Chapter 1

THE PROBLEM AND ITS SCOPE

Abstract

Technology has become an integral part of everyday life in the twenty-first century. As it is frequently referred to, technology is the alteration and manipulation of the human environment. It is the application of scientific knowledge to the practical purposes of human life. The only factor causing economic growth is the interaction between people and technology. People's lives are improved by technology. It has developed into the main factor propelling society's requirements forward. Technology is utilized by people in many ways. Tools, materials, and systems are all part of technology, which is human knowledge. In terms of communication, purchasing goods, education, training programs, data security, grading systems, and so much more, technology has become a threat to some people. Humans benefit from technology when it is used correctly, but the opposite is true when it is used maliciously. Technology will always evolve with the advancement of the human race, which influences many factors in the future.

Real-time plagiarism detection systems provide immediate feedback to users, but their efficiency in handling large-scale data and providing accurate results requires further investigation. (H Wan, K Liu, X Gao 2018).

While machine learning algorithms are commonly used in plagiarism detection, there is a problem in comparing the effectiveness of different algorithms to determine the most accurate and efficient approach for detecting plagiarism. (H El Mostafa, F Benabbou 2020).

With the globalization of academic research, there is a need for effective, multilingual plagiarism detection tools. (NK CHAUBEY 2022).

One solution to the challenge of comparing the effectiveness of different machine learning algorithms for plagiarism detection is to establish standardized evaluation metrics and benchmarks that can accurately measure and compare the performance of these algorithms. By defining clear criteria and conducting systematic evaluations using diverse datasets, researchers can determine which algorithms are the most accurate and efficient in detecting plagiarism.

To address the efficiency issue in real-time plagiarism detection systems, further research and development can focus on optimizing algorithms and system architectures. This could involve exploring parallel processing techniques, leveraging distributed computing resources, or implementing advanced indexing and retrieval mechanisms to handle large-scale data more efficiently. By improving the scalability and speed of these systems, users can receive immediate and accurate feedback on potential plagiarism cases, enhancing the overall user experience.

To meet the demand for multilingual plagiarism detection, researchers can work on developing language-agnostic models and algorithms that can effectively detect plagiarism across different languages. This can involve training models on diverse multilingual datasets and implementing techniques such as cross-lingual transfer learning to enable accurate detection of plagiarism in various languages. By creating robust and versatile tools, academic researchers can detect plagiarism effectively regardless of the language used in the source material, facilitating global research collaboration while upholding academic integrity.

The purpose of this study is to provide readers with a comprehensive understanding of the immense significance of plagiarism detection in the research process. By highlighting the detrimental consequences of engaging in plagiarism and emphasizing the importance of upholding academic integrity, this study aims to equip individuals with the necessary knowledge and resources to publish their academic work without resorting to illegal conduct.

One key aspect addressed in this study is the utilization of innovative and contemporary portals equipped with plagiarism detection tools. By utilizing such tools, researchers can ensure that their work adheres to the highest standards of academic integrity and credibility. These portals offer advanced algorithms and techniques that efficiently identify instances of plagiarism, empowering researchers to maintain the originality and authenticity of their work.

The findings of this study have practical implications as well. The insights gained can serve as a valuable guide for institutions in formulating and implementing policies and practices pertaining to research and publishing ethics within the JRMSU System. By incorporating the knowledge acquired from this study, institutions can foster an environment that promotes academic integrity and discourages plagiarism, thereby maintaining the credibility and reputation of the academic community.

Ultimately, the research conducted in this study contributes to the advancement of knowledge in the field of plagiarism detection and prevention. By raising awareness about the ethical concerns surrounding plagiarism and providing effective solutions through the utilization of plagiarism detection tools, this research encourages the adoption of ethical research methods in the academic setting.

Statement of the Problem

This study aims to implement a Portal with Plagiarism Detector in University Research Development and Extension for Jose Rizal Memorial State University – Dapitan Campus during school year 2022-2023.

Specifically, this study sought to answer the following question:

1. What is the current portal of JRMSU for Research Development and Extension as well as Plagiarism system?
2. How does the plagiarism checker work based on the algorithm used?
3. How does the plagiarism checker work in the JRMSU Research Development and Extension Portal?
4. What other similar system features can be fused to come up with a hybrid or the proposed system?
5. How can the system be assessed in terms of:

   5.1 functionality;

   5.2 reliability;

   5.3 usability;

   5.4 efficiency;

   5.5 maintainability; and

   5.6 portability?

Significance of the Study

On all campuses within the JRMSU system, this newly created JRMSU Research Development and Extension Portal with Plagiarism Detector is accessible. Considering students must submit research or theses as part of their coursework, it is particularly

important that the institution have a plagiarism detection systems must submit research or theses as part of their coursework, it is particularly important that the institution have a plagiarism detection system. Faculty members have to present research projects each semester. Due to these factors, employing an online plagiarism detection tool has been expensive due to membership costs. In addition, even if there are free online plagiarism systems, the quantity of words and paragraphs that may be scanned is limited by a free subscription or account.

The purpose of this study is to create a system through the combination of a portal and a plagiarism detector. The specific goal of this system is to: (1) determine the status of submitted research paper in JRMSU (2) Detect plagiarized documents. (3) Prevent plagiarism cases in the JRMSU system. (4) Provide a free and better plagiarism detection system for JRMSU.

Researchers in JRMSU. Since this is online system software, researchers can submit the partial research paper at any time and from any location by using an internet connection.

Administrator. Since this is online system software, the administrator can also manage it with ease.

Employee. Ease to manage research document access on the employee side.

Future Researchers. The result of this study will serve as a guide and resource for aspiring researchers.

Scope and Delimitation of the Study

This research focused on the portal with the plagiarism detector. This system is specifically designed to help Research Development and Extension building employees

and JRMSU system researchers track the status of research papers and detect plagiarism. This system is limited to the researchers in the JRMSU system and the VPRDE employees. The user accesses the system using the default username and password provided by the administrator, which the administrator can manage at any time. This system is accessible from a PC, Mac, or mobile phone.

This system was created specifically to provide a cutting-edge, high-tech portal with a plagiarism detection for the Research Development and Extension building. The system combines two interfaces: (1) The Portal, which acts as the system's main interface and can manage user logins, data placement, personal information management, data security, and research status. (2) Plagiarism Detector: It can identify plagiarized texts in research papers posted to the portal based on the word count per minute. All departments within the JRMSU system will be the subject of this investigation. Active JRMSU system researchers, VPRDE staff members, and Instructors/Professor who focused on research and extension development made up the respondents.

The system is also intended to contain a number of research and presentation management features. In the beginning, it need to be able to compile a list of accessible research or supplementary materials that are pertinent to the author. Filtering this list by several criteria, such as research, extension, publishing, or conference paper, is recommended. The system should also include search capabilities that allow the author to locate certain papers by title, author, date, or keyword. Each document should be identified by its kind, publication date, author(s), and a brief synopsis of its contents, according to the system

. Furthermore, the author should be able to download or email a selected document to themselves or others. The system should also provide a feature for the author to rate or review the document for other users to see.

In terms of managing presentations, the system offers a template for the presentation schedule form that has fields for the presentation title, date, time, location, and duration. It ought to let the author decide between presentation types like research, extension, or poster session. Additionally, the author need to be able to invite additional speakers or co-authors to attend the presentation. The system should offer the option for the author to print out the presentation schedule form for manual submission or to submit it online. When the presentation schedule form is submitted and accepted, the system should then send an email confirmation to the author.

The system offers a checklist of compliance criteria that the author must complete after the presentation, such as delivering a copy of the presentation slides, completing a survey or assessment form, or submitting a final report. The system should specify a due date for when the author must finish each requirement and send emails as the date draws near. The compliance criteria should be submitted by the author either manually or electronically, and once they are, the system should send an email of confirmation.

The study's applicability depends on having internet access since it uses an online software system to carry out instructions and conduct the interfaces of the Portal with Plagiarism Detector. The study is irrelevant since it would be impossible to use this system successfully without internet connectivity.

Definition of Terms

To facilitate the understanding of this study, different terms are defined herein.

API Key. Revolves around authentication, authorization, access control, security, and key management.

Database. Operations collectively support the core functionality of a plagiarism detector, enabling efficient storage, retrieval, and comparison of textual content for identifying potential instances of plagiarism.

Efficiency. To ensure that the plagiarism detection system operates smoothly, with faster response times and optimal resource utilization. By improving the efficiency, the system can handle larger datasets, process documents more swiftly, and deliver timely results to users, enhancing the overall user experience.

Functionality. These functionality operations collectively enable the plagiarism detector to effectively detect and identify instances of plagiarism, provide actionable reports, and ensure a user-friendly and efficient plagiarism detection experience.

Local Host. These Local Host operations, the plagiarism detection system can be deployed and operated on a local server or machine, offering the benefits of increased control, security, and customization for the users or organizations using the system.

Maintainability. These maintainability operations, the plagiarism detector becomes easier to manage, update, and extend over time, reducing maintenance efforts and promoting the long-term sustainability of the system.

MySQL. These MySQL operations, the plagiarism detector can effectively store, retrieve, and manage data, ensuring the integrity, performance, and security of the system's database.

Portal with Plagiarism Detector. The portal with a plagiarism detector provides users with a comprehensive and user-friendly platform to manage document submissions, access plagiarism reports, and utilize the plagiarism detection functionality effectively.

Plagiarism Detector. By combining multiple approaches, a hybrid plagiarism detector aims to achieve higher accuracy and broader coverage in identifying instances of plagiarism, whether they are verbatim copies, paraphrased content, or instances of improper attribution.

Portability. By following these considerations, the portal with a plagiarism detector in JRMSU can be made portable, accessible, and user-friendly across different devices, ensuring that users can conveniently access and utilize the plagiarism detection services provided by the system.

Reliability. By considering these reliability factors and implementing appropriate measures, the portal with a plagiarism detector in JRMSU can ensure that the system operates reliably, providing accurate plagiarism detection services and a seamless user experience for the university community.

Usability. Regularly gathering user feedback, conducting usability testing, and monitoring user interactions can help identify areas for improvement and enhance the portal's usability over time. By prioritizing user needs and preferences, the portal with a plagiarism detector in JRMSU can provide an intuitive and user-friendly platform that promotes efficient and effective usage by the university community.

VPRDE. The office of the Vice President for Research, Development, and Extension is on the JRMSU main campus in Dapitan City.

Theoretical and Conceptual Framework

Plagiarism detection is a critical element of academic writing and research that aims to identify instances where a writer has used someone else's work without proper attribution.

Based on the idea of text similarity, this plagiarism detection is used. According to this theory, a plagiarized text will resemble other existing papers quite a bit, especially in terms of language and structure. The plagiarism detector compares the supplied text with a sizable database of previously published articles using a variety of methods. When calculating the degree of similarity between the input text and the database documents, the algorithms take into account a variety of elements, including word choice, sentence structure, and even formatting.

Recent developments in machine learning and natural language processing have sparked the creation of more complex theories of plagiarism detection that can take into account linguistic complexity and identify more nuanced kinds of copying. To evaluate text and find patterns of similarity, these theories often use algorithms and machine learning models.

This study revolves around two interfaces: (1) Portal and (2) Plagiarism Detector together with an aspect such as functionality, reliability, usability, efficiency, maintainability, and portability.

The portal represents as the body which represents the body of the system and can perform tasks including user log-in, placement of data, personal information management, data security, and managing research status.The plagiarism detector is capable of detecting plagiarized documents in research papers uploaded to the portal.

This system's portability allows a system to move across environments rather than just platforms. To clarify, a computer platform generally refers to the operating system and computer hardware only. Since this system executes using an internet connection, users can access the system anytime and anywhere.

A conceptual framework, shown in Figure 1, is a diagram that describes the main ideas, variables, and connections in a research project. It gives a comprehensive description of the research topic and acts as a manual for formulating research hypotheses, research questions, and data gathering techniques. The sentence describes how a system with a gateway, a database, and a plagiarism detection system works. The portal receives authors' uploaded materials and saves them in a database for further processing. The documents are next examined by the plagiarism detector, which looks for any instances of plagiarism by comparing them to a database of other materials. The system creates a report when the analysis is finished, which is then delivered to the user via the portal interface. the document

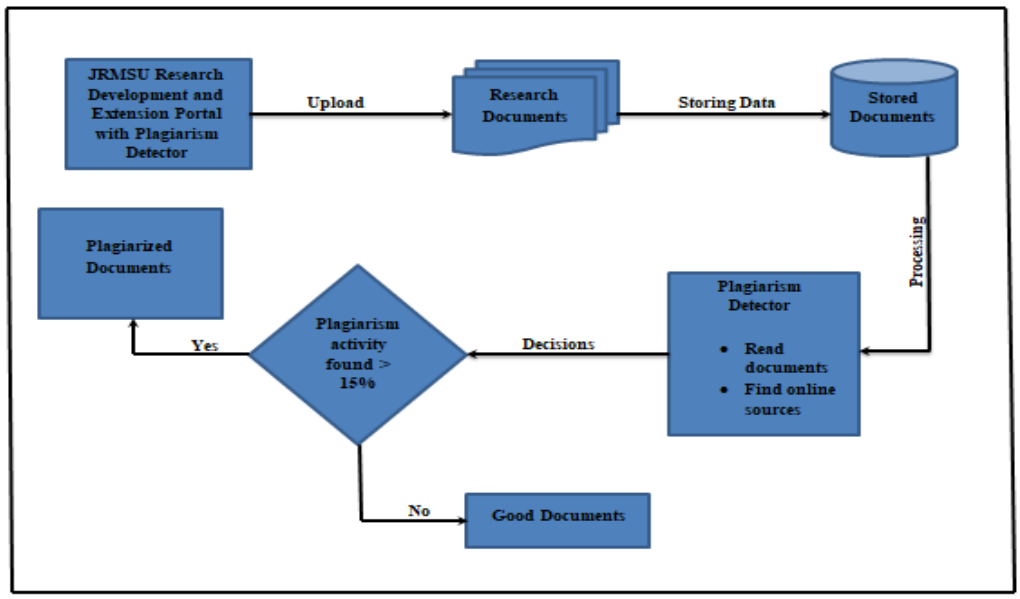

Figure 1. **Conceptual Framework**

As illustrated in Figure 2. The input box contains Computer, Mobile Phone, Internet Connection, Network Component, and PHP Programing Language which serve as the foundation for creating the output. Internet connection is the requirements to give functions the Network Components such as clients, servers, channels, interfaces devices, and operating system.

The process uses the Software Development Life Cycle (SDLC) as its model for development, it has seven stages, respectively; Data Gathering – to seek information of approaches in implementing the Portal with Plagiarism Detector – identifying the hardware and software minimum requirements, Designing – the steps in designing the approach for implementing the Portal with Plagiarism Detector, Coding – data converted to computer commands and instructions using PHP programming language, Testing and Evaluation – checking the accuracy and speed of the computerized procedure, Implementation – current system is executed for a period of time as comparison for a possible new system, Documentation – software documentation for the developed software. The project method used is an Incremental Build Model where the product is designed, implemented and tested incrementally until completion; adding a little more each time. As games have many intricate parts and scale very quickly, a modular approach is heavily beneficial for one.

The feedback loop includes several aspects. Firstly, if there is a lost internet connection, it can greatly affect the functionality of the portal with the plagiarism detector. This highlights the importance of a stable internet connection to ensure that the system works effectively.

Secondly, the feedback loop may identify features that need to be modified, changed, or added to improve the functionality of the system. This could involve adding new plagiarism detection algorithms, improving the user interface, or enhancing the system's reporting capabilities.

Thirdly, the feedback loop may suggest improvements or changes to the code that underpins the portals plagiarism detector system. This could involve optimizing the algorithms used by the plagiarism detector, improving the efficiency of the system, or making it more secure.

Lastly, the feedback loop may recommend code refactors for the portals plagiarism detection system. This could involve improving the system's functionality, reliability, usability, efficiency, maintainability, and portability. These are all important aspects of a well-designed system that operates effectively over the long term. The schematic diagram of the study is presented on the next page.

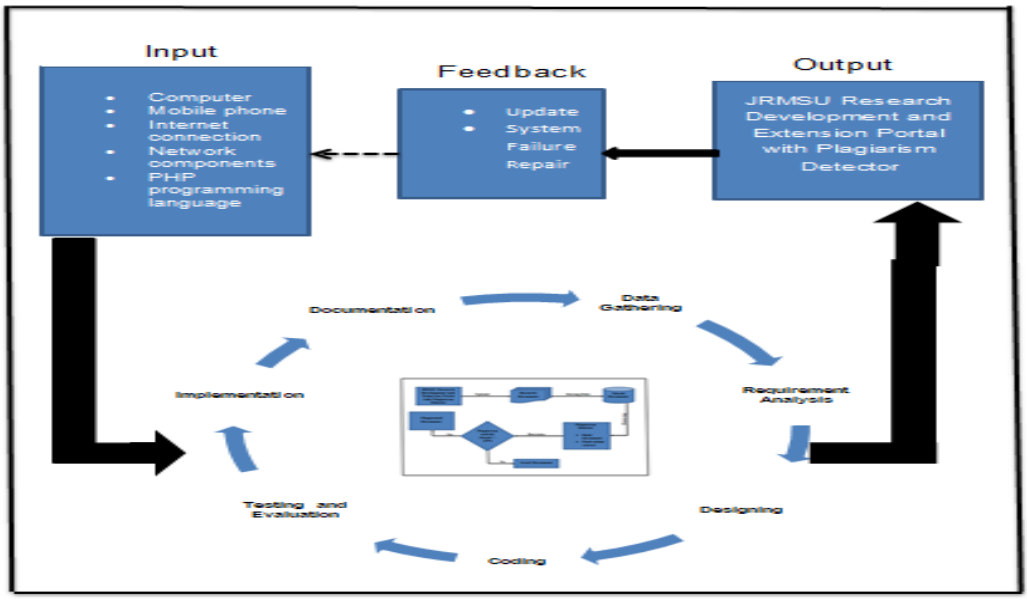

Figure 2. **Schema of the Study**

Chapter 2

REVIEW OF RELATED LITERATURES

This chapter presents different works and studies which almost have the same concepts and theory on Portal with Plagiarism Detector. These are mostly collected from the internet, which has provided the researchers with the ideas and principles in the development of the study.

Literature

Technology advancement has paved the way for publishing internet articles across many institutions, offices, and throughout the internet in the past year, abandoning the outdated approach. Although plagiarism is not a criminal or civil offense, it is illegal if it infringes on an author's intellectual property rights, including copyright or trademark.

In 2019, T. Foltnek, N. Meuscke, and B. Gipp state the survey results. There are 239 research papers published between 2013 and 2018 that have been detected as containing academic plagiarism. To structure the presentation of the research contributions, the researcher proposes novel technically oriented typologies for plagiarism prevention and detection efforts, the forms of academic plagiarism, and computational plagiarism detection methods. The researcher shows that academic plagiarism detection is a highly active research field. Over the review period, the field has seen major advances regarding the automated detection of strongly obfuscated and thus hard-to-identify forms of academic plagiarism. "This is proof that the plagiarism detector is an effective method for quickly detecting plagiarized documents." "It is better to research methods to reduce this case and preserve dignity." T. Eisa, N. Salim, and S.

Alzahrani (2015) focused on analyzing the state-of-the-art techniques used to detect plagiarism in terms of the limitations, features, taxonomies, and processes. To prevent stealing, the document will be run through a plagiarism detector to see if it has been copied from the internet without the reference. A plagiarism detector will detect it before posting it on the internet for online documentation, either to avoid embarrassing yourself in front of others or the school, or both. Some cases of plagiarism happen inside the school. The researcher developed a visual analysis tool to support the verification, assessment, and presentation of alleged cases of plagiarism.

P. Riehmann, M. Potthast, B. Stein, and B. Froehlich, (2015) said that, "The researcher developed a visual analysis tool to support the verification, assessment, and presentation of alleged cases of plagiarism." The analysis of a suspicious document typically results in a compilation of categorized "finding spots." The different views are tied together by versatile navigation and selection operations. "Technology is a big help in such cases because if only relying on the manual method, the process will take longer, and there is also a high possibility that everything will not be read."

"During system implementation, the researcher considered various factors and conducted analyses for system compatibility." A plagiarism detection system is a software that offers the necessary data and information to support a human reviewer in asserting whether a document, or parts of it, are an instance of plagiarism, as well as the severity of the case and the sources from which it was copied M. Abdelhamid, S. Batata, and F. Azouaou, (2022).

"In this study, the researcher employs the stylometry method to assess the possibility of plagiarism." M. Sallal and R. Iqbal (2019) V. Palade S. Amin and V. Chang

said that the methods of tackling plagiarism were stimulated by the authorship analysis approaches, which use several text analysis techniques to infer the authorship of suspicious texts. This method targets the authorial attributes and ignores any content-related topics. The core component of this method is stylometry, which relies on deriving sets of features based on MCW frequencies. The performance of this method will be measured based on how the derived sets of features perform using MLPs and other machine learning algorithms.

"Plagiarism detection as a system provides a greater percentage of the correct result or outcome." A. S. Bin-Habtoor and M. A. Zaher (2012) said that detecting plagiarism is important to judge and mark students' work, especially for postgraduates who are strictly prohibited from cheating, rewording, rephrasing, or restating without referencing. In this regard, numerous plagiarism detection systems have been developed. The system can be classified into two main categories: web-enabled systems and stand-alone systems.

(Salim Razi 2015) said that plagiarism is defined as "the practice of claiming credit for the words, ideas, and concepts of others" (American Psychological Association [APA], 2010, p. 171). The challenges caused by plagiarism are becoming more important in parallel with developments in Internet technology. In general, plagiarism may occur in any aspect of daily life, such as academic studies, computer games, journalism, literature, music, the arts, politics, and many more. Unsurprisingly, higher-profile plagiarizers receive more attention from the public (Sousa-Silva, 2014). "Plagiarism causes widespread problems in society; there have been cases involving celebrities, politicians, vloggers, researchers, and other well-known individuals."

"By making a plagiarism detector, researchers will consider good qualities such as functionality, flexibility, reliability, and maintainability." (Steven Bradley 2020) said that when providing a more divergent assessment, automated plagiarism detectors are much more effective because the likelihood of false positives is much lower than in more constrained, convergent assessments. The researcher also shows how to combine this with partial automation of assessments.

(Atadjanov, J., & Atadjanov, B. 2019) used CLAD (Cross-Language Analog Detector) between test documents and indexed documents. The main difference between this method and previous versions is that it detects plagiarism in multiple languages rather than just two. While translating terms, it used the dictionary-based machine-translation method. The purpose of displaying synonym forms of terms above is to explain the comparison process to the reader when considering synonymity. A common mode of dealing with this is to apply plagiarism detector software to code submissions to check for suspected plagiarism based on how similar the submissions are.

(Deng, P., Linsky, C., & Wright, M. 2020) said that a software plagiarism detector (SPD) was developed using the Intel Pin instrumentation tool and that tested this approach on different small executable single-threaded and multi-threaded files. The results portray the validity of this method. The researcher also discusses the possibility of expanding this method to larger software applications.

(Chavan, H., Taufik, M., Kadave, R., & Chandra, N. 2021) pointed out that related studies Plagiarism, as a crucial offense, especially in academia, is not only a well-known problem in the text but is also becoming widespread in images. In this work, the performance of manifold ranking, known as the robust method among semi-supervised

methods, has been investigated by using twelve different features. As its high performance is attributed to the quality of the constructed graph, researchers applied a robust k-regular nearest neighbor (k-RNN) graph in the framework of manifold-ranking-based retrieval.

(Yalcin, K., Cicekli, I., & Ercan, G., 2022) propose that the aim of this paper is to present an automatic plagiarism detection system to identify plagiarized passages of documents. This plagiarism detection system uses both syntactic and semantic similarities to identify plagiarized passages. The researcher's proposed method is a novel contribution because of its usage of part-of-speech tag n-grams (POSNG), which are able to show syntactic similarities between the source and suspicious sentences. Each source document is indexed according to part-of-speech (POS) tag n-grams by a search engine in order to rapidly access sentences that are possible plagiarism candidates. Even though the plagiarism detection system obtains very good results just using POS tag n-grams, its performance is further improved with the use of semantic similarities. The proposed method is a novel contribution because of its usage of part-of-speech tag n-grams (POSNG), which are able to show syntactic similarities between the source and suspicious sentences. Each source document is indexed according to part-of-speech (POS) tag n-grams by a search engine in order to rapidly access sentences that are possible plagiarism candidates.

(Sibomana, E., Ndayambaje, I., & Uwambayinema, E. 2018) proposed that in the academic arena, plagiarism is on the rise. As a result, higher education institutions are enacting harsh punitive measures. Most of these measures are more reactive than preventive because the focus on plagiarism detection and the kinds of punishments to

administer to students who plagiarize. In fact, these measures fail to address particular or primary reasons for plagiarism in students' works. This could be one of the reasons why such measures have done little to reduce plagiarism.

(Bouarara, H. A., Hamou, R. M., & Rahmani, A. 2017) said that the number of plagiarism cases has increased and has become a topical problem in the modern scientific world, caused by the quantity of textual information available online and offline. The authors' work deals with the development of a new plagiarism detector system called BHA2, which has as input the suspicious text (to be analyzed) and the original texts (the learning basis). It can detect different forms of plagiarism based on: the Google API to detect cases of plagiarism with translation; text summarization to detect the plagiarism of ideas; conceptual transform to detect the plagiarism with synonymy; a bag of ashes to detect the paraphraser plagiarism; the social worker bees algorithm that was inspired by the lifestyle of social worker bees (forager, guardian, and cleaner) to select the documents' source of plagiarism; the output of the authors' system is the plagiarized passages (the copied parts from the original texts) and the plagiarism percentage for each suspicious text.

Foreign Studies

M. Abdelhamid, F. Azouaou, and S. Batata (2022) The researchers highlight that plagiarism has become a significant concern in academia, particularly due to the widespread availability of online content and the ease of access to global sources. Traditional methods relying solely on human intervention are inadequate to address the magnitude of the problem. Hence, the study focuses on computer-assisted plagiarism detection as an active area of research within information retrieval (IR) and natural

language processing (NLP) to address this issue. The paper provides an overview and comparative analysis of plagiarism detection systems suitable for academic and educational settings. The study focuses on systems designed for Arabic, French, and Englishncern in academia, particularly due to the widespread availability of online content and the ease of access to global sources. Traditional methods relying solely on human intervention are inadequate to address the magnitude of the problem. Hence, the study focuses on computer-assisted plagiarism detection as an active area of research within information retrieval (IR) and natural language processing (NLP) to address this issue. The paper provides an overview and comparative analysis of plagiarism detection systems suitable for academic and educational settings. The study focuses on systems designed for Arabic, French, and English. By evaluating various systems, the researchers aim to assess their features, usability, technical aspects, and performance in detecting different levels of plagiarism obfuscation, including verbatim, paraphrase, and cross-language plagiarism. Furthermore, the research delves into the examination of technical forms of plagiarism. The researchers conducted a comparative study involving eight plagiarism detection systems. The comparison was based on several criteria, including system features, usability, technical aspects, and the ability to detect various levels of plagiarism obfuscation. The performance evaluation involved analyzing the systems' effectiveness in detecting verbatim, paraphrase, and cross-language plagiarism. Technical forms of plagiarism were also thoroughly examined within the context of the study. Additionally, the researchers conducted a survey of plagiarism typologies and classifications proposed by different authors. The study's findings revealed important insights into plagiarism detection systems for academic and educational environments.

The comparative analysis highlighted variations in system features, usability, and technical aspects among the evaluated systems. The performance evaluation demonstrated the effectiveness of the systems in detecting different levels of plagiarism obfuscation, such as verbatim, paraphrase, and cross-language plagiarism. The examination of technical forms of plagiarism provided a deeper understanding of the intricacies involved in identifying instances of plagiarism. The survey of plagiarism typologies and classifications proposed by different authors contributed to the existing knowledge in the field.

G. Hu and X. Sun (2017) The researchers identify plagiarism as a significant problem in higher education institutions worldwide and highlight its prevalence as a cause for concern. While previous research has explored Chinese students' attitudes and engagement in plagiarism, as well as Chinese teachers' understanding of plagiaristic practices, there has been limited research attention given to institutional policies on plagiarism in the Chinese context. The researchers aim to address this gap in knowledge by examining publicly available plagiarism policies of eight major universities of foreign studies in mainland China. This paper presents a study that focuses on analyzing the plagiarism policies of major Chinese universities of foreign studies. By scrutinizing the structure and content of these policy documents, the researchers aim to identify the institutions' understanding of plagiarism, their attitudes toward it, and the sanctions imposed for such academic misconduct. The study also aims to assess whether these policies emphasize an educational approach to plagiarism or rely primarily on moralistic and regulatory discourses. The researchers conducted a comprehensive analysis of plagiarism policies by examining the publicly available policy documents of eight major

Chinese universities of foreign studies. The analysis focused on both the structure and content of these policies. By employing qualitative research methods, the researchers identified and analyzed the institutional understandings, attitudes, and sanctions related to plagiarism as outlined in the policy documents. The study aimed to uncover the dominant discourses present in the policies and assess the extent to which they support students' acquisition of academic literacy and legitimate intertextual practices. The analysis of the plagiarism policies in the Chinese universities of foreign studies revealed important insights into institutional approaches to plagiarism. The study found that while there were variations among the policies of different institutions, the policy documents were predominantly characterized by moralistic and regulatory discourses. The emphasis on punitive measures and a lack of focus on educational approaches to plagiarism were notable features of these policies. The researchers argue that such an institutional approach to plagiarism is unlikely to be effective in supporting students' development of academic literacy and legitimate intertextual practices.

