of Science in Computer Science

Specialization :

Name of Research Adviser : Philip Dimaculangan

II. Manuscript Content

Platform/s Thematic Areas (Based on MSEUF Research Agenda 2019 – 2030)
Check applicable boxes:

- ☒ Technology, Engineering, and Industry 4.0 Research
- ☐ Environmental Protection, Development, and Conservation Research
- ☐ Business, Economics and Industry 4.0 Research
- ☐ Politics, Society, and Culture Research
- ☐ Legal, Law Enforcement, and Criminology Research
- ☐ Health Research, Development, Innovation, and Extension
- ☐ Education 4.0 and Workforce 4.0 Research

Sustainable Development Goals (SDGs)
(*Depending on the platform, you may check more than one SDG*)

- ☐ SDG 1. End poverty in all its forms everywhere.
- ☐ SDG 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- ☐ SDG 3. Ensure healthy lives and promote well-being for all at all ages.
- ☒ SDG 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- ☐ SDG 5. Achieve gender equality and empower all women and girls
- ☐ SDG 6. Ensure availability and sustainable management of water and sanitation for all.
- ☒ SDG 7. Ensure access to affordable, reliable, sustainable & modern energy for all

- ☐ SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- ☐ SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- ☐ SDG 10. Reduce inequality within and among countries.
- ☐ SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable.
- ☐ SDG 12. Ensure sustainable consumption and production patterns.
- ☐ SDG 13. Take urgent action to combat climate change and its impacts.
- ☐ SDG 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- ☐ SDG 15. Protect restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and reverse land degradation and halt biodiversity loss.
- ☐ SDG 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

1. Abstract

2. Introduction

The education sector is rapidly evolving, especially in the digital age; Information managing systems need to be efficient, easy to use and organized. Managing and archiving student thesis has become a challenge, as many schools and universities still rely on traditional and manual processes. The updated methods get rid of these issues; topics to be mislaid, cannot be retrieved easily, none are accessible, and no central records.

To overcome these problems, a Web based Thesis Archiving System is proposed to minimize the issues of manual thesis storage and retrieval on paper that takes a lot of time to perform through automation and digitization of thesis storage and retrieval within the system. It will be a central place for students, faculty as well as administrators to upload, view, and manage thesis documents with ease. It will present an intuitive user interface, search abilities, and secure storage of thesis records that will preserve and easily allow access to the records when needed, taking advantage of the availability of modern technologies on the web. The management tools of this system will also help to facilitate better tracking and assessment of academic outputs thereby contributing in the improvement of academic planning and development of the institution.

Therefore, this paper concludes by introducing a modern solution to the thesis archiving requirements of educational institutions, that involves moving away from traditional documentation to a newer, technologically driven one.

2.1. Background of the Problem

An obvious necessity in educational institutions is to manage and archive academic tracks, in particular, student theses, since they are the chief sources of reference for subsequent research, appraisal, and records of the institution, presently has a predominantly manual thesis archiving process wherein the documents are stored physically and centralized. It uses lots of departments, such as the library staff, faculty advisers, and academic offices, resulting in miscommunication, misplaced files, and a poor availability of past theses.

Since there is no centralized and automated system of thesis archiving, document retrieval is delayed, submissions are not tracked efficiently, and physical storage space is not utilized efficiently. In addition, obtaining various previous studies becomes difficult for students and researchers, which impedes the study continuity and advancement of research.

This will be addressed by the underdevelopment of the Web-Based Thesis Archiving System that will automate the submission, storage, and retrieval of thesis documents. With a user-friendly interface, centralized database that will give users a real time access to academic works and secure digital storage; users shall have access to a speedily searching functionality. Ensuring this integration of digital tools will leverage academic workflow, create better record keeping, yet support the institution’s process of modernizing its academic infrastructure.

2.2. Statement of the problem

Many schools still rely on outdated methods of storing student theses. printed copies stashed away in storage rooms or libraries. While this approach may have served its purpose in the past, it is impractical in this day and age when digital access is the standard. Physical archives take up a lot of space, are easily damaged, and greatly slow the process of retrieving information. Even worse, without digital copies, crucial academic work stands the risk of outdated archival loss getting forgotten entirely. These days, students instinctively navigate to the internet for research and leave these outdated paper archives gathering dust when, with the right access, they could serve as useful resources.

