Online Repository System

A Capstone Project presented to

The Faculty of the Department of Bachelor of Science in Information Technology

Nueva Ecija University of Science and Technology

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CHAPTER I

INTRODUCTION

Background of the Study

Nueva Ecija University of Science and Technology - Municipal Government of Talavera (NEUST-MGT) is an institution of higher learning that was established in 2008. Three degrees are available on campus: a Bachelor of Science in Elementary Education, a Bachelor of Science in Business Administration, and a Bachelor of Science in Information Technology. Every year, the school produces about 100 research projects, but there is no mechanism in place to store all the files. Maintaining these capstone projects at the library necessitates allocating extra space for cabinet storage. There isn't a suitable structure in place on campus right now for sharing, organizing, and keeping capstone projects. In fact, a number of capstone projects vanished in recent years. The ability to save and retrieve capstone work online would be very beneficial to the students.

To address the problem of storing and managing capstone projects, and providing access to students for the said learning resource, the researchers have decided to develop an Online Capstone Repository (OCR). This system introduces a secure online platform where capstone projects can be uploaded by the researchers, approved and rated by their respective teachers, and accessed by students. Upholding the importance of data security, the system incorporates login mechanisms to ensure the confidentiality of uploaded research. The repository system provides an ingest or submission service for receiving the digital files and some metadata, assigning an identifier to the digital object that can be used for access, and putting it in a collection.

The repository system provides different level of access for researchers, students, and teachers. The system allows a secure process of uploading, rating, approval, and viewing of capstone projects. OCR simplifies the process of searching capstone projects based on different parameters. Having an online repository of research related activities is an important part of the university website to provide proper medium or facility for the students and faculty members in accomplishing their research proposals and projects.

The Research and Statistics Center in Lyceum of the Philippines University manages important data and findings of institutional research studies from different colleges through a website. It is the role of the Center to maintain an updated collection of completed studies and disseminate its results to a larger community of researchers through uploading the information and making the research abstracts available in the university website so that the students and teachers from LPU and other universities could access and utilize these findings. It would benefit NEUST - MGT if a research-oriented system was implemented on campus, making research references available to both students and teachers.

OCR also tags the role of each researcher in the capstone project. Name of teachers involve in the process of development will also be tagged in every upload. The system also produces reports of all the capstone projects uploaded together with their rating.

Review of Related Literature

The survey from Asadi et al. (2019) includes 115 publications on the topic of IRs and lists the benefits, challenges, and motivations that universities and individual

researchers seek in their deployment. The survey conducted by Asadi et al. (2019) provides valuable insights into the landscape of institutional repositories (IRs) by analyzing 115 publications focused on this topic. Through their comprehensive review, the authors identify a range of benefits, challenges, and motivations associated with the deployment of IRs by universities and individual researchers. By systematically synthesizing existing literature, the survey sheds light on the diverse perspectives and priorities shaping the adoption and utilization of IRs within the scholarly community. This nuanced understanding of the factors influencing IR deployment can inform strategic decision-making, policy development, and resource allocation aimed at optimizing the functionality and impact of IRs. Moreover, the findings of the survey contribute to ongoing discussions and initiatives aimed at promoting the value proposition of IRs in facilitating scholarly communication, knowledge dissemination, and research impact.

https://www.researchgate.net/publication/342104414_The_importance_of_repositories_in_academic_research

Kipnis et al. (2019) reported on IR adoption trends based on the feedback from health sciences libraries, where 70% of participants already use or are in the process of deploying an IR for their needs. The survey also features different aspects of such an undertaking, including research culture (over 57% of participants do not consider an open access policy, for example), technical solutions, required repository features, and so on.

https://www.researchgate.net/publication/342104414_The_importance_of_repositories_in_academic_research

In a study by Anyaoku et. al (2019), they asked respondents the type of agreement entered with content contributors/authors to the IRs. The results showed that more than half (11: 57.9 per cent) of the IRs enter "online click through agreement" with content contributors, followed by "written agreements" with seven (36.8 per cent) of the responding IRs. This shows that IRs in Africa are mainly entering copyright or intellectual rights agreement with contributors/author through online click through method.

https://www.researchgate.net/publication/342104414_The_importance_of_repositories_in_academic_research

Chen (2020) present the practical and unique approach to construct an institutional repository (IR) at the National Taiwan University (NTU). In general, IR systems are used to preserve the research outputs of academic organizations. The preserved contents as a whole will demonstrate the achievements and influences of organizations. The NTU Repository (NTUR) project is the action which is the response of NTU Library to the converging and emerging issues. The system design of NTUR is based on a well-known open-source package, DSpace, but many of its functional modules are modified to fulfill the requirements of Chinese users. The content acquisition of NTUR is carried out by a machine-aided manual approach, which quickly accumulates the volume of registered digital objects in NTUR.

Reference: The unique approach to institutional repository: Practice of National Taiwan University

https://doi.org/10.1108/02640470910947566

Baro and Emmanuel (2020) institutional repositories in universities has the potential of bridging the digital divide, enabling development and innovation; making research outputs in Nigeria get global visibility. Unfortunately, universities in Nigeria are still struggling to overcome the many challenging issues. The nature of institutional repositories which are the storehouses of local contents in developing countries such as Nigeria are still relatively in the development and implementation stages. Therefore, this study will provide important data and insight into the development of institutional repositories in university libraries in Nigeria, and generate suggestions for University Librarians, University management and policy makers for developing institutional repositories in Nigeria.

Reference: Institutional Repository Development in Nigerian Universities: Benefits and Challenges

https://ndjlis.fuotuoke.edu.ng/index.php/ndjlis/article/view/1

Bawa et. Al (2020) examined the perception of graduate students in the use of the institutional repositories particularly in relation to the institutional repository of the University for Development Studies (UDS), Tamale, Ghana. The study examined the level of students' awareness, attitude towards the IR, level of use and level of satisfaction, and the challenges facing them in their utilisation of the UDS IR. The study adopted the descriptive survey approach and was conducted on the four campuses of the University for Development Studies (UDS) in Wa, Navrongo, Nyankpala and Tamale in May, 2019. A total of 104 copies of a questionnaire were distributed to graduate students based on random sampling and 88 copies of the questionnaire were completed and returned. Only 85 copies were found usable and

thus were used for the analysis. The study revealed that 67% of the respondents were aware of the IR. However, utilization was only occasional among them. The study also revealed that majority (75%) of graduate students use the IR to access theses and dissertations. The lack of awareness creation about the IR and the inadequate ICT connection and infrastructure were the challenges that hinder effective use of the IR. The study suggests that library orientation should be organised to educate graduate students on the benefits of using the IR for their studies especially in doing research. The study also recommended improvement in ICT infrastructure to ease access to the IR. Do-It-Yourself (DIY) short videos could be put on the IR interface and the Library website to guide students on how to use the IR.

Reference: PERCEPTION OF GRADUATE STUDENTS ON THE USE OF THE INSTITUTIONAL REPOSITORY OF THE UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE, GHANA

https://doi.org/10.47740/500.UDSIJD6i

Holter's (2020) institutional repositories (IRs) have become widespread, they have been consistently under-populated and under-utilised. Unless their content approaches a significant percentage of a university's output, IRs can neither form a useful branch of open access to scholarly communications, nor provide a representative view of an institution's research output. The UK's 2021 Research Excellence Framework (REF) requires all work submitted to it to have been deposited in a repository, which for most authors would mean an IR. This research sought to understand the impact of the REF mandate upon researchers and repository staff, and upon their relationship with the university, through a series of semi-structured interviews with researchers and

repository managers. The research discovered that despite steep rises in repository submissions, little resource has been made available to accommodate hugely-increased workloads, nor have interfaces improved. Researchers and repository-managers alike struggle with a tedious and difficult administrative task that may require many iterations to complete. The research concludes that the mandate, and the pressure it places on the relationship between the researcher and the institution, is highlighting unspoken tensions in this relationship. Although the mandate is increasing the amount of open access material in the UK, as well as providing universities with evidence for the REF, it is placing significant strain on the tacit contract between a researcher and their employer. Opportunities to align the participants, to create alternative metrics from newly available data, and to develop new solutions, are being missed. This has implications for the way other mandates focusing on deposit in IRs are managed, both within and beyond the UK.