O Zimba, A Gasparyan (2021) The researchers recognize plagiarism as an ethical misconduct that negatively impacts the quality, readability, and credibility of scholarly publications. It is crucial to enhance researchers' awareness of plagiarism in order to prevent unacceptable writing practices. Global editorial associations have issued statements and guidelines to address redundant, stolen, and misleading information in the scholarly literature. Updating author instructions and informing potential plagiarists about the academic and other consequences of such unethical behavior are recommended. The researchers also highlight that instances of redundant and "copy-and-paste" writing often stem from a lack of creative thinking and poor academic English skills. The paper

suggests strategies and considerations to address plagiarism in scholarly publications and improve researcher awareness. It emphasizes the importance of consulting relevant documents, such as guidelines provided by global editorial associations, while updating author instructions and warning potential plagiarists about the repercussions of unethical behavior. The researchers also advocate for fostering creative thinking and enhancing academic English skills to mitigate instances of redundant and "copy-and-paste" writing. They propose that plagiarism detection software, although useful for identifying textual similarities, should be supplemented with manual checks to identify inappropriate referencing, copyright violations, and substandard English writing. The researchers utilize a literature review approach to discuss the problem of plagiarism in scholarly publications and suggest potential solutions. They draw on the expertise and guidelines provided by global editorial associations and other relevant sources. The paper synthesizes information from these sources to present strategies for improving researcher awareness and combating plagiarism. The authors also integrate their own insights and recommendations based on their understanding of the issue. The study emphasizes the significance of addressing plagiarism to maintain the quality, readability, and trustworthiness of scholarly publications. The researchers highlight the importance of updating author instructions and warning potential plagiarists about the academic and other consequences of unethical behavior. They recommend consulting guidelines and statements issued by global editorial associations to ensure comprehensive coverage of strategies to combat plagiarism.

In their 2017 article, Gasparyan and Nurmashev highlight the persistent issue of plagiarism in scientific journals, despite the availability of anti-plagiarism tools. They

argue that the lack of universally accepted definitions of research misconduct and overreliance on similarity checks hinder journal editors' ability to effectively prevent complex cases of recycling scientific information and predatory publishing. The researchers analyze publication activity based on the Scopus database, focusing on evidence of poor writing, insufficient training, emerging anti-plagiarism strategies, and the wasteful publication of largely recycled content that bypasses similarity checks. They advocate for the adoption of comprehensive anti-plagiarism strategies that go beyond simple textual similarity checks, including the utilization of intelligent (semantic) digital technologies to evaluate various elements such as texts, keywords, graphics, and reference lists. They also emphasize the need for global editorial guidance to ensure adherence to publication ethics. The researchers conducted an analysis of publication activity using the Scopus database. They examined the prevalence of poor writing, lack of related training, and the emergence of new forms of plagiarism that escape detection by existing anti-plagiarism software. They also explored the challenges faced in non-Anglophone countries, where "copy-and-paste" writing remains a significant problem due to poor research management, limited access to quality sources, and the absence of courses on publication ethics. The researchers found that while anti-plagiarism software has been successful in detecting elementary forms of textual recycling, it falls short in identifying more sophisticated forms of plagiarism, such as manipulative paraphrasing and editing. They highlight cases of mass retractions of plagiarized articles by reputable open-access journals, which underscore the deficiencies of current anti-plagiarism software. Manipulative editing and nonsensical plagiarism are also prevalent in predatory journals.

The research conducted by Hu, Lei, and Système (2016) aimed to address the lack of focus on English as a Foreign Language (EFL) teachers in the existing literature on plagiarism. The study aimed to bridge this gap by comparing the perceptions of Chinese university EFL teachers and undergraduate students regarding two forms of intertextuality, namely unacknowledged copying and unattributed paraphrasing, which are generally considered as plagiarism in Anglo-American academia. The researchers conducted a comparative study involving 142 Chinese university EFL teachers and 270 undergraduate students. The participants were presented with exemplars of unacknowledged copying and unattributed paraphrasing, and their perceptions were analyzed to gain insights into their understanding of plagiarism. The study employed both quantitative and qualitative analyses to examine the participants' perceptions of plagiarism. The researchers collected data through surveys and interviews, allowing them to capture both numerical data and detailed qualitative insights. The findings of the study indicated that while the Chinese EFL teachers and undergraduate students had a different understanding of plagiarism in English academic writing compared to Anglo-American academia, they clearly disapproved of recognized cases of plagiarism. The analyses further revealed that participants with greater knowledge and experience in English academic writing demonstrated a stronger disapproval of both unacknowledged copying and unattributed paraphrasing. Moreover, participants who had wider exposure to and more experience in English academic writing showed a better understanding of both types of transgressive intertextuality.

Local Studies

The research conducted by Ebardo (2018) focuses on cyber-plagiarism, an illicit form of academic dishonesty facilitated by technology. The study aims to investigate the drivers of cyber-plagiarism in a university in the Philippines and explore the role of pedagogical strategies and academic programs in combating this issue. The author proposes the application of the Theory of Planned Behavior, complemented by a dimension borrowed from the Big Five Personality Theory, to understand the factors that contribute to cyber-plagiarism. By identifying these drivers, the study seeks to provide insights for developing effective technological and pedagogical recommendations to address and prevent cyber-plagiarism in higher education. The study collected 309 responses to test the proposed research model. The author applied a partial least squares structural equation model to validate the research model and analyze the relationships between variables. The findings of the study indicate that while ICT attitudes and peer pressure have some influence on behavioral intentions to commit cyber-plagiarism, this relationship was not supported by the investigation. However, the study revealed that ICT literacy and neuroticism significantly predict behavioral intentions to engage in cyber-plagiarism. Subsequently, these behavioral intentions were found to predict the actual performance of cyber-plagiarism. The results highlight the importance of addressing ICT literacy and the influence of personality traits, specifically neuroticism, in shaping individuals' intentions to commit cyber-plagiarism. The findings suggest that interventions focusing on enhancing ICT literacy skills and addressing the emotional factors associated with neuroticism could be effective in reducing cyber-plagiarism in higher education settings.

DEL Marco Jr., J. Sareno (2020).The researcher identifies the increasing concern of academic dishonesty and plagiarism in educational institutions, where students often rely on copying previous works and accessing prepared solutions available on the Internet to fulfill assignment requirements. To address this problem, the study aims to design and develop a plagiarism checker system that can register documents, grant user access, and calculate document similarity. The solution proposed in this study involves the design and development of a plagiarism detection system. The system utilizes web technologies such as HTML, PHP, JavaScript, CSS, and MySQL to create a software application with three main modules: document search, document registration, and document comparison. These modules enable users to browse documents, allow the administrator to add and manage stored documents, and provide a mechanism for detecting plagiarism by comparing document similarities. The researcher implemented the plagiarism detection system using HTML, PHP, JavaScript, CSS, and MySQL technologies. The Normalized Compression Distance algorithm was employed to measure document similarity, while the Boyer-Moore Algorithm was utilized to highlight suspected plagiarized documents. Tests were conducted to ensure the system's functionality and accuracy of the output. Additionally, the system's quality was evaluated using the ISO 25010 software quality model, and feedback was obtained from one hundred respondents to assess its effectiveness. The developed plagiarism detection system achieved the desired objectives of the study. The system was able to register documents, grant user access, and accurately calculate document similarity. The ISO 25010 software quality evaluation, rated by one hundred respondents, yielded a mean score of 4.70, which corresponds to an "excellent" rating in descriptive terms.

AG Roman (2018) The researcher acknowledges the prevalence of plagiarism in higher education institutions worldwide, highlighting the need for studies focused on preventing this issue. Recognizing the importance of academic integrity and honesty, this study aims to minimize plagiarism among teacher education students. The research focuses on utilizing plagiarism detection software, specifically Turnitin, as a preventive measure. The proposed solution involves implementing Turnitin, a plagiarism detection software, to minimize the occurrence of plagiarism among teacher education students. By utilizing this software, the study aims to increase awareness and discourage the act of plagiarism, thereby promoting academic integrity and honesty within the student population. The study employed a one-sample pre-test-post-test design of a quasi-experiment. Sixty-one teacher education students were selected as participants, with an average effect size of 0.5. The treatment phase lasted for two weeks. Data were collected using the plagiarism detection software, Turnitin, to compare the similarity indices of the students' submitted research manuscripts before and after the utilization of the software. A paired T-test statistical treatment was conducted at a significance level of 5% (alpha = 0.05) to analyze the differences in the similarity indices. The results indicated a significant decrease in the similarity index of the submitted manuscripts by the teacher education students after utilizing Turnitin. This finding suggests that the utilization of plagiarism detection software effectively reduced instances of plagiarism among the students. Through triangulation, the study also identified several factors influencing students to commit plagiarism, including self-resourcefulness, academic culture, and a weak plagiarism detection scheme. These factors shed light on the underlying reasons

behind plagiarism occurrences and provide insights for addressing the issue comprehensively.

R. Bonifacio (2020).The researcher highlights plagiarism as an academic crime that involves stealing ideas without proper attribution. This study aims to address the issue of plagiarism among undergraduate students by identifying the dominant types of plagiarism, quantifying the percentage of plagiarism committed by students using Grammarly, exploring the reasons behind plagiarism, and examining the effects of a Plagiarism Intervention Program. The proposed solution involves implementing a Plagiarism Intervention Program to combat plagiarism among undergraduate students. By identifying the dominant types of plagiarism, understanding the factors contributing to plagiarism, and evaluating the effectiveness of the intervention program, the study aims to reduce instances of plagiarism and promote academic integrity. The study utilized a combination of content analysis, interviews, and focus group discussions to gather data and substantiate the findings. The researcher analyzed 328 samples to determine the dominant types of plagiarism, quantified the percentage of plagiarism using Grammarly, and conducted interviews and focus group discussions to explore the reasons behind plagiarism. The study also implemented a Plagiarism Intervention Program in two phases to evaluate its effectiveness in reducing plagiarism. The analysis of the 328 samples revealed that copying without citation was the dominant type of plagiarism, followed by unintentional plagiarism, patchwork plagiarism, and copying with citation. The overall mean percentage of plagiarism was found to be 8.28%, with 15 out of 328 samples showing no plagiarism.

CC Orlanda-Ventayen (2019).The researcher acknowledges that despite the availability of plagiarism detection applications, the English language, commonly used as the medium of instruction in universities and colleges worldwide, continues to be threatened by plagiarism. This study aims to address the issue by examining the language proficiency and plagiarism practices among graduate students in education and non-education programs, as well as exploring the correlation between language proficiency and plagiarism practices. The proposed solution emphasizes the importance of maintaining academic integrity by addressing language proficiency and plagiarism practices among graduate students. By understanding the correlation between language proficiency and plagiarism, the study aims to recommend measures to universities to implement strict plagiarism detection systems and uphold academic integrity. The study collected data from graduate students in education and non-education programs. Pivot analysis and the correlation matrix process were employed to determine the linear correlation between English proficiency scores and plagiarism percentages. A scatter diagram with Loess regression interpolation was utilized to visualize the correlation between language proficiency and plagiarism practices. The results of the study indicate that education graduate students generally have higher proficiency scores in English compared to non-education graduate students. Additionally, it was found that non-education graduate students tend to engage in more instances of plagiarism compared to their education counterparts. Furthermore, the study identified a strong positive correlation between plagiarism practices and student grades, suggesting that students who engage in plagiarism may experience a negative impact on their academic performance.

Synthesis

Plagiarism detectors are an important tool for detecting instances of plagiarism in written texts, but there are several research gaps that need to be addressed in order to improve their effectiveness and ethical use. One key research gap is the lack of systematic evaluation of their effectiveness in detecting different types of plagiarism. While plagiarism detectors are known to generate false positives and false negatives, few studies have evaluated the frequency and impact of these errors. This can lead to inaccurate or incomplete detection of plagiarism, which can undermine academic integrity and credibility.

The analysis of numerous studies on plagiarism detection indicates that academic plagiarism is prevalent and underscores the need for effective plagiarism detection systems. Various techniques and tools have been suggested, such as stylometry, visual analysis tools, and software plagiarism detectors. The studies underscore the significance of technology and automation in identifying plagiarism since manual methods can be time-consuming and incomplete. Additionally, researchers have explored manifold ranking, cross-language analog detectors, and part-of-speech tag n-grams to enhance plagiarism detection. These studies underscore the importance of upholding academic integrity and highlight the potential ramifications of plagiarism in a variety of fields, including academia, journalism, music, and politics.

The study at hand involves the use of plagiarism detection software, which raises several ethical issues that need to be addressed. These issues include privacy concerns, potential biases, intellectual property protection, obtaining informed consent, disclosing conflicts of interest, and preventing the misuse of results. Firstly, privacy concerns arise

due to the vast amount of data that plagiarism detection software requires, including documents and text excerpts. The researchers need to ensure that they comply with ethical standards regarding privacy and data protection. Secondly, the use of automated plagiarism detectors can lead to potential biases, which can negatively impact individuals' academic careers. It is, therefore, important that the researchers validate the accuracy and fairness of their methods and avoid relying solely on automated systems to make decisions. Thirdly, the study involves identifying instances of intellectual property theft, and while plagiarism is unethical and illegal, it is essential to ensure that the authors' rights and intellectual property are protected. Fourthly, in cases where the study involves human participants, obtaining informed consent is crucial to avoid ethical concerns. Fifthly, the study's authors should disclose any conflicts of interest that may affect the study's integrity or results. Conflicts of interest can undermine the credibility of the research and raise concerns about bias. Lastly, the study's results should not be misused to punish or penalize individuals without proper due process. The researchers should emphasize that the study's purpose is to prevent plagiarism and maintain academic integrity, not to target individuals unfairly. Therefore, it is vital that the researchers address these ethical issues to ensure the integrity and credibility of the study.

Ethical and legal considerations related to privacy, copyright, and intellectual property are also important research gaps in the study of plagiarism detectors. Plagiarism detectors can potentially infringe on the privacy and intellectual property rights of authors, and there is a need for comprehensive guidelines and regulations to ensure their ethical and legal use.

This statement summarizes the research gaps in plagiarism detection, prevention, and analysis. It highlights the need for systematic evaluation, customization, ethical considerations, integration with teaching and learning activities, and cultural and contextual factors.

The studies listed above offer advantages such as providing insights into various methods of plagiarism detection and prevention, highlighting the significance of plagiarism detection, and giving recommendations for designing effective plagiarism detectors that possess good qualities like functionality, flexibility, reliability, and maintainability. However, there are also disadvantages, including the limited scope of some studies, the potential lack of comparability due to different methods and technologies used, and the reliance on subjective judgments in some studies, which may introduce bias or error.

The study's advantages include the development of an advanced and high-tech portal with a plagiarism detector specifically designed for researchers and employees within the JRMSU system, as well as its ability to improve the efficiency and effectiveness of research and presentation processes. It also highlights the importance of internet access for the system's applicability. However, the study's limitations include its restriction to the JRMSU system, the lack of information on the detector's accuracy and effectiveness, and the absence of data on the cost or resources required to implement and maintain the system, which may hinder its adoption in some contexts. In addition the study does not provide information on the accuracy and effectiveness of the plagiarism detection system used.

Chapter 3

RESEARCH METHODOLOGY

This chapter of the research process with the information need about the study of methodology. It assist the researchers in comprehending the discussion of the research method as well as the specific techniques used to identify, select, process, and analyze information in the researcher's topic. These parts also involve the discussion of the respondents to the study, sampling design and techniques, statistical tools, and a calendar of activities.

The Design

This study applies a descriptive and development research approach to collect, via survey, the functional needs that would want to see included in the creation of the new system on all JRMSU campuses with a Research Development and Extension Portal with a Plagiarism Detector. The collected data is processed and used in the Extension Portal with the Plagiarism Detector application. Its rigorous approach to system design, implementation, and evaluation in the field of communication and information systems assures effectiveness.

Research Setting

Figure 3. presented the location of all branches of JRMSU system. The Jose Rizal Memorial State University is a public university founded under republic Act 9852. The University is divided into six (6) campuses of which is situated in Dapitan City, Zamboanga Del Norte. Jose Rizal Memorial State University – Dapitan, Dipolog , Katipunan Campus, Tampilisan and Siocon are conducted in the study.

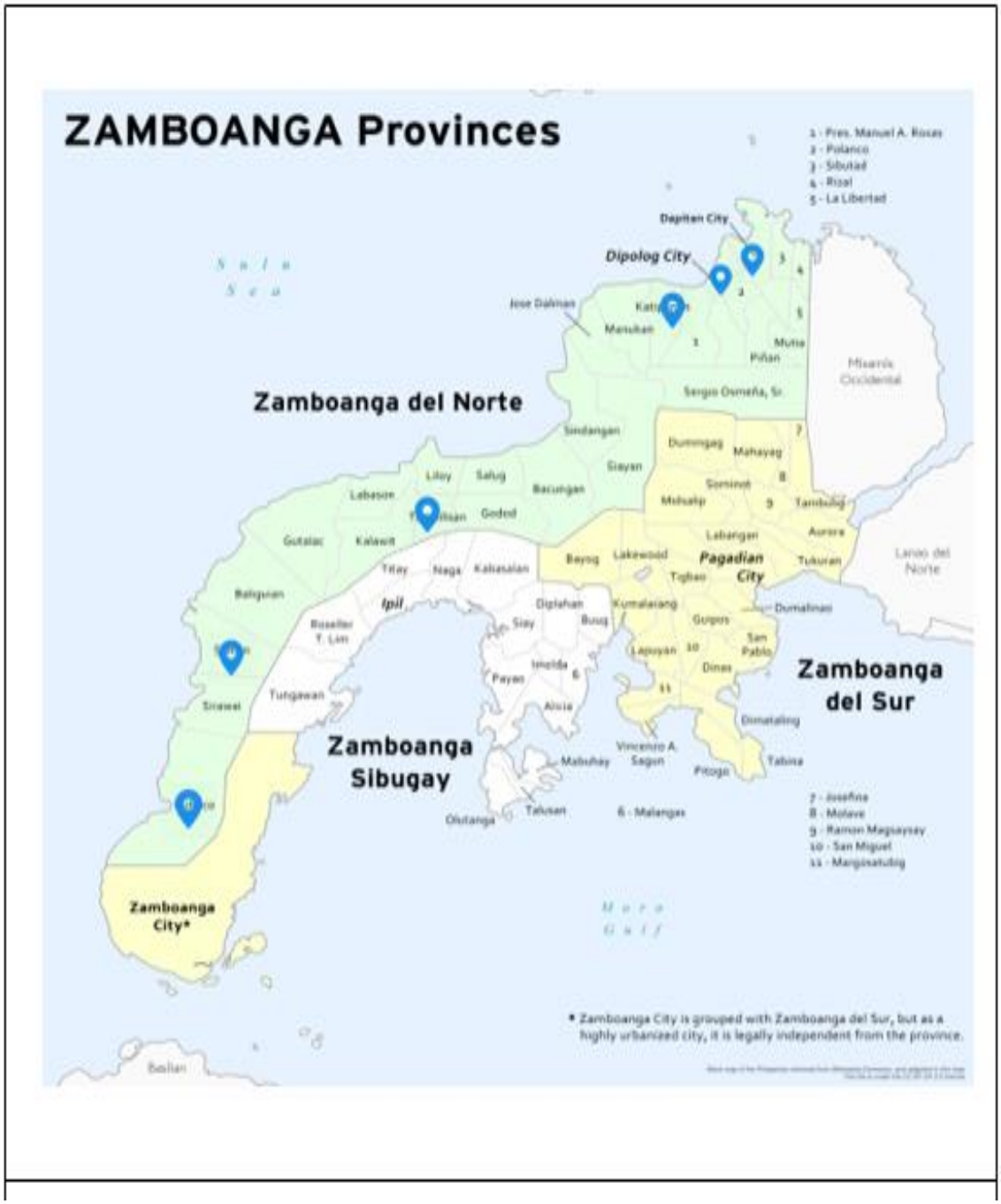

Figure 3. **Map Location of Six (6) JRMSU Campuses**

Respondent of the Study

The study's respondents include information technology experts such as IT professionals, Instructors/Professors who covered research and extension, graduate

school, and staff from the research building. The proponents that need is document that been uploaded by the respondents are mainly focus in success in the program that 98% of the text will be recognized of the JRMSU Research Development and Extension Portal with Plagiarism Detector.

Table 1. **Respondents Distribution**

Position/ Status	**No. of Respondents**	**Percentage (%)**
IT Professionals	5	15%
Masteral Teachers	5	15%
Graduate School	7	65%
Staff Research Building	3	5%
TOTAL	**20**	**100%**

The population is of a high enough standard that each individual may be included in the scientific sample. The effectiveness of statistical practice depends on limiting the wording of the papers after population membership is attained. Defining the population from which the sample was collected is part of this. Documents uploaded to the application or individuals with the feature the researcher is interested in can define a population. Since the population can be statistically evaluated, the researchers chose to employ the snowball sampling method. Snowball sampling is a particular kind of technique. With the snowball sampling technique, the researchers choose at random some participants from the population to reach.

Research Instrument

There are two instruments used in gathering data in this study. The first instrument is implementing the JRMSU Research Development and Extension Portal with Plagiarism Detector to help the user validate and test their documents; the second step is to identify the process of the plagiarism detector; and developing the system is to examine the result of their documents and to detect the plagiarized sentence. And the third part determined the difference between the original and the document that will be uploaded in the new system; if the test detects plagiarized sentences, it will not accept the documents. While the second instrument deals with the evaluation of the quality of the software, specifically the effectiveness of the system of plagiarism detectors, the results accurately measure the concrete outcome they are designed to measure. The instrument can help the researchers improve and develop the system. It can assess usability and identify or develop technical issues.

Validation of Instrument

This system is based on the instrument used by Raz, S. (2015) in his study "Development of a Rubric to Assess Academic Writing Incorporating Plagiarism Detectors". The study uses the Transparent Academic Writing Rubric (TAWR), which is a combination of several essential components, rubrics, and common characteristics of academic writing. Validity and reliability are the tools used to determine applicability in languages other than English.

The system was classified into two (2) different sets of questions: the first part determined the current problem in Extension Portal and Plagiarism Detector use in universities, and the second part identified the problem encountered on every campus.

And the third part determined the functional and non-functional requirements the users would want to incorporate into the development of the new system. Along the lines of validity and reliability, which involve consistency in the test-taker and constitute two components, in order for any assessment or measurement tool to be considered valid and reliable, it must be consistent in its administration and scoring. This means that the tool must be designed in such a way that it consistently measures what it is intended to measure and produces consistent results over time and across different test-takers.

Table 2**.** **Cronbach's Alpha**

VARIABLES	DESCRIPTION	VALUES	INTERNAL CONSISTENCY
K	# Of items	27	
$\sum s^2 y$	sum of the item variance	9.95	
$s^2 x$	variance of total score	29.51	GOOD
A	Cronbach's Alpha	0.80	

The internal consistency or reliability of a group of connected items or questions in a survey or questionnaire is evaluated statistically using Cronbach's alpha. It is a coefficient with a 0–1 range that estimates the extent to which each item in a survey or test is measuring the same underlying construct. While a low alpha value shows that the items may not be measuring the same construct or may be unreliable, a high alpha score indicates that the items are highly connected and dependable. By examining the inter-correlations between each item on a questionnaire or test, Cronbach's alpha is obtained. The alpha value depends on the test's item count and is based on the average of all conceivable split-half correlations. Alpha values above 0.7 are typically regarded as

satisfactory internal consistency, whereas values above 0.8 are good and values above 0.9 are exceptional.

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Scoring Procedure

The research utilized a systematic approach to offer a qualitative interpretation of the results. This involved employing a ten-point range and scale across five tables, where respondents rated the research based on predefined criteria. The use of a broader spectrum of scoring options allowed for a more nuanced assessment, capturing variations in quality and significance. The tables, designed to address different aspects of the study, provided a comprehensive evaluation of research quality. The assigned scores reflected respondents' subjective judgment and were collated to provide an overview of strengths, weaknesses, and overall quality. This structured methodology facilitated a qualitative interpretation that went beyond statistical analysis, offering a deeper understanding of the

research's merits and limitations. The specific details of the approach may vary, but the goal remains consistent in providing a systematic evaluation through predefined criteria, a range and scale, and respondent ratings across multiple tables. To obtain the qualitative were interpreted following value:

Table 3. **Scoring Procedure**

Scale	Value of Range	Descriptive Rating	Interpretation
5	4.21 – 5.00	Strongly Agree	Plagiarism Detector hardly effective perform 100%
4	3.41 – 4.20	Agree	Plagiarism Detector adverb scarcely effective perform 75%
3	2.61 – 3.40	Neutral	Plagiarism Detector with difficulty effective perform 45%
2	1.81 – 2.60	Disagree	Plagiarism Detector almost inconceivably effective perform 25%
1	1.00 – 1.80	Strongly Disagree	Plagiarism Detector almost not effectively perform 15%

By using this range and scale, the researchers were able to interpret the qualitative results of the study in a meaningful and consistent way. The use of clearly defined criteria and a standardized approach to scoring helped to ensure that the interpretation of the survey results was objective and reliable. This approach is commonly used in research and evaluation to help ensure that findings are valid and reliable and can be used to make informed decisions and recommendations.

Data Gathering Procedure

The researchers used documents, questions, and examining the papers and processes at work to perform and also to collect data during this process. The data was analyzed using system software. It used analytical and modeling methods to display the text of the documents during its process. After the compilation of the specifications, the researchers studied and evaluated them all before going to the next task of checking the documents for plagiarism. These are tools for gathering data for research.

Statistical Treatment of Data

Data were gathered, then analyzed and interpreted accordingly based on the results of the statistical treatment. In this study, the researchers used a frequency that will be applied to the number of populations that gather in IT professionals, master's teachers, graduate schools, and other staff in the research building and need to be identified by their full name, password, profession, and documents. The data gathered was carefully analyzed based on the result of Cronbach's alpha to proceed with the survey. The data collection in this study was subjected to certain statistical treatments.

Frequency and Percentage. This used in profiling the respondents.

Percentage = (part/whole) x 100

Weighted Mean. This used to measure the plagiarism detector of IT Professional, Masteral Teacher, Graduate School and other Staff in Research Building in accommodation industries in terms of coping another work.

$$\text{Formula: Weighted Mean} = \frac{\Sigma\, Wi\ Xi}{n}$$

Where: Wi = Corresponding ith Weight

Xi = ith Frequency

n = Total no. Respondent

Project Development Process

The project development software is intelligent and has essay checker software that offers advance feedback and also provides reports with the percentage of plagiarism. It is accurate and comprehensive, giving them proper credit. It can also be the life cycle of developing an information system through data analysis, coding, implementation, closing, and initiation. It delivers regular updates to stakeholders detailing progress that concludes the project's task to turn the delivered product into a service, which defines the incremental changes made during the process and checking of its portal. Although these are described sequentially, they can be applied concurrently during the lifetime of the project and interchangeably.

Requirements Analysis

Requirements analysis is a crucial phase in the development of any system or software, as it involves the identification and clarification of specific features and functionalities demanded by the user. During this process, system users, stakeholders, and developers collaborate to resolve any ambiguity present in the requirements to ensure a clear understanding of what needs to be achieved.

One of the primary goals of requirements analysis is to ensure that the final system or software aligns with the stated requirements. By addressing any inconsistencies or gaps in the initial requirements, the analysis helps in refining and validating the specifications to create a robust system that meets the intended purpose.

This study involved problem analysis and the system to solve current problems. System begins direct designing the project software & hardware recommended in this study are;

Table 4. **Minimum Software & Hardware Requirements**

Software	Hardware	Requirements
Back – end Programming	RAM	PHP, MySQL Database, JavaScript
Front-end Programming Language	Hard Drive	JavaScript, Bootstrap, Html, CSS, Admin LTE
Window 7-8	Laptop/Computer	Application

System Designing

These visual representations, including UML diagrams, DFDs, ERDs, HIPO charts, and system flowcharts, collectively serve as powerful tools to communicate the abstract concepts of the project. They facilitate discussions, aid in identifying potential issues or gaps in the requirements, and provide a shared understanding among stakeholders and the development team.