1. Storage issues for physical items:

The printed hard copy of the thesis consumes a lot of storage space. Furthermore, documents are subject to fading, damage, or total loss without digital backup, making these issues even more critical.

2. Declining Use of Physical Libraries:

Students nowadays prefer having online solutions. They tend to use the internet for research which makes physical archives obsolete and does not aid in meeting their academic needs.

3. Lack of Access to Past Research:

Due to lack of a searchable digital archive, students are unable to access past studies easily. This challenge harms knowledge creation and retards the pace of research.

4. The Possibility of Damage or Loss of Documents:

Documents which are printed may be damaged due to moisture, physical damage, tearing, or pests. Without digital backups, they risk being lost forever.

5. No Search Capabilities:

Locating a particular thesis necessitates physically inspecting shelves or logs. It is impossible to search by title, author, or topic instantly.

2.3. Main and Specific Objectives

2.3.1 Main Goal:

To design, develop, and implement a web-based thesis archiving system that enables educational institutions to store, organize, and retrieve academic theses efficiently—reducing the reliance on physical storage, improving accessibility for students and faculty, and supporting a more modern, centralized approach to academic resource management.

2.3.2 Specific Objectives:

1. To create a central and secure digital repository where the University community can archive their PhD theses and, when appropriate, data. This will simplify storage but also make your theses and any associated data sustainably accessible and easy to find.

2. To offer the students and faculty an online resource that is representative of the way modern research is performed and the way that the Modern Language Association and other academic genres expect research sources to be properly cited.
3. To foster rapid and efficient access to existing research studies by means of a searchable database, thereby stimulating academic reference, knowledge transfer, and research continuity.
4. To fortify academic contents from natural disasters, pests and accidental loss by setting up durable backup and versioning using strong cloud storage.
5. To incorporate a robust search engine within the system where theses can be accessed using search based on keywords, titles, authors, subject, or year of submission—without having to physically go through shelves or libraries.

2.4. Significance

Many schools still have manual storing system of the students' theses that are in physical libraries, filing cabinets, or are dispersed in digital format in different storage devices. Although this system has met the need for years, it is often-inefficient, hard to manage and prone to damage or loss. In an attempt to address this problem, we have developed an Educational Institution Oriented Web-Based Repository System. We introduce this solution to provide a unified, secure, and easy to administer solution for academic research artifacts, especially student theses and capstone projects.

Increasing Productivity -and- Saving Time

Digitizing hard copy files or even second guessing disordered digital files is a time consuming process for the students and the staff. This online library allows easy uploading, accessing and retrieval of the documents.- In few seconds. Administrators can process theses more quickly and easily, and students can locate references without having to rummage through shelves or stand in line.

Here is more user-centric and easier to navigate

It also occurs that many repository systems are outdated or not made to match the technical skills of student and professor. This system was designed with user-friendliness in mind, with intuitive design and navigation even for those who are not especially tech-savvy. Simple menus, prompt uploads and powerful search will make it easy for everyone, from freshmen to thesis advisers, to use.

Enhanced Access and Usability

No more limited access because of the library hours and no more lost records. Given the internet access, 24/7 access is given from any location. As submission return, review or research documents, faculty and students have these documents easily accessible when they need them, with no physical impediments or unneeded delay.

User-friendly, and More Accessible

Most of the repository systems are obsolete or do not fit the technical level of students and staff. This platform is primarily designed to be user-friendly with clean and simple design and navigation intended to suit even noobies in the tech world. Ease of use for everyone will be the goal, and a straightforward menu, prompted uploads, and searches that pack a punch will make sure that everyone, from freshmen to thesis advisers, can use it worry-free.

Enhanced Access and Usability

No more limited access because the library is closed or records were shelved in the wrong place. There is also an internet version, with remote access for 24 hour availability. For any submission, review or research requirements, students and faculty members can get documents whenever they want, without physical distances or unwanted delays.