Reference: The repository, the researcher, and the REF: “It's just compliance, compliance, compliance”

https://doi.org/10.1016/j.acalib.2019.102079

Limani et al (2020) published a study showing initial requirements for RD repository adoption at university setting. In this paper, we have expanded our data collection to more universities to get a broader understanding on a national level.In this case study, we survey university faculty and investigate the extent to which RD and RD-related activities are present at the university. Finally, we rely on their feedback to develop a set of RDM **requirements and map them to features that an RD repository should support for the targeted institutional context.**

https://www.researchgate.net/publication/342104414_The_importance_of_repositories_in_academic_research

Calabroza (2020) identified corresponding functional requirements for data repositories. In terms of data discovery, based on 79 use cases collected, Wu et al. Kim Calabroza (2020) also identified corresponding functional requirements for data repositories, expanding our understanding of their role and capabilities. In terms of data discovery, based on 79 collected use cases, Wu et al. highlighted the significance of robust search functionalities, metadata standards, and user-friendly interfaces to facilitate efficient exploration and access to datasets. Additionally, Calabroza emphasized the importance of data integrity and security measures within repositories to ensure the trustworthiness and confidentiality of stored information. By addressing these functional requirements, repositories can effectively support researchers, institutions, and organizations in managing, sharing, and preserving valuable data assets. This comprehensive approach underscores the critical role repositories play in advancing scientific knowledge and promoting collaboration across diverse fields and communities.

https://www.researchgate.net/publication/342104414_The_importance_of_repositories_in_academic_research

Macgregor et al. (2020) recent rapid growth of open access repositories has renewed community interest in the digital preservation of these corpora, especially for scholarly and cultural reasons. The need to ensure persistence in the scholarly record is central to scholarship, facilitating citability, accessibility and verification. This contribution describes the implementation and success of integrated preservation

workflows between the EPrints repository platform and Archivematica, the open source digital preservation system. Using Strathprints (the University of Strathclyde repository) as an example, the contribution describes recent development work (led by Concordia University) to develop an EPrints plugin capable of delivering Archivematica optimized exports of repository content for processing within the Archivematica preservation pipeline. The contribution provides an overview of the functionality developed, example submission information packages (SIPs) and archival information packages (AIPs) and reviews the state of experimentation at Strathclyde. Future work is also summarised. Code for the plugin is open source and available from GitHub. strathprints.strath.ac.uk

Reference: Preserving digital content through improved EPrints repository integration with Archivematica

https://strathprints.strath.ac.uk/

Guo et.al (2020) application and development of high-throughput sequencing technology in life and health sciences, massive multi-omics data brings the problem of efficient management and utilization. Database development and biocuration are the prerequisites for the reuse of these big data. Here, relying on China National GeneBank (CNGB), we present CNGB Sequence Archive (CNSA) for archiving omics data, including raw sequencing data and its further analyzed results which are organized into six objects, namely Project, Sample, Experiment, Run, Assembly and Variation at present. Moreover, CNSA has created a correlation model of living samples, sample information and analytical data on some projects. Both living samples and analytical data are directly correlated with the sample information. From

either one, information or data of the other two can be obtained, so that all data can be traced throughout the life cycle from the living sample to the sample information to the analytical data. Complying with the data standards commonly used in the life sciences, CNSA is committed to building a comprehensive and curated data repository for storing, managing and sharing of omics data. We will continue to improve the data standards and provide free access to open-data resources for worldwide scientific communities to support academic research and the bio-industry.

Reference: CNSA: a data repository for archiving omics data

https://db.cngb.org/cnsa/.

Schalken (2021) laid down in the National Plan Open Science, is to achieve 100% open access for academic publications. The ambition was to be achieved by 2020. However, it is to be expected that for the year 2020 between 70% and 75% of the articles will be open access. Until recently, the focus of the Netherlands has been on the gold route - open access via journals and publishers' platforms. This is likely to be costly and it is also impossible to cover all articles and other publication types this way. Since 2015, Dutch Copyright Act has offered an alternative with the implementation of Article 25fa (also known as the 'Taverne Amendment'), facilitating the green route, i.e. open access via (trusted) repositories. This amendment allows researchers to share short scientific works (e.g. articles and book chapters in edited collections), regardless of any restrictive guidelines from publishers.

Reference: Sharing published short academic works in institutional repositories after six months

https://doi.org/10.53377/lq.10915

Schöpfel and Azeroual (2021) current research information systems (CRIS) and institutional repositories (IR) were developed as clearly distinguished systems, with different objectives and functionalities, standards and data models, and for different needs and user groups. While academic librarians are often deeply committed to the management of open access and IR, they are less involved and familiar with research evaluation and CRIS. After a period of separate implementation of CRIS and IR, both systems started to converge and even to merge. Today IR often fulfil the requirements of monitoring and assessment of institutional research performance while CRIS, beyond the processing of metadata, begin to store, preserve, and disseminate research papers. This chapter describes and explains the underlying dynamics, with examples to illustrate the benefits, risks, and the potential barriers of this convergence. Special attention is paid to the role of data quality and user acceptance, and to the implications for the academic librarian.

Reference: Current research information systems and institutional repositories: From data ingestion to convergence and merger

https://doi.org/10.1016/B978-0-12-822144-0.00002-1

Yeo and Pin Pin (2021) was launched an institutional repository (IR) in 2010 for a young university in Singapore. The motivations of setting up an IR were to dissemination the research output through open access, to promote the university and researchers, and to help increase their research impact. A review was conducted on the strategies to build the IR. Some quantitative and qualitative performance indicators were selected and used to measure the success of the IR. The findings of the review were presented and strategies that were successful in building the IR were

having a workflow process between the research information system and the repository, having effective promotional activities, leveraging on institutional policies and research funder requirements to obtain full text, and proactively searching for full text.

Reference: Strategies to build an impactful institutional repository: A case study of Singapore Management University

https://ink.library.smu.edu.sg/library_research/188

Krouska (2021) developed a digital repositories contain a large amount of content, which is available to heterogeneous groups of people. As such, in many cases people encounter difficulties in finding specific content which is related to their preferences. In view of this compelling need and towards advancing human-computer interaction, this paper presents a recommender system which is incorporated in a digital repository. The recommender system is designed using multiple-criteria decision analysis (MCDA) and more specifically the weighted sum model (WSM) in order to refine the delivered content to the users. It also considers several users' characteristics (their preferences as depicted by the content they visited or searched and by the frequency of searches/visits) and features of the content (content types and traffic). The recommender system outputs the suggestions of content to users based on their preferences and interests. The presented recommender system was evaluated by real users, and the results show a high degree of accuracy in the recommended content and satisfaction by users.

Reference: Enhancing Human-Computer Interaction in Digital Repositories through a MCDA-Based Recommender System

https://doi.org/10.1155/2021/7213246

Kovacic(2022) established the MESOC Toolkit which is free and open-access online service used to aid the measurement of the societal value and impact of culture, currently under development as part of the MESOC (Measuring the Social Dimension of Culture) project. The goal of establishing transition variables that serve as impact measurement indicators is aided by an online document repository system of thematic publications (i.e., a collection of documents on the societal value and impact of cultural policies). It allows the users to input, manage, and search extensive document data based on the relevant criteria. The paper at hand paper describes the rationale behind the online document repository of the MESOC Toolkit, its implementation, and main functionalities. Furthermore, it offers an empirical evaluation of the benefits that such a system offers over non-automated procedures of document search and analysis. The results of the evaluation give way to the conclusion that there are time-saving and quality benefits for the users of the repository: efficiency in dealing with a large number of documents and quality in searching the documents using multiple criteria.

Reference: Analyzing the benefits of using a document repository to aid decision-making in the field of culture

https://doi.org/10.1016/j.procs.2022.08.090

Hadimani et al. (2023) has emerged as a digital archive, Krishikosh. As a result of the National Agricultural Innovation Programme (NAIP) framework. Its main objective is to collect, digitise, and distribute online resources obtained from libraries of allied sciences and agriculture in India. The increasing demands of the scientific, academic,

and research communities are directly addressed by this project. Krishikosh functions as a dynamic software platform that smoothly integrates with the open access paradigm in accordance with ICAR's Open Access Policy, much like a cloud service. It has developed into a required platform for holding a wide range of resources, including academic publications, historical texts, theses, journal articles, yearly reports, seminar proceedings, project results, newsletters, success stories, and the field of grey literature. The study reveals that the Krishikosh digital repository comprises 266,288 documents, encompassing theses, books, journals, project reports, and more related to agriculture and allied sciences.