By presenting the system requirements and design in a visual format, these techniques enhance clarity, improve communication, and promote effective collaboration throughout the development process. They serve as a common language that enables stakeholders to provide feedback, validate the system design, and ensure that the abstract representation aligns with their expectations.

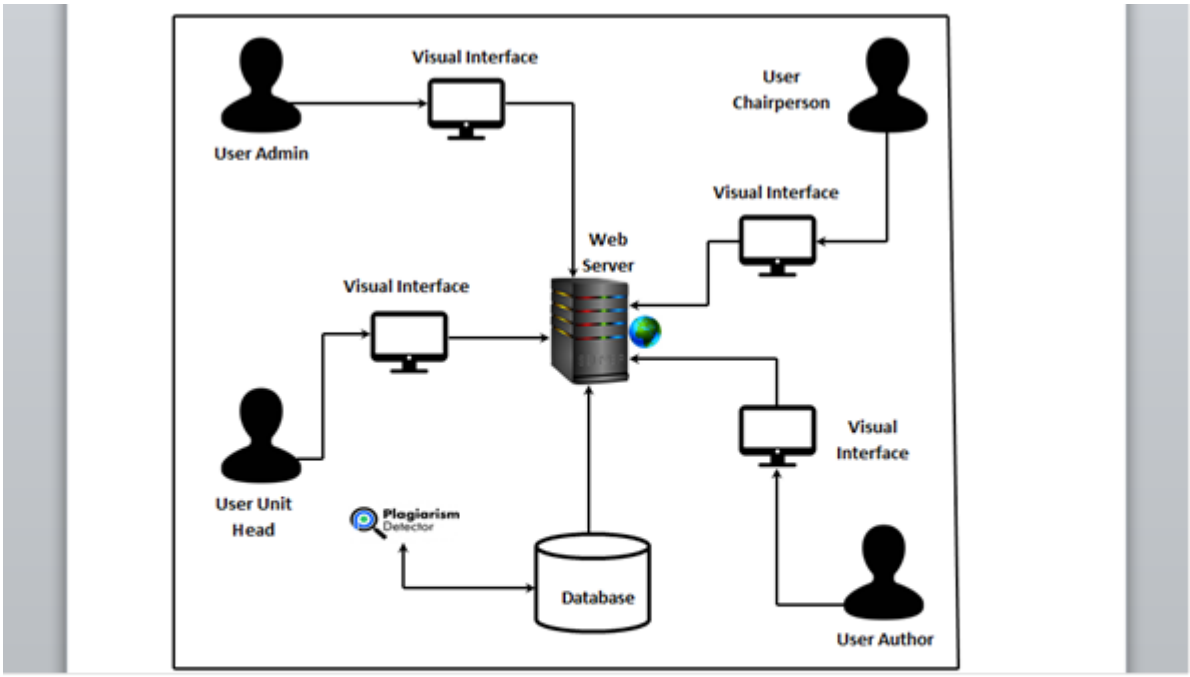


Figure 4. System Architectural Design

a. System Architectural Design

The hardware and software architecture of the "Portal with Plagiarism Detector" is an essential aspect of the proposed software system. This part focuses on describing the overall structure and components of the system.

The system project design diagram provides an overview of how the different elements of the software system are organized and interact with each other. It visualizes the relationships between various modules and components, helping to understand the overall architecture.

The admin plays a crucial role in the system as they are responsible for registering user accounts. During the registration process, the admin collects necessary information

such as the user's username, password, and campus where they are affiliated. This information serves as the default credentials for users to access the system.

Once users have registered, they manually enter their default username, password, and campus to log in to the system. The system checks whether the entered credentials match the registered information. If there is a match, users are granted automatic access to the system. However, if the entered requirements do not match the registered ones, the process is returned to the admin for further verification or correction.

The process of plagiarism detection involves several steps. Initially, research documents that need to be scanned for plagiarism are uploaded into a database. This database can be institution-specific, containing documents from a particular educational institution or organization. Alternatively, it can be a broader database that encompasses a wide range of research documents from various sources.

Once the documents are stored in the database, the plagiarism detector module comes into action. It reads through the uploaded documents and compares them with other documents in the database. The purpose is to identify any instances of plagiarism or similarities in the content. The plagiarism detector employs sophisticated algorithms and techniques to perform this comparison effectively.

By using a plagiarism detector, the system aims to ensure that the submitted documents are original and do not contain any instances of plagiarism. It helps maintain academic integrity and fosters a culture of originality and ethical writing practices.The integration of the plagiarism detector module within the system enhances the overall functionality and reliability of the software. It provides an automated and efficient way to

detect potential plagiarism, saving time and effort for users and promoting the production of authentic and original research work.

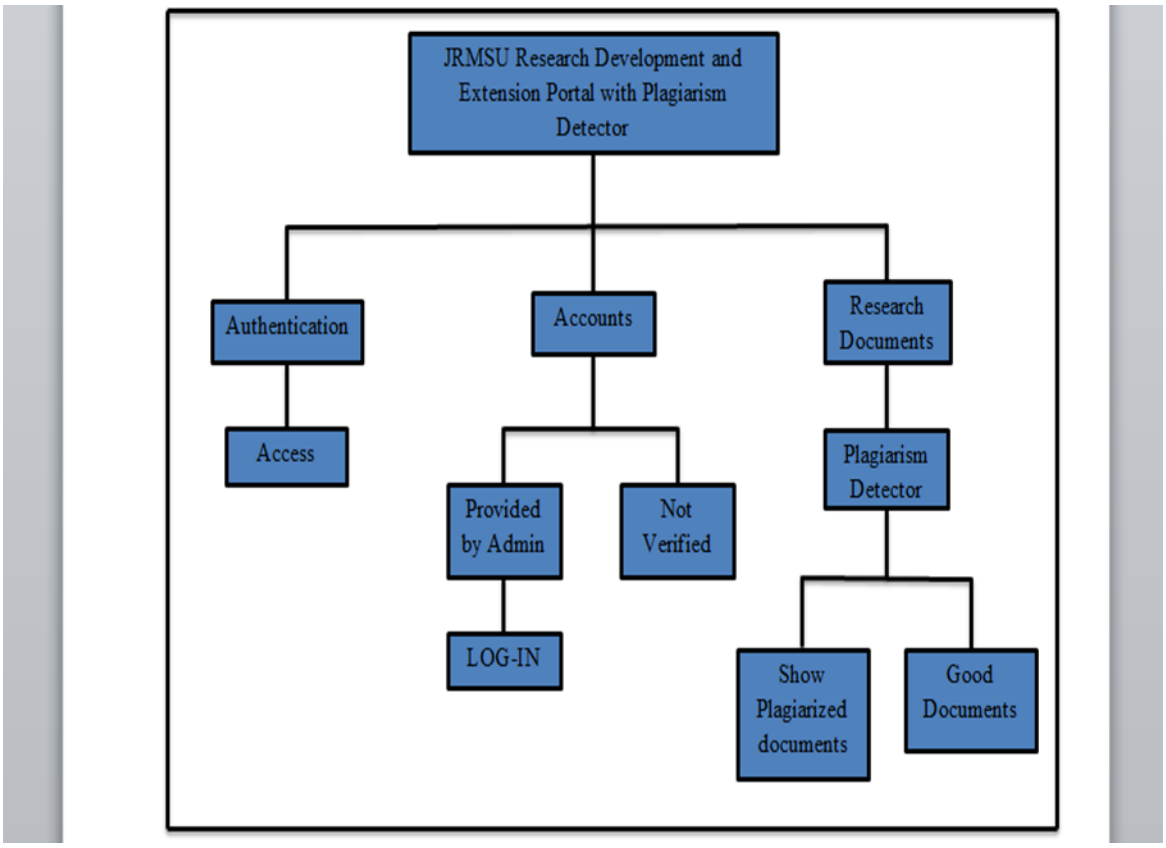


Figure 5. **Hierarchical Input Process Output (HIPO)**

b. Hierarchical Input Process Output (HIPO)

The HIPO diagram consists of a hierarchy that graphically represents the program. This diagram illustrates the tasks of input and output. The HIPO diagram is made up of hierarchies that graphically depict the program. This diagram depicts the task of input provided by the first user, who is the admin, unit head, chairperson, and author. They can create multiple accounts. Secondly, output is produced when the four users

upload a research proposal to the system to allow the program to check if the documents have been plagiarized. This actively demonstrates that the program gives the authorization of the first user to upload and update and also allows for an output of the documents.

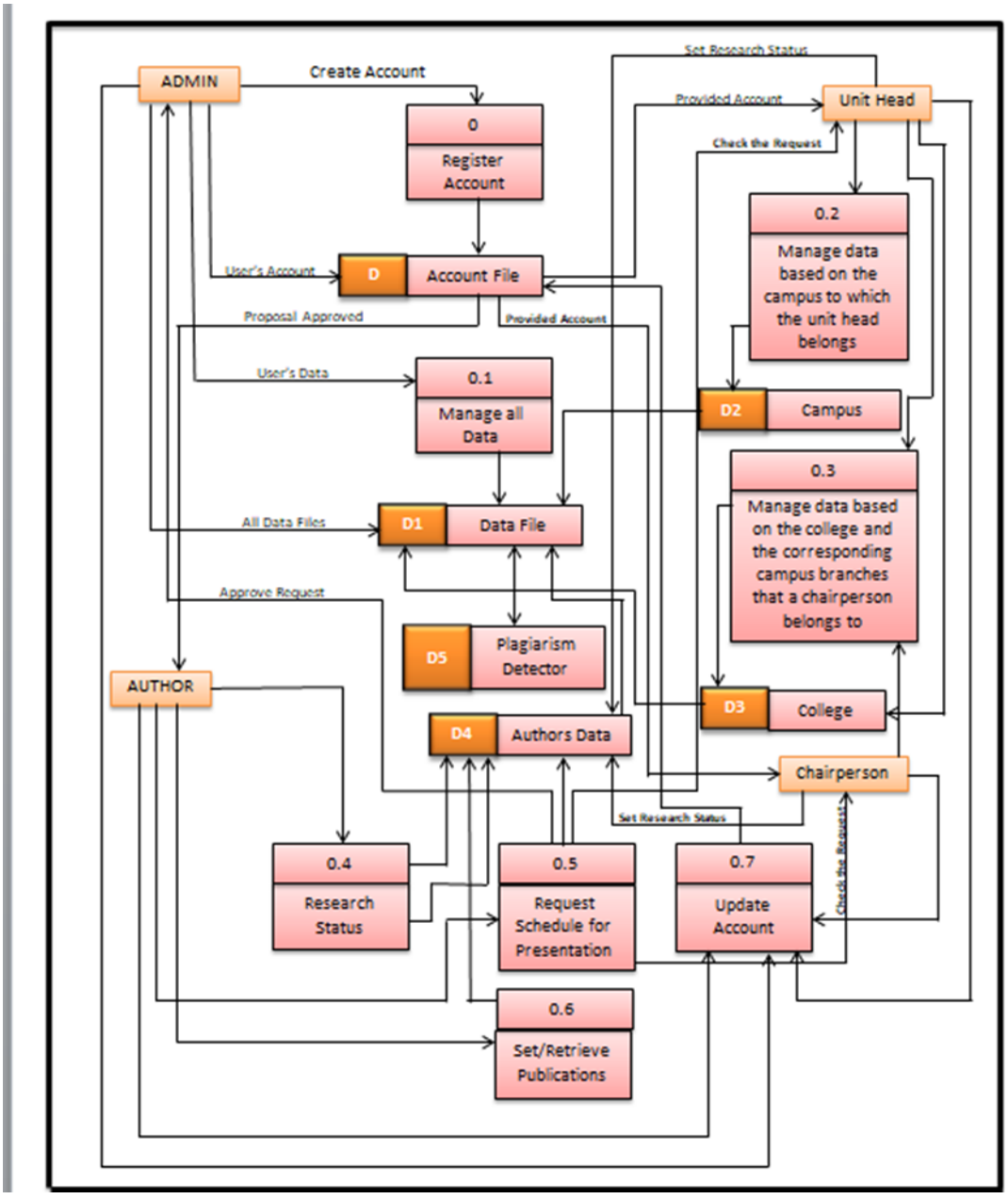


Figure 6. **Data Flow Diagram**

c. Data Flow Diagram

Figure 6 shows the process of the proposed system, JRMSU Research Development and Extension Portal with Plagiarism Detector. The following images show a step-by-step process for identifying the flow of the system. The first step is admin, who has two different attributes. First, add an account from the unit head or chairperson from the different campuses in order for the unit head or chairperson to access the login information with the given username and password from the admin. Second, add research status or data that can be encoded in a given system. After adding data, it allows the admin to add the author account, where the author can show their works. The second step in a system is the unit head. The unit head has the attributes of adding the account of the chairperson and adding research status. The unit head is only allowed to add research on their campuses. It can also manage the accounts and data that have been encoded by the chairperson for only their campus. After adding research status, it allows you to add an author account; otherwise, it will automatically be rejected. And the third step is the chairperson; the chairperson only adds research status and author if and only if the chairperson adds the research status. And also, it allows for the management of the account of the author, which the chairperson added. And the last step is authorship. Authors can only view their research works. In addition, the author is also capable of making their research work public so that anybody can see it otherwise.

In this system, people may view all the research and extension works that was publicize by the author by accessing in this system. People also view the author and the status of the research or extension and download the research or extension documents.

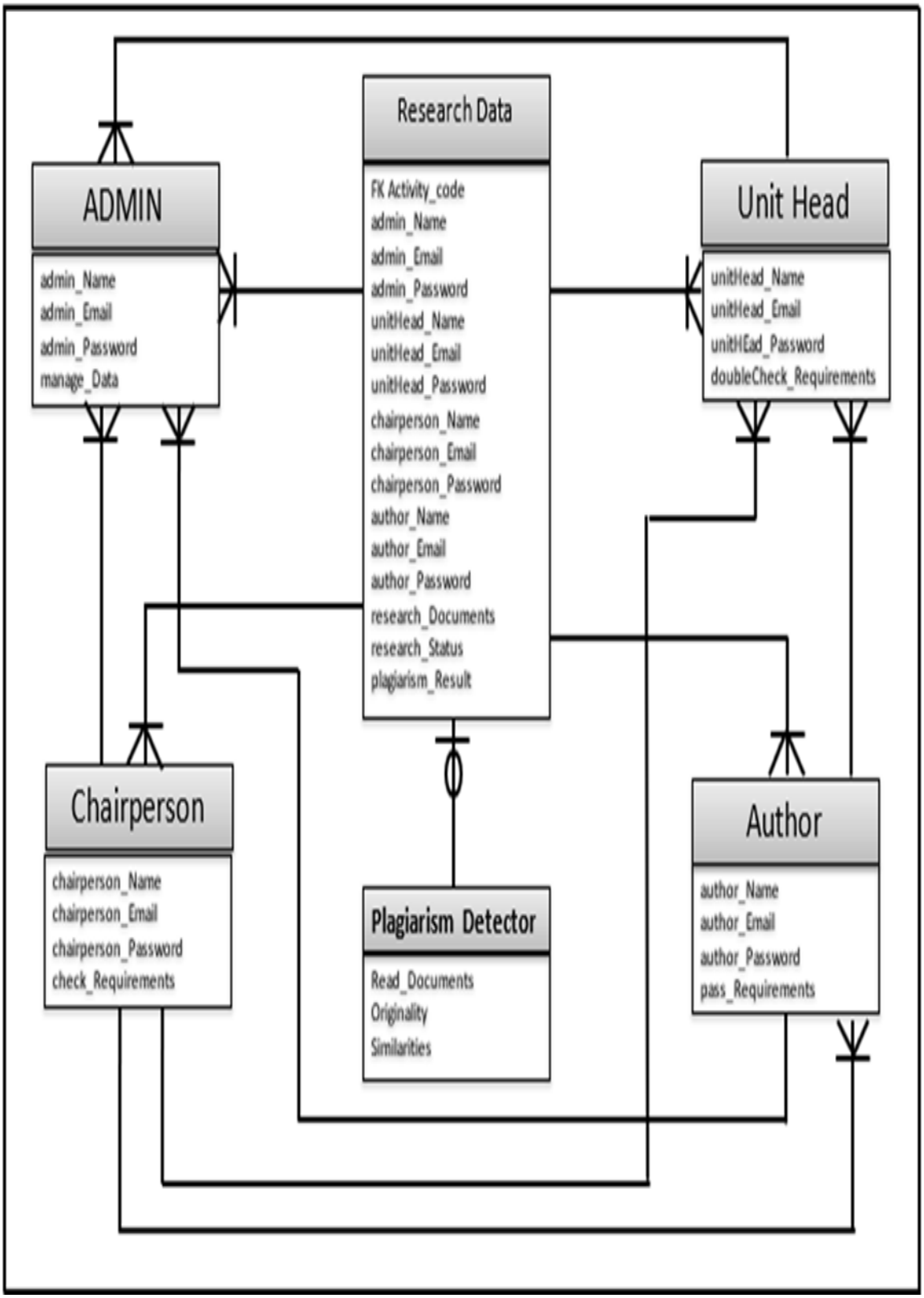


Figure 7. **Entity Relationship Diagram**

d. Swimlane Activity Diagram

The activity diagram is a diagram that is used to describe the flow of activity through a series of actions. The activity diagram is a critical diagram for describing the system. An activity diagram depicts the overall control flow. This form of activity can be both sequential and concurrent. An activity diagram will have a beginning (an initial state) and an end in both cases (a final state). There are various ways to depict activities, flows, decisions, time events, and more by showing between.

In the system, the administrator is responsible for registering new users. During the registration process, the admin will collect and enter user data, such as the default username, password, and other relevant information, into the system. The database will then store all the data provided by the administrator for later use. Once the user's data has been successfully registered and validated by the system, the user can access the system's portal.

Once the user has access to the portal, the plagiarism detector component of the system will start its work. The plagiarism detector will scan through the research documents uploaded by the user and compare them against a database of existing research documents. The detector will analyze the documents, checking for similarities and flagging any content that matches previously published work.

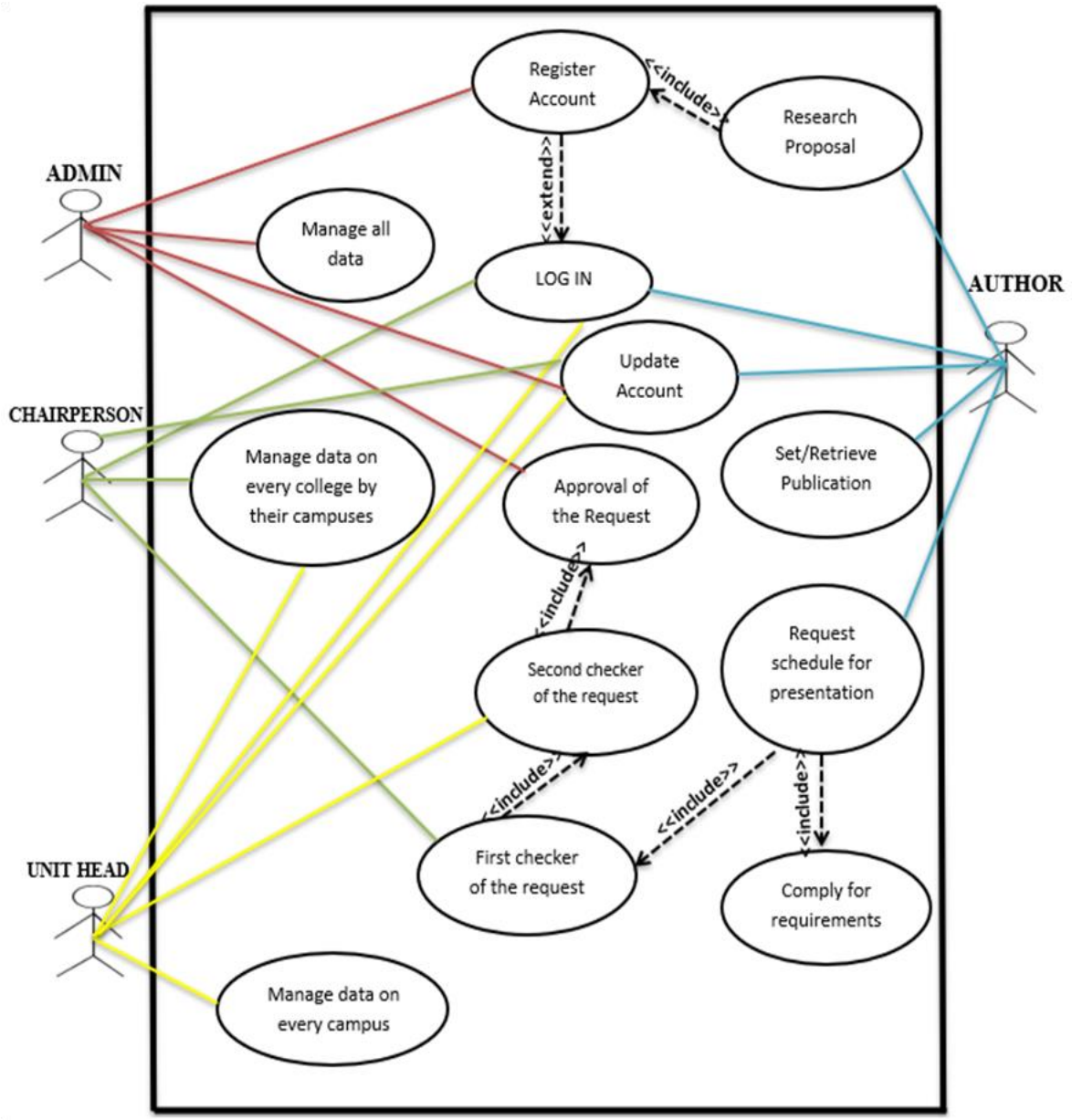


Figure 8. **Use Case Diagram**

e. Use Case Diagram

In system analysis and design, a use case is a fundamental concept used to depict the behavior and interactions between actors and the system. It is typically represented by a horizontal ellipse, visually capturing the series of actions and behaviors that an actor undertakes to obtain something of quantifiable value from the system.

The System Boundary, which is typically depicted as a box surrounding the use case diagram, defines the scope or domain of the system under consideration. It encompasses all the functionality and interactions that are covered by the research or analysis being conducted.Actors, represented as external entities in the use case diagram, are the individuals, groups, or external systems that interact with the system to accomplish certain tasks or receive specific outputs. While actors are often humans, they can also be other computer systems or automated processes. For example, if a roll-up report needs to be processed by an external system, that system can be considered an actor in the use case diagram, and the creation of the roll-up report becomes a use case.

The use case itself is initiated by an actor to fulfill a particular task or achieve a specific goal. It represents the set of actions and interactions between the actor and the system, which may involve inputting data, performing operations, retrieving information, or producing outputs. The use case diagram visually represents these interactions, showcasing the flow of actions and information between actors and the system.

By employing use cases, system analysts and designers can effectively capture and analyze the functional requirements of the system. Use case diagrams provide a clear and concise representation of the system's behavior, highlighting the actors involved and the tasks they perform. This aids in understanding the system's functionality, identifying potential scenarios, and ensuring that the system meets the needs of its users.

In summary, use cases, represented by horizontal ellipses in the use case diagram, describe the behaviors and interactions between actors and the system. The System Boundary defines the system's domain, and actors, which can be humans or other systems, participate in these interactions.

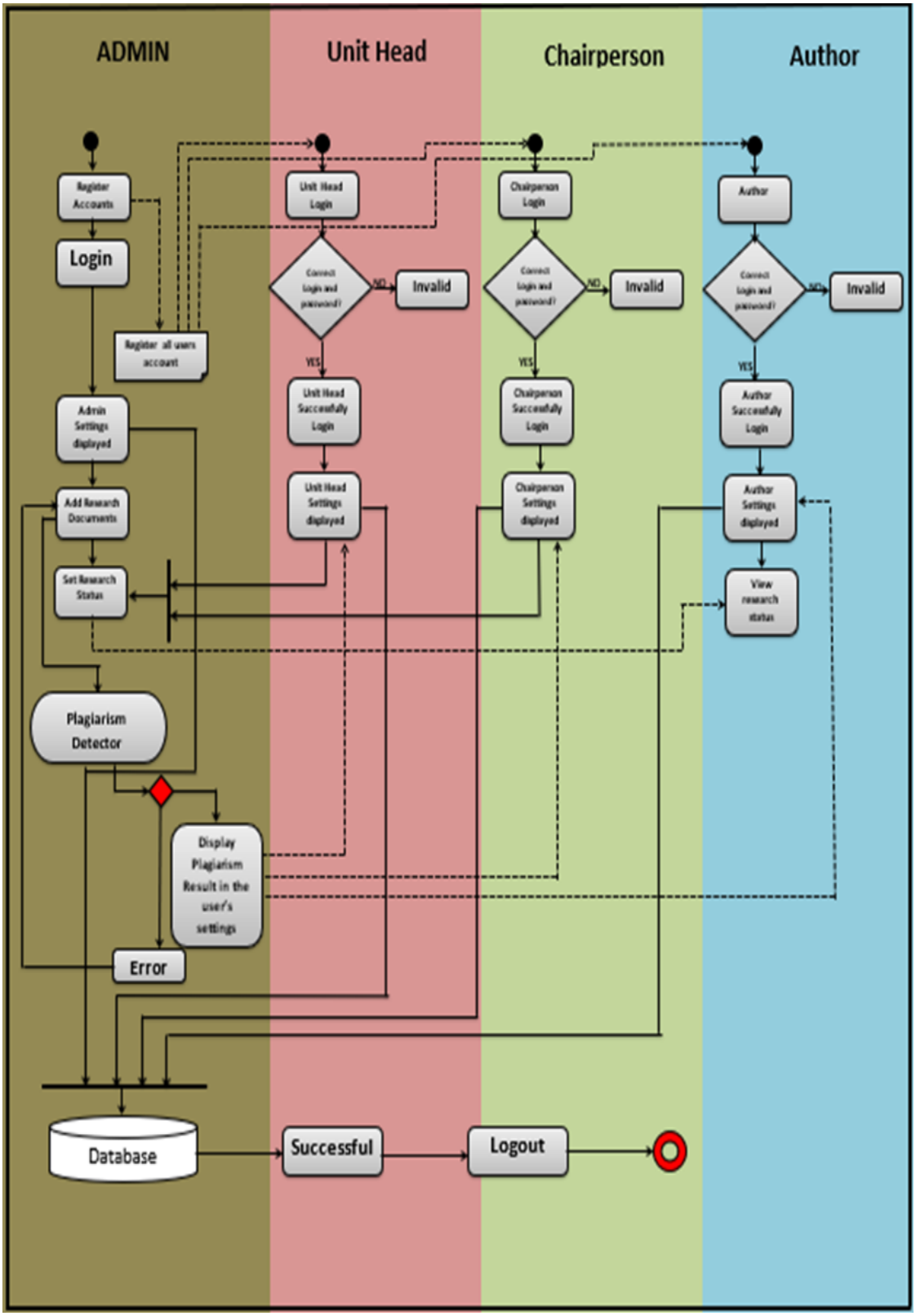


Figure 9. **Swimlane Activity Diagram**

f. Swimlane Activity Diagram

The activity diagram is a diagram that is used to describe the flow of activity through a series of actions. The activity diagram is a critical diagram for describing the system. An activity diagram depicts the overall control flow. This form of activity can be both sequential and concurrent. An activity diagram will have a beginning (an initial state) and an end in both cases (a final state). There are various ways to depict activities, flows, decisions, time events, and more by showing between.

In the system, the administrator is responsible for registering new users. During the registration process, the admin will collect and enter user data, such as the default username, password, and other relevant information, into the system. The database will then store all the data provided by the administrator for later use. Once the user's data has been successfully registered and validated by the system, the user can access the system's portal.