Even more enhancements to UX and Workflow

The process for submitting, reviewing and approving theses is frequently amount of work when done manually. With this framework, every stage in the thesis lifecycle can be described explicitly and automated whenever this is possible. Notifications, status announcements, and version control helps to avoid misunderstandings, better connecting students with teachers.

Scalability and Adaptability

The amount of student production increases with the size of the school. A simple digital or physical system may become overloaded. With scalability in mind, this repository can accommodate thousands of documents while preserving quick access and user-friendly navigation. The system expands with the number of students at the university, whether it is a few dozen or thousands.

Time Management Techniques That Work

By eliminating time-consuming chores like document sorting and approval chasing, this platform increases the amount of time available for mentoring and education. Students also gain from knowing exactly where their documents are in the evaluation process and getting timely updates.

Reducing Paper Use and Increasing Sustainability

Paper usage and printing expenses are greatly decreased by the institution by converting thesis submissions and archives to a wholly digital format.

2.5. Scope and Limitations

Scope:

1. Internet and network dependency

The research is based on the assumption that there is a reliable internet connection and internal network for the digital thesis archive. Due to the system being hosted online, there is a consistent need for network connectivity to access archived theses. Any outages affecting the institution's internet or network systems will restrict access to the repository. No internet connection availability means there is no possibility of using the archive remotely. All users are assumed to possess the capability of connecting to the internet in order to access theses.

2. Covered Academic Levels

The study focuses on the Grade 12 and college students of our institution. Other educational levels like junior high, master's, and doctoral studies that fall outside the purview of this research are not included in this study.

3. Class of Archival Materials

The archive will only consist of final approved theses for graduation. All other academic work that is unofficial, including drafts, essays, and non-thesis school projects, do not contribute to the archived materials.

4. Method of Archiving

This research is concerned with forms of archiving involving digital archiving. Archiving of documents in form of theses will be done digitally, such as in PDF form, … without printing and physically filing them. This also aids in conserving resources by reducing paper consumption.

5. Who Manages the Archive

The system will be admin-managed, which means only a designated school personnel like a teacher or a librarian will have the

access to upload, edit, or delete the thesis records. Students will be unable to make any modifications or deletions.

6. Access and Usage

   Through the platform, students and teachers can access the available theses but are restricted from downloading or printing them in an effort to minimize waste and safeguard student work.

7. Environmental Relevance

   Shifting the method of storing information to digital storage and read-only access makes this study environmentally friendlier, supporting sustainability efforts in maintaining academic records.

Limitations

1. Students cannot download pdf file:

   Users can only view theses online to prevent excessive printing.

2. No Student Upload Access:

   Students are unable to upload their thesis themselves as this is an administrator's function only which decreases efficiency and student independence.