Reference: Krishikosh: Digital Repository of National Agricultural Research and Education System (NARES): An Analytical Study.

http://ir.inflibnet.ac.in/handle/1944/2432

Misinem et al. (2023) indicated that labor performed by humans is now more easily accomplished. Initially, this was carried out conventionally at the business where we studied report management and storage at PT. Kereta Api Indonesia Regional Division III. In this perspective, we suggested a solution based on the study that revealed the creation of a new system known as the Web-based Repository Joint Inspection System was judged required to facilitate staff members' handling, storing, and monitoring of current reports (for managers). The four (4) distinct user groups or access levels in this system are Administrator, User, Manager, and Safety. The Rational Unified Process, or RUP, was the development approach employed for this system. Still, this section goes into great detail about the uploading, downloading, and deleting of data. Following the upload, download, and removal of files, the system

must be examined to make sure it is operational. Both feature testing and the black box method are used to test this system. It is possible to develop test scenarios based on how the system works.

Reference: The Analysis of Joint Inspection Repository System and The Proposed Solution

http://ipublishing.intimal.edu.my/jods.html

Ahmad(2023) target of this analysis to discover the current status of open source institutional repository software's usage in the public sector university libraries of Punjab, Pakistan. Survey method was used by the researchers and a survey was adopted for information gathering. The target population of the investigation was library professionals of public sector universities in Punjab. Data was gathered from a sample of 135 university librarians using a convenience sampling approach. The analyses explored in which majority of library professionals have incorporated or are currently in the process of incorporating institutional repositories (IR) into their respective libraries which shows that library professionals are well aware about the importance of development/need of IR in this digital age. Further, this study revealed that most of the professionals preferred to use open source software i.e. D-Space for development of IR. Moreover, library professionals are of the view that IR software is a vital tool to organize the digital content/material. Further, IR software provides easy access to the users and enables them to provide efficient and effective services to their users.

Reference: Developing of Institutional Repository in Public Sector University Libraries of Punjab, Pakistan

https://doi.org/10.52461/jimp.v3i1.1895

Boczar et al. (2023) underwent a consolidation to merge three independently accredited branch campuses under a single umbrella in the University of South Florida on July 1, 2020. The Libraries responded to this change by consolidating their institutional repositories, which included a combination of theses, dissertations, faculty publications, open access journals, faculty publications, and digital collections. To make the most of this shared platform, administration determined that the Tampa campus would also merge their independent Digital Collections into the shared repository. Beginning in spring 2021, a team from the Tampa campus undertook the task of migrating over 65,000 digital objects across platforms into a newly consolidated institutional repository comprised of both digital scholarship and collections from multiple campuses.

Reference: A case study on migrating large digital collections into a consolidated repository

https://doi.org/10.1016/j.acalib.2023.102685

Insight for the Review Documents

The insight for reviewing to our documents about the repository system is we learn more about the repository to how they create repository system on their university. One of the reason why they create the repository system is ro have a free and open-access online service used about the documents or research projects on repository system. The motivations of setting up an IR were to dissemination the research output through open access, to promote the university and researchers, and to help increase their research impact. A review was conducted on the strategies to build the IR. Some quantitative and qualitative performance indicators were selected and

used to measure the success of the IR. The findings of the review were presented and strategies that were successful in building the IR were having a workflow process between the research information system and the repository, having effective promotional activities, leveraging on institutional policies and research funder requirements to obtain full text, and proactively searching for full text.

Statement of the Problem

This study generally aims to help NEUST-MGT to develop a capstone repository system to enhance the process of storing capstone projects and making the resource available for student access. Specifically, it aims to answer the following questions:

1. What features must be involved the proposed capstone repository system?
2. How may the proposed system be developed using the stages of Agile Methodology?
    - 2.1. Plan;
    - 2.2. Design;
    - 2.3. Develop;
    - 2.4. Test;
    - 2.5. Deploy;
    - 2.6. Review?
3. How may the IT experts evaluate the technical quality of the developed system based on the following ISO/IEC 25010 Software Project Quality criteria:
    - 3.1 Functional Sustainability;
    - 3.2 Performance Efficiency;

3.3 Compatibility;

3.4 Usability;

3.5 Reliability;

3.6 Security;

3.7 Maintainability;

3.8 Portability?

4. How may the end-users evaluate the functional characteristics of the developed system based on the following ISO/IEC 25010 Software Project Quality criteria:

4.1 Functional Sustainability;

4.2 Performance Efficiency;

4.3 Usability;

4.4 Security?

Objectives of the Study

The researchers generally aim to improve the process of storing, managing, and sharing of conducted capstone projects in NEUST - MGT. Specifically, this study intends to:

1) Develop an Online Capstone Repository System where:

a) Researchers can upload their research, and rate their research teachers.

b) Students can search, rate, and view researches in Repository.

c) Teachers arrange groupings, rate, assign the role of researches and set research adviser. Approve upload request of the lead researcher.

2) Produce reports such as:

a) View the actions of researches if they edit stuffs.

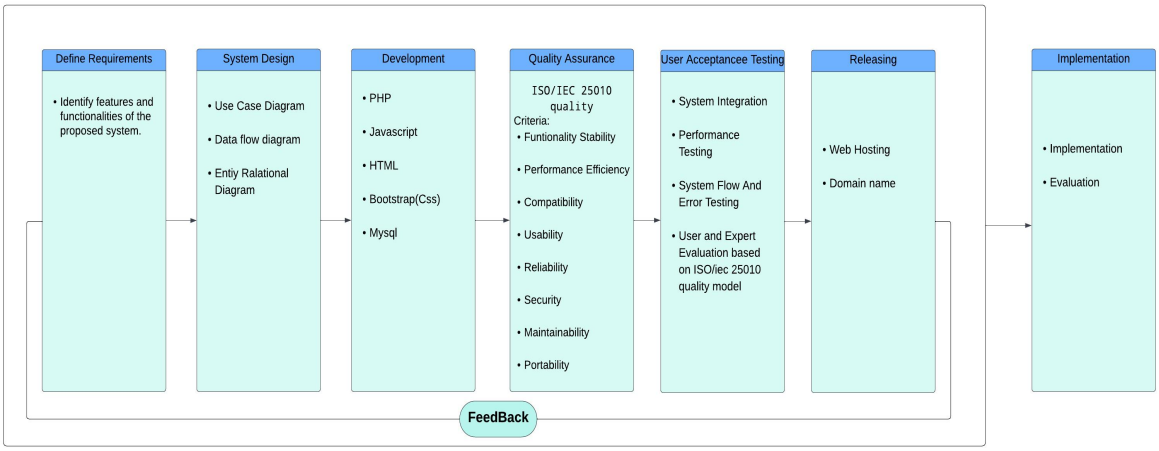
b) View the most searched tag and keyword..

c) View the rates from highest to lowest.

d) View the quantity of each research project course.

Conceptual Framework

Figure 1. Conceptual Framework



The conceptual framework of the study is divided into different stages and each stage has a requirement. These stages are from Agile Development Model. Agile has six (6) phases and these phases will be used to design, develop, and test the quality of the system. Defining requirements is the most important and fundamental stage in Agile Model. The set requirement is then used to plan the basic project approach and to

conduct product feasibility study in the economical, operational, and technical areas. The System Design stage involves the identification of modules, interfaces, and components to be included in the system to satisfy the specified requirements.

The development stage shows that the system comprises a website and a device. It also shows the programming languages involve in the process. Quality Assurance stage examines the quality of the system based on the requirements by adhering to several standards that will also be used in the testing stage. This stage involves identifying and assessing potential risks associated with the project and catching any problems that may have been introduced before moving to the next. User Acceptance Testing is where the system as evaluated by IT Experts and End users based on the criteria indicated in the ISO/IEC 25010

Significance of the Study

School. The repository system simplifies knowledge management and encourages collaboration among educators, improving the overall efficiency and effectiveness of academic operations within the school.