Once the user has access to the portal, the plagiarism detector component of the system will start its work. The plagiarism detector will scan through the research documents uploaded by the user and compare them against a database of existing research documents. The detector will analyze the documents, checking for similarities and flagging any content that matches previously published work

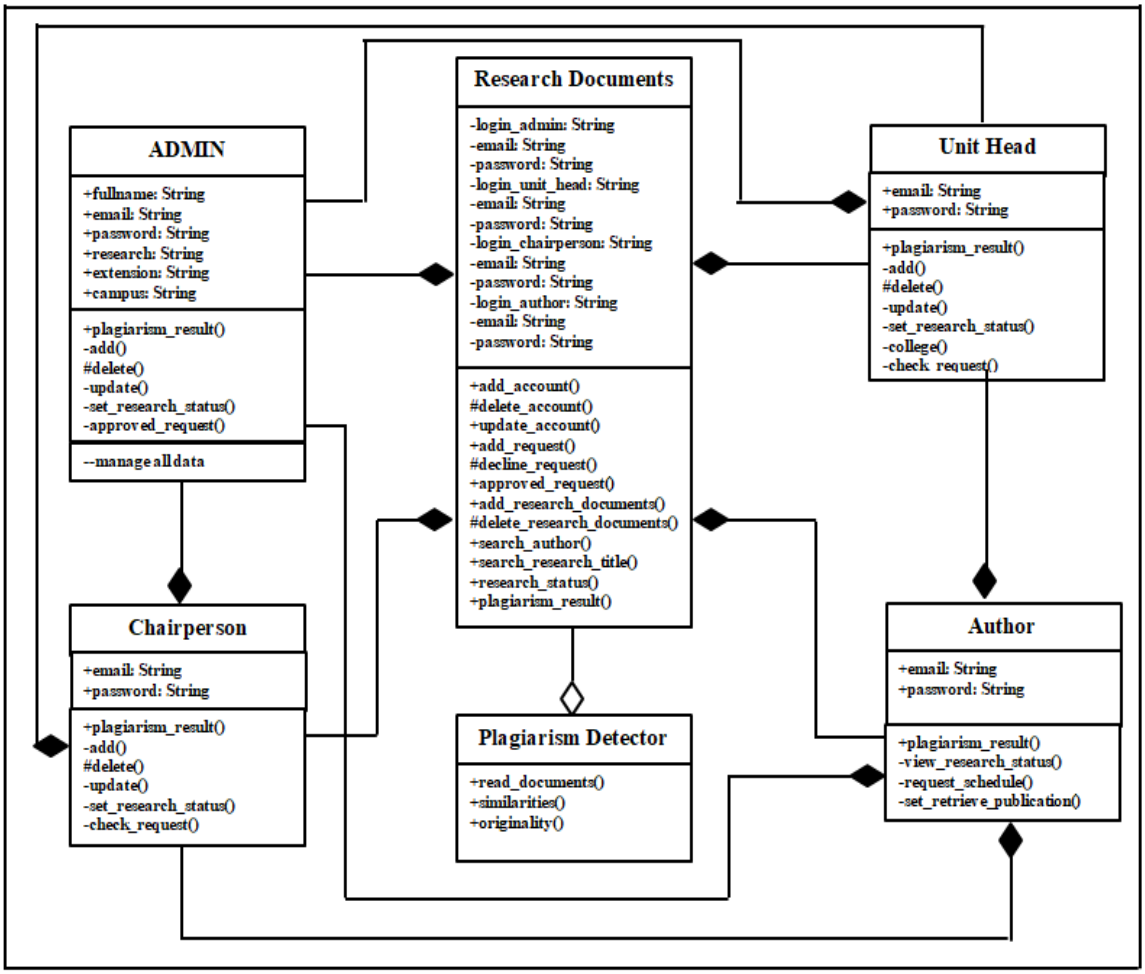


Figure 10. **Class Diagram**

g. Class Diagram

A class diagram in the Unified Modeling Language (UML) is a form of static structural diagram that depicts a system's classes, the properties, operations, and relationships between objects to explain the structure of the system.

The figure 10 shows system's Class Diagram is depicted in the figure below. It demonstrates the interactions between the system's relationships, operators, attributes, and classes. It contains information about the Unit Head, the Chairperson, the Author, the Primary Database, and the Administrator. The Unit Head information comprises Name,

Username, Password, Email Address, Campus and the other information needed. It bears the “by campuses” which signifies that the unit head only performed by its campuses. Chairperson also includes “by college” which means all the data encoded should be in just by the colleges that the chairperson assigned, it also includes name, username, password, email, college and the other information needed to conduct the flow of the system. Name, login, password, email address, and any additional capabilities are also included by the author. The author additionally set the research effort into public in order to show it on public otherwise recover from the publicize.

The administrator then serves as the person who views, updates, adds research status, creates chairperson and unit head accounts, and displays all of the user's accounts and information. Administrators are also capable of deleting accounts and the research status that has been encoded by the unit head or chairperson, but is not permitted to publicly announce the authors. The administrator then serves as the person who views, updates, adds research status, creates chairperson and unit head accounts, and displays all of the user's accounts and information. Administrators are also capable of deleting accounts and the research status that has been encoded by the unit head or chairperson, but they are not permitted to publicly announce the The administrator's role is crucial in maintaining the integrity and security of the system, ensuring that only authorized personnel have access to sensitive information. Additionally, they play a vital role in providing technical support and training to users who may encounter issues while using the system. thors. In addition, administrators are responsible for ensuring the security and confidentiality of all the information stored in the system and must comply with data

protection regulations. They may also provide technical support to users who encounter issues while using the platform.

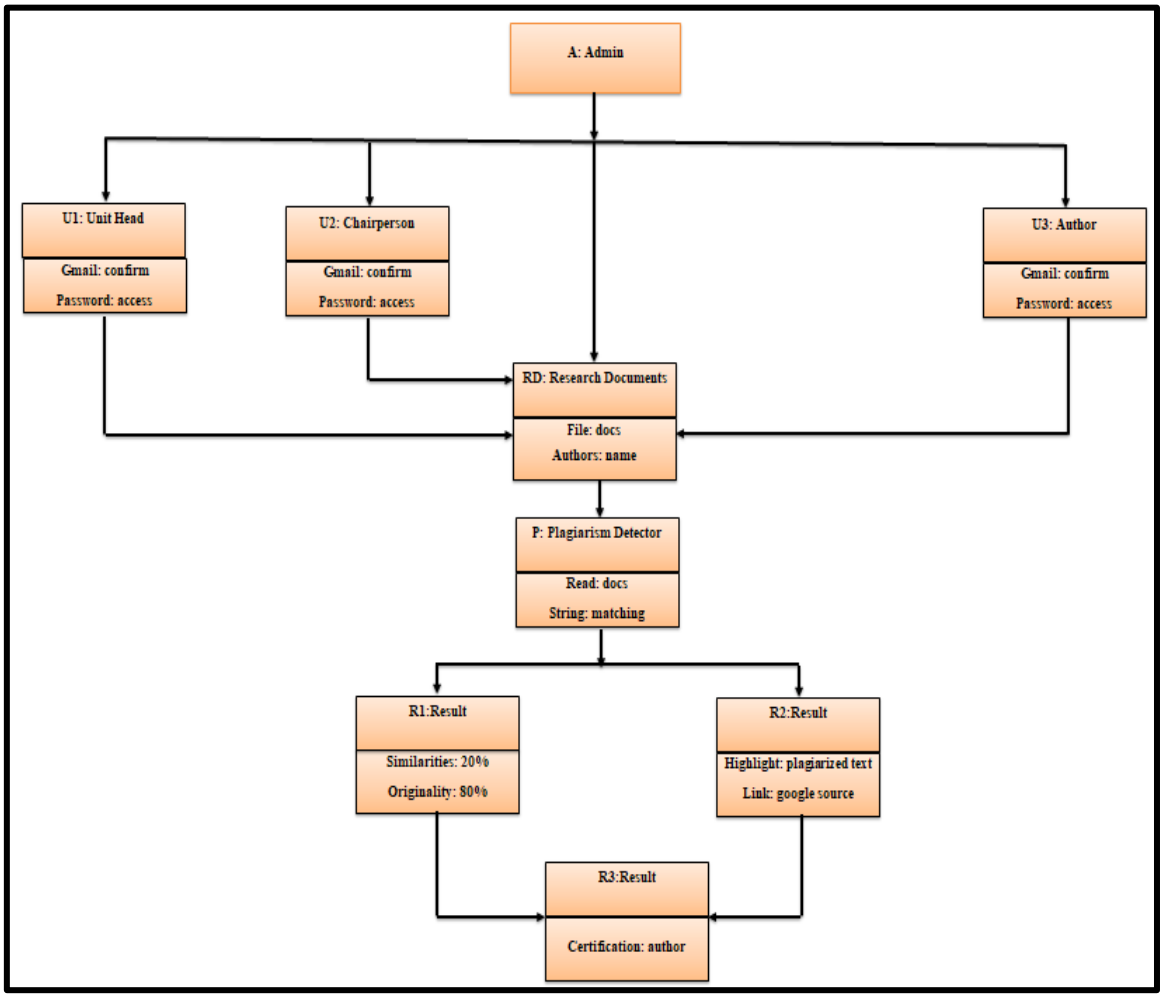


Figure 11. **Object Diagram**

h. Object Diagram

In Figure 11, an object diagram is presented, specifically illustrating the relationship between the admins and users of the system, as well as the flow of research documents processed by the plagiarism detector. The diagram showcases how the system

handles the uploaded documents and generates a clear result regarding plagiarism based on the content uploaded to the portal.

The object diagram represents the various entities involved in the system, including the admins and users. The admins, depicted as objects or nodes, have the authority and responsibility to manage the system. They are responsible for tasks such as user registration, account management, and overseeing the overall functioning of the system.

On the other hand, the users, also represented as objects, interact with the system by uploading their research documents to the portal. These documents serve as input for the plagiarism detector, which is an integral component of the system. The plagiarism detector analyzes the content of the uploaded documents and compares them to a database of existing research materials to identify any instances of plagiarism.

The flow of the research documents is represented by arrows in the diagram. These arrows indicate the direction of data processing within the system. The documents flow from the users to the plagiarism detector, indicating that the detector receives the uploaded documents for analysis.

The primary objective of the plagiarism detector is to examine the uploaded documents and provide a clear result regarding the presence or absence of plagiarism. By leveraging advanced algorithms and comparison techniques, the detector assesses the similarity between the uploaded documents and the existing database of research materials. Based on this analysis, it generates a result that indicates whether plagiarism is detected or not.

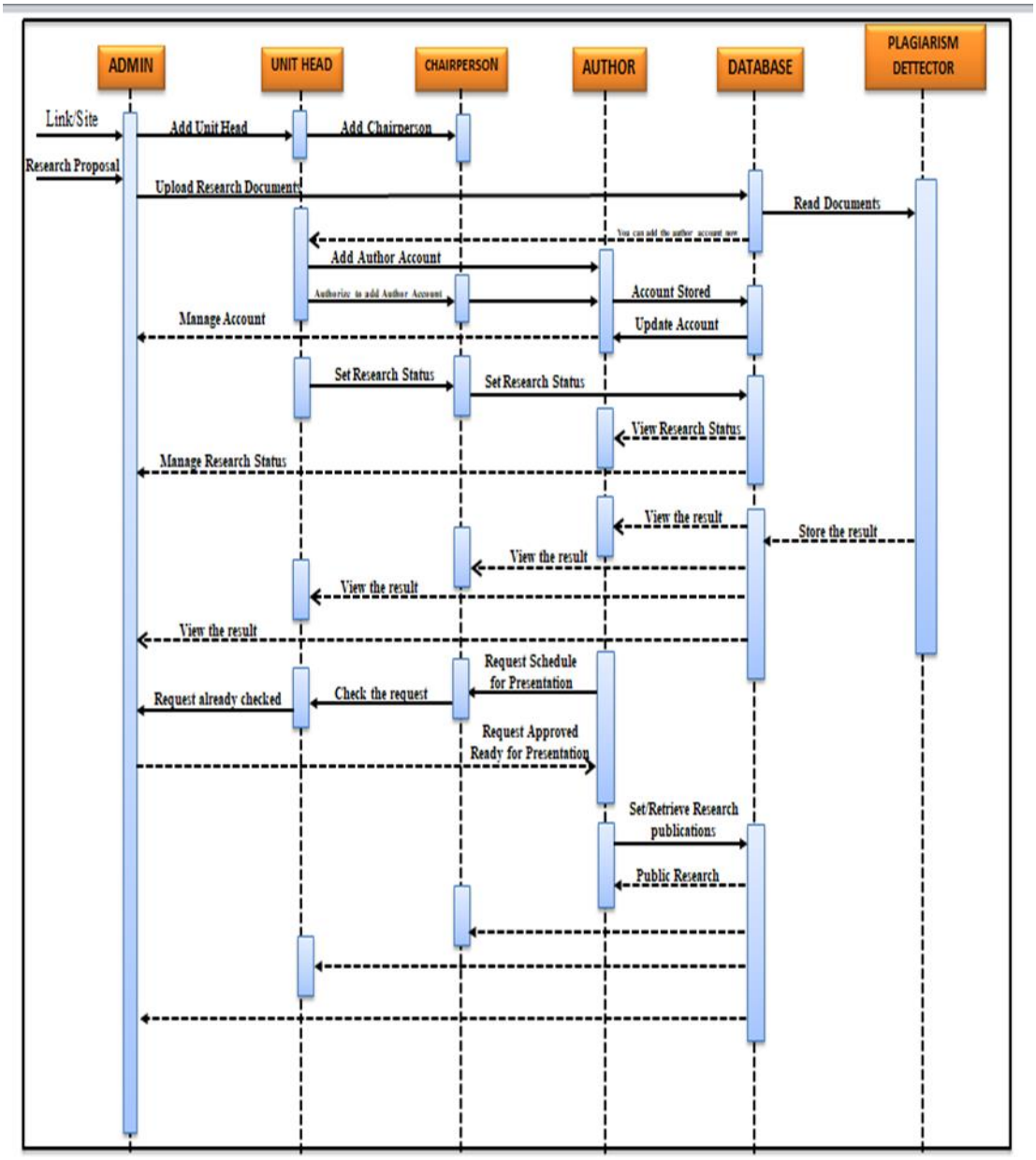


Figure 12. **Sequence Diagram**

i. Sequence Diagram

A sequence diagram in Unified Modeling Language (UML) shows the flow of communications between objects during an interaction. A sequence diagram consists of a number of objects represented by lifelines and the messages that they exchange with one another throughout the course of an interaction.

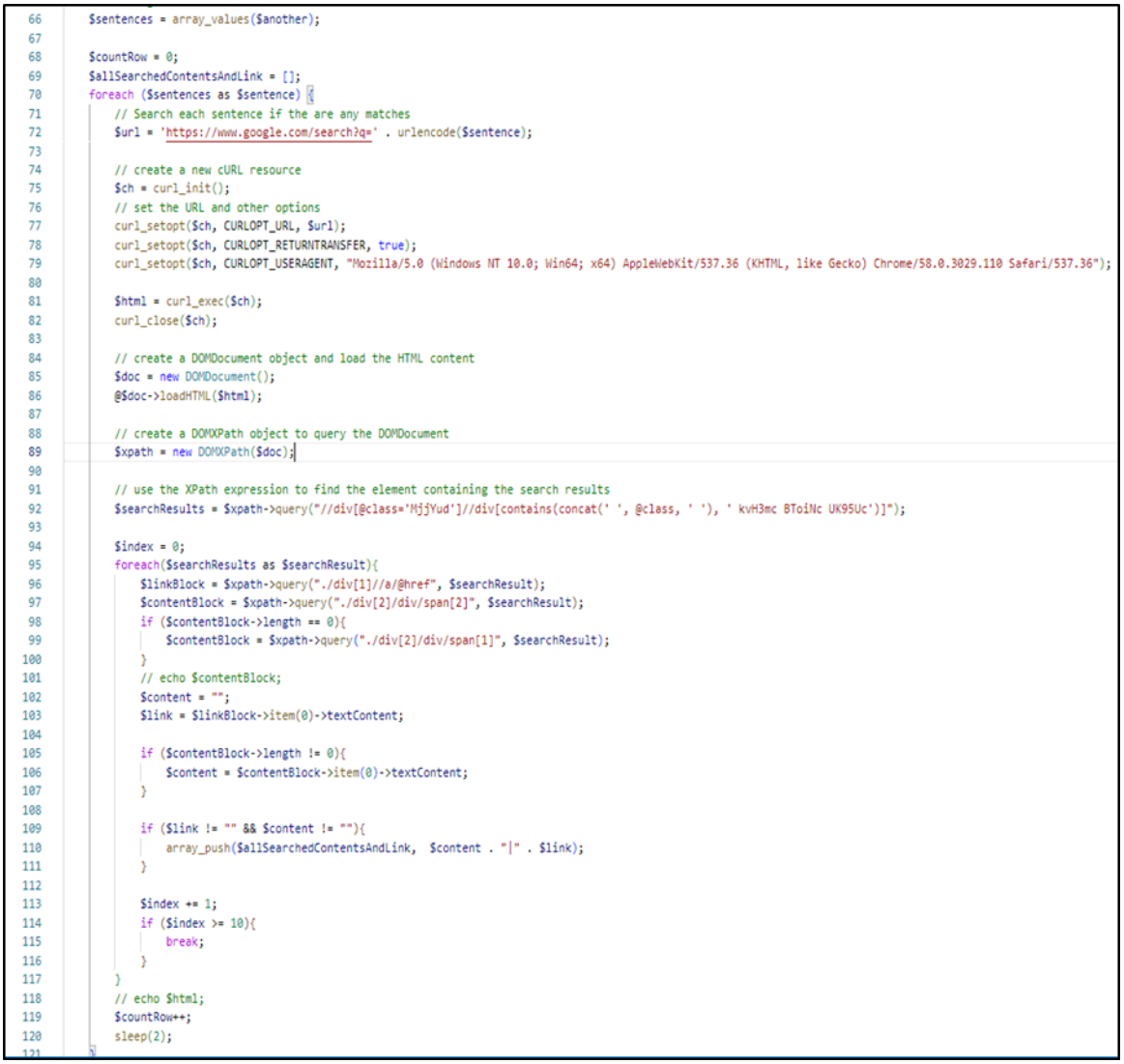
The diagram illustrates the communication between different components of a system. The top item in the diagram represents the class role, which is responsible for a particular set of functionalities in the system. The system consists of several class roles, and the interactions between them are represented by the arrows connecting the lifelines that extend from each object. These lifelines indicate the duration for which an object exists and is active in the system.

The system's primary purpose is to store and accept messages and commands from the user interfaces, which are sent by the admin and the users. These messages and commands are then processed by the database and responded to by the server and the device. The arrows that connect the lifelines represent the messages that are conveyed between different class roles. For instance, the admin can send commands to the server via the mobile phone. The server, in turn, will process the commands and send messages to the database for execution.

It is worth noting that the communication between the class roles is crucial for the proper functioning of the system. The communication arrows indicate the flow of data and commands between the various components, and any disruption in this flow can result in the system malfunctioning. Hence, it is essential to establish a robust and secure communication channel between the different class roles. Overall, the diagram provides a

It is worth noting that the communication between the class roles is crucial for the proper functioning of the system. The communication arrows indicate the flow of data and commands between the various components, and any disruption in this flow can result in the system malfunctioning.

Coding



```php
$sentences = array_values($another);

$countRow = 0;
$allSearchedContentsAndLink = [];
foreach ($sentences as $sentence) {
    // Search each sentence if the are any matches
    $url = 'https://www.google.com/search?q=' . urlencode($sentence);

    // create a new cURL resource
    $ch = curl_init();
    // set the URL and other options
    curl_setopt($ch, CURLOPT_URL, $url);
    curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);
    curl_setopt($ch, CURLOPT_USERAGENT, "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/58.0.3029.110 Safari/537.36");

    $html = curl_exec($ch);
    curl_close($ch);

    // create a DOMDocument object and load the HTML content
    $doc = new DOMDocument();
    @$doc->loadHTML($html);

    // create a DOMXPath object to query the DOMDocument
    $xpath = new DOMXPath($doc);

    // use the XPath expression to find the element containing the search results
    $searchResults = $xpath->query("//div[@class='MjjYud']//div[contains(concat(' ', @class, ' '), ' kvH3mc BToiNc UK95Uc')]");

    $index = 0;
    foreach($searchResults as $searchResult){
        $linkBlock = $xpath->query("./div[1]//a/@href", $searchResult);
        $contentBlock = $xpath->query("./div[2]/div/span[2]", $searchResult);
        if ($contentBlock->length == 0){
            $contentBlock = $xpath->query("./div[2]/div/span[1]", $searchResult);
        }
        // echo $contentBlock;
        $content = "";
        $link = $linkBlock->item(0)->textContent;

        if ($contentBlock->length != 0){
            $content = $contentBlock->item(0)->textContent;
        }

        if ($link != "" && $content != ""){
            array_push($allSearchedContentsAndLink,  $content . "|" . $link);
        }

        $index += 1;
        if ($index >= 10){
            break;
        }
    }
    // echo $html;
    $countRow++;
    sleep(2);
}
```

Figure 13(a). **Documents Execution**

Figure 13(a) presents a diagram depicting the execution of text processing in a research context. The diagram showcases the allocation of 1,800 seconds, or 30 minutes, for reading the documents, signifying the researcher's intent to comprehensively cover all the documents within the specified timeframe.

The diagram emphasizes the importance of time allocation for reading as a critical component of the research process. By assigning a specific time duration for reading, the researcher aims to ensure that each document receives adequate attention and effort. This reflects the researcher's commitment to conducting a thorough analysis and gaining a comprehensive understanding of the material.

During the text reading process, the researcher systematically reviews and analyzes the content of each document within the given time constraint. The objective is to extract relevant information, identify key findings, and gather insights that contribute to the research goals.

```
    $sentences = array_values($another);

    $countRow = 0;
    $allSearchedContentsAndLink = [];
    foreach ($sentences as $sentence) {
        // Search each sentence if the are any matches
        $url = 'https://www.google.com/search?q=' . urlencode($sentence);

        // create a new cURL resource
        $ch = curl_init();
        // set the URL and other options
        curl_setopt($ch, CURLOPT_URL, $url);
        curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);
        curl_setopt($ch, CURLOPT_USERAGENT, "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/58.0.3029.110 Safari/537.36");

        $html = curl_exec($ch);
        curl_close($ch);

        // create a DOMDocument object and load the HTML content
        $doc = new DOMDocument();
        @$doc->loadHTML($html);

        // create a DOMXPath object to query the DOMDocument
        $xpath = new DOMXPath($doc);

        // use the XPath expression to find the element containing the search results
        $searchResults = $xpath->query("//div[@class='MjjYud']//div[contains(concat(' ', @class, ' '), ' kvH3mc BToiNc UK95Uc')]");

        $index = 0;
        foreach($searchResults as $searchResult){
            $linkBlock = $xpath->query("./div[1]//a/@href", $searchResult);
            $contentBlock = $xpath->query("./div[2]/div/span[2]", $searchResult);
            if ($contentBlock->length == 0){
                $contentBlock = $xpath->query("./div[2]/div/span[1]", $searchResult);
            }
            // echo $contentBlock;
            $content = "";
            $link = $linkBlock->item(0)->textContent;

            if ($contentBlock->length != 0){
                $content = $contentBlock->item(0)->textContent;
            }

            if ($link != "" && $content != ""){
                array_push($allSearchedContentsAndLink,  $content . "|" . $link);
            }

            $index += 1;
            if ($index >= 10){
                break;
            }
        }
        // echo $html;
        $countRow++;
        sleep(2);
    }
```

Figure 13(b). **Search Engine**

The plagiarism detector described in this context utilizes the Google search engine to access online sources and identify instances of plagiarized text. By leveraging the vast amount of information available on the internet, the detector aims to compare the submitted text with existing online content to detect similarities and potential cases of plagiarism. To ensure the smooth functioning of the detector and avoid potential issues, the programmer has implemented a mechanism that pauses the execution for a period of 2 seconds. This deliberate delay serves the purpose of preventing any actions that might trigger blocking or restrictions from the Google search engine.

By relying on the Google search engine for accessing online links and sources of potentially plagiarized text, the plagiarism detector benefits from the vast coverage and reliability offered by this widely-used search engine. It leverages the search engine's capabilities to aid in the identification and analysis of text similarities, providing users with a valuable tool to uphold academic integrity and ensure originality in their work.

The strategic allocation of this 2-second pause allows the plagiarism detector to operate within acceptable bounds, maintaining a balance between efficiency and adherence to the search engine's terms of service. It ensures that the detector can effectively retrieve online sources while respecting the search engine's limitations and guidelines.

By incorporating this 2-second pause, the programmer takes into consideration the limitations and policies imposed by the search engine provider. Such precautionary measures help maintain a responsible and respectful use of the Google search engine's resources, preventing excessive requests or actions that could potentially lead to restrictions or penalties.

```
    $sentencesPlagiarizedAsLink = [];
    $sentencesPlagiarized = [];
    $finalSimilarityWeight = 0;
    foreach ($sentences as $sentence) {
        $words = explode(" ", $sentence);

        $taggedAsPlagiarized = false;
        $thresholdWeightForPlagiarized = ceil(count($words) * 0.6);

        $finalWeight = 0;
        for ($index = 0; $index < count($allSearchedContentsAndLink); $index++)
        {
            $weight = 0;
            // Split the sentence to check for comparison
            foreach ($words as $word)
            {
                // Compare na dayun sa na search og sentence nga nakafocus
                $split = explode("|", $allSearchedContentsAndLink[$index]);
                $content = $split[0];
                $link = $split[1];

                if ($word != ""){
                    if (strpos($content, $word) !== false)
                    {
                        $weight += 1;
                        $finalWeight += 1;
                    }
                }

                if ($weight >= $thresholdWeightForPlagiarized)
                {
                    $taggedAsPlagiarized = true;
                    break;
                }
            }

            if ($taggedAsPlagiarized)
            {
                array_push($sentencesPlagiarizedAsLink, $link);
                array_push($sentencesPlagiarized, $sentence);

                $finalSimilarityWeight += 1;
                break;
            }
        }
    }
    // Count the length of plagiariezed sentenses
    $totalSentencesPlagiarized = count($sentencesPlagiarized);

    // get the final similarity
    $finalSimilarityPercent = (int)($finalSimilarityWeight / count($sentences) * 100);

    // get the originality
    $originality = 100-$finalSimilarityPercent;
```

Figure 13(c). **String-matching Algorithm**

In Figure 13 (c), the researcher implemented a string matching algorithm as part of the execution of the "Portal with Plagiarism Detector" in JRMSU (Jose Rizal Memorial State University). This algorithm plays a vital role in the detection and analysis of potential instances of plagiarism within the submitted documents. The implementation of the string matching algorithm within the "Portal with Plagiarism Detector" in JRMSU demonstrates the researcher's commitment to employing sophisticated techniques to ensure the integrity of academic work. It highlights the importance of utilizing advanced algorithms and computational methods to detect instances of plagiarism effectively. This algorithmic approach allows for a systematic and automated examination of the documents, facilitating efficient and accurate detection of plagiarized content.

Testing and Evaluation

The researchers produced an outcome based on the checking, display, and coding. The researchers evaluated the system based on its effectiveness. A software system is a method of finding out whether the system is working as intended, giving the correct display, working accordingly, handling expected loads, and responding to the user. System evaluation is the process of judging how well the system's original intended goals have been reached in terms of functionality, reliability, and efficiency.

A. System Testing Procedure

The testing method was adopted while making the software. Both manual and computerized procedures will be running, and they will observe the accuracy through their different methods and strategies. The procedure for this individual event will be referred to in the diagram. The program's required system and coding have been applied, the network has been set up, and the user and server connections have been checked.

B. System Evaluation

The respondents composed of three (5) IT Professionals, five (5) Full-fledge Master’s degree holder Instructor, seven (7) Graduate School, and five (3) other Staff Researcher Building. It considered as professional evaluators as well as the users of the system. Each respondent rated the study, according to the criteria created by researchers. Evaluation of the system includes checking the text of the documents that the system architecture is properly structured and modular, that a coding standard has been applied.

System Implementation

The implementation of the JRMSU research development and extension portal with a plagiarism detector involves several steps to ensure that the system is functional, secure, and effective in promoting academic integrity and preventing plagiarism.

The development of the system involves using programming languages and technical specifications to create the necessary code and software components, which should be developed following best practices for security and functionality. Once developed, the system must be thoroughly tested to ensure that it is functional, secure, and effective in detecting plagiarism. After testing and validation, the system must be deployed to end-users, which involves installing it on a secure server or cloud-based platform and providing the necessary security protocols and access controls. Lastly, training and support must be provided to end-users to ensure they understand the system's functionality and receive ongoing technical support and troubleshooting assistance.