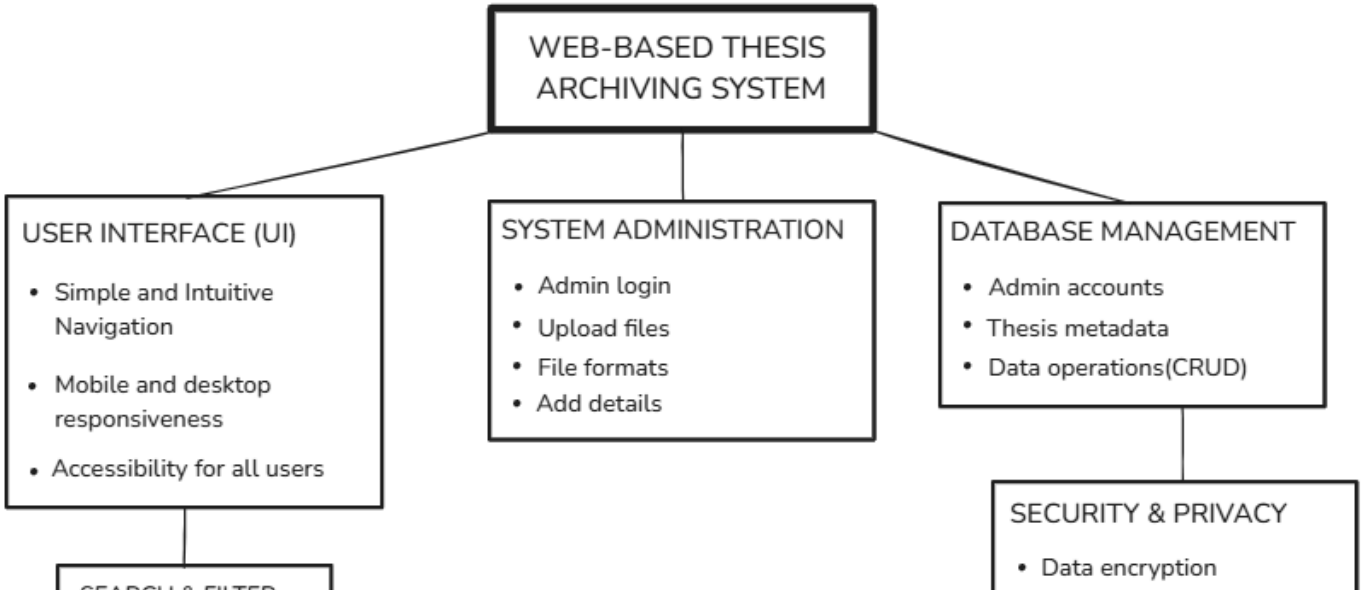
3. No Advanced Security Evaluation:

The system identifies the basic features, however it has not had vulnerability scanning or penetration testing which exposes it to numerous security risks.

3. Theoretical Framework

3.1. Concept Map

The Web Based Thesis Archiving System has been highlighted using the concept map below. This basic description explains how the system features are aimed at improving the management of academic research. All these components work in conjunction for thesis archiving, safe storage, and retrieval.



3.2. Review of Related Literature

3.2.1. Review of Related Literature

This study presents the development of the UP Mindanao Manuscript e-Library and Repository System (UPMERS), a web-based platform designed to manage and monitor student theses and special problem manuscripts. The system aims to address issues such as duplication of work and missing manuscripts by providing a centralized digital repository. User acceptance was evaluated using the Technology Acceptance Model (TAM) and the System Usability Scale (SUS), indicating a high level of usability and acceptance among users.[1]

This paper discusses the creation of an institutional repository aimed at storing and retrieving graduate theses in Computer Science. The system was developed using Web 2.0 technologies and designed with Unified Modeling Language (UML) tools. The repository serves to preserve the university's intellectual output

and prevent duplication of research efforts, thereby enhancing the quality of academic research.[2]

The authors detail the development of an online repository for academic research works at the Federal University of Technology Akure (FUTA). Utilizing technologies such as HTML, CSS, JavaScript, PHP, and MySQL, the system was designed to capture, maintain, and preserve the intellectual output of students and staff. The repository facilitates the dissemination and preservation of scholarly materials, contributing to the institution's research visibility.[3]

This study explores the development of an electronic repository system for undergraduate theses, focusing on the current state of electronic thesis and dissertation (ETD) repositories in academic institutions. The paper discusses challenges such as policy development, subject coverage, and access policies, and proposes strategies for effective implementation and management of ETD repositories to enhance research accessibility.[4]

The paper presents the design and implementation of a web-based thesis management system aimed at streamlining the submission, evaluation, and archiving processes of academic theses. The system enhances efficiency by providing a centralized platform for students and faculty to manage thesis-related activities, thereby improving the overall academic workflow.[5]

3.2.2. Review of Related Researches and Studies

This paper examines the creation of a web-based application for archiving theses from three educational levels. Access to study materials is granted to students

while graduate statistic management is made simple for administrators. The system is developed using C#, ASP.NET, HTML, CSS, JavaScript, Bootstrap, and SQL. Professors and administrators have different dashboards to enable comprehensive control over user accounts and theses.[6]