Teachers. Access to diverse resources enhances instructional quality, while feedback and collaboration opportunities support professional development and innovation in teaching practices.

Student. Expanded learning opportunities and the development of research skills prepare students for higher education and future careers, nurturing curiosity and critical thinking.

Future Researchers. Access to primary sources and increased visibility of research work within the repository system facilitate collaboration and recognition, advancing knowledge and innovation in respective fields of study.

Scope and Delimitation

The repository system encompasses various essential user roles, primarily comprised of Admins, Teachers, and Students. Admins hold pivotal responsibilities in managing user accounts, assignments, tags, and reports, ensuring the smooth operation and organization of the system. Teachers play a crucial role in the system's functionality by overseeing research uploads, offering approvals, and adding their knowledge through rating research submissions. Conversely, students engage actively with the system, leveraging its features to upload their research projects, rate their teachers, and explore and download research contributed by their peers. This interactive platform fosters collaboration and knowledge sharing among the academic community.

The ownership of uploaded content may be limited by the organization or institution's rights over the saved data. To control access to specific files, the repository system may impose restrictions on viewing and downloading for authorized users only. The repository system might not contain some kinds of research work, sensitive personal information, or copyrighted materials without authorization.

Entity Relationship Diagram

Tel No. (044) 958-2961
Email: neust.mgt2008@gmail.com
www.facebook.com/NEUST.MGT.PAGE/

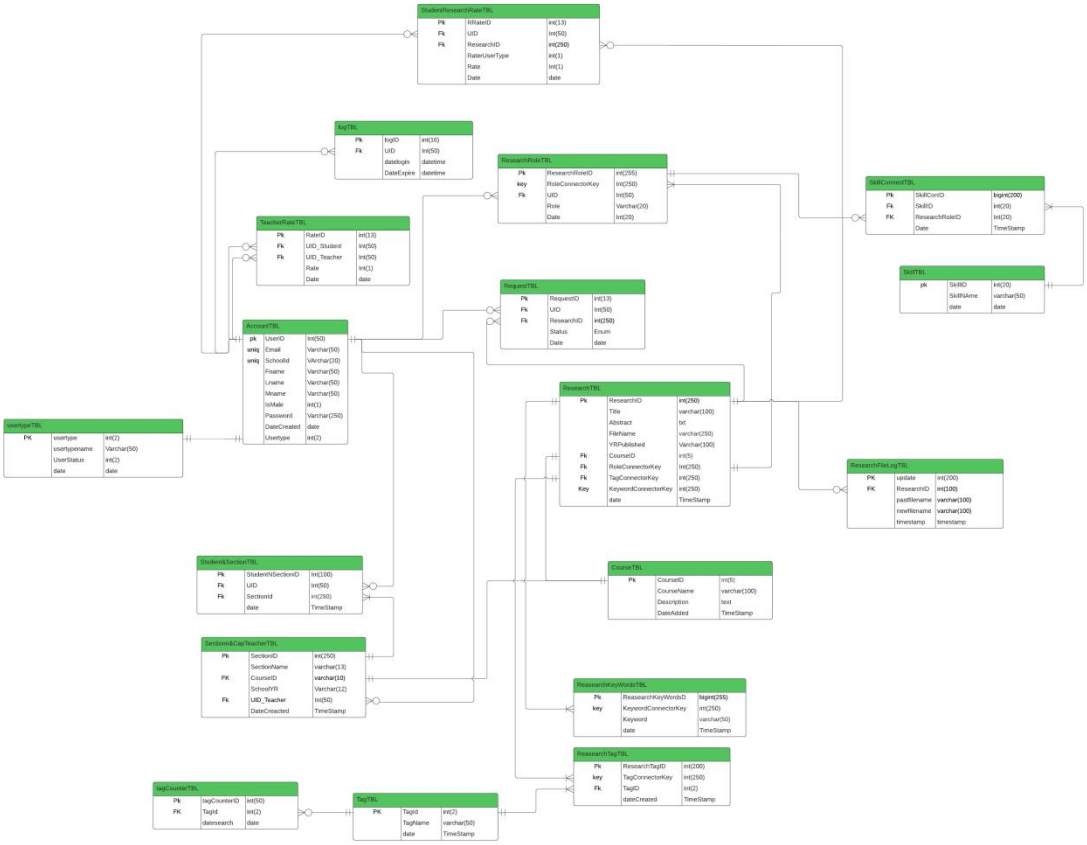


Figure 2. Entity Relationship Diagram

Data Flow Diagram

Tel No. (044) 958-2961
Email: neust.mgt2008@gmail.com
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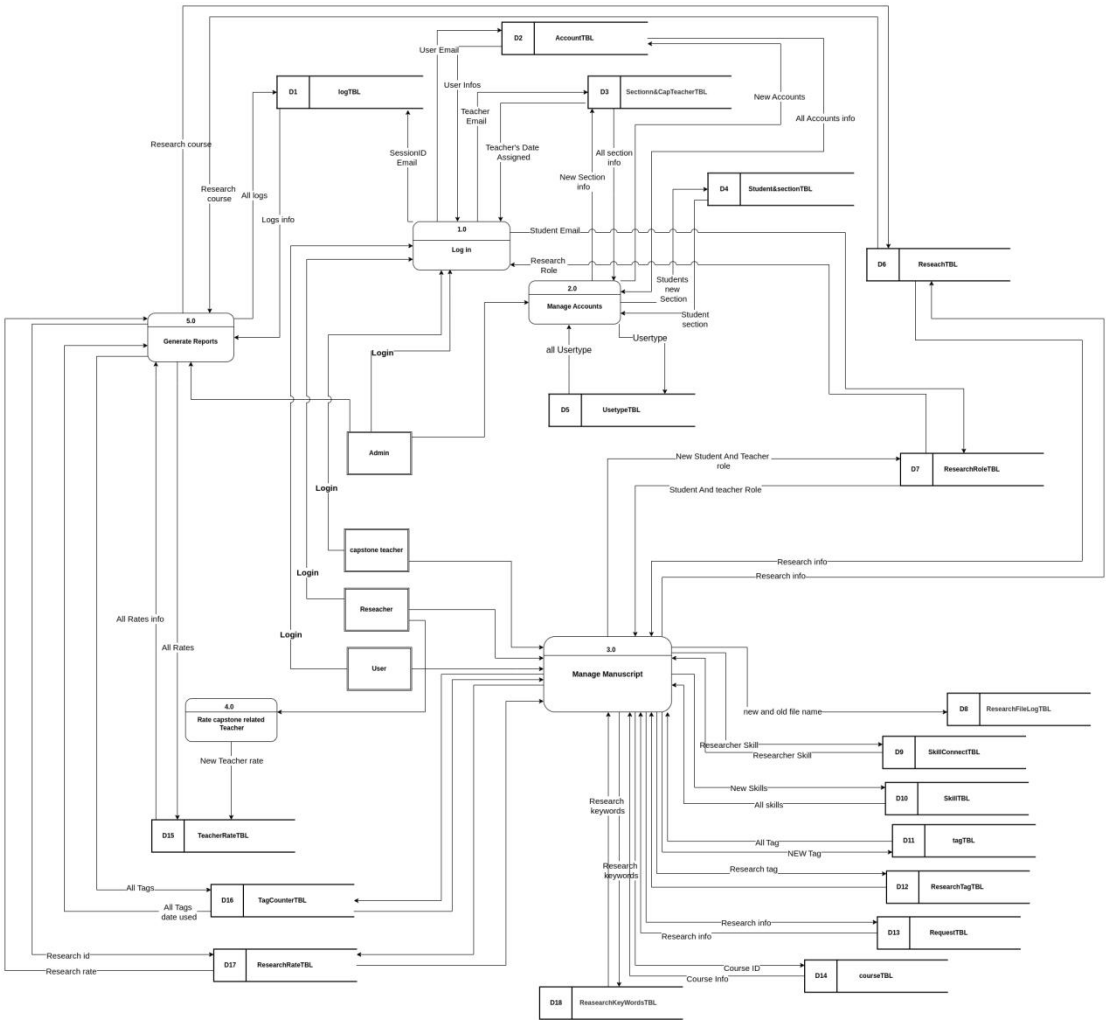

