



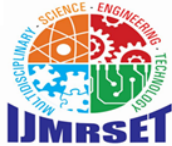
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A Cloud-Based Record Management System for Enhanced Accessibility and Efficiency

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ABSTRACT: This study developed and evaluated a Cloud-Based Record Management System for the Guidance Office of NEMSU Cantilan Campus. The system aimed to improve accessibility, efficiency, confidentiality, and organization of student guidance records by replacing the existing manual and paper-based process. The study utilized a descriptive-developmental research design and Agile Software Development Life Cycle methodology. The system integrated secure cloud storage, automated reporting, record retrieval, backup and recovery mechanisms, and role-based access control. Evaluation using ISO/IEC 25010 revealed that the system achieved “Very Great Extent” ratings in functionality, reliability, usability, maintainability, efficiency, compatibility, and security.

KEYWORDS: Cloud-Based System, Record Management System, Guidance Office, Agile SDLC, ISO/IEC 25010

I. INTRODUCTION

Cloud computing has transformed how institutions manage and store information by providing digital access to records through internet-based platforms instead of relying on physical documents and local storage devices. In educational institutions, cloud-based systems help improve accessibility, efficiency, accuracy, and confidentiality in handling records and administrative services. The Guidance Office of NEMSU Cantilan Campus currently relies on manual and paper-based processes in managing counseling records, student information, and case files, which results in slow retrieval of records, filing errors, and risks of data loss.

To address these problems, the researchers developed a Cloud-Based Record Management System designed to improve record accessibility and operational efficiency within the Guidance Office. The system integrates secure cloud storage, automated reporting, efficient record retrieval, backup and recovery mechanisms, and role-based access controls to support modern and organized record management.

Several studies support the adoption of cloud-based technologies in educational institutions. Jha and Chaturvedi (2024) emphasized that cloud computing improves accessibility and data management efficiency. Okuonghae and Bakare (2023) discussed that cloud technologies help preserve academic records and minimize risks associated with physical documentation. Purcia and Velarde (2022) further highlighted that digital record systems improve operational performance and transparency in educational offices.

Despite the growing implementation of cloud technologies in education, many institutions still lack specialized systems specifically designed for guidance offices. Existing systems commonly focus on general academic processes and often fail to address the confidentiality requirements, counseling records management, and reporting needs of guidance operations. This study responds to these gaps by developing a cloud-based platform tailored for the Guidance Office of NEMSU Cantilan Campus.

The study is significant because it aims to improve guidance office operations through secure and organized digital record management. Guidance personnel benefit from faster retrieval and automated reporting, while students benefit from improved service efficiency and confidentiality. The system also supports the institution’s digital transformation initiatives and serves as a reference for future researchers interested in cloud-based educational systems.



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II. LITERATURE SURVEY

Cloud-based systems continue to play an important role in improving records management and operational efficiency in educational institutions. Several studies emphasize the effectiveness of digital technologies in enhancing accessibility, security, and administrative processes.

Jha and Chaturvedi (2024) explained that cloud computing technologies significantly improve data accessibility, storage management, and institutional operations. Okuonghae and Bakare (2023) discussed that cloud-based records management systems reduce risks associated with physical documents while improving preservation and retrieval efficiency.

Aydn et al. (2022) emphasized that cloud computing helps universities modernize administrative services and reduce dependence on manual processes. Mukred et al. (2022) additionally highlighted that effective cloud implementation requires structured frameworks to ensure secure and efficient digital transformation.

Local studies in the Philippines also support the implementation of cloud-based systems. Purcia and Velarde (2022) revealed that digitized records management improves efficiency, transparency, and accessibility in educational offices. Wagan et al. (2025) further noted that digital transformation improves institutional workflows and supports better records management practices.

Security and user acceptance are also critical considerations in cloud-based systems. Amo-Filva et al. (2022) emphasized that cloud adoption must include strong data privacy and security mechanisms to protect sensitive information. Altes et al. (2024) discussed that user acceptance depends on system usefulness, accessibility, and perceived security.