The authors explain the development of the web-based digital repository at NM-AIST, Tanzania, which focuses on improving the management and distribution of academic information. The repository is built using open source software which facilitates the visibility of research at the institution and solves many of the problems in scholarly communication at the institution.[7]

This research is centered on creating a digital archiving system for theses and capstone projects at Eastern Visayas State University Ormoc Campus. The system seeks to replace old hardbound archives with a more modern approach offering unlimited document uploads aligned with the university's requirements using Agile and Rapid Application Development (RAD) methodologies.[8]

This study suggests the development of a web-based thesis management system for colleges of education in Nigeria. Using a mixed-methods approach, it highlights the challenges of insufficient IT support and a reluctance to change, proposing a comprehensive strategy comprising evaluation, technical specifications, training, and ongoing assessment to improve efficiency in the thesis workflow.[9]

3.2.3. Review of Related System / Software Products

DSpace makes an easy access of all the types of digital content while allowing the institutions to effortlessly preserve them in a repository. It is an open-source repository system.[10]

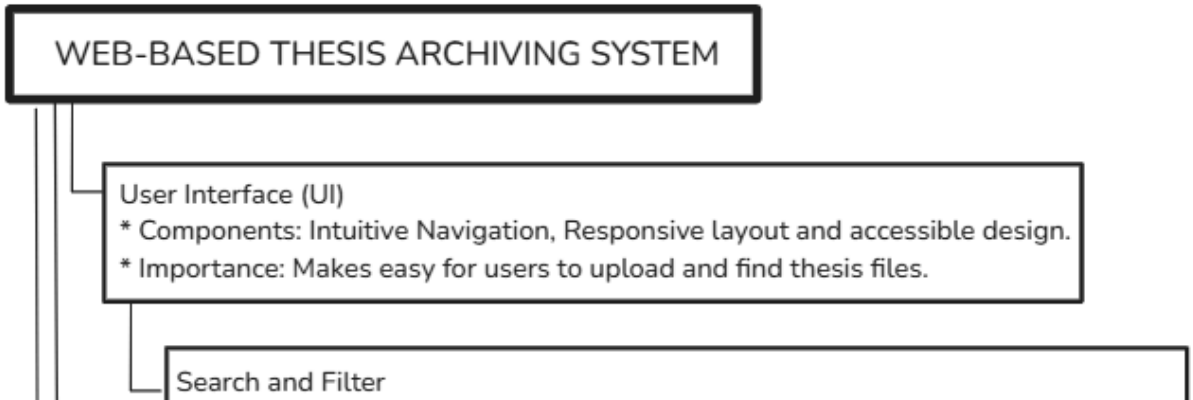
EPrints is an open-source software that enables users to create and manage digital repositories. EPrints is especially popular within universities, research institutions and similar organizations which seek to create repositories that store scientific materials and facilitate open access to them.[11]

CampCodes this online instrument provides learners an opportunity for storing their capstone projects or theses in a digital platform.[12]

3.3. Research Paradigm/Conceptual Framework

Conceptual Framework

The framework for this study depicts how the web-based thesis archiving system operates, its main components, and functions within the educational institution. It illustrates how the system improves the ease with which academic research is accessible, the efficiency with which theses are stored and retrieved, as well as the effectiveness of the institution's research archiving system.



3.4. Definition of terms

Archiving: Archiving refers to the retrieval or storing of documents for long-term preservation and future reference.

Repository: Organized storehouse of data, in this context, repository refers to an electronic data store containing academic theses.

Thesis: Academia considers this an extensive piece of researched work completed by students for a particular level of a degree.

Web-Based System: This is a type of software application accessible through the internet or within a local network using a web browser.

Metadata: Information that describes other data such as documents and titles includes, but is not limited to, the author's name, work submission dates, credits, courses and titles including adviser which aid in document search and organization.

Digitization: Transforming documents from physical form into digital form is referred to as digitization.

User Interface (UI): This is the software component of the system which the user interacts with such as buttons, forms, menus, and other elements.

Authentication: Authorization requires validation of one’s identity as a guarantee before access is given to the system.

Role-Based Access: Access control feature allows granting different permissions to various categories of users, for instance, students, faculty and admin.