Figure 3. Level 0

Tel No. (044) 958-2961
Email: neust.mgt2008@gmail.com
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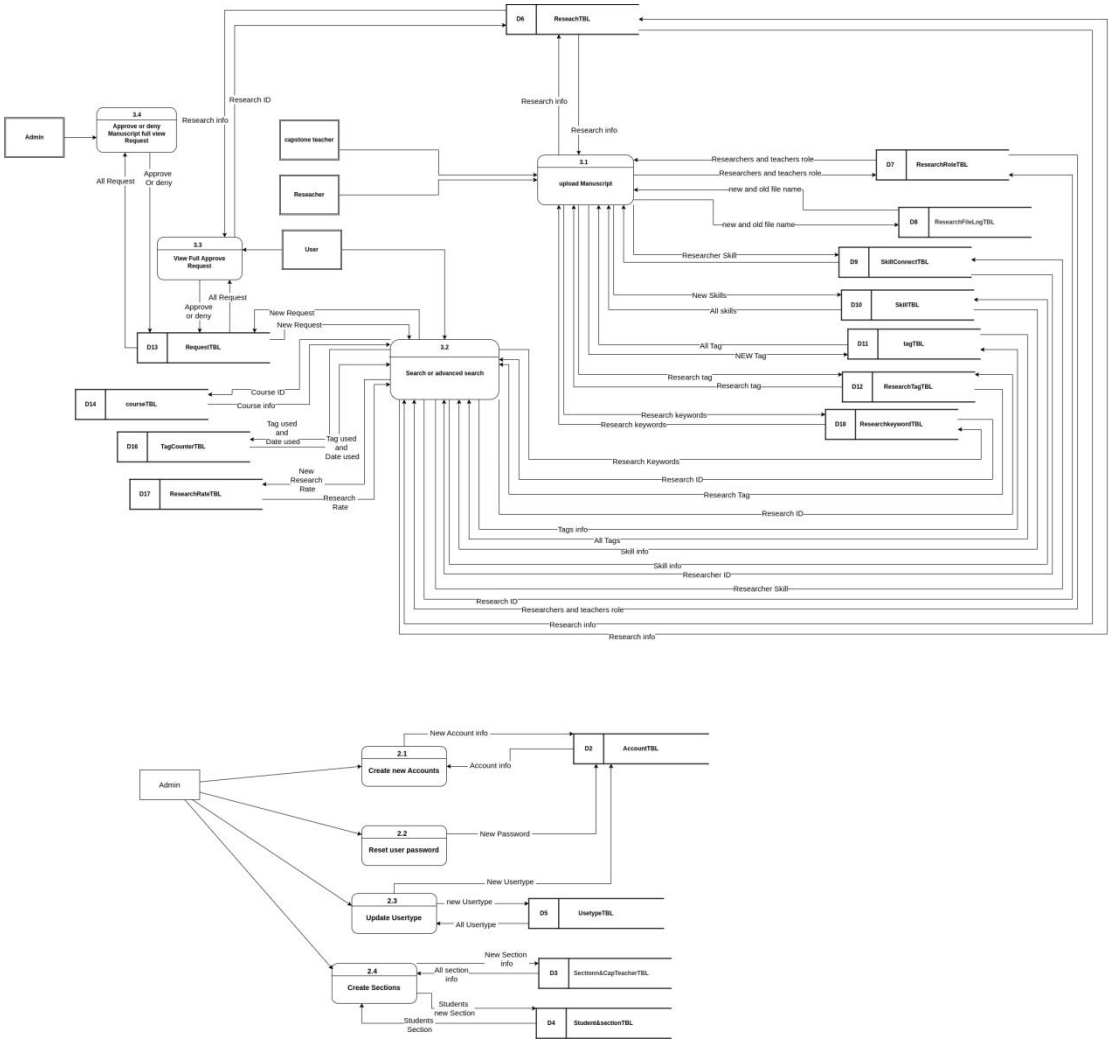

Figure 4. Level 1

Tel No. (044) 958-2961
Email: neust.mgt2008@gmail.com
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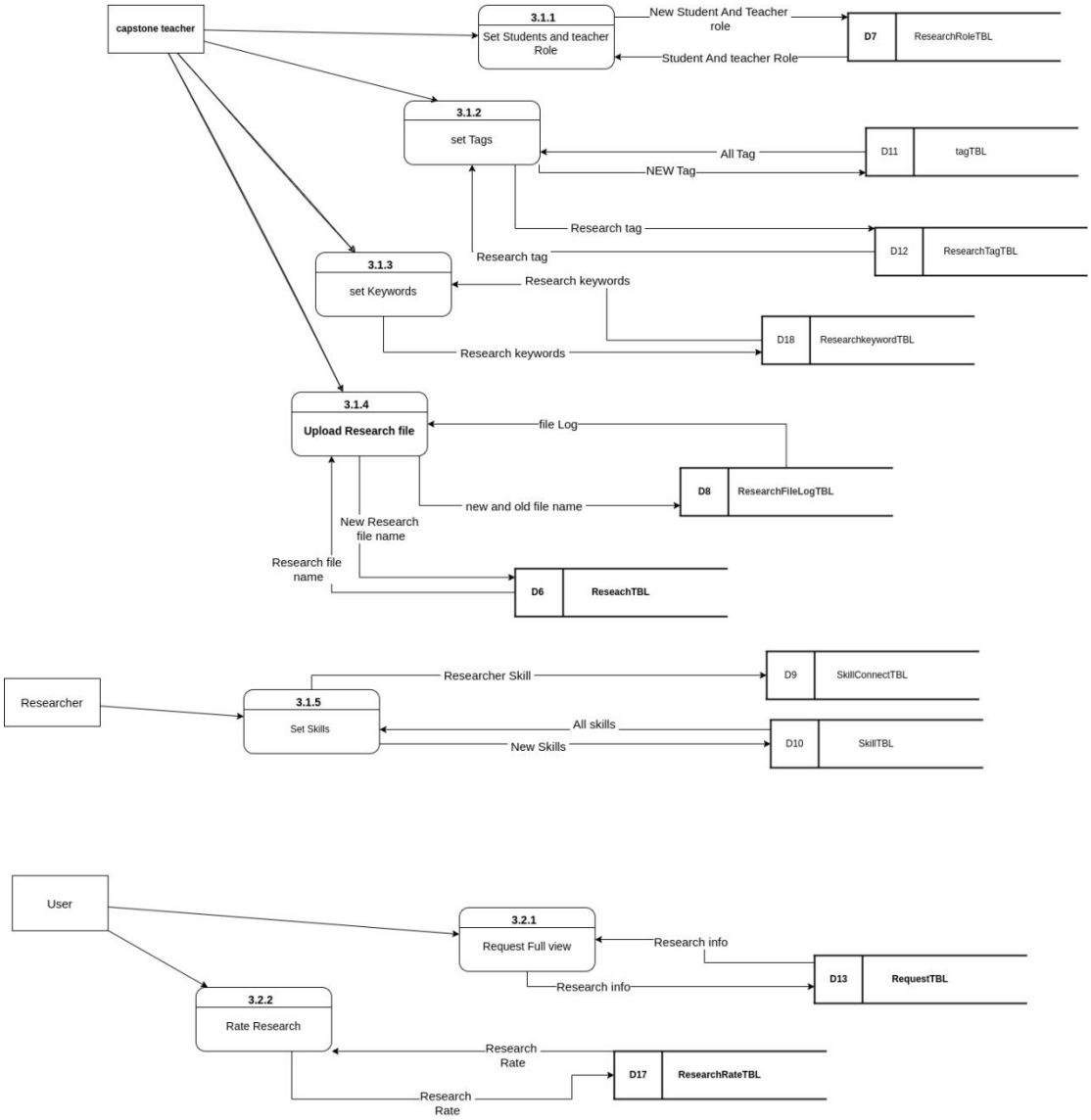
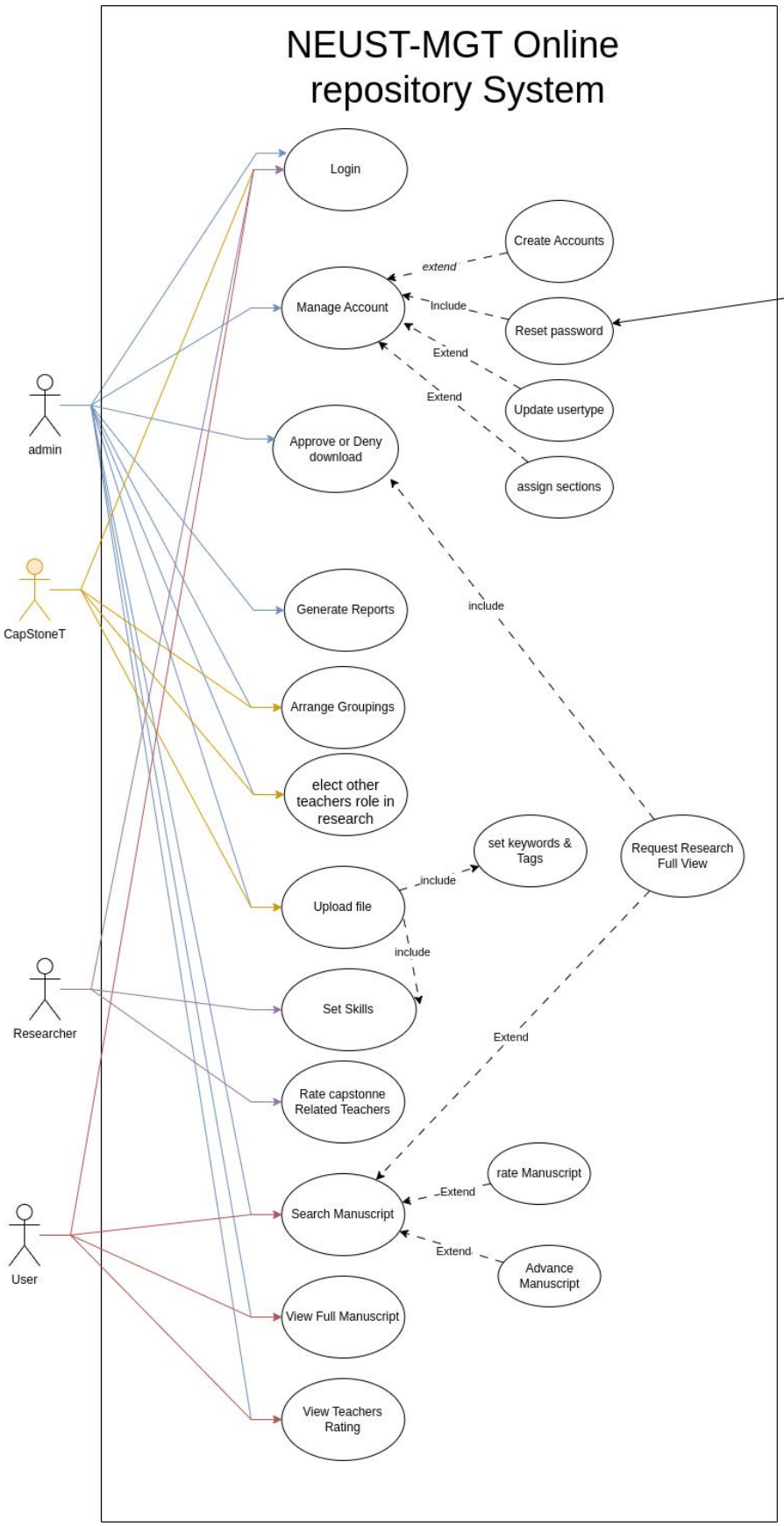