Overall, the implementation of the JRMSU research development and extension portal with open access to research outputs has been a significant step towards promoting knowledge dissemination and collaboration among researchers. It has also contributed to the university's efforts to enhance its research capabilities and establish itself as a reputable institution in the field of research and development. The plagiarism detector requires careful planning, development, testing, and deployment to ensure that the system is functional, secure, and effective in promoting academic integrity and preventing plagiarism. With proper implementation and ongoing support, this system can be an important tool for promoting academic excellence and integrity in research and academic work. Additionally, it is crucial to provide adequate training and support to users of the

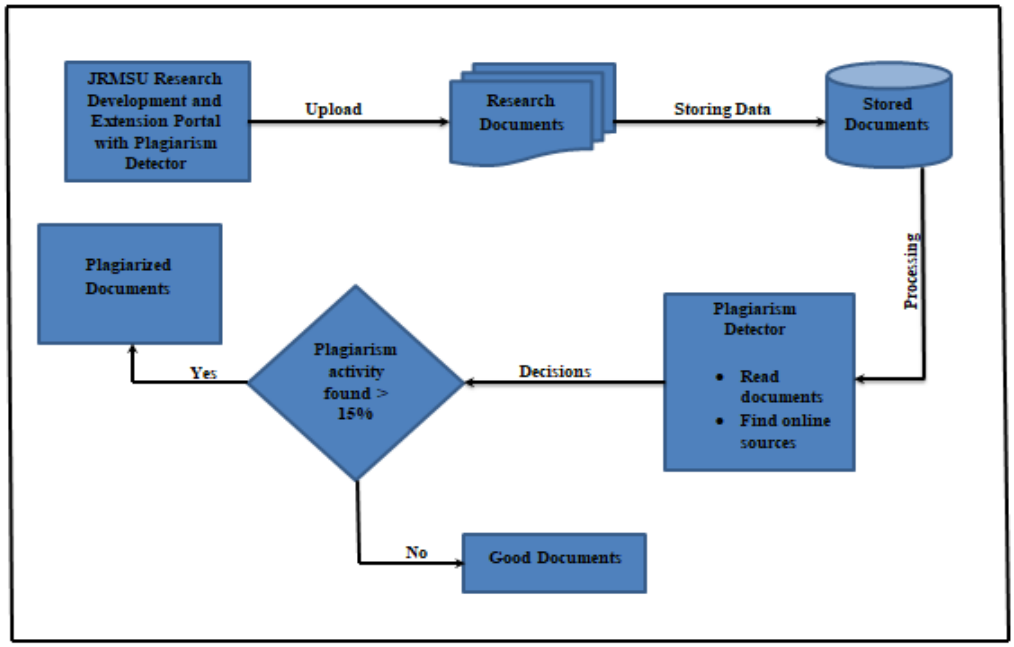
system to ensure its optimal utilization and effectiveness. Regular updates and maintenance should also be conducted to address any issues or concerns that may arise during its operation. Without proper training and support, users may not fully understand how to use the system and may not be able to take advantage of all its features. Neglecting regular updates and maintenance can lead to system malfunctions or security vulnerabilities that compromise their effectiveness.

Chapter 4

RESULTS AND DISCUSSION

This chapter provides the information that was gathered and includes a clarification of the subjects of discussion that had to be processed or addressed sequentially in light of the study's problem as stated in the problem statement.

Problem #1: What is the current portal of JRMSU for Research Development and Extension as well as Plagiarism system?



As presented in the conceptual framework, the current system has been designed specifically to provide a modern and effective, high-tech gateway with a free plagiarism detector to the Research Development and Extension building. The system combines two user interfaces: the portal, which acts as the system's main component and can manage user logins, data placement, personal information management, data security, and research status management; and the plagiarism detector. It can identify plagiarized texts

in research papers posted to the portal based on the word count per minute. All departments within the JRMSU system will be the subject of this investigation. Active JRMSU system researchers, VPRDE personnel, and educators who prioritized research and extension development represented the respondents. Additionally, because it has no subscription fees and is available to all JRMSU users without charge, it will let the researchers conducting this study avoid paying for registration on an online plagiarism checker.

Problem #2: How does the plagiarism checker work based on algorithm used?

- **System process based on algorithm**

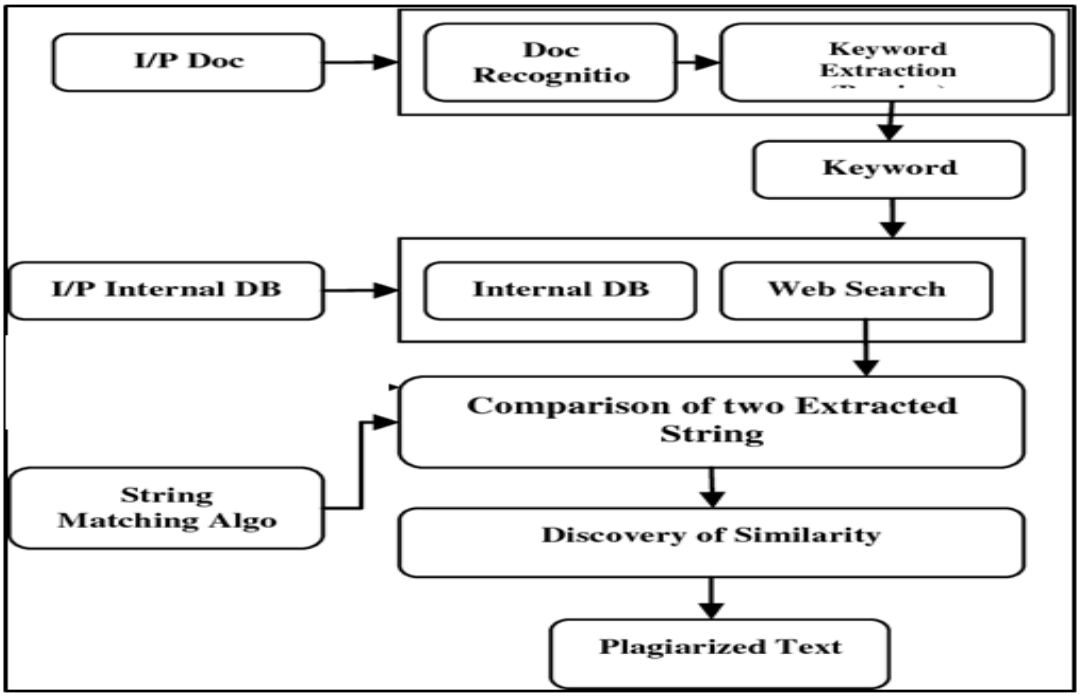


Figure 14. **String-Matching Algorithm**

Figure 14 shows the algorithm that was utilized for the plagiarism detector in this study. The algorithm used a text-matching technique to compare the text in the submitted document with a corpus of previously published material. This string-matching algorithm

is a widely used method for detecting instances of plagiarism and involves comparing the words, phrases, and sentence structures of the submitted document with those of the source material. The text-matching algorithm used in this study was designed to identify instances of direct copying, paraphrasing, and other forms of textual overlap. It was able to highlight similarities in the text even if the words had been rearranged or synonyms had been used to replace some of the original words. To implement the algorithm, the researchers first compiled a large corpus of previously published material. The corpus was then preprocessed to remove any unnecessary information such as punctuation, capitalization, and stop words. The preprocessed corpus was then indexed to facilitate efficient searching.

When a document was submitted to the plagiarism detector, it was also preprocessed in a similar manner. The preprocessed document was then compared to the preprocessed corpus using the text-matching algorithm. Any instances of textual overlap were identified and highlighted, and a similarity score was calculated to indicate the degree of overlap between the submitted document and the source material. Overall, the text-matching algorithm used in this study was effective in detecting instances of plagiarism and could be a useful tool for educators, publishers, and other individuals interested in ensuring the originality of written material.

Problem #3: How does the plagiarism checker work in the JRMSU Research Development and Extension Portal?

These are the steps for using the plagiarism checker in the JRMSU Research Development and Extension Portal:

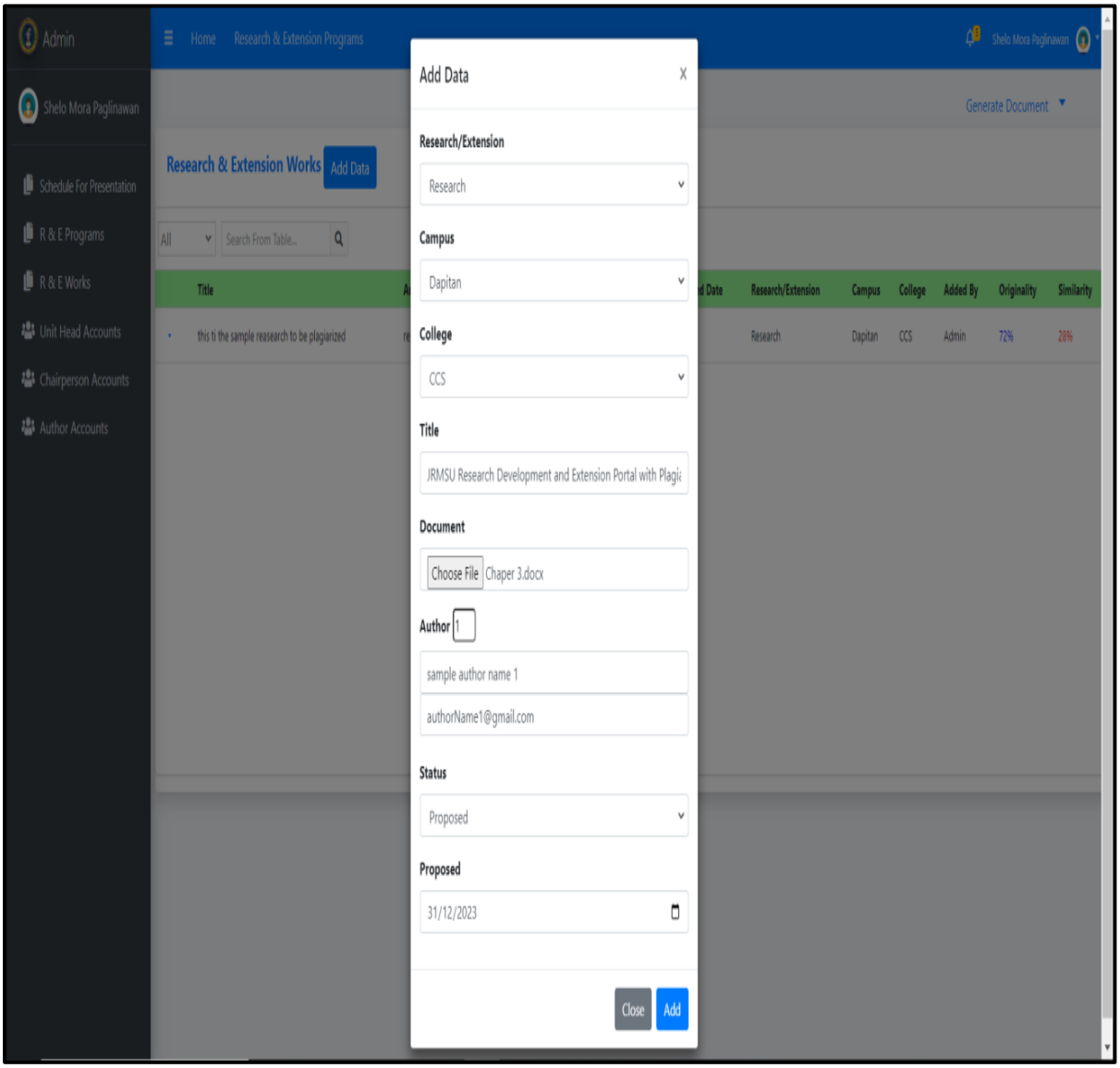


Figure 15. **Step 1 Add Documents**

Figure 15 depicts a process where an author submits a walk-in proposal to an administrator for approval, and if approved, the administrator adds the author's data, including research documents, to a database or system. The process involves verifying the author's credentials, reviewing research documents, and adding the data to the appropriate system. This process is critical for managing research projects and ensuring that valuable knowledge is properly documented and shared.

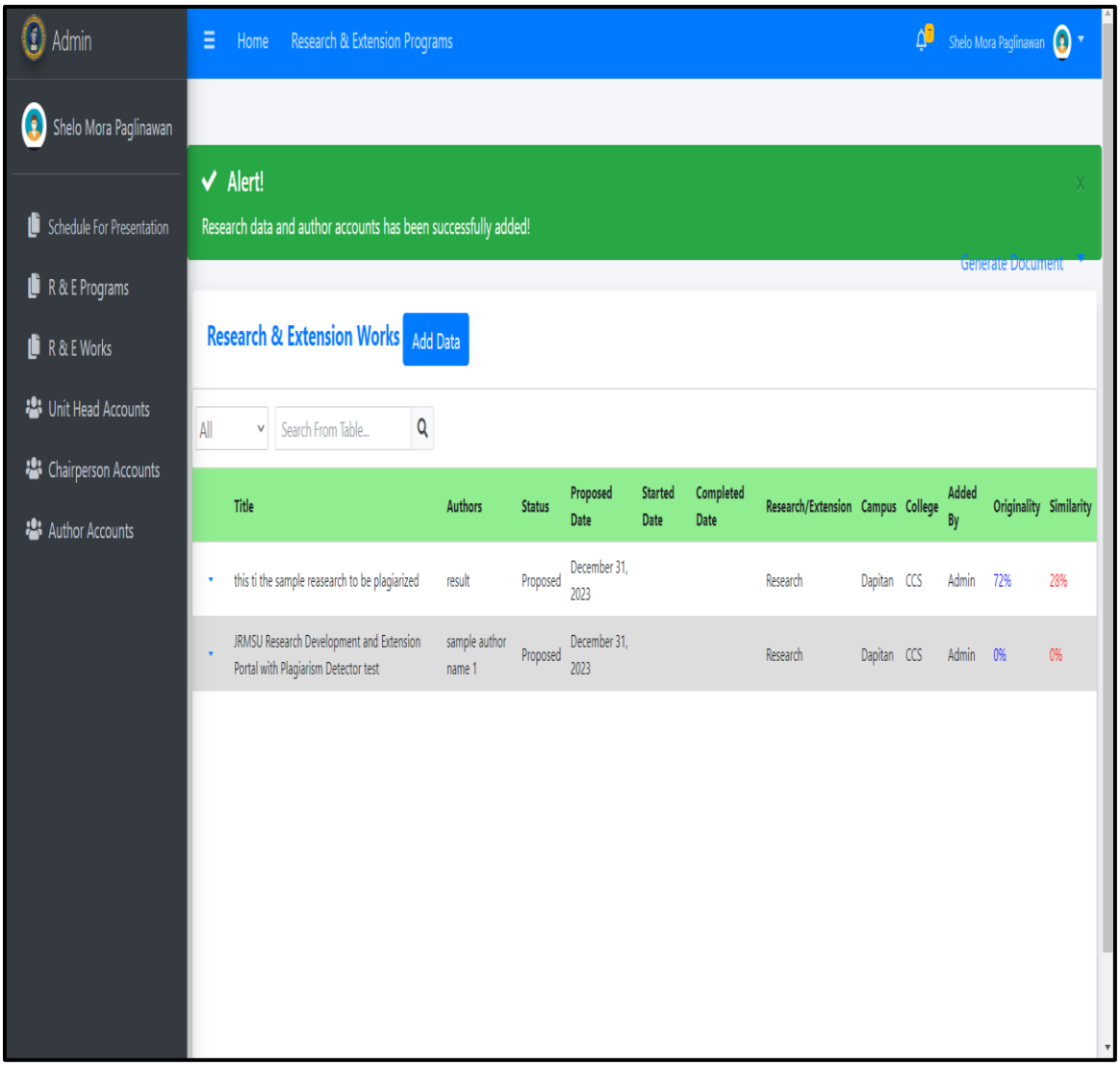


Figure 16. **Step 2 Successfully Added**

Figure 16 confirms that the author's data has been successfully added to the system, indicating the absence of errors or issues. However, errors can occur during the data entry process, and the administrator may need to troubleshoot the problem by verifying information or reviewing logs to resolve any anomalies. Communication with the author may also be necessary to clarify details. The confirmation of data entry is a prerequisite step in managing research projects, but it's important to have a system in place to address errors and ensure data accuracy and reliability.

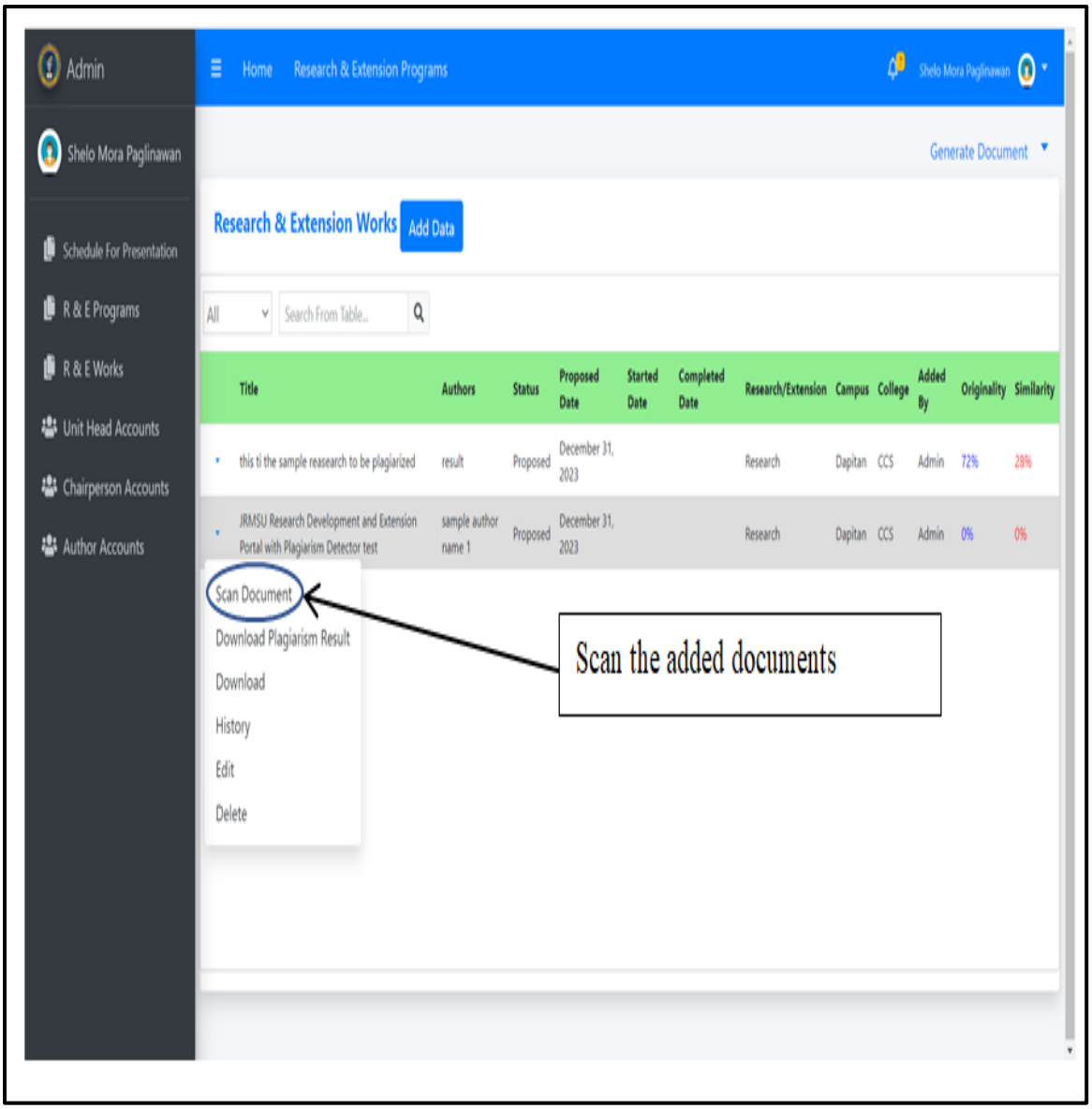


Figure 17. **Step 3 Scanning the Documents**

Figure 17 initiates the scanning process for research documents and may check for plagiarism by comparing the scanned documents to a database of existing literature. The system provides a result indicating whether any parts of the scanned documents are considered plagiarized and may suggest ways to correct the issue. However, individuals should still carefully review and cite their sources to ensure their work is original and properly attributed, as the system is not foolproof.

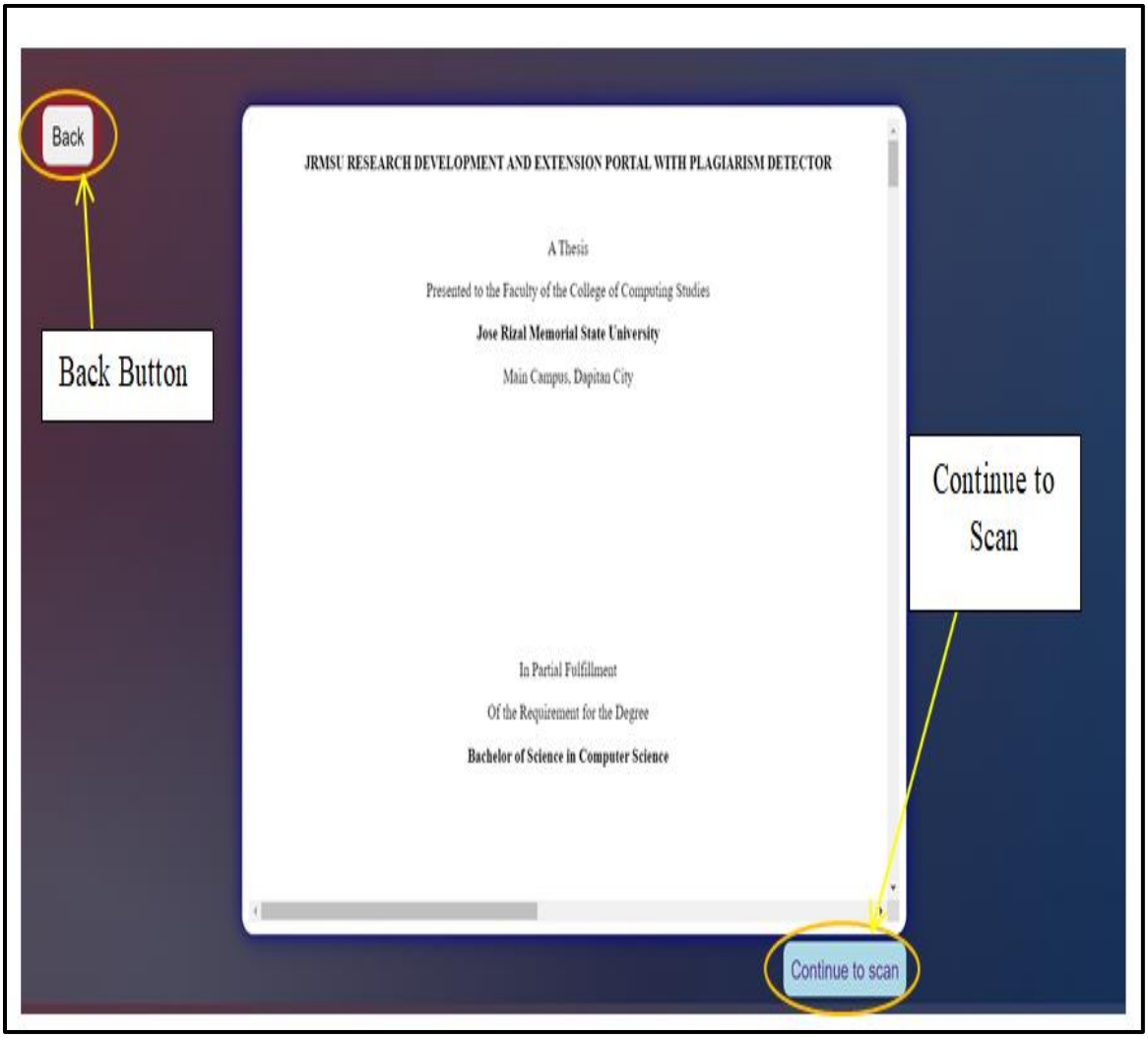


Figure 18. **Step 4 Confirmation**

Figure 18 is a confirmation screen that appears after the system finishes scanning research documents, offering users two options: continue with the process or go back to the previous step. Continuing may involve saving the documents, analyzing or processing them, or making them available for review by others. Going back may allow users to add or remove documents. This screen acts as a checkpoint for users to confirm their choices and navigate between steps, improving efficiency and reducing errors.

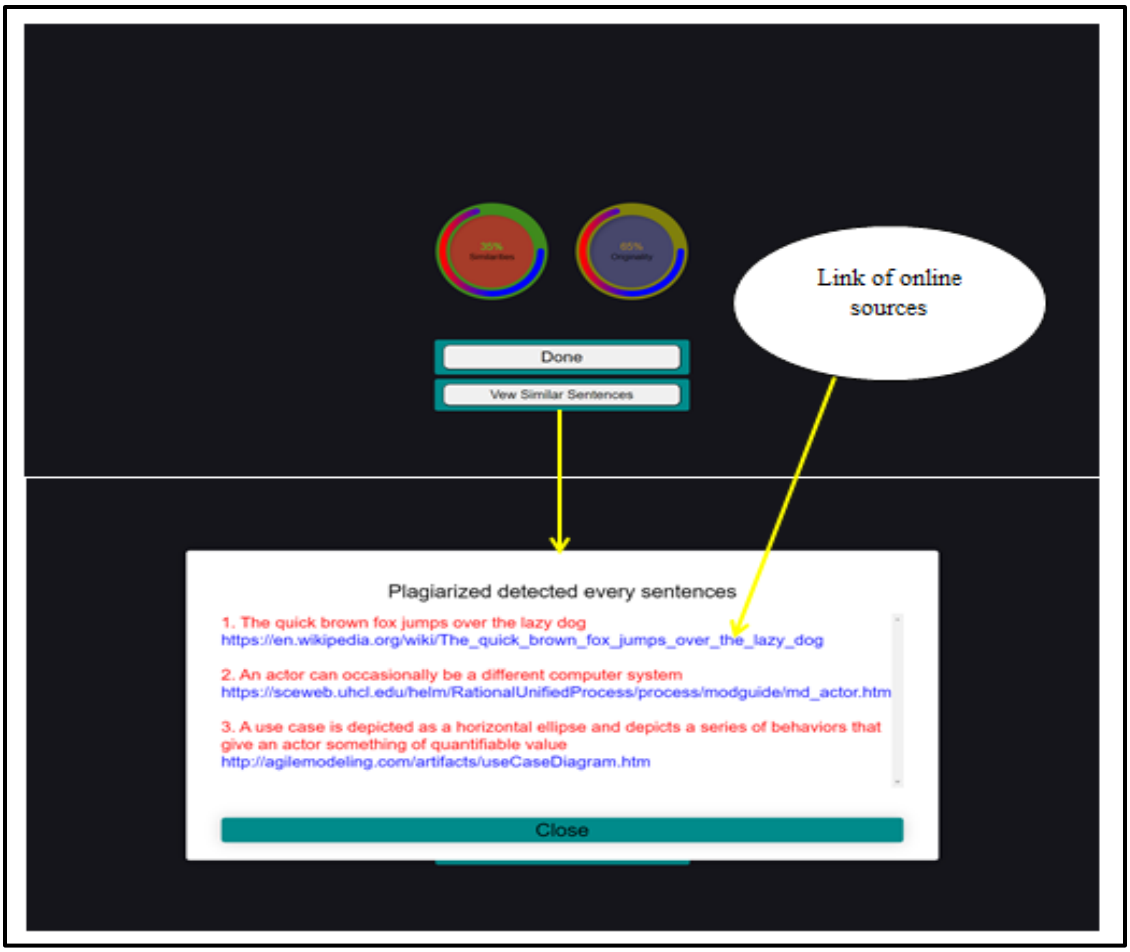


Figure 19. **Step 5 Plagiarism Checker Result**

Figure 19 displays the results of the plagiarism check on scanned research documents, with a progress bar at the top and the results shown below. The progress bar indicates the percentage of the document scanned for plagiarism and the progress made. The system compares the scanned documents to a database of published work, highlighting potential instances of plagiarism in different colors. It also displays the sources used in the scanned documents, such as text sources and online links, for easy access. The screen allows users to easily identify any issues and take appropriate action. The progress bar and source information help users understand the scope and sources of the plagiarized text.