Submission Workflow: This refers to the entire process a thesis goes through ranging from upload to approval and final storage.

Digital library: This is defined as the virtual collection of academic or researched documents which are stored and can be browsed and accessed online.

Cloud Storage: The practice of storing data in remote servers, accessible via the internet, rather than on a personal computer.

Encryption: The transformation of information into a coded format which conceals its information from those who do not have proper clearance.

3.5. Acronyms

WBTAS : Web Based Thesis Archiving System

UAT : User Acceptance Testing

UI : User Interface

RAD : Rapid Application Development

LMS : Learning Management System

TAM : Technology Acceptance Model

DBMS : Database Management System

ETD : Electronic Thesis and Dissertation

4. Operational Framework

4.1. Materials

4.1.1. Software Requirements

Functional Requirements:

1. User Authentication and Role management:

Students, Faculty, and administrators must be able to register and login to the system with a secure authentication method. What users can view or do in the system will be controlled by role-based permissions.

2. Thesis Document Submission:

   Thesis documents should be uploaded by administrators along with necessary title, abstract, course, and adviser metadata.

3. Searching and Advanced Filtering:

   All users should have the ability to search for theses using keywords, author names, year and program.

4. Document Protection and Download Restrictions:

   Specified files can only be downloaded by users with the appropriate permissions, and all actions will be recorded for security reviews.

Non-Functional Requirements:

1. Usability:

   Executives should be proficient to operate within the interface effortlessly without requiring specialized training, and with little prior technical understanding.

2. Performance:

System response should be instantaneous, as with simultaneous multi-user access.

3. Security:

   The system must utilize encryption for all sensitive personal and academic user information. Implementation of defenses against standard threats, such as SQL injection and unauthorized access, are mandatory.

4. Scalability:

   Considerable future feature expansion, including an increase in users, should be supported by the system architecture.

5. Accessibility:

   Responsive design appropriate for various screen sizes including tablets, mobile devices, and desktops, as well as compatibility with standard internet browsers such as Chrome, Firefox, and Edge, is required.

6. Maintainability and Backup:

   Modular design with appropriate documentation will enable efficient future code maintenance. Unsurpassed data loss due to automated regular database backups is essential.

4.1.2. Hardware Requirements

Server-Side Hardware Requirements:

Processor: Intel Xeon or equivalent (8 cores minimum)

Memory (RAM): 32 GB minimum

Storage:

Primary: 1 TB SSD (system and database)
Secondary: 2 TB HDD (for backups and logs)

Network Interface: 1 Gbps minimum, 10 Gbps recommended for high-volume access

Power Backup: Uninterruptible Power Supply (UPS) for protection against power outages

Cooling System: Proper ventilation or air conditioning for hardware longevity

Client-Side Hardware Requirements:

Processor: Intel i3 minimum, i5 or higher recommended

RAM: Minimum 4 GB; 8 GB recommended

Storage: At least 256 GB HDD; 512 GB SSD preferred for better performance

Display Resolution: Minimum 1024×768 resolution.

Internet Connection: Wired or wireless with 100 Mbps minimum bandwidth

4.1.3. Data

User Authentication Data:

Usernames and Passwords for faculty and administrators.

Thesis Data:

Thesis title, Author(s), Abstract, Courses, and Year of submission.

5. Description of Methods or Approach

5.1.1.1. Methodology

This study utilized the Agile Software Development Methodology in developing the Web-Based Thesis Archiving System. Agile was selected because of its repetitive processes, adaptability to change, and focus on the end-user. This methodology is particularly appropriate for academic undertakings since it enables refinement and adjustments based on user input, all within a constrained time and resource framework. The approach of delivering improvements at the end of each sprint cycle helped maximize system usability and responsiveness to end-user requirements.

1.Project Initiation

Define Vision:

This project aims to design an integrated, online platform which simplifies the storage, access, and management of theses and capstone projects for different academic programs. This system will grant students electronic privileges to previous research works while enabling administrators to manage submissions, records, and statistical data efficiently.