Figure 5. Level 2

Use case Diagram

Figure 6. Use Case Diagram



Tel No. (044) 958-2961
Email: neust.mgt2008@gmail.com
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Chapter II

Methodology

This chapter explain various methodologies that were used in gathering data and analysis which are relevant to the research.

Research Approach

The study will use developmental and descriptive research methodologies that include a quantitative research approach. The researchers will use developmental research method in designing, developing, and evaluating the system as a whole (Seels and Richey, 2004). This study will develop of online repository system to NEUST-MGT to have their own system is based on the Incremental Model. Meanwhile, the quantitative approach will be utilized while conducting surveys regarding the acceptance of the system and in analyzing the data that will be collected.

Systems Development Methodology

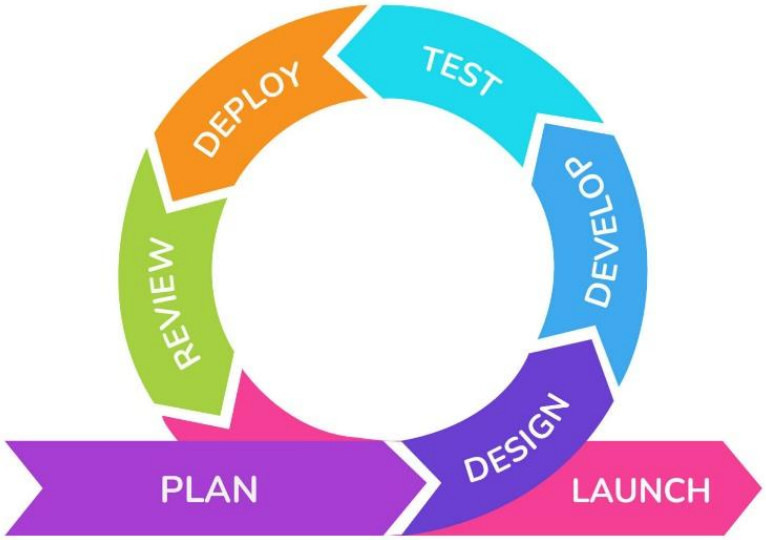

Figure 6. Research Design

The iterative model is a software development methodology in which requirements are divided into a number of independent modules of the software development cycle. The phases of agile development include planning, design, develop, test, deploy, review.

Planning: This is the initial phase where the project requirements are collected and documented. It involves understanding the needs and expectations of the stakeholders and defining the scope of the project.

Design: In this stage, the system architecture and design are developed based on the requirements gathered. It includes creating a high-level design, defining the system components, and determining the interactions between them.

Develop: Once the design is finalized, the actual coding and implementation of the system take place. The language that we use are PHP, HTML, CSS and MySQL.

Test: Testing is a crucial phase in software development. It involves verifying that the system meets the specified requirements and functions correctly.

Deploy: After successful testing, the system is ready for deployment. It involves installing the software on the intended environment, configuring it, and making it available for end-users.

Review: The review stage is important to evaluate the performance, functionality, and user experience of the deployed system. Feedback from users and researchers is collected to identify any areas for improvement or enhancement.

Locale of the Study

This study will be conducted on Nueva Ecija University of Science and Technology - Municipal Government of Talavera (NEUST-MGT) is an institution of higher learning that was established in 2008. Three programs are available on campus: a Bachelor of Science in Elementary Education, a Bachelor of Science in Business Administration, and a Bachelor of Science in Information Technology.

Figure 7. Nueva Ecija University of Science Technology- Municipal Government of Talavera.

Research Respondents

The table shows the total respondents in the study. NUEST-MGT has a total of 800 student and 50 teachers. The researcher have chosen a only 50 students and only 5 teachers to be the respondents for this research.

The table shows the total respondents in the study

Table 1. Distribution of Respondents

Respondents	Number of Respondents
Students	50
Teachers	20
Total	70

Research Instrument

A comprehensive questionnaire employing a structured four-point Likert scale was meticulously crafted for the study, drawing its framework from the internationally recognized ISO 25010 standards. This questionnaire was specifically tailored to assess the system's multifaceted aspects, including functionality, performance efficiency, reliability, security, and usability, ensuring a thorough and detailed evaluation process.

Data Gathering Procedure

To gather data, two set of survey questionnaires through survey forms was administered differently to the students and teachers. The students assessed the system with three sets of criteria adapted from ISO 25010, particularly its performance efficiency, functionality, and usability. On the other hand, the teachers assessed the system based on its functionality, performance efficiency, usability, and reliability.

Data Analysis

The researchers tallied, grouped organized and interpreted the data gathered from questionnaires distributed and collected that contains the respondents' data with use of weighted mean.