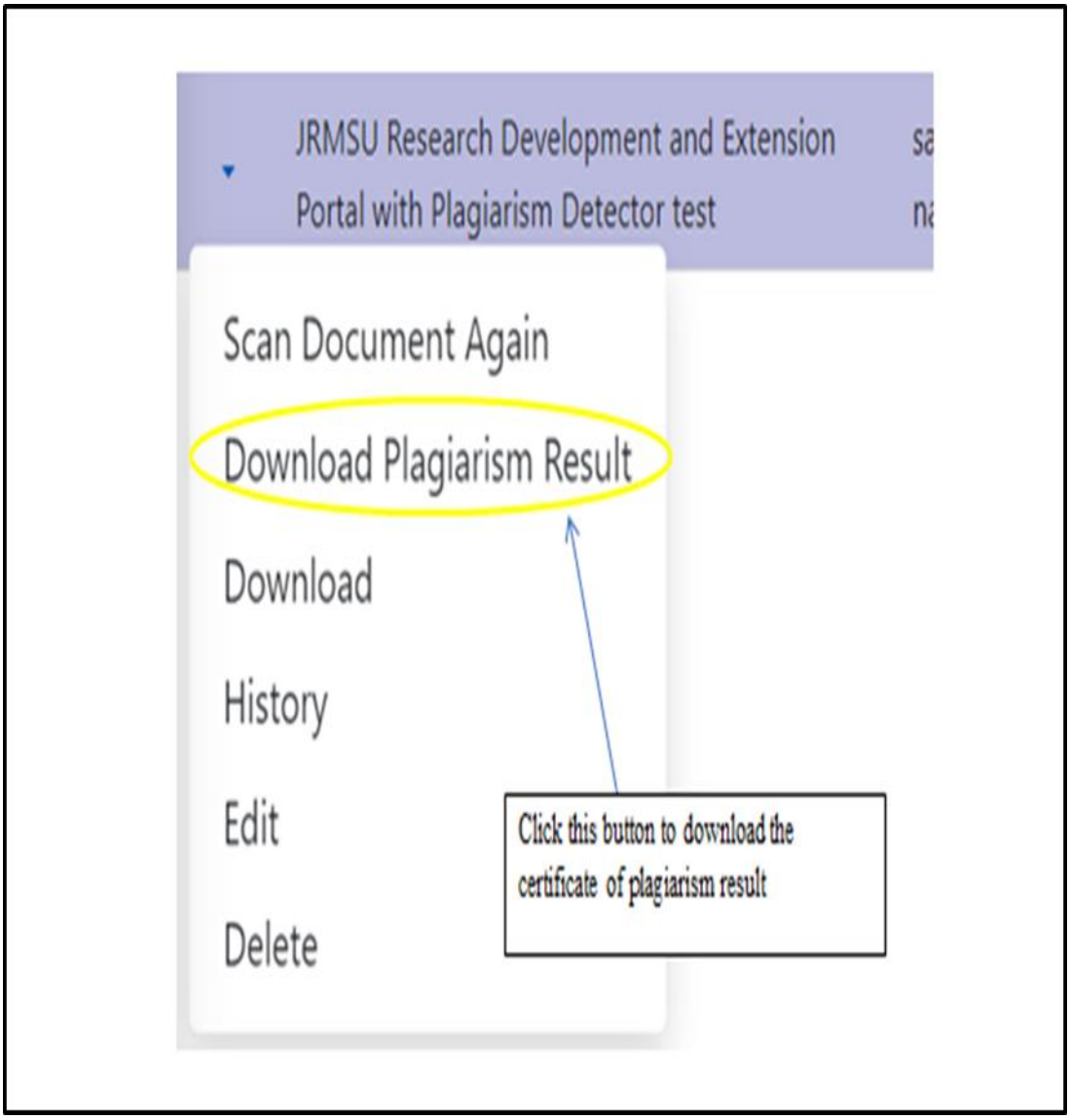
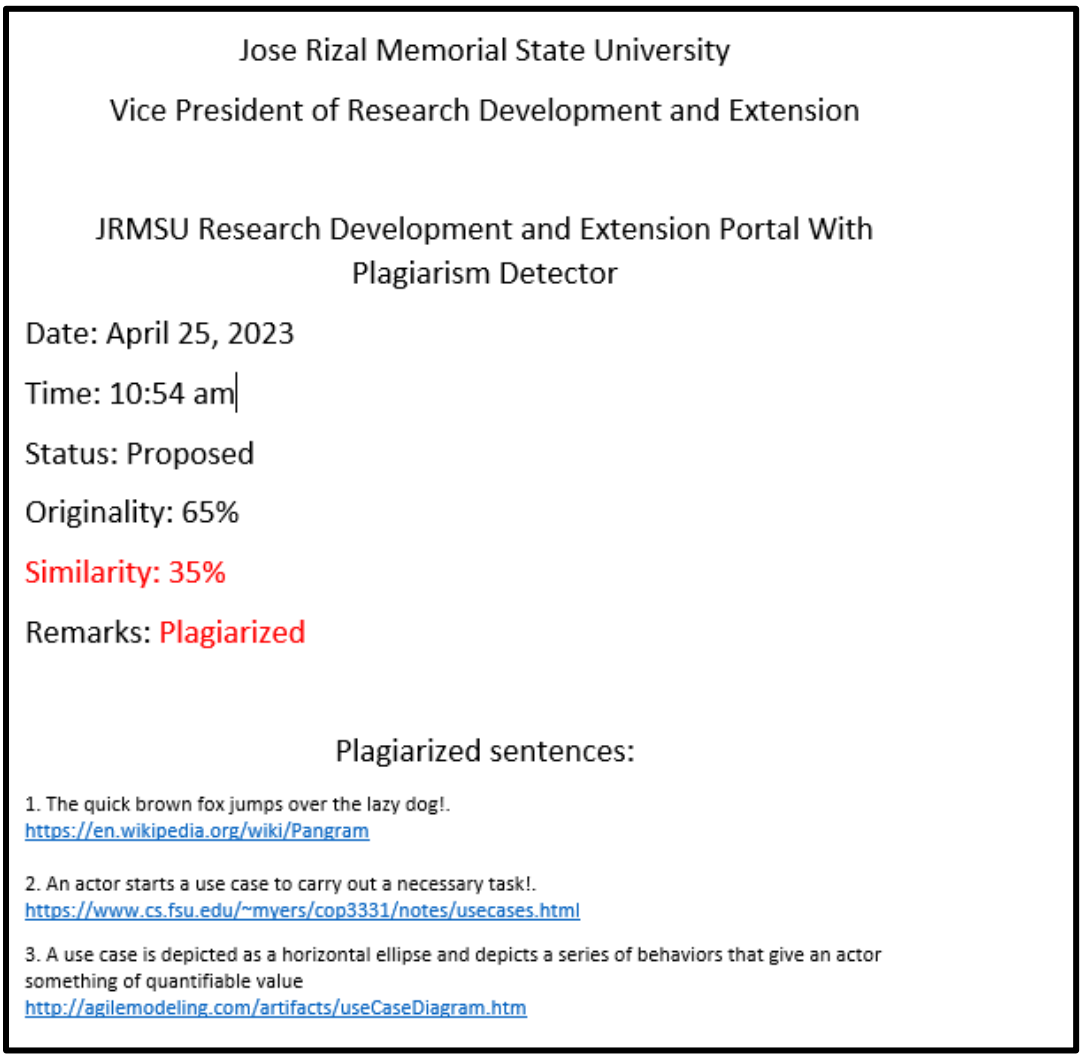


Figure 20. **Step 6 Plagiarism Checker Result**

Figure 20 likely displays the certification of the plagiarism checker used by the document management system, with a button labeled "Download Plagiarism Result" that users can click to view it. The certification typically includes information about the accuracy, reliability, and industry standards and regulations that the tool meets. This can be important for users to ensure that the plagiarism checker is effective and trustworthy. Accessing the certification can help users understand how the system works and the

measures taken to ensure accuracy and reliability. Overall, certification is an important aspect of any document management system that includes a plagiarism check feature, building trust and confidence in the system and its results.



Jose Rizal Memorial State University

Vice President of Research Development and Extension

JRMSU Research Development and Extension Portal With Plagiarism Detector

Date: April 25, 2023

Time: 10:54 am

Status: Proposed

Originality: 65%

Similarity: 35%

Remarks: Plagiarized

Plagiarized sentences:

1. The quick brown fox jumps over the lazy dog!.
https://en.wikipedia.org/wiki/Pangram

2. An actor starts a use case to carry out a necessary task!.
https://www.cs.fsu.edu/~myers/cop3331/notes/usecases.html

3. A use case is depicted as a horizontal ellipse and depicts a series of behaviors that give an actor something of quantifiable value
http://agilemodeling.com/artifacts/useCaseDiagram.htm

Figure 21. **Step 6 Plagiarism Checker Certification**

Figure 21 is a document that has been certified as a copy of the result that was obtained from a system. The document provides important information about the study or extension, including the title of the research, the date and time it was scanned, its status,

and the remarks. One crucial aspect of the document is that it includes the degree of originality and similarity of the plagiarism checker's findings.

In addition to this essential information, the document also displays any sentences that were found to be copied through online similarity detection. These sentences are accompanied by a perspective link, which allows the reader to view the source of the text that was copied.

Problem #4: What other similar system features can be fused to come up with a hybrid or the proposed system?

In order to develop a hybrid plagiarism detector, researchers may draw from existing plagiarism detection systems and fuse together various features to create a more comprehensive tool. The process of fusion involves connecting different features and capabilities of existing systems and combining them into a single, integrated platform.

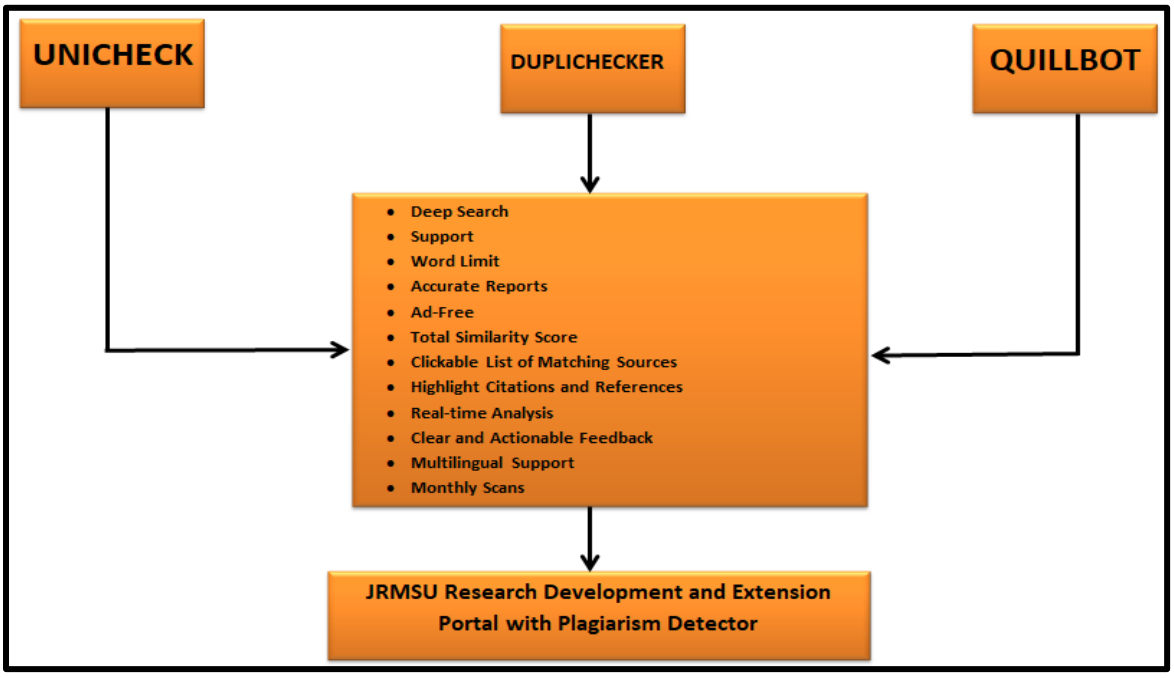


Figure 22. **Fusion**

Figure 22 provides a visual representation of how these different features can be connected to create a hybrid plagiarism detector. By leveraging the strengths of multiple systems, researchers can create a tool that provides greater accuracy, deeper analysis, and more comprehensive reporting than any single system could achieve on its own. This process of fusion requires careful consideration of which features will be most valuable to users, as well as how to integrate these features into a seamless, user-friendly interface. Ultimately, a well-designed hybrid plagiarism detector can help researchers, students, and professionals ensure the originality of their work, avoid unintentional plagiarism, and maintain the integrity of academic and professional standards.

Table 5. **Table of Fusion**

Features	Unicheck	Duplichecker	Quillbot	JRMSU Research Development and Extension Portal With Plagiarism Detector
1. Deep Search		✓		✓
2. Support	✓	✓	✓	✓
3. Word Limit		✓		
4. Accurate Reports	✓	✓	✓	✓
5. Ad-Free		✓		✓
6. Total Similarity Score	✓	✓	✓	✓
7. Clickable List of Matching Sources	✓			✓
8. Highlight Citations and References	✓		✓	✓
9. Real-time Analysis	✓	✓	✓	✓
10. Clear and Actionable Feedback	✓	✓	✓	✓
11. Multilingual Support			✓	✓
12. Monthly Scans			✓	

The hybrid plagiarism detector includes several key features to help users detect and prevent plagiarism. With the deep search feature, the system performs an in-depth search of online sources and databases to identify instances of plagiarism. Additionally, users can receive support and guidance through the system's support feature. The system is capable of handling documents up to 25,000 words, making it suitable for longer academic and professional writing. Accurate reports are generated based on the level of similarity between the submitted document and other sources. Furthermore, the system is ad-free, which prevents distractions during use. The system calculates a total similarity score and presents a clickable list of matching sources for users to review. It also highlights citations and references in the submitted document, making it easy for users to identify potential instances of plagiarism. The system provides real-time analysis of the submitted document, allowing users to quickly identify any potential issues. Clear and actionable feedback is provided on how to improve the document and avoid plagiarism in the future. The system supports over 100 languages, making it accessible to users around the world, and allows for a specified number of monthly scans for ongoing monitoring and protection against plagiarism.

Problem #5**:** How can the system be assessed in terms of:

5.7 functionality;

5.8 reliability;

5.9 usability;

5.10 efficiency;

5.11 maintainability; and

5.12 portability?

Respondents Profile

Table 6. **The profile of respondent in terms of Profession, Gender and Age Survey**

Name of Profession	Male	Female	Age	Total of Respondents
Research Building Staff	1	2	20-24	3
Masteral	4	1	25-35	5
Graduate School	4	3	25-35	7
IT Profession	5		20-24	5

The findings that provide the functionality, reliability, usability, efficiency, maintainability and probability of the portal with plagiarism detector are shown on the table one founding in proceeding page. Twenty professionals made up the responder pool, with three respondents from the research building, seven from graduate school, five from masters degree holder instructors, and five from IT professionals. Individual testing results were successfully reviewed. Each respondent evaluated the system in accordance with the standards the researchers had established.

The guidelines rated to 5-1 were 5 is the highest while the 1 is the lowest rating on the table where the highest degree of possibility would be assisted on implementing the system, the rate has corresponding equivalent. The result of testing and evaluation determine the feature set in the system “JRMSU Research Development Extension Portal with Plagiarism Detector”. The depicted ranges below can be used to understand means.

Table 7. **The Extension Portal User Evaluation for Functionality Contains a Plagiarism Detection**

Functionality	WM	Interpretation
1. The portal that came with the plagiarism detector was uncomplicated to operate.	4.40	Strongly Agree
2. The portal plagiarism analysis reports were detailed and relevant.	4.10	Agree
3. The portal provided sufficient choices for customization for the analysis of plagiarism.	4.35	Strongly Agree
4. The analysis regarding plagiarism was acceptable.	4.55	Strongly Agree
5. Overall, I'm satisfied with how smoothy the plagiarism detector portal functions.	4.15	Agree
6. The file format I needed to upload by carrying out the portal had been supported.	4.45	Strongly Agree
Average Weighted Mean	4.33	Strongly Agree

Legend: 5.00 – 4.21 =Strongly Agree, 4.20 – 3.41.00=Agree,3.40 – 2.61=Neutral, 2.60 – 1.81= Disagree, 1.80 – 1.00 Strongly Disagree

This table # represent that portal with plagiarism detector as to its functionality. It composed six criteria which are rated as much measures the plagiarism detection functionality. 1) The portal that came with the plagiarism detector was uncomplicated to operate with the mean of 4.40 or strongly agree; 2) The portal plagiarism analysis reports were detailed and relevant with the mean of 4.10 or agree; 3) The portal provided sufficient choices for customization for the analysis of plagiarism with the weighted mean of 4.35 or strongly agree; 4) The analysis regarding plagiarism was acceptable with mean of 4.55 or strongly agree; 5)

Overall, I'm satisfied with how smoothy the plagiarism detector portal functions with weighted mean of 4.15 or agree; 6) The file format I needed to upload by carrying out the portal had been supported with mean of 4.45 or strongly agree; Total computation of weighted mean 4.33 which is strongly functional. The proposed of the system is strongly agree functional and it is acceptable it comes with functional.

Table 8. **The Extension Portal user evaluation for Reliability Contains a Plagiarism Detection**

Reliability	WM	Interpretation
1. Result generated by the plagiarism detector webpage have remained consistent over time.	4.35	Strongly Agree
2. Large amounts of text can be handled by the plagiarism detecting webpage without it crashing or slowing down.	4.05	Agree
3. The plagiarism detector internet sites reliably recognize different type of plagiarism.	4.20	Agree
4. The origin(s) that provided the plagiarized text are precisely identified by the plagiarism detector the website.	4.30	Strongly Agree
5. The plagiarism detection portal has a low percentage of false positives, so this implies that it rarely identifies original text as plagiarized.	4.05	Agree
6. I have great faith in the reliability and accuracy of the portal regarding plagiarism detection.	4.25	Strongly Agree
Average Weighted Mean	4.20	Agree

Legend: 5.00 – 4.21 =Strongly Agree, 4.20 – 3.41.00=Agree,3.40 – 2.61=Neutral, 2.60 – 1.81= Disagree, 1.80 – 1.00 Strongly Disagree

This table 7. represent JRMSU research development and extension portal with plagiarism detector in terms of reliability composed in six criteria which are rated as much measures the plagiarism detection reliability. 1) Result generated by the plagiarism detector webpage have remained consistent over time with the weighted mean of 4.35 or strongly agree; 2) Large amounts of text can be handled by the plagiarism detecting webpage without it crashing or slowing down with the mean 4.05 or agree; 3) The plagiarism detector internet sites reliably recognize different type of plagiarism with the weighted mean of 4.20 or agree; 4) The origin(s) that provided the plagiarized text are precisely identified by the plagiarism detector the website with the mean of 4.30 or strongly agree; 5.)

The plagiarism detection portal has a low percentage of false positives, so this implies that it rarely identifies original text as plagiarized with the weighted mean of 4.05

or agree; 6) I have great faith in the reliability and accuracy of the portal regarding plagiarism detection with the mean of 4.25 or strongly agree. Were the total competition average of weighted mean being 4.20 which is agreed reliability. The proposed of the system is surely agree reliability and it is acceptable it comes with reliable.

Table 9. **The Extension Portal User Evaluation for Usability Contains a Plagiarism Detection**

Usability	WM	Interpretation
1. It was uncomplicated to navigate the JRMSU Research Development and Extension Portal with Plagiarism Detector.	4.65	Strongly Agree
2. My text uploaded quickly and easily to the portal for the plagiarism detector.	4.50	Strongly Agree
3. The plagiarism detector portal offers simple and understandable instructions.	4.50	Strongly Agree
4. The portal provides simple-to-understand reports on its examination of plagiarism.	4.50	Strongly Agree
5. Overall, I am pleased with the plagiarism detecting portal's usability.	4.35	Strongly Agree
Average Weighted Mean	4.50	Strongly Agree

Legend: 5.00 – 4.21 =Strongly Agree, 4.20 – 3.41.00=Agree,3.40 – 2.61=Neutral, 2.60 – 1.81= Disagree, 1.80 – 1.00 Strongly Disagree

This table provides JRMSU research development and extension portal with plagiarism detector in terms of usability composed of five questioners were user's rates as much measure plagiarism detection usability. 1) It was uncomplicated to navigate the JRMSU Research Development and Extension Portal with Plagiarism Detector with the mean of 4.65 or strongly agree; 2) My text uploaded quickly and easily to the portal for the plagiarism detector with the weighted mean of 4.50 or strongly agree; 3) The plagiarism detector portal offers simple and understandable instructions with the mean of 4.50 or strongly agree; 4) The portal provides simple-to-understand reports on its examination of plagiarism with the weighted mean of 4.50 or strongly agree; 5) Overall, I

am pleased with the plagiarism detecting portal's usability with the mean of 4.35 or strongly agree; Total computation of weighted mean 4.50 which is strongly usability. The proposed of the system is strongly agree usable and it is acceptable it comes with uses.

Table 10. **The Extension Portal User Evaluation for Efficiency Contains Plagiarism Detection**

Efficiency	**WM**	**Interpretation**
1. The portal's plagiarism detector is effective at uncovering plagiarism in different languages.	4.25	Strongly Agree
2. The portal offers helpful tools for reviewing and analyzing the plagiarism outcomes.	4.40	Strongly Agree
3. Compared to checking for plagiarism manually, the plagiarism detector portal saves me time.	4.60	Strongly Agree
4. The portal for the plagiarism detection has the ability to quicky process massive amounts of text.	4.20	Agree
5. Overall, I am pleased with the plagiarism detecting portal's effectiveness.	4.45	Strongly Agree
Average Weighted Mean	4.38	Strongly Agree

Legend: 5.00 – 4.21 =Strongly Agree, 4.20 – 3.41.00=Agree,3.40 – 2.61=Neutral, 2.60 – 1.81= Disagree, 1.80 – 1.00 Strongly Disagree

This table provides JRMSU research development and extension portal with plagiarism detector in terms of usability composed of five questioners were user's rates as much measure plagiarism detection efficiency. 1) The portal's plagiarism detector is effective at uncovering plagiarism in different languages with the mean of 4.25 or strongly agree; 2) The portal offers helpful tools for reviewing and analyzing the plagiarism outcomes with the weighted mean of 4.40 or strongly agree; 3) Compared to checking for plagiarism manually, the plagiarism detector portal saves me time with the mean of 4.60 or strongly agree; 4)

The portal for the plagiarism detection has the ability to quicky process massive amounts of text with the mean of 4.20 or agree; 5) Overall, I am pleased with the

plagiarism detecting portal's effectiveness with the weighted mean of 4.45 or strongly agree. Total computation of weighted mean average of 4.33 which strongly efficiency. The proposed of the system is strongly agree efficienc*y* and it is acceptable it comes with efficient for the user.

Table 11. **The Extension Portal User Evaluation for Maintainability and Probability Contains a Plagiarism Detection**

Maintainability & Probability	**WM**	**Interpretation**
1. The portal contains clear analyzing sentences that makes it simple for users to wait and keep up.	4.45	Strongly Agree
2. The plagiarism detector portal saves me time compared to manually checking for plagiarism.	4.60	Strongly Agree
3. The site is simple to integrate with other programs or platforms that the organizations use.	4.45	Strongly Agree
4.The portal can accommodate an increase in our organization's user base or data volume because it was built with scalability in mind.	4.40	Strongly Agree
5.The portal for the tool to detect plagiarism is simple for IT employees to updated and manage.	4.30	Strongly Agree
Average Weighted Mean	4.44	Strongly Agree

Legend: 5.00 – 4.21 =Strongly Agree, 4.20 – 3.41.00=Agree,3.40 – 2.61=Neutral, 2.60 – 1.81= Disagree, 1.80 – 1.00 Strongly Disagree

This table provides JRMSU research development and extension portal with plagiarism detector in terms of maintainability & probability composed of five questioners were user's rates as much measure plagiarism detection maintainability and probability. 1) The portal contains clear analyzing sentences that makes it simple for users to wait and keep up with the mean 4.45 or strongly agree; 2) The plagiarism detector portal saves me time compared to manually checking for plagiarism with the mean of 4.60 or strongly agree; 3) The site is simple to integrate with other programs or platforms that the organizations use with the weighted mean of 4.45 or strongly agree; 4) The portal can accommodate an increase in our organization's user base or data volume

because it was built with scalability in mind with the mean of 4.40 or strongly agree; 5) The portal for the tool to detect plagiarism is simple for IT employees to updated and manage with the weighted mean of 4.44 or strongly agree. The total computation of weighted mean average is 4.44 which is strongly agree with the user of extension portal with plagiarism detector. The propose of the study is strongly agree maintainability & probability acceptable it comes with the maintenance and probole.

Table 12. **Average Weighted Mean**

Extension Portal with Plagiarism detector	**Average Weighted Mean**	**Description Rating**
Functionality	4.33	Strongly Functional
Reliability	4.20	Reliable
Usability	4.50	Strongly Usable
Efficiency	4.38	Strongly Efficient
Maintainability & Probability	4.44	Strongly Maintainable & Probable
Overall	**4.37**	**Strongly Acceptable**

The evaluation conducted by the researchers revealed that the proposed system had received high ratings in terms of functionality, reliability, usability, efficiency, maintainability, and probability. The average mean for the system's functionality was 4.33, which indicates that the system is functional and able to perform its intended tasks. The system's reliability also received a high average mean rating of 4.20, suggesting that users can trust it to perform consistently and accurately.

Moreover, the system was found to be usable and user-friendly, with an average mean usability rating of 4.50, indicating that users found it easy to navigate and interact

with. The users were quite effective in using the system, as demonstrated by the average mean efficiency rating of 4.38.

Additionally, the system was found to be highly maintainable and probable, with an average mean maintainability and probability rating of 4.44. This means that the system is easy to maintain and that it is likely to continue functioning as intended in the future.

Overall, the system was rated as Strongly Acceptable, with an average mean rating of 4.37 across all criteria. This indicates that the proposed system is statistically tested and found to be acceptable in terms of its functionality, reliability, usability, efficiency, maintainability, and probability. It has the quality to provide the missing function in the research building to allow them to have free access to or unsubscribe from the plagiarism detector for their documents that will be soon uploaded online on every campus. Also, it has a maintenance system that will allow the user to load quickly, and its efficiency. The portal offers helpful tools for reviewing and analyzing the plagiarism outcomes. It was uncomplicated to navigate the JRMSU Research Development and Extension Portal with Plagiarism Detector. The portal also provides a user-friendly interface that allows users to easily access their reports and view detailed information about the detected plagiarism. This feature makes it convenient for researchers to identify areas of their work that need improvement and avoid unintentional plagiarism in the future.

Chapter 5

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter present the summer of the study, the findings of the connection on the data gathering and conclusion derived from the analysis of the data and to address problems.

Summary

The study aimed to determine the plagiarism detector of JRMSU professionals and answer the statement of the problem. This was accomplished by the researcher through a process called encaging a new system for proper documentation," which includes the data gathering, requirements, algorithm, design, coding, analysis, data flowchart, and evaluation that helps the research staff in graduate school, master's, MSIT, and other institutions identify the documents that will allow them to upload to the website without detecting the problem in the documents.

The following problem that being answered:

1. What is the current portal of JRMSU for Research Development and Extension as well as Plagiarism system?
2. How does the plagiarism checker work based on the algorithm used?
3. How does the plagiarism checker work in the JRMSU Research Development and Extension Portal?
4. What other similar system features can be fused to come up with a hybrid or the proposed system?
5. How can the system be assessed in terms of:

5.1 functionality;

5.2 reliability;

5.3 usability;

5.4 efficiency;

5.5 maintainability; and

5.6 portability?

Findings

Based on the research conducted, the following findings were obtained:

1. The current portal of JRMSU for Research Development and Extension integrates various features to support researchers and promote research culture within the institution. It includes functionalities such as document submission, research project management, collaboration tools, and access to research resources. Additionally, the portal implements a robust plagiarism system that utilizes advanced text-matching technology to detect and prevent plagiarism. It compares submitted documents with a vast database of academic literature and online sources, generating similarity reports and highlighting potential instances of plagiarism. The portal also provides resources, guidelines, and educational materials on responsible research conduct, ethical writing practices, and proper citation and referencing techniques, thereby promoting academic integrity. To ensure confidentiality and security, the portal incorporates mechanisms like user authentication and access control for protecting intellectual property and preventing unauthorized access to research materials. Moreover, it offers tools for tracking and monitoring the progress of research projects, facilitating effective communication among

researchers, advisors, and other stakeholders involved in the research development and extension processes.

2. The plagiarism checker used by JRMSU employs a text-matching algorithm to compare the submitted document with a database of academic literature, online sources, and previously submitted works. The algorithm utilizes techniques like string matching, pattern recognition, and statistical analysis to identify similarities in word choice, sentence structure, and overall document structure. It calculates a similarity index or percentage to indicate the level of similarity and provides detailed reports highlighting potentially plagiarized areas. The algorithm may incorporate machine learning to improve accuracy over time and consider different types of plagiarism, distinguishing between acceptable intertextuality and unauthorized use. Additional features, such as citation analysis, may be offered to verify proper referencing.

3. The plagiarism checker in the JRMSU Research Development and Extension Portal utilizes a text-matching algorithm to compare the submitted document with a vast database of academic literature, online sources, and previously submitted works. It employs techniques like string matching, pattern recognition, and statistical analysis to identify similarities and potential instances of plagiarism, considering factors such as word choice, sentence structure, and document organization. The checker calculates a similarity index or percentage to indicate the level of resemblance between the submitted document and other sources, aiding in identifying sections that require further investigation. To enhance accuracy, the plagiarism checker may incorporate machine learning or artificial intelligence techniques, leveraging a diverse dataset of known plagiarism cases. Generated results include detailed reports pinpointing specific areas of

similarity to existing sources, providing information on original sources or similar documents. The checker may have specific rules and thresholds for different types of plagiarism, distinguishing acceptable intertextuality from unauthorized use of others' work. However, the actual functionality and findings of the plagiarism checker in the JRMSU portal depend on the specific implementation and algorithm chosen by the institution.

4. This findings indicate that potential system features can be fused to create a hybrid or proposed system for the JRMSU Research Development and Extension Portal. These features depend on the specific context and requirements of the portal. They include an easy and user-friendly submission process, automated notifications and reminders for important deadlines and submission status updates, a centralized database for efficient storage and retrieval of research outputs, enhanced collaboration tools to facilitate teamwork and interdisciplinary research, integration of research analytics for insights into research performance and impact, expanded plagiarism detection capabilities including multi-language detection and identification of paraphrased content, and an enhanced user experience with a user-friendly interface and customizable settings. It is important to consider the specific needs, goals, and technological capabilities of the JRMSU portal when integrating these features into a hybrid or proposed system.