Identify Stakeholders:

Students, library personnel, faculty advisers, academic coordinators, and IT staff represent the primary stakeholders. Their input was valuable towards crafting system features, especially those dealing with the thesis submission process and thesis archiving, which requires security but must also allow access.

2.Product Backlog Creation

Gather Requirements:

The system requirements were obtained via interviews with students, thesis advisers, and academic administrators. Key features include authentication, thesis upload and retrieval, metadata tagging, categorization search, access control, and statistics generation.

Creating User Stories:

User stories capturing real scenarios include “as a student, I want to upload my thesis in PDF format with metadata so it can be found easily later” and “as an administrator, I want to be able to generate reports by department and submission year.”

Prioritize User Stories:

Stories were prioritized by need and impact. Core system features such as login, upload, and search were given top priority. Access permissions, reporting, and archiving controls were scheduled for later iterations.

3.Sprint Planning

Define Sprints:

The development cycle was broken into several two weeks sprints. Each sprint set out to provide a particular set of features, beginning from core utilities to advanced tools.

Select Sprint Backlog:

During each sprint, a derived set of tasks, the so-called sprint backlog, was formed from product backlog refined prior to the sprint.

Specific focus area features sometimes like user management, thesis submission, and later, search, were grouped into one coherent backlog

4. Sprint Execution

Stand-Up Meetings (Team Coordination) :

Smooth coordination was enabled, blockers were quickly identifiable, responsibilities realigned, and overall team adaptability was maximized due to daily stand-up meetings.

Module Development :

Admin dashboard, student dashboard, thesis repository, and modular login/authentication were incorporated. C#, ASP.NET, and SQL formed the system's backend while the front-end was HTML, CSS, JavaScript, and Bootstrap. It was developed incrementally.

Internal Testing :

Each module was stepwise unit tested and debugged to avoid the accumulation of bugs and technical debt. The enhanced code quality through these measures, along with reduced costs and time in later stages, test-as-you-go approaches, provided significant benefits.

5. Sprint Review and Retrospective

Review of the Sprint

For the feedback collection, stakeholders were demoed after every sprint. During the sprint, features were refined to make sure that they aligned with user expectations from an academic perspective along with their workflows.

Sprint Review:

The evaluation of the team's work for each sprint was conducted in post-sprint evaluations, judging when they are done and marking what went well, what didn't, and how it could be improved for the next sprint. This provided a self-sustained process and product advancement.

6. Release Planning and Deployment

Modular Release:

The first release concentrated on uploading, retrieving documents and registering users. Later releases included role-managed security, document filtering, and administrator reporting features.

System Testing:

Integration and system testing was performed to ensure all modules functionally operated together. Stress testing was conducted also to assess system performance under heavy data loads expected with institutional repository data.

7. Final Delivery and Project Closure

System Evaluation:

Together with the users, UAT was conducted with the learners and staff. Feedback received from the sessions indicated that the system improves workflows pertaining to thesis submission and retrieval.

Documentation and Teaching:

The technical and end user documents were prepared for the system users and maintainers. IT and library personnel administering the ongoing services were trained.

Review of the project after implementation:

The project was closed after delivery and acceptance. The system was delivered to the IT unit of the university which subsequently assumed support and further enhancement for the system.

5.2. CS Thesis Workplan

1. Preparation and Proposal Phase

Task: Define the scope, goals, and relevance relates to a thesis archiving system concerning educational institutions.

Duration: 1 month

Milestones: A project proposal document is drafted, and it has been accepted by the thesis supervisor.

2. Literature Review

Task: Detailed analysis of previously written documents pertaining to digital repositories, document management systems, archiving standards such as OAIS, retrieval by users, and web system architecture is conducted.

Duration: 2 months

Milestones: Completed literature review chapter highlighting research gaps and relevant technologies.

3. System Design And Planning

Task: Create a system design including the backend, database schema, and user roles (admin, student, guest) and UI description through wire frames. Outline data flow diagrams and tech stack choices.

Duration: 2 months

Milestones: Final version of system design document, complete with visual diagrams and descriptive texts of the technology to be used.