The weighted mean was used in qualifying the data utilizing four-point scale with the corresponding verbal interpretation.

Table 2. Scoring Guide

RATING	SCORE	DESCRIPTIVE RATING
4	3.26 – 4.00	Highly Satisfactory
3	2.51 – 3.25	Satisfactory
2	1.76 – 2.50	Less Satisfactory
1	1.00 – 1.75	Not Satisfactory

Statistical Treatment of Data

The gathered data were subjected to statistical analysis particularly, the average weighted mean. It was used to calculate the average value of a particular set of numbers to determine the weighted responses of the respondents. The weighted average was computed as:

Formula: $X = \frac{\sum x}{N}$

Where:

X = Weighted Mean

$\sum x$= Sum of frequency of responses

N = total number of respondents

The weighted mean value is interpreted using Likert Scale. The interpretation was equivalent to the following.

Gantt chart

The work plan and timeframe for the capstone are depicted in the Gantt chart graphic. The Agile Model was used in the construction of the suggested system. It comprises the Stages of requirements, design, Development, Testing, Deployment, Review, and Launch. The system was executed using this method and the stage procedure.

Task Name	2024																	
	August		September				October				November				December			
	3rd week	4th week	1st week	2nd week	3rd week	4th week	1st week	2nd week	3rd week	4th week	1st week	2nd week	3rd week	4th week	1st week	2nd week	3rd week	4th week
Requirement Stage																		
Design Stage																		
Development Stage																		
test Stage																		
Deploy Stage																		
Review Stage																		
Launch Stage																		

Table 3. Scoring Guide

RATING	SCORE	DESCRIPTIVE RATING
4		Highly Satisfactory
3		Satisfactory
2		Less Satisfactory
1		Not Satisfactory

APPENDIX A

QUESTIONNAIRE FOR ASSESSMENT OF THE ONLINE REPOSITORY SYSTEM

Name (Optional):_____

Below are questions relevant to the characteristic assessment of the Online Repository System. Please rate said system based on the following criteria: Visibility of system

status, match between system & the real world, user control & freedom, consistency & standards, error prevention, recognition rather than recall, flexibility & efficiency of use, aesthetic & minimalist design, help users recognize, diagnose & recover from errors, and help & documentation. Please be guided by the numerical and verbal descriptions given below:

4 - Strongly Agree
3 - Agree
2 - Disagree
1 - Strongly Disagree

1. **Visibility of System Status**

STATEMENTS	4	3	2	1
1.1 The system provides clear feedback after each user action (e.g., successful uploads or errors).				
1.2 The system displays the current status of documents being uploaded or processed in real-time.				
1.3 The system informs users of any pending tasks or actions that need to be completed (e.g., approval processes or document reviews).				
1.4 The system clearly shows when it is available or down for maintenance, with appropriate notifications.				

2. **Match between system & the real world**

STATEMENTS	4	3	2	1
2.1 The system provides terminology, icons, and information that are familiar and understandable to users based on their real-world experience.				
2.2 The online repository system reflects real-world conventions (e.g., folder structures, document management processes) in a way that is intuitive to users.				
2.3 The system's responses and actions align with the expectations of users based on real-world document storage and retrieval.				
2.4 The system enables users to perform tasks similar to how they would in a physical repository or file management system.				

3. **User control & freedom**

STATEMENTS	4	3	2	1
3.1 The system provides terminology, icons, and information that are familiar and understandable to users based on their real-world experience.				
3.2 The online repository system reflects real-world conventions (e.g., folder structures, document management processes) in a way that is intuitive to users.				
3.3 The system's responses and actions align with the expectations of users based on real-world document storage and retrieval.				
3.4 The system enables users to perform tasks similar to how they would in a physical repository or file management system.				

4. **Consistency & standards**

STATEMENTS	4	3	2	1
4.1 The system's design is consistent across all pages and sections (e.g., layout, colors, fonts, etc.).				
4.2 The system adheres to common standards for navigation and interaction, making it intuitive for users.				
4.3 The terminology used in the system is consistent and aligns with the users' understanding and expectations.				
4.4 The system maintains uniformity in providing feedback or notifications across different actions and processes.				

5. **Error prevention**

STATEMENTS	4	3	2	1
5.1 The system helps prevent errors by providing clear instructions before critical actions are taken (e.g., warnings or confirmations).				
5.2 The system prevents common mistakes, such as allowing incorrect file formats or incomplete data entry, with real-time validation.				
5.3 The system minimizes the chances of errors by restricting actions that might lead to unintended consequences (e.g., accidental deletion of important files).				
5.4 The system guides users through corrective actions if an error occurs, helping them easily recover from mistakes.				

6. **Recognition rather than recall**

STATEMENTS	4	3	2	1
6.1 The system provides clear, visible cues (such as icons or labels) to help users navigate without relying heavily on memory.				
6.2 Frequently accessed functions are easy to find and do not require the user to recall complex commands or paths.				
6.3 Options and functions in the system are organized logically, reducing the need for users to memorize workflows.				
6.4 The system offers suggestions or auto-complete features that assist users in finding and recalling needed information.				

7. **Flexibility & efficiency of use**

STATEMENTS	4	3	2	1
7.1 The system allows users to perform tasks in multiple ways (e.g., via shortcuts or alternative methods).				
7.2 The system responds quickly to user inputs without delays or interruptions.				
7.3 The interface is easy to navigate, allowing users to efficiently accomplish their goals with minimal effort.				
7.4 The system can be easily adapted or customized to fit different user needs or preferences.				

8. **Aesthetic & minimalist design**

STATEMENTS	4	3	2	1
8.1 The online repository system's interface is visually appealing and not cluttered.				
8.2 The design of the system provides a clean and simple user experience, avoiding unnecessary elements.				
8.3 The system's design enhances usability, ensuring that important information is easy to find.				
8.4 The layout and color scheme of the system help create an intuitive and pleasant user experience.				

9. **Help users recognize**

STATEMENTS	4	3	2	1
9.1 The system provides clear notifications or warnings when an error occurs..				
9.2 Error messages are easy to understand and provide useful guidance for fixing the issue.				
9.3 The system highlights any incorrect or incomplete inputs for easy correction.				
9.4 The system offers recovery options or suggestions when users make mistakes (e.g., undo, back, or correct options).				

10. **Diagnose & recover from errors**

STATEMENTS	4	3	2	1
10.1 The system clearly indicates when an error occurs and provides useful information on how to				

resolve it.				
10.2 The system allows users to easily undo or recover from mistakes without needing to restart the process.				
10.3 The error messages are easy to understand and offer specific guidance for troubleshooting.				
10.4 The system helps users identify the root cause of an issue and provides step-by-step instructions for recovery.				

11. **Help & documentation**

STATEMENTS	4	3	2	1
11.1 The system provides clear and comprehensive help documentation that is easily accessible to users.				
11.2 The help features (such as FAQs, tooltips, or guides) are relevant and effectively assist in solving user issues or answering questions.				
11.3 The documentation is well-organized and easy to understand, with step-by-step instructions when needed.				
11.4 The system includes troubleshooting support, such as contact information for further assistance or a user forum for help.				

APPENDIX B

QUESTIONNAIRE FOR ASSESSMENT OF THE ONLINE REPOSITORY SYSTEM

Name (Optional):_____

Position(Please put a check mark):
_____ Admin
_____ Teacher
_____ Students

Below are questions relevant to the characteristic assessment of the Online Repository System. Please rate said system based on the following criteria: Visibility of system status, user control & freedom, flexibility & efficiency of use, and aesthetic & minimalist design. Please be guided by the numerical and verbal descriptions given below:

4 - Strongly Agree
3 - Agree
2 - Disagree
1 - Strongly Disagree

1. **Visibility of System Status**

STATEMENTS	4	3	2	1
1.1 The system provides clear feedback after each user action (e.g., successful uploads or errors).				
1.2 The system displays the current status of documents being uploaded or processed in real-time.				
1.3 The system informs users of any pending tasks or actions that need to be completed (e.g., approval processes or document reviews).				
1.4 The system clearly shows when it is available or down for maintenance, with appropriate notifications.				