Table 1. Summary of Related Literatures

No.	Paper Title	Author/s	Key Points	Remarks
1	Systematic Literature Review of Cloud Computing Research Between 2010 and 2023	Jha & Chaturvedi, 2024	Cloud technologies improve accessibility and data management efficiency.	Supports the implementation of cloud storage and accessibility features.
2	Cloud Computing: A Tool for Effective Records and Information Management System in Nigerian Academic Libraries	Okuonghae & Bakare, 2023	Cloud systems improve record preservation and retrieval efficiency.	Supports secure cloud-based record management.
3	Student Registration and Records Management Services Towards Digitization	Purcia & Velarde, 2022	Digital systems improve operational performance and transparency.	Supports digitization of guidance office processes.
4	A Study of Cloud Computing Adoption in Universities as a Guideline to Cloud Migration	Aydn et al., 2022	Cloud computing modernizes institutional services and workflows.	Supports modernization of educational records management.
5	Local Technology to Enhance Data Privacy and Security in Educational Technology	Amo-Filva et al., 2022	Cloud systems require strong privacy and security mechanisms.	Supports the implementation of security and access controls.
6	Digital Transformation in the Records Management of a Private Higher Education Institution in the Philippines	Wagan et al., 2025	Digital transformation improves institutional records management.	Supports implementation of digital record systems in schools.

The reviewed literature collectively supports the development of the Cloud-Based Record Management System by demonstrating how cloud technologies improve efficiency, security, accessibility, and reliability in educational record management.



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III. METHODOLOGY

Research Design

This study utilized a descriptive-developmental research design to develop and evaluate the Cloud-Based Record Management System for the Guidance Office of NEMSU Cantilan Campus. The study focused on developing a secure and efficient platform for managing student guidance records and evaluating its software quality.

The Agile Software Development Life Cycle (SDLC) was adopted as the development methodology. Agile allowed iterative development through multiple sprints, enabling continuous testing, refinement, and integration of user feedback during system development.

Instrument

The study adopted the ISO/IEC 25010 Software Quality Model as the primary framework for evaluating the developed system. A researcher-made questionnaire using a five-point Likert scale was administered to respondents to assess functionality, usability, reliability, maintainability, efficiency, compatibility, and security.

Data Collection and Participants

The respondents of the study included guidance personnel and selected students from NEMSU Cantilan Campus. Data collection involved interviews, surveys, consultations, observation, and actual system testing.

Respondents evaluated the system by performing tasks such as storing records, retrieving files, updating student information, generating reports, and testing security features.

Data Analysis

The data gathered from surveys and evaluations were analyzed using quantitative statistical methods.

1. Weighted Mean – Used to determine the average evaluation scores for software quality characteristics.
2. Standard Deviation – Used to measure consistency of respondent evaluations.
3. Scale Interpretation – Used to interpret respondent ratings based on descriptive equivalents.
4. Qualitative Analysis – Used to summarize respondent feedback and identify recommendations for improvement.

The collected data were used to determine the overall effectiveness, reliability, usability, and acceptability of the developed system

IV. RESULTS & DISCUSSION

System Features

The results revealed that the Cloud-Based Record Management System successfully implemented its intended functionalities for guidance office record management.

Cloud-Based Record Storage

The system successfully implemented a secure and scalable cloud-based database capable of storing counseling records, student information, and case files in an organized and integrity-preserved manner. Role-based access controls and secure authentication ensured confidentiality of records.

Record Retrieval and Search Feature

The developed system enabled users to retrieve records efficiently through search functionalities and organized data categorization. The retrieval process minimized delays and improved accessibility of student guidance records.

Automated Reporting Feature

The system generated structured reports relevant to guidance office operations. Automated report generation improved efficiency and reduced manual preparation of documents and reports.

Backup and Recovery Mechanism

Reliable cloud-based backup and recovery mechanisms were implemented to protect records against data loss and misfiling. The system ensured operational continuity and record recoverability.



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Performance Evaluation

The developed system was evaluated using the ISO/IEC 25010 Software Quality Model. Respondents evaluated the system based on functionality, reliability, usability, maintainability, efficiency, compatibility, and security.

Table 2. Performance Evaluation of the Cloud-Based Record Management System

Table	Quality Characteristics	Mean	Verbal Interpretation
1	Functionality	4.52	Very Great Extent (VGE)
2	Reliability	4.38	Very Great Extent (VGE)
3	Usability	4.47	Very Great Extent (VGE)
4	Maintainability	4.29	Very Great Extent (VGE)
5	Efficiency	4.36	Very Great Extent (VGE)
6	Compatibility	4.22	Very Great Extent (VGE)
7	Security	4.57	Very Great Extent (VGE)
	Overall Mean	4.40	Very Great Extent (VGE)

The evaluation results revealed that the developed system achieved “Very Great Extent” ratings across all software quality characteristics, indicating high user acceptance and excellent system performance. Security obtained the highest mean rating, showing strong respondent confidence in the protection of confidential records and access controls. Functionality and usability also received high evaluations, indicating that the system effectively performed the required tasks and was easy to use.

The findings suggest that the developed Cloud-Based Record Management System is reliable, secure, efficient, and suitable for implementation within the Guidance Office