4. Implementation Phase

Task: Implement the web-based thesis repository, complete with backend development (file storage and access management), frontend interfaces (upload, search, browse modules), and database linking.

Duration: 4 months

Milestones: Working prototype of the thesis archiving system with primary functions completed.

5. Testing and Evaluation

Task: Conduct comprehensive system testing covering functionality, security (access control and file management), performance, and usability testing with student and faculty participants.

Duration: 2 months

Milestones: Comprehensive testing report containing issue logs and suggested changes based on user feedback.

6. Alterations

Task: Incorporate system refinement based on feedback. Time permitting, incorporate features such as PDF document previews, metadata tagging, search filters, and restrictive downloads.

Duration: 1 month

Milestones: The web-based repository system is updated and enhanced in preparation for deployment.

7. Documentation

Task: Cover the complete process starting from literature review through marking system design, development methodology, testing procedures, and user guide.

Duration: Two months.

Milestones: All formatting complete, and the thesis document is ready for review and submission.

8. Thesis Defense Preparation

Task: Create defense presentation, rehearse thesis pitch, anticipate questions and finalize any additional visual aids such as slides, diagrams, or demos.

Duration: One month.

Milestones: Successfully defended thesis in front of the academic committee.

9. Submission and Publication

Task: After integrating committee feedback, finalize document revisions, and submit the thesis. Journal or conference research paper may be prepared for publication based on project scope.

Duration: One month.

Milestones: Final approved thesis document and manuscript prepared for submission.

6. Ethics Consideration

1. Privacy and Data Protection:
Concern: Maintaining a user's personal information, particularly student theses containing private or sensitive information.

Considerations:

Secure informed consent from students and faculty authorizing the use of documents before including them into the system.

Take reasonable steps to protect all files stored from access by unauthorized persons through file encryption and account-based access control.

Do not reveal personal information, including student ID numbers, contact details, and confidential comments made by the student's adviser, without explicit consent.

Keep a privacy policy outlining the data collected, access rights, and usage for monitoring purposes.

2. Informed Consent

Concern: All users and contributors being aware of their rights regarding the use of their personal data, and the extent of such data collection.

Considerations:

Inform faculty and students of the system processes, delineating their roles, and the submission procedures.

Integrate consent documents or check boxes during the thesis submission or upload process.

Permit users to withdraw a thesis or associated data for reasonable institutional policy reasons.

3. Accuracy and Academic Integrity

Concern: Protecting the authenticity of the stored information, ensuring no discrepancies exist within the system, and maintaining academic integrity throughout the process.

Considerations:

Retain only officially sanctioned and verified thesis works, post-approval alterations must be rendered impossible.

Uploading documents is strictly limited to designated admin users only to guarantee the protective sanctity of the academic work submitted.

Ensure relevant metadata like title, author, and academic year are meticulously entered to guarantee identification accuracy and citation clarity.

4. User Accessibility and Inclusion

Concern: Ensuring equitable access to the system for all students, irrespective of technical skill or ability level.

Considerations:

Develop a straightforward, student-friendly interface that is easy to navigate for researchers lacking technological sophistication.

Create provisions to make the design compliant with accessibility criteria for people with disabilities using screen readers.

Use instructional materials, search aid guides, or short explainers to ensure effortless navigation.

5. Security

Concern: Safeguarding academic information against loss, misuse, or hacking attempts.

Considerations:

Employ safe logins and encrypt all data transferred or stored.

Conduct periodic security audits to patch loopholes and check physical access control to systems.

Implement access controls in such a way that students are allowed to view files, but not modify them. Only admins can upload or alter the files.

6. Responsible Use of Technology Plagiarism and other unauthorized reproductions of academic work constitutes the abuse of the system.

Considerations:

Prohibit and define usage policies regarding unlawful access to and unlawful duplication of stored theses.

Control abuse of thesis files by making them accessible through add read only or watermarking features.

Inform users on proper citation methods, academic originality, and other academic practices.

7. **Results and Discussion**
8. **Conclusions**
9. **Recommendations**

10. References

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