2. User control & freedom

STATEMENTS	4	3	2	1
2.1 The system allows users to easily undo or redo their actions without complex steps.				
2.2 Users can navigate freely within the system and are not restricted to a rigid sequence of operations.				
2.3 The system provides options for users to manage their own settings, preferences, or account details.				
2.4 Users can easily exit or cancel ongoing actions at any point without negative consequences.				

3. Flexibility & efficiency of use

STATEMENTS	4	3	2	1
3.1 The system allows users to perform tasks in multiple ways (e.g., via shortcuts or alternative methods).				
3.2 The system responds quickly to user inputs without delays or interruptions.				
3.3 The interface is easy to navigate, allowing users to efficiently accomplish their goals with minimal effort.				
3.4 The system can be easily adapted or customized to fit different user needs or preferences.				

4. Aesthetic & minimalist design

STATEMENTS	4	3	2	1
4.1 The online repository system's interface is visually appealing and not cluttered.				
4.2 The design of the system provides a clean and simple user experience, avoiding unnecessary elements.				
4.3 The system's design enhances usability, ensuring that important information is easy to find.				
4.4 The layout and color scheme of the system help create an intuitive and pleasant user experience.				

Chapter IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter discusses the summary of findings, conclusions and recommendations.

Summary

This research project aimed to develop an Online Capstone Repository (OCR) system for Nueva Ecija University of Science and Technology - Municipal Government of Talavera (NEUST-MGT). The OCR system was designed to address the challenges faced by the university in storing, managing, and sharing capstone projects. The study utilized a developmental research approach, incorporating the Agile Methodology for system development, and a quantitative research approach for data analysis.

Conclusion

The research successfully developed an Online Capstone Repository system for NEUST-MGT. The system addresses the university's needs for a centralized platform for storing, managing, and sharing capstone projects. The system's features, including secure access, user-friendly interface, and robust search functionality, enhance the overall research experience for students, teachers, and researchers.

The evaluation of the system by IT experts and end-users revealed that the OCR system meets the required quality standards. The system is functional, efficient, reliable, secure, and user-friendly. The system's implementation has the potential to improve knowledge management, facilitate collaboration, and enhance the overall research culture at NEUST-MGT.

Recommendations

Based on the findings of the research, the following recommendations are proposed for the future development and implementation of the OCR system:

1) Consider including other types of research outputs, such as journal articles, conference papers, and research data, to create a more comprehensive repository.
2) Implement advanced search features, such as semantic search and faceted search, to improve the accuracy and efficiency of information retrieval.

3) Conduct awareness campaigns and provide training sessions to encourage wider adoption of the OCR system among students, teachers, and researchers.
4) Explore opportunities to integrate the OCR system with other university systems, such as the library catalog and the research information system, to streamline data management and improve interoperability.
5) Regularly collect data on system usage, user feedback, and research impact to identify areas for improvement and ensure the long-term success of the OCR system.

"ONLINE REPOSITORY SYSTEM"

A Capstone Project

Presented to the Faculty Members of the College of Information and Communication Technology Nueva Ecija University of Science and Technology Municipal Government of Talavera, Nueva Ecija

In Partial Fulfilment of the Requirements for the Degree Bachelor of Science in Information Technology Major in Database System Technology

Mejia, Zenjie Allyson
Sayson, Lester
Sigua, Ednel Julius
Tolentino, Desiree

APPROVAL SHEET

This Capstone Project entitled **"ONLINE REPOSITORY SYSTEM,** prepared and submitted by Lester Sayson, Desiree Tolentino, Zenjie Allyson Mejia, and Ednel Julius Sigua. Juliano is hereby recommended for acceptance and approval for final presentation.

Oliver Y. Mendoza

Capstone Adviser

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MARCIANA DC. SORIANO
School Administrator

MICHAEL E. BENSI
Program Chairperson

JOINT UNDERTAKING

This Capstone Project was developed by the students of Nueva Ecija University of Science and Technology – Municipality Government of Talavera and was presented to the faculty of the university.

Therefore, the university now owns this capstone project, and any company or association that wants to modify it must first request permission from the university.

1. We, the authors/researchers, have completed the academic project titled 'ONLINE REPOSITORY SYSTEM.' This project partially fulfills the requirements for a Bachelor of Science in Information Technology as prescribed by the Faculty of the College of Information Technology and Communication Technology at Nueva Ecija University of Science and Technology.
2. The manuscript, attachments, mode system software/enterprise resource plan, or any part of the project mentioned above has not been copyrighted, published, or is

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4. The authors hereby gratuitously convey, transfer, and bequeath absolute ownership of the above-mentioned project and all rights appurtenant thereto in favor of Nueva Ecija University of Science and Technology.

5. After being submitted and approved by the College of Information and Communication Technology, the project will belong to Nueva Ecija University of Science and Technology exclusively.

IN WITNESS WHEREOF, we have here onto set our hands this_____ day of _____, _____ 2024 in Talavera, Nueva Ecija.

Name:	**ID NO.**	**Address:**
Lester C. Sayson		
Desiree S. Tolentino		**Pag-Asa Talavera, Nueva Ecija**
Zenjie Allyson Mejia		
Ednel Julius F. Sigua		

SUBSCRIBE AND SWORN to before me_____ day of_____ 2024 in Talavera, Nueva Ecija.

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Series of 2023

Notary Public

RESEARCH CRITIQUE CERTIFICATION

This is to certify this Capstone Project entitled **"Online Repository System"** by Lester C. Sayson, Desiree S. Tolentino , Zenjie Allyson MEjia, and Ednel Julius F. Sigua been checked and corrected grammatically by the undersigned.

Catherine Joy J. Roque
English Critique

RESEARCH STATISTICAL ANALYSIS CERTIFICATION

This is to certify this Capstone Project entitled **"Online Repository System"** by Lester C. Sayson, Desiree S. Tolentino, Zenjie Allyson Mejia, and Ednel Julius F. Sigua has undergone statistician analysis.

This certification is provided to guarantee that the research work received by the Nueva Ecija University of Science and Technology Talavera Off-Campus meets high standards of quality.

Aldrin M. Manlusoc
Statistician

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professional expertise were essential in ensuring the system met the needs of both the clinic and its clients.

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Lastly, we acknowledge the support of our families and friends, who provided constant encouragement throughout the project. Their understanding and motivation kept us driven to achieve our goals.

DEDICATION

We dedicate this study to our second home, the Nueva Ecija University of Science and Technology – Municipality of Talavera

To our beloved Alma Mater under roofs we sought refuge in the fulfillment of our ardent desire to succeed.

To our beloved administrator, Mrs. Marciana DC. Soriano, administrative staff and Hon Nerito S. Santos Jr. for their untiring effort in the maintaining discipline and the smooth running of our school.

To our instructors, unsung heroes and heroines, who patiently and zealously keep the torch of knowledge burning, we extend our deepest gratitude. Your tireless dedication to fostering a love for learning and your unwavering commitment to our academic growth inspire us daily. In addition to imparting knowledge, you have become mentors and guides,

shaping not only our education but also our character. we are profoundly thankful for the impact you have made on our educational journey.

This study is dedicated to our parents, who have always supported us financially, emotionally, spiritually, and morally. They have also served as our inspiration and source of strength when we felt like giving up.

To our friends and classmates for their unselfish cooperation and dedication in helping us to attain the realization of our dreams.

Also to our Lord God who is always there to support, guide and challenge us to make this study possible.

You are all such a shower of blessings to our lives.

TABLE OF CONTENTS

ABSTRACT

The development of the Online Capstone Repository (OCR) aims to address the challenges faced by Nueva Ecija University of Science and Technology - Municipal Government of Talavera (NEUST-MGT) in managing, storing, and providing access to capstone projects. The system introduces a secure, centralized platform where students can upload, rate, and search for capstone projects, while teachers can approve and

evaluate submissions. By implementing this system, NEUST-MGT seeks to prevent the loss of valuable academic research, ensure proper storage of capstone projects, and improve accessibility for both students and faculty. This research employed the Agile Methodology to develop and evaluate the system. The system was tested based on ISO/IEC 25010 software quality standards and showed positive results in terms of functionality, efficiency, security, and usability. The OCR system enhances collaboration and contributes to the overall academic growth of the university, providing a platform that not only stores capstone projects but also facilitates knowledge sharing and research management.