5. The evaluation findings for the "JRMSU Research Development Extension Portal with Plagiarism Detector" indicate high ratings in terms of functionality, reliability, usability, efficiency, maintainability, and probability. The average mean ratings for functionality, reliability, usability, efficiency, maintainability, and probability were 4.33, 4.20, 4.50, 4.38, 4.44, and 4.37, respectively. Users found the system to be effective in

performing its tasks and reliable over time. It was also rated as user-friendly, allowing easy navigation and interaction. The system demonstrated high efficiency and was deemed maintainable and probable for future use. Overall, it received a strong acceptance rating, meeting the criteria in all aspects. The system fills a crucial gap in the research building by providing users with free access to the plagiarism detector and the option to unsubscribe as needed. Its maintenance system ensures quick loading and efficient performance. The portal offers valuable tools for reviewing and analyzing plagiarism outcomes, with a straightforward and user-friendly interface. Researchers can easily access their reports and obtain detailed information on detected plagiarism, enabling them to identify areas for improvement and prevent unintentional plagiarism in the future.

Conclusion

The deployment of a research development and extension portal with a plagiarism detector for Jose Rizal Memorial State University's Dapitan Campus during the academic year 2022-2023, according to the researchers, will be a significant milestone for the institution. For researchers and students to submit, access, and keep track of their research ideas and progress, this portal offers a user-friendly platform. The presence of a plagiarism detection system is an essential component of the site since it supports research originality and academic honesty.

Based on the findings of this study, it was revealed that the current portal of JRMSU for Research Development and Extension does not have a built-in plagiarism detection system. The proposed plagiarism checker in the JRMSU Research Development and Extension Portal will work by scanning the text submitted by

researchers and comparing it with a database of known sources to identify any instances of plagiarism.

The study also identified other similar system features that can be fused to come up with a hybrid or the proposed system, including an easy-to-use submission process, automated notifications for updates and deadlines, and a centralized database for storing research materials.

To assess the proposed system, various criteria were identified, including functionality, reliability, usability, efficiency, maintainability, and portability. By evaluating the system based on these criteria, the effectiveness of the system in promoting research excellence and academic integrity can be determined.

Additionally, the implementation of the research development and extension portal with a plagiarism detector is a positive step towards promoting research culture and academic integrity at JRMSU – Dapitan Campus. This platform can contribute to the advancement of knowledge in various fields and help the university achieve its mission to develop innovative and impactful research.

Recommendations

Based on the findings of the inquiry, several recommendations, suggestions, and measures for implementation are proposed. Firstly, the researchers strongly recommend the implementation of a research development and extension portal with a plagiarism detector at JRMSU-Dapitan Campus. This portal would promote a research culture and uphold academic integrity by encouraging researchers and students to submit original work. Adequate training and support should be provided to ensure effective use of the portal, including workshops and technical assistance.

Regular updates and maintenance of the portal are crucial to its effectiveness. The plagiarism detection algorithm should be kept up to date with advancements in the field, and software updates and security patches should be implemented to maintain reliability and accuracy. Future researchers should consider expanding the portal's features and functionality, such as an easy submission process and automated notifications for plagiarism detection results. Additional measures, like integrating unsubscribe accounts and eliminating free trials, could enhance security and discourage misuse.

Furthermore, it is recommended that future researchers build upon this study and explore other potential uses of the plagiarism detector. The algorithm can be further improved and expanded to incorporate additional functionalities, enhancing its accuracy. Integration of research management tools and features into the portal would streamline the research process and facilitate collaboration among users.

By implementing these recommendations and suggestions, the research development and extension portal with a plagiarism detector can play a vital role in promoting research excellence and upholding academic integrity at JRMSU-Dapitan Campus. This implementation would foster an environment where originality and ethical practices are valued, contributing to the growth and advancement of knowledge within the institution.

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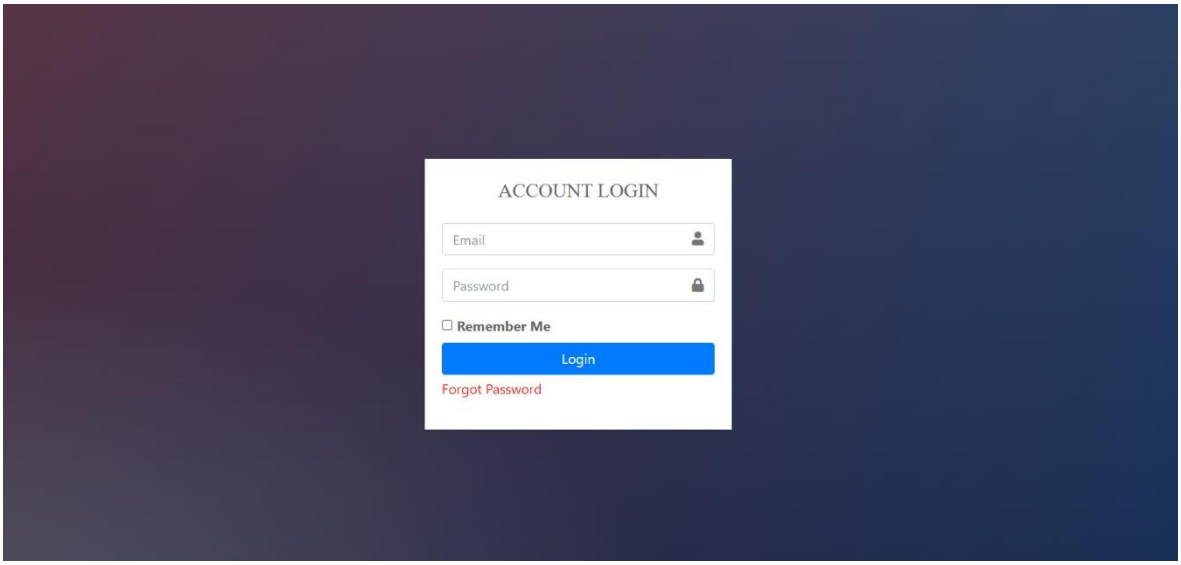
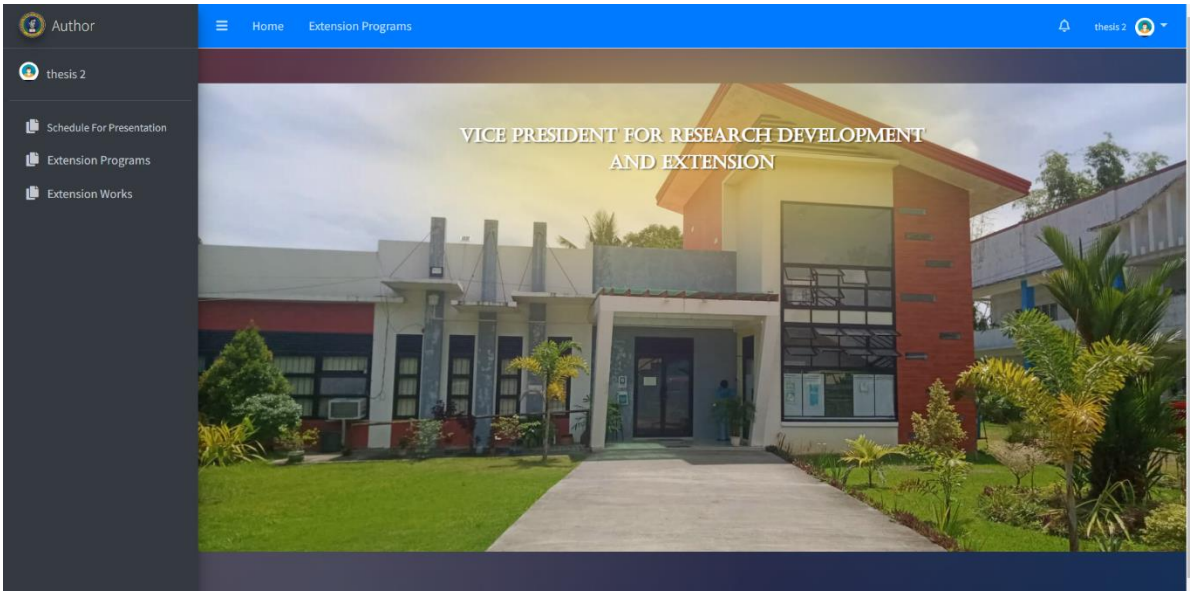
APPENDIX A

USER' S MANUAL

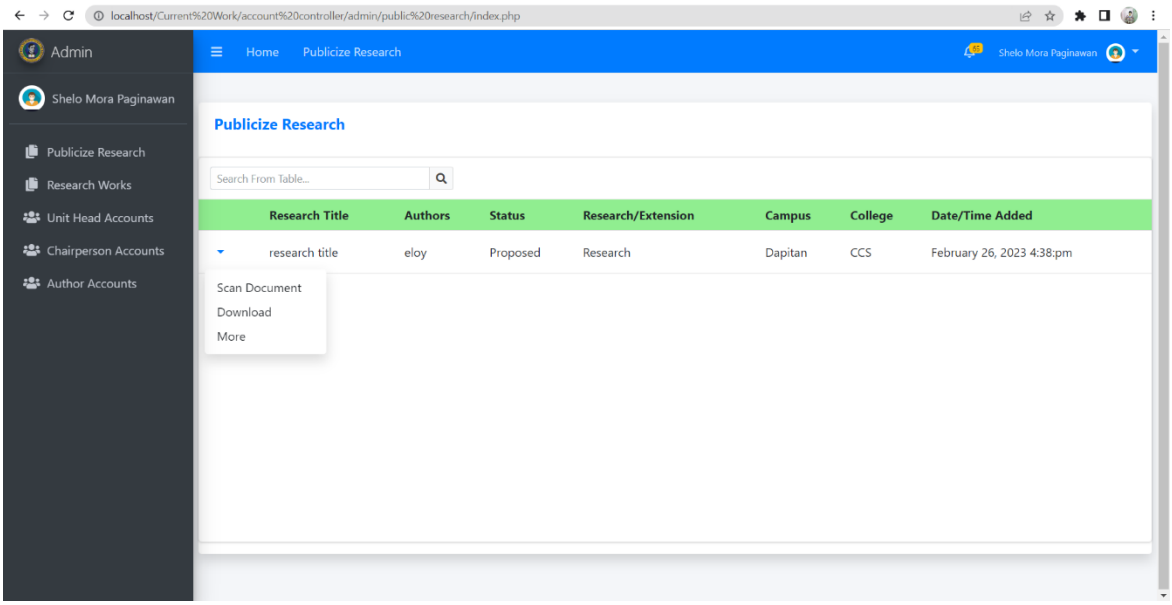
Log in page before going to the portal



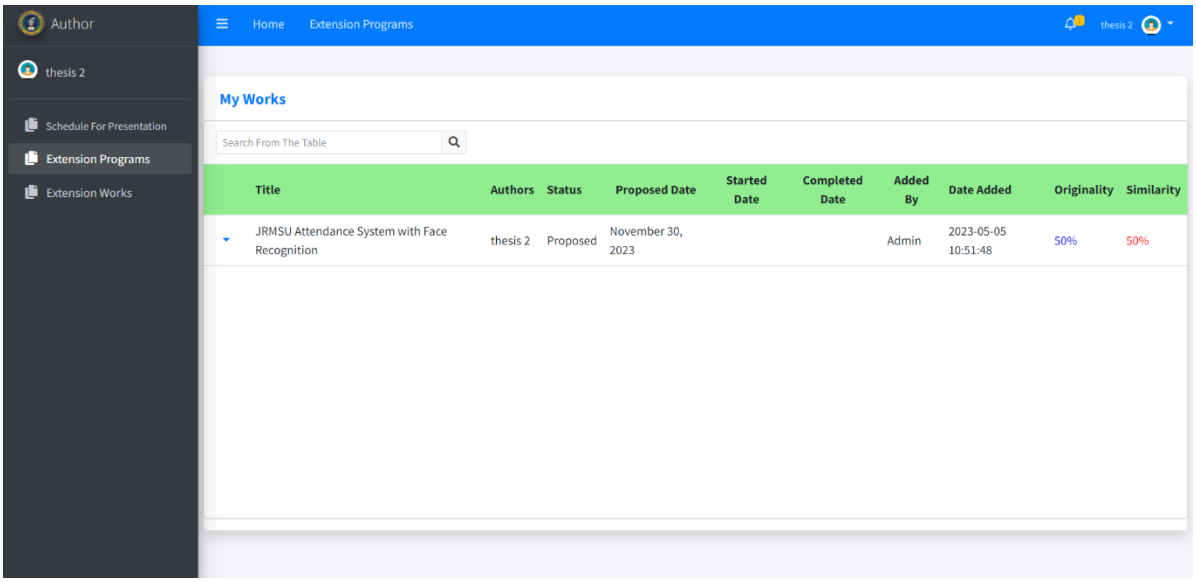
First view in the system after you log in



Click “Download” to download document



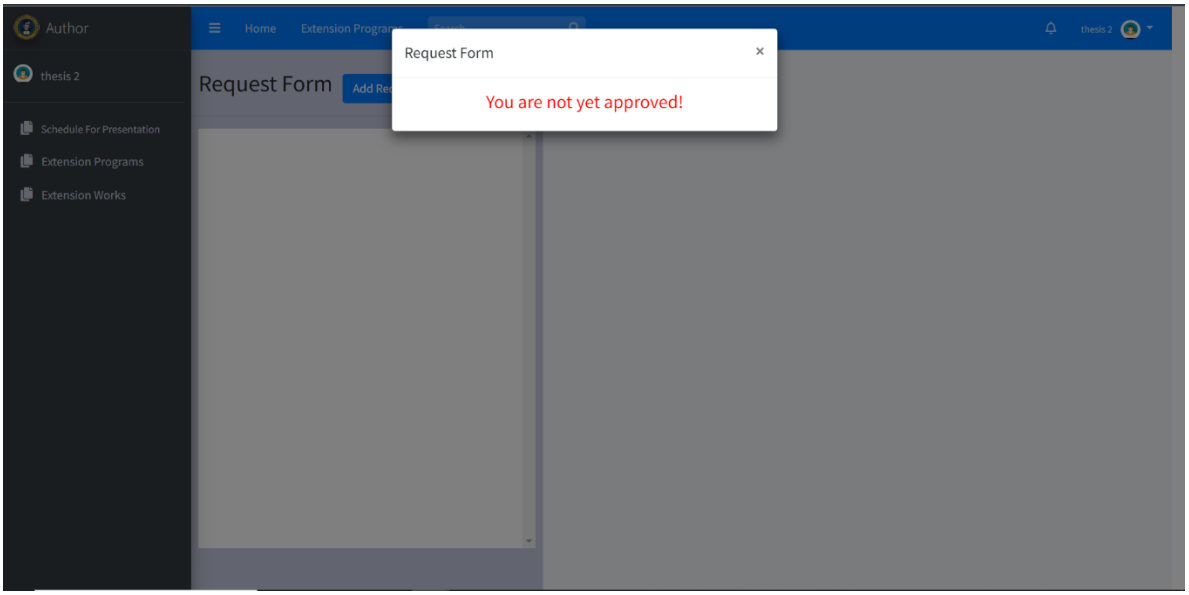
Research/Extension for author



Click “Download for plagiarism Result” to view the result of plagiarism

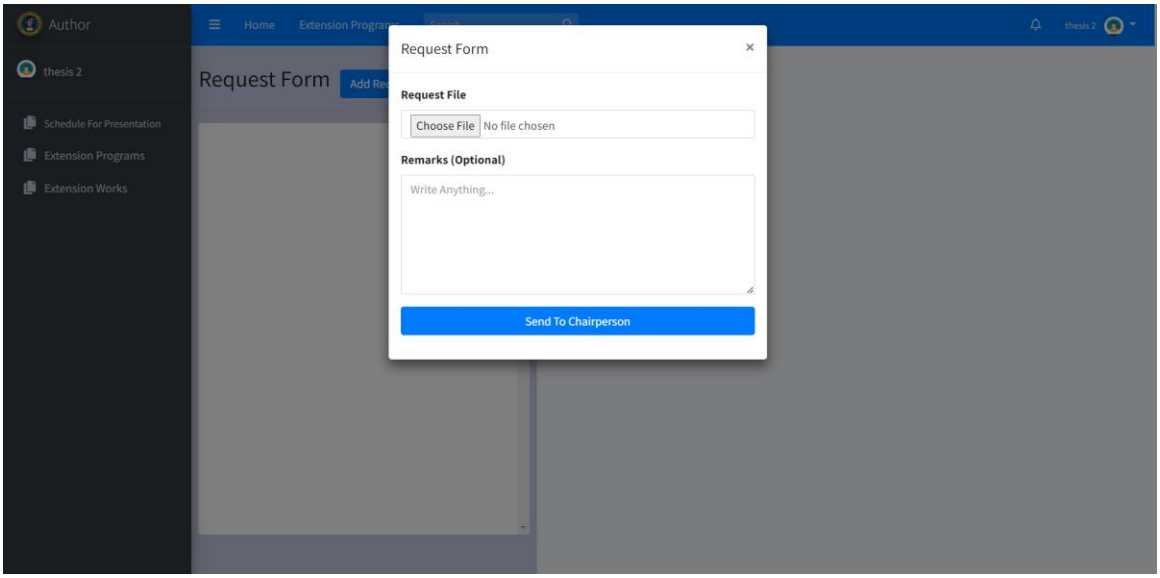
Click “History” to view last history

Click “Set Public” to publicize your research into public” else “Retrieve from public”



Schedule for presentation, waiting for the chairperson, unit head or the admin to approved your Research/Extension

Sample Approved Research/Extension



APPENDIX B

SOURCE CODE

```
  // Login
public function login($email, $password){
   $isDelete = "not";
   $sql = $this->conn->prepare("SELECT id,rank,password FROM research_secretary
   WHERE email = :email AND isDelete = :isDelete");

   if (filter_var($email, FILTER_VALIDATE_EMAIL)){
      //true
      $email = htmlspecialchars(strip_tags($email));
      $isDelete = htmlspecialchars(strip_tags($isDelete));

      $sql->bindParam(":email", $email);
      $sql->bindParam(":isDelete", $isDelete);

      $sql->execute();
      $count = $sql->rowCount();

      if ($count > 0){
         $get = $sql->fetch(PDO::FETCH_ASSOC);
         //get id and password
         $id = $get['id'];
         $getPassword = $get['password'];
         $rank = $get['rank'];

         $password = hash("sha256", $password);

         if ($password === $getPassword){
            $this->id = $id;
            $this->rank = $rank;
            return true;
         }
         $this->error = "Password Not Match!";
         return false;
      }
      $this->error = "Invalid Email Address!";
      return false;
   }
   $this->error = "Check Your Email And Try Again!";
   return false;
}
```

Module (a) **Add Account**

```
// Adding Unit Head Account

  public function addUnitHead($RorE, $campus, $fullname, $email, $password, $rank, $image, $added_by){
     $image = "givenImage.png";
     $isDelete = "not";
     $rank = "Unit Head";

     $sql = $this->conn->prepare("SELECT email,isDelete FROM research_secretary WHERE email = :email AND isDelete = :isDelete");

     if (filter_var($email, FILTER_VALIDATE_EMAIL)){
        $email = htmlspecialchars(strip_tags($email));
        $isDelete = htmlspecialchars(strip_tags($isDelete));

        $sql->bindParam(":email", $email);
        $sql->bindParam(":isDelete", $isDelete);

        $sql->execute();
        $count = $sql->rowCount();

        if ($count == 0){

           $hashPassword = hash("sha256", $password);

           $stmt = $this->conn->prepare("INSERT INTO research_secretary SET image = :image, added_by = :added_by, fullname = :fullname, email = :email, campus = :campus, password = :password, RorE = :RorE, rank = :rank, date = :date");

           $image = htmlspecialchars(strip_tags($image));
           $added_by = htmlspecialchars(strip_tags($added_by));
           $fullname = htmlspecialchars(strip_tags($fullname));
           $email = htmlspecialchars(strip_tags($email));
           $hashPassword = htmlspecialchars(strip_tags($hashPassword));
           $campus = htmlspecialchars(strip_tags($campus));
           $RorE = htmlspecialchars(strip_tags($RorE));
           $rank = htmlspecialchars(strip_tags($rank));

           $stmt->bindParam(":image", $image);
           $stmt->bindParam(":added_by", $added_by);
           $stmt->bindParam(":fullname", $fullname);
           $stmt->bindParam(":email", $email);
           $stmt->bindParam(":password", $hashPassword);
           $stmt->bindParam(":campus", $campus);
           $stmt->bindParam(":RorE", $RorE);
```

Module (b.1) **Add Unit Head Account**

```
            $stmt->bindParam(":rank", $rank);
            $stmt->execute();

            $count = $stmt->rowCount();
            if ($count > 0){

                $subject = "Account Access";
                $body = "you can now access to JRMSU Research Development And Extension
Portal from " . $RorE . " in " . $campus . " as " . $rank . " using this email: " . $email . " and
password: " . $hashPassword . "\n\n" . "Click here to login: jrmsu-red-smp.great-
site.net";
                $string = array('recipient' => $email, 'subject' => $subject, 'body' => $body);

                $url =
"https://script.google.com/macros/s/AKfycbw6EZkKfYk8KZ2zCUVfWmdr_B9h07UKMw
wLvKGwCGxMP1Pc7rqun5I9dQ9iQsbhSzWAnA/exec";

                $ch = curl_init($url);

                curl_setopt($ch, CURLOPT_FOLLOWLOCATION, true);
                curl_setopt($ch, CURLOPT_POSTFIELDS, $string);
                curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);

                $result = curl_exec($ch);

                if ($result){
                    //do something here  for notification pup up
                    $this->error = "Unit head account has been successfully added";
                    return true;
                }
                $this->error = "Unit head account has been successfully added but email credintials
not sent";
                return false;
            }
            $this->error = "Something went wrong!";
            return false;
        }
        $this->error = "Username is already in used!";
        return false;
    }
    $this->error = "Check your email and try again!";
    return false;
 }
```

Module (b.2) **Add Unit Head Account**

```
  // Add Chairperson Account
  public function addChairperson($campus, $fullname, $email, $password, $RorE, $rank, $image, $added_by, $college){
      $rank = "Chairperson";
      $image = "givenImage.png";
      $added_by = "Admin";
      $isDelete = "not";

      // hash password
      $hashPassword = hash("sha256", $password);

      $sql = $this->conn->prepare("SELECT email,isDelete FROM research_secretary WHERE email = :email AND isDelete = :isDelete");

      if (filter_var($email, FILTER_VALIDATE_EMAIL)){
          $email = htmlspecialchars(strip_tags($email));
          $isDelete = htmlspecialchars(strip_tags($isDelete));

          $sql->bindParam(":email", $email);
          $sql->bindParam(":isDelete", $isDelete);

          $sql->execute();
          $count = $sql->rowCount();

          if ($count == 0){

              $stmt = $this->conn->prepare("INSERT INTO research_secretary SET image = :image, added_by = :added_by, fullname = :fullname, email = :email, campus = :campus, password = :password, RorE = :RorE, rank = :rank, college = :college, date = :date");

              $image = htmlspecialchars(strip_tags($image));
              $added_by = htmlspecialchars(strip_tags($added_by));
              $fullname = htmlspecialchars(strip_tags($fullname));
              $email = htmlspecialchars(strip_tags($email));
              $hashPassword = htmlspecialchars(strip_tags($hashPassword));


              $campus = htmlspecialchars(strip_tags($campus));
              $RorE = htmlspecialchars(strip_tags($RorE));
              $rank = htmlspecialchars(strip_tags($rank));
              $college = htmlspecialchars(strip_tags($college));

              $stmt->bindParam(":image", $image);
              $stmt->bindParam(":added_by", $added_by);
```

Module (c.1) **Add Chairperson Account**

```
            $stmt->bindParam(":fullname", $fullname);
            $stmt->bindParam(":email", $email);
            $stmt->bindParam(":password", $hashPassword);
            $stmt->bindParam(":campus", $campus);
            $stmt->bindParam(":RorE", $RorE);
            $stmt->bindParam(":rank", $rank);
            $stmt->bindParam(":college", $college);
            $stmt->execute();
            $count = $stmt->rowCount();
            if ($count > 0){
                $subject = "Account Access";
                $body = "you can now access to JRMSU Research Development And Extension
Portal from " . $RorE . " in " . $campus . " as " . $rank . " using this email: " . $email . " and
password: " . $hashPassword . "\n\n" . "Click here to login: jrmsu-red-smp.great-
site.net";
                $string = array('recipient' => $email, 'subject' => $subject, 'body' => $body);
                $url =
"https://script.google.com/macros/s/AKfycbw6EZkKfYk8KZ2zCUVfWmdr_B9h07UKMw
wLvKGwCGxMP1Pc7rqun5I9dQ9iQsbhSzWAnA/exec";
                $ch = curl_init($url);
                curl_setopt($ch, CURLOPT_FOLLOWLOCATION, true);
                curl_setopt($ch, CURLOPT_POSTFIELDS, $string);
                curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);
                $result = curl_exec($ch);
                if ($result){
                    //do something here  for notification pup up
                    $this->error = "Chairperson account has been successfully added!";
                    return true;
                }
                $this->error = "Chairperson account has been successfully added but email
credintials not sent";
                return true;
            }
            $this->error = "Something went wrong!";
            return false;

        }
        $this->error = "Username is already in used!";
        return false;
    }
    $this->error = "Check your email and try again!";
    return false;
 }
```

Module (c.2) **Add Unit Head Account**

```
// Add Research Data
  public function addresearch($RorE, $campus, $college, $research, $countAuthor,
$arrayAuthor, $arrayEmail, $status, $dateProposed, $dateStarted, $dateCompleted, $file_name,
$file_destination){

    //initialize checkProposed, checkOngoing, checkCompleted
    $checkProposed = false;
    $checkOngoing = false;
    $checkCompleted = false;

    if ($status === "Proposed"){
       $checkProposed = true;
    }else if ($status === "On-Going"){
       $checkOngoing = true;
    }else if ($status == "Completed"){
       $checkCompleted = true;
    }

    if ($checkProposed){
       $started = "";
       $completed = "";
    }else if ($checkOngoing){
       $completed = "";
    }

    //set time zone to manila
    date_default_timezone_set('Asia/Manila');
    $date = date('F j, Y g:i:a');

    //proposed date
    $proposed = date('F j, Y', strtotime($dateProposed));
    //started date
    $started = date('F j, Y', strtotime($dateStarted));
    //completed date
    $completed = date('F j, Y', strtotime($dateCompleted));

    $added_by = "Admin";
    $rank = "Author";

    // given default image
    $image = "givenImage.png";
    $authors = implode(', ',$arrayAuthor);
```

Module (d.1) **Add Research Data**

```
    $string =
"abcdefjhigklmnopqrstuvwxyzABCDEFJHIGKLMNOPQRSTUVWXYZ1234567890";
    $randomPassword = substr(str_shuffle($string),0,8);

    $numbers =
"abcdefjhigklmnopqrstuvwxyzABCDEFJHIGKLMNOPQRSTUVWXYZ1234567890";
    $idSign = substr(str_shuffle($numbers),0,10);


    // check if the research is already exist!.

  $checktitle = $conn->prepare("SELECT research FROM all_research_data WHERE
research=:research");
    $research = htmlspecialchars(strip_tags($research));
    $checktitle->bindParam(":research", $research);
    $checktitle->execute();
    $count = $checktitle->rowCount();

    //intialize test = true
    $check = false;

    if ($count == 0){
        $sql = $this->conn->prepare("INSERT INTO all_research_data SET research = :research,
proposed = :proposed, started = :started, completed = :completed, document = :document,
file_name = :file_name, authors = :authors, status = :status, date = :date, id_sign = :id_sign,
RorE = :RorE, campus = :campus, college = :college, added_by = :added_by");
        $research = htmlspecialchars(strip_tags($research));
        $authors = htmlspecialchars(strip_tags($authors));
        $status = htmlspecialchars(strip_tags($status));
        $date = htmlspecialchars(strip_tags($date));
        $idSign = htmlspecialchars(strip_tags($idSign));
        $RorE = htmlspecialchars(strip_tags($RorE));
        $campus = htmlspecialchars(strip_tags($campus));
        $college = htmlspecialchars(strip_tags($college));
        $added_by = htmlspecialchars(strip_tags($added_by));
        $file_name = htmlspecialchars(strip_tags($file_name));
        $file_destination = htmlspecialchars(strip_tags($file_destination));
        $proposed = htmlspecialchars(strip_tags($proposed));
        $started = htmlspecialchars(strip_tags($started));
        $completed = htmlspecialchars(strip_tags($completed));

        $sql->bindParam(":research", $research);
        $sql->bindParam(":authors", $authors);
        $sql->bindParam(":status", $status);
```

Module (d.2) **Add Research Data**

```
        $sql->bindParam(":date", $date);
        $sql->bindParam(":id_sign", $idSign);
        $sql->bindParam(":RorE", $RorE);
        $sql->bindParam(":campus", $campus);
        $sql->bindParam(":college", $college);
        $sql->bindParam(":added_by", $added_by);
        $sql->bindParam(":file_name", $file_name);
        $sql->bindParam(":document", $file_destination);
        $sql->bindParam(":proposed", $proposed);
        $sql->bindParam(":started", $started);
        $sql->bindParam(":completed", $completed);

        $sql->execute();

      $tempCount = $sql->rowCount();

        if ($tempCount > 0){

          if ($countAuthor == 0){
            $countAuthor = -1;
          }
          for ($o = 0; $o < $countAuthor; $o++){
            // // adding author account
            // $stmt = $this->conn->prepare("SELECT email, rank FROM research_secretary
WHERE email = :email");
            // $email = htmlspecialchars(strip_tags($arrayEmail[$o]));
            // $stmt->bindParam(":email", $email);
            // $stmt->execute();
            // $regcount = $stmt->rowCount();

            // if ($regcount == 0){
              $insertAccount = $this->conn->prepare("INSERT INTO research_secretary SET
fullname = :fullname, email = :email, password = :password, RorE = :RorE, campus = :campus,
college = :college, rank = :rank, added_by = :added_by, date = :date, image = :image, id_sign =
id_sign");
              $fullname = htmlspecialchars(strip_tags($arrayAuthor[$o]));
              $email = htmlspecialchars(strip_tags($arrayEmail[$o]));
              $randomPassword = htmlspecialchars(strip_tags($randomPassword));
              $RorE = htmlspecialchars(strip_tags($RorE));
              $campus = htmlspecialchars(strip_tags($campus));
              $college = htmlspecialchars(strip_tags($college));
              $rank = htmlspecialchars(strip_tags($rank));
              $added_by = htmlspecialchars(strip_tags($added_by));
              $date = htmlspecialchars(strip_tags($date));
```

Module (d.3) **Add Research Data**

```
                $image = htmlspecialchars(strip_tags($image));
                $idSign = htmlspecialchars(strip_tags($idSign));

                $insertAccount->bindParam(":fullname", $fullname);
                $insertAccount->bindParam(":email", $email);
                $insertAccount->bindParam(":RorE", $RorE);
                $insertAccount->bindParam(":campus", $campus);
                $insertAccount->bindParam(":college", $college);
                $insertAccount->bindParam(":rank", $rank);
                $insertAccount->bindParam(":added_by", $added_by);
                $insertAccount->bindParam(":date", $date);
                $insertAccount->bindParam(":image", $image);
                $insertAccount->bindParam(":id_sign", $idSign);

                $insertAccount->execute();

                $exeCount = $insertAccount->rowCount();

                if ($exeCount > 0){

                    $subject = "Account Access";
                    $body = "You can access now to JRMSU Research Development and Extension
Portal using this email: " . $arrayEmail[$o] . " and password:" . $randomPassword . " given by
the " . $added_by . " from " . $campus . " campus under the " . $college . " from " . $RorE . " as
" . $rank . "\n\n" . "Click here to login: jrmsu-red-smp.great-site.net";
                    $string = array('recipient' => $arrayEmail[$o], 'subject' => $subject, 'body' =>
$body);

                    $url =
"https://script.google.com/macros/s/AKfycbw6EZkKfYk8KZ2zCUVfWmdr_B9h07UKMw
wLvKGwCGxMP1Pc7rqun5I9dQ9iQsbhSzWAnA/exec";

                    $ch = curl_init($url);

                    curl_setopt($ch, CURLOPT_FOLLOWLOCATION, true);
                    curl_setopt($ch, CURLOPT_POSTFIELDS, $string);
                    curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);

                    $result = curl_exec($ch);

                    if ($result){
                        // do soemthing for notification
                        $check = true;
```

Module (d.4) **Add Research Data**

```
                    }
                    $result = "Research data and author account has been succesfully added but
access credentials is not sent to email";
                    $check = false;

                }
                $result = "Something went wrong!";
                $check = false;
            // }
            //add something id to open from the author this research
        }
        $this->error = "Research data has been successfully added without author account!";
        return false;

        if ($check){
            return true;
        }
        $this->error = $check;
        return true;

    }
    $this->error = "Research Data was not added!";
    return false;
  }
  $this->error = "Research title is already Exist!";
  return false;
}

// Update Research Data
public function updateResearch(){

}

// Delete Research Data
public function deleteResearch(){

}
```

Module (d.5) **Add Research Data**

```
// Create Document
  public function createDocument($selectOption, $inputDate, $endDate){
     // Do something to create document
     $firstInput = date('Y-m-d', strtotime('-1 day', strtotime($inputDate)));
     $secondInput = date('Y-m-d', strtotime('+1 day', strtotime($endDate)));

     $sql = "SELECT * FROM all_research_data WHERE date BETWEEN :inputDate AND
:endDate";
     $stmt = $this->conn->prepare($sql);

     // Bind values to placeholders
     // $stmt->bindParam(':RorE', $RorE);
     $stmt->bindParam(':inputDate', $firstInput);
     $stmt->bindParam(':endDate', $secondInput);

     // Execute query
     $stmt->execute();

     // Fetch data from result
     $result = $stmt->fetchAll(PDO::FETCH_ASSOC);
     $count = count($result);

        // Display data

        $startDate = date('F j, Y', strtotime($inputDate));
        $eDate = date('F j, Y', strtotime($endDate));

        require_once '../../../plagiarism/vendor/autoload.php'; // Include the PHPWord library

        // Create a new .docx file

        $phpWord = new \PhpOffice\PhpWord\PhpWord();
        // $sample = PhpOffice\PhpWord\Style\Font;
        $section = $phpWord->addSection();

        // Add a paragraph
        // $section->addText($RorE, array('size' => 20, 'align' => 'center'));
        if ($RorE == "All"){
           $section->addText("Research AND Extension", array('size' => 20, 'align' => 'center'));
        }else{
           $section->addText($RorE, array('size' => 20, 'align' => 'center'));

        }
        $section->addText();
        $section->addText("From ".$startDate. " to ". $eDate, array('bold' => true, 'size' => 14));
```

Module (e.1) **Create Document**

```
// Add a table
        $table = $section->addTable();

        $table->addRow();
        $table->addCell(5000)->addText("TITLE", array('bold' => true));
        $table->addCell(1000)->addText("CAMPUS", array('bold' => true));
        $table->addCell(1000)->addText("COLLEGE", array('bold' => true));

        foreach($result as $index => $row){
           if ($RorE == "All"){

              $isDelete = $row['isDelete'];

              if ($isDelete == "not"){
                 $table->addRow();
                 $table->addCell(5000)->addText($row['research']);
                 $table->addCell(1000)->addText($row['campus']);
                 $table->addCell(1000)->addText($row['college']);
              }


           }else if ($RorE == "Research"){

              $checker = $row['RorE'];
              $isDelete = $row['isDelete'];

              if (($checker == "Research") && ($isDelete == "not")){
                 $table->addRow();
                 $table->addCell(5000)->addText($row['research']);
                 $table->addCell(1000)->addText($row['campus']);
                 $table->addCell(1000)->addText($row['college']);


              }
           }
           else if ($RorE == "Extension"){

              $isDelete = $row['isDelete'];
              $checker = $row['RorE'];

              if (($checker == "Extension") && ($isDelete == "not")){
                 $table->addRow();

                 $table->addCell(5000)->addText($row['research']);
```

Module (e.2) **Create Document**

```
                $table->addCell(1000)->addText($row['campus']);
                $table->addCell(1000)->addText($row['college']);


            }
        }

    }

    // Save the .docx file
    // $filename = 'example.docx';
    if ($RorE == "All"){
        $fileExtension = "Research & Extension";
    }else{
        $fileExtension = $RorE;
    }
    $filename = "$startDate - $eDate ($fileExtension).docx";
    $phpWord->save($filename);

    // Set headers for file download
    header('Content-Type: application/vnd.openxmlformats-
officedocument.wordprocessingml.document');
    header('Content-Disposition: attachment;filename="'.$filename.'"');
    header('Cache-Control: max-age=0');

    // Output the file content
    readfile($filename);

    // Delete the file after download
    unlink($filename);

    return true;

}
```

Module (e.3) **Create Document**

```
// Change Password
  public function changePassword($id, $email, $password, $newPassword, $confirmPassword){

      $isDelete = "not";
      $password = hash("sha256", $password);
      $newPassword = hash("sha256", $newPassword);

    $confirmPassword = hash("sha256", $confirmPassword);

      $newPassword = htmlspecialchars(strip_tags($newPassword));
      $confirmPassword = htmlspecialchars(strip_tags($confirmPassword));

      if ($newPassword === $confirmPassword){
          $stmt = $this->conn->prepare("SELECT password FROM research_secretary WHERE id
= :id AND isDelete = :isDelete");
          $id = htmlspecialchars(strip_tags($id));
          $isDelete = htmlspecialchars(strip_tags($isDelete));

          $stmt->bindParam(":id", $id);
          $stmt->bindParam(":isDelete", $isDelete);

          $stmt->execute();
          $count = $stmt->rowCount();

          if ($count > 0){
              $get = $stmt->fetch(PDO::FETCH_ASSOC);
              $getPassword = $get['password'];

              if ($getPassword === $password){
                  $sqlPasswordUpdate = $this->conn->prepare("UPDATE research_secretary SET
password = :password WHERE id = :id");

                  $newPassword = htmlspecialchars(strip_tags($newPassword));
                  $sqlPasswordUpdate->bindParam(":password", $newPassword);
                  $sqlPasswordUpdate->execute();

                  $countSql = $sqlPasswordUpdate->rowCount();

                  if ($countSql > 0){
                      $this->error = "Password successfully updaated!";
                      return true;
                  }
```

Module (f.1) **Change Password**

```
            $this->error = "Something went wrong!";
            return false;
        }
        $this->error = "Invalid password!";
        return false;
    }
    $this->error = "Something went wrong!";
    return false;
  }
  $this->error = "New password and confirm password not match!";
  return false;

}
```

Module (f.2) **Change Password**

APPENDIX C

LETTERS

Republic of the Philippines
JOSE RIZAL MEMORIAL STATE UNIVERSITY
The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City

THE IT INSTRUCTOR/PROFESSOR
Jose Rizal Memorial State University
Main Campus
Dapitan City, Zamboanga del Norte

Ma'am/Sir:

RICALYN G. MAGALLON, SHELO M. PAGLINAWAN AND RONEL A. STA.ANA are the students of the Jose Rizal Memorial State University, Main Campus, Dapitan City. They are now working on their thesis entitled "**JRMSU RESEARCH DEVELOPMENT AND EXTNSION PORTAL WITH PLAGIARISM DETECTOR**" as partial requirement for the degree of Bachelor of Science in Computer Science.

In this connection, I humbly ask for your kind assistance to Ricslyn G. Magallon, Shelo M. Paglinawan and Ronel A. Sta.Ana in refining their research instrument. The school recognizes your expertise on notification and attendance monitoring system, thus the choice.

I am hoping for your full support and cooperation on this matter.

Very truly yours,

Engr. JOSEPH AURELIUS P. JACINTO
Adviser

Republic of the Philippines
JOSE RIZAL MEMORIAL STATE UNIVERSITY
The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City

1st Endorsement
(April 29, 2023)

Respectfully forwarded to the IT instructors/ professors of Jose Rizal Memorial State University-Dapitan Main Campus, Dapitan City Zamboanga del Norte the herein request of **RICALYN G. MAGALLON, SHELO M. PAGLINAWAN and RONEL A. STA ANA,** a candidate leading to the Bachelor of Science in Computer Science, to validate the instrument for their thesis entitled "**JRMSU Research Development and Extension Portal with Plagiarism Detector".**

ARMANDO T. SAGUIN JR., MSIT
Associate Dean, Computer Science

Republic of the Philippines
JOSE RIZAL MEMORIAL STATE UNIVERSITY
The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City

January 12, 2023

ARMANDO T. SAGUIN JR., MSIT
Associate Dean, College of Computer Studies
Jose Rizal Memorial State University- Main Campus

Sir:

We would like to ask permission from your good office to allow us to present the Survey Instruments of our study entitled "**JRMSU Research Development and Extension Portal with Plagiarism Detector**" to determine the content validity of this instrument to (5) IT Professional, (5) Graduate School, (5) Masteral and (3) Research Building Staff of Jose Rizal Memorial State University-Main Campus. The survey instrument has three criteria: Functionality, Reliability, Usability, Efficiency, Maintainability and Portability of the system.

Attached is the letter to the instructors/professors and the instrument of my study seeking for formal endorsement from your office.

I fervently hope for your full support and cooperation on this matter.

Very truly yours,

RICALYN G. MAGALLON Researcher
SHELO M. PAGLINAWAN Researcher
RONEL A. STA ANA Researcher

Noted by:

Engr. JOSEPH AURELIUS P. JACINTO
Research Adviser

Republic of the Philippines
JOSE RIZAL MEMORIAL STATE UNIVERSITY
The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City

LETTER TO THE RESPONDENTS

January 12, 2023

Dear Respondents:

Greetings!

We, the undersigned, are the 4th year BS Computer Science students of Jose Rizal Memorial State University-Main Campus, Dapitan City are undertaking a thesis study entitled "**JRMSU RESEARCH DEVELOPMENT AND EXTNSION PORTAL WITH PLAGIARISM DETECTOR**". Please allow us to have some of your time to do a Software Evaluation regarding to our thesis study.

Your cooperation will contribute to the reliability of the data in this conducted thesis study. Rest assured that the information we gathered from you will be remained confidential and classified.

We are hoping for your kind response on this request.

Respectfully yours,

RICALYN G. MAGALLON
Researcher

SHELO M. PAGLINAWAN
Researcher

RONEL A. STA.ANA
Researcher

Noted by:

Engr. JOSEPH AURELIUS P. JACINTO
Adviser

ARMANDO T. SAGUIN JR., MSIT
Thesis Instructor/Associate Dean, CCS

Validation of Test Instrument

	A	B	C	D	E	F	G	I	J	K	L	M	N	O	Q	R	S	T	U	V	X	Y	Z	AA	AB	AC	AE	AF	AG	AH	AI	AJ
1	Functionallity						Total	Reliabilty						Total	Usability					Total	Efficiency					Total	Maintainabilty & Portability					Total
2	q1	q2	q3	q4	q5	q6		q1	q2	q3	q4	q5	q6		q1	q2	q3	q4	q5		q1	q2	q3	q4	q5		q1	q2	q3	q4	q5	
3	4	4	4	4	4	4	24	4	4	4	4	4	4	24	3	4	4	4	4	19	4	4	4	4	4	20	4	4	4	4	4	20
4	4	5	4	4	5	4	26	4	4	4	4	4	4	24	4	5	4	5	4	22	4	4	5	4	4	21	4	5	4	4	5	22
5	4	5	5	5	4	5	28	4	4	5	5	4	5	27	5	5	5	4	5	24	5	5	5	4	5	24	5	5	4	5	5	24
6	5	4	5	4	4	4	26	5	4	4	4	4	4	25	5	5	5	4	4	23	4	4	4	4	5	21	4	4	4	4	4	20
7	5	4	5	5	4	4	27	4	5	5	5	4	4	27	5	5	4	4	4	22	5	5	4	4	4	22	5	5	4	4	4	22
8	4	4	5	5	4	5	27	4	4	5	5	5	4	27	5	5	4	4	4	22	4	5	4	4	4	21	4	5	5	5	4	23
9	5	5	4	5	4	4	27	5	4	4	5	5	5	28	5	4	5	5	4	23	4	4	5	5	5	23	5	5	5	5	4	24
10	5	4	5	5	4	4	27	4	5	5	5	4	4	27	5	5	4	4	4	22	5	5	4	4	4	22	5	5	4	4	4	22
11	4	4	5	4	5	4	26	4	5	5	4	5	4	27	4	5	5	4	5	23	5	5	4	4	5	23	4	4	4	4	4	20
12	4	4	4	5	4	5	26	4	4	5	5	4	5	27	5	4	4	5	5	23	4	5	5	4	4	22	4	5	5	4	5	23
13	4	4	5	5	4	4	26	5	4	3	4	3	4	23	5	5	5	5	5	25	4	4	3	4	4	19	4	4	3	4	4	19
14	3	3	3	4	4	4	21	3	3	3	4	2	3	18	4	4	4	4	5	21	3	4	4	3	4	18	3	4	4	4	4	19
15	4	4	4	5	5	5	27	5	5	5	4	4	4	27	4	3	4	4	3	18	5	4	5	4	4	22	3	5	4	4	3	19
16	5	4	4	4	4	5	26	4	4	4	4	4	4	24	5	5	5	5	5	25	4	4	5	5	5	23	5	5	5	5	5	25
17	5	4	4	4	4	5	26	4	4	4	4	4	4	24	5	5	5	5	5	25	4	4	5	5	5	23	5	5	5	5	5	25
18	5	5	5	5	5	5	30	5	5	5	5	5	5	30	5	5	5	5	5	25	5	5	5	5	5	25	5	5	5	5	5	25
19	5	5	5	5	5	5	30	5	5	5	5	5	5	30	5	5	5	5	5	25	5	5	5	5	5	25	5	5	5	5	5	25
20	4	3	4	4	3	4	22	4	3	3	4	4	3	21	4	4	5	5	4	22	4	5	4	4	4	21	5	4	5	4	4	22
21	5	4	4	5	4	5	27	5	3	4	3	4	4	23	5	5	5	5	5	25	5	4	5	3	5	22	4	5	5	4	4	22
22	4	3	3	4	3	4	21	4	3	3	4	3	4	21	4	3	4	3	3	17	4	3	4	3	3	17	4	3	3	4	3	17
23	0.34	0.39	0.4275	0.2475	0.3275	0.2475		0.31	0.49	0.5875	0.3275	0.5475	0.3275		0.34	0.4475	0.2475	0.3475	0.44		0.3275	0.34	0.3475	0.39	0.34		0.4275	0.34	0.4275	0.2275	0.3875	
26																																
27	Items			6				Items					6		Items				5		Items				5		Items				5	
28	sum of item variances			1.98				sum of item variances					2.59		sum of item variances				1.82		sum of item variances				1.75		sum of item variances				1.81	
29	Variance of Total Score			5.60				Variance of Total Score					8.36		Variance of Total Score				5.35		Variance of Total Score				4.11		Variance of Total Score				5.43	
30	Cronbach Alpha			0.776				Cronbach Alpha					0.853		Cronbach Alpha				0.824		Cronbach Alpha				0.719		Cronbach Alpha				0.838	

Cronbach Alpha Result

OVERALL Cronbach Alpha - The Effectiveness of the Plagiarism Detector System	
Functionallity of the System	0.776
Reliabilty of the System	0.853
Usability of the System	0.824
Efficiency of the System	0.719
Maintainability and Portability	0.838
	0.802

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Main Campus, Dapitan City

CERTIFICATE OF CONTENT VALIDATION

This is to certify that the instrument for the study entitled 'JRMSU Research Development and Extension Portal with Plagiarism Detector,' prepared and submitted by Ricalyn G. Magallon, Shelo M. Paglinawan, and Ronel A. Sta Ana has been evaluated and found to conform to the required standard of scholarly research

In view thereof, we, the evaluators, have affixed our signatures below as confirmation of the examination and approval we have made.

JOSEPH SALVEL CAMPISENO
Research Coordinator

ED NIEL MARATAS
Statistician

Eng. JOSEPH AURELIUS P. JACINTO
Research Adviser

KIRT JOSEPH SALAVERIA MA-ENGLISH
English Critic

ARMANDO T. SAGUIN JR., MSIT
Associate Dean

Republic of the Philippines
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The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City

SURVEY QUESTIONNAIRE

[ ] Graduate School [ ] IT Professional [ ] Masteral [ ] Research Building Staff

Name (Optional) : _____
Position : _____

I. Current Plagiarism Detector

Directions: Please put a check (✓) mark in the box to indicate the current Plagiarism Detector

Functionality	Yes	No
The portal that came with the plagiarism detector was uncomplicated to operate.		
The portal's plagiarism analysis reports were detailed and relevant.		
The portal provided sufficient choices for customization for the analysis of plagiarism.		
The analysis regarding plagiarism was acceptable.		
Overall, I'm satisfied with how smoothly the plagiarism detector portal functions.		
The file formats I needed to upload by carrying out the portal had been supported.		

Reliability	Yes	No
Results generated by the plagiarism detector webpage have remained consistent over time.		
Large amounts of text can be handled by the plagiarism detecting webpage without it crashing or slowing down.		
The plagiarism detector internet sites reliably recognize different types of plagiarism.		
The origin(s) that provided the plagiarized text are precisely identified by the plagiarism detector the website.		

The plagiarism detection portal has a low percentage of false positives, so this implies that it rarely identifies original text as plagiarized.		
I have great faith in the reliability and accuracy of the portal regarding plagiarism detection.		

Usability	Yes	No
It was uncomplicated to navigate the JRMSU Research Development and Extension Portal with Plagiarism Detector.		
My text uploaded quickly and easily to the portal for the plagiarism detector.		
The plagiarism detector portal offers simple and understandable instructions.		
The portal provides simple-to-understand reports on its examination of plagiarism.		
Overall, I am pleased with the plagiarism detecting portal's usability.		

Efficiency	Yes	No
The portal's plagiarism detector is effective at uncovering plagiarism in different languages.		
The portal offers helpful tools for reviewing and analyzing the plagiarism outcomes.		
Compared to checking for plagiarism manually, the plagiarism detector portal saves me time.		
The portal for the plagiarism detection has the ability to quickly process massive amounts of text.		
Overall, I am pleased with the plagiarism detecting portal's effectiveness.		

Maintainability and Portability	Yes	No
The portal contains clear analyzing sentences that makes it simple for users to wait and keep up.		
The plagiarism detector portal saves me time compared to manually checking for plagiarism.		
The site is simple to integrate with other programs or platforms that the organization uses.		
The portal can accommodate an increase in our organization's user base or data volume because it was built with scalability in mind.		
The portal for the tool to detect plagiarism is simple for IT employees to update and manage.		

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The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City

Dear Evaluators / Raters,

Greetings of Peace!

The undersigned is a graduate student of Jose Rizal Memorial State University, Main Campus, Dapitan City, and is gathering data for her thesis entitled "**JRMSU RESEARCH DEVELOPMENT AND EXTENSION PORTAL WITH PLAGIARISM DETECTOR**". Please answers the attached evaluation sheet honestly. Your cooperation will surely contribute to the success of this study. It is assured that you're your responses to the evaluation sheet will be kept confidential.

Thank you and God bless.

Very truly yours,

RICALYN G. MAGALLON Researcher
SHELO M. PAGLINAWAN Researcher
RONEL A. STA ANA Researcher

Republic of the Philippines
JOSE RIZAL MEMORIAL STATE UNIVERSITY

The Premier University in Zamboanga Del Norte
Main Campus, Dapitan City
COLLEGE OF COMPUTER STUDIES

JRMSU RESEARCH DEVELOPMENT AND EXTENSION PORTAL WITH PLAGIARISM DETECTOR

EVALUATION SHEET

Name:_____

Sex: Female _____

Male _____

Age: _____

Profession	
IT Professional __	Graduate School __
Masteral Teacher __	Research Building Staff __

Direction: Evaluate the system and give your desire rating for each criterion. Choose you desire answer by using a check (／) mark on the box respond for your choose.

Functionality	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
The portal that came with the plagiarism detector was uncomplicated to operate.					
The portal's plagiarism analysis reports were detailed and relevant.					
The portal provided sufficient choices for customization for the analysis of plagiarism.					
The analysis regarding plagiarism was acceptable.					
Overall, I'm satisfied with how smoothly the plagiarism detector portal functions.					
The file formats I needed to upload by carrying out the portal had been supported.					

Reliability	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
Results generated by the plagiarism detector webpage have remained consistent over time.					
Large amounts of text can be handled by the plagiarism detecting webpage without it crashing or slowing down.					
The plagiarism detector internet sites reliably recognize different types of plagiarism.					
The origin(s) that provided the plagiarized text are precisely identified by the plagiarism detector the website.					
The plagiarism detection portal has a low percentage of false positives, so this implies that it rarely identifies original text as plagiarized.					
I have great faith in the reliability and accuracy of the portal regarding plagiarism detection.					

Usability	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
It was uncomplicated to navigate the JRMSU Research Development and Extension Portal with Plagiarism Detector.					
My text uploaded quickly and easily to the portal for the plagiarism detector.					
The plagiarism detector portal offers simple and understandable instructions.					
The portal provides simple-to-understand reports on its examination of plagiarism.					
Overall, I am pleased with the plagiarism detecting portal's usability.					

Efficiency	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
The portal's plagiarism detector is effective at uncovering plagiarism in different languages.					
The portal offers helpful tools for reviewing and analyzing the plagiarism outcomes.					
Compared to checking for plagiarism manually, the plagiarism detector portal saves me time.					
The portal for the plagiarism detection has the ability to quickly process massive amounts of text.					
Overall, I am pleased with the plagiarism detecting portal's effectiveness.					

Maintainability and Portability	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
The portal contains clear analyzing sentences that makes it simple for users to wait and keep up.					
The plagiarism detector portal saves me time compared to manually checking for plagiarism.					
The site is simple to integrate with other programs or platforms that the organization uses.					
The portal can accommodate an increase in our organization's user base or data volume because it was built with scalability in mind.					
The portal for the tool to detect plagiarism is simple for IT employees to update and manage.					

APPENDIX D

CURRICULUM VITAE

RICALYN G. MAGALLON

Purok 5 Singkilon Baga, Naga, Zamboanga Sibugay
09355079169
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PERSONAL INFORMATION:

Occupation	: Encoder
Age	: 23
Gender	: Male
Date of Birth	: March 29, 2000
Civil Status	: Single
Citizenship	: Filipino
Religion	: Roman Catholic
Dialect	: Visayan
Language(s) Spoken	: Visayan, Filipino, and English
Mother's Name	: Evelyn G. Magallon
Father's Name	: Ric G. Magallon

EDUCATION:

2019 – Present	**Jose Rizal Memorial State University – Main Campus** Bachelor of Science in Computer Science Sta. Cruz, Dapitan City
2017 – 2019	**Kabasalan Science and Technology High School** Science, Technology, Engineering, and Mathematics (STEM) Senior High School Kabasalan, Zamboanga Sibugay
2013 – 2017	**Kabasalan Science and Technology High School** High School Kabasalan, Zamboanga Sibugay
2005 – 2013	**Baga Elementary School** Elementary Naga, Zamoanga Sibugay

SHELO M. PAGLINAWAN

Libertad Aurora Zamboanga Del Sur
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PERSONAL INFORMATION:

Occupation if any	: Joker
Age	: 23
Gender	: Male
Date of Birth	: August 5, 1999
Civil Status	: Single
Citizenship	: Filipino
Religion	: Roman Catholic
Dialect	: Visayan
Language(s) Spoken	: Filipino, English, and Korean
Mother's Name	: Emelita M. Paglinawan
Father's Name	: Benjamin E. Paglinawan

EDUCATION:

2019 – Present — **Jose Rizal Memorial State University – Main Campus**
Bachelor of Science in Computer Science
Sta. Cruz, Dapitan City

2016 – 2018 — **Rizal Memorial Institute of Dapitan City, Incorporated**
Electrical Installation and Maintenance (EIM)
Senior High School
Libertad Aurora, Zamboanga Del Sur

2012 – 2016 — **Commonwealth National High School**
High School
Commonwealth Aurora, Zamboanga Del Sur

2006 – 2012 — **Sergio R. Mascual Elementary School**
Elementary
Libertad Aurora Zamboanga del Sur

RONEL A. STA.ANA

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PERSONAL INFORMATION:

Occupation if any	: N/A
Age	: 21
Gender	: Male
Date of Birth	: March 7, 2001
Civil Status	: Single
Citizenship	: Filipino
Religion	: Roman Catholic
Dialect	: N/A
Language(s) Spoken	: Filipino, Cebuano, and English
Mother's Name	: Letty A. Sta.Ana
Father's Name	: Roger T. Sta.Ana

EDUCATION:

2019 – Present	**Jose Rizal Memorial State University – Main Campus** Bachelor of Science in Computer Science Sta. Cruz, Dapitan City
2017 – 2019	**Siari John H. Roemer Memorial National High School** Technical, Vocational, and Livelihood – Programming (TVL) Senior High School Siari, Sindangan Zamboanga Del Norte
2013 – 2017	**Dapitan City National High School** High School Siari, Sindangan Zamboanga Del Norte
2005 – 2013	**Guisokan Elementary School** Elementary Guisokan, Sindangan Zamboanga Del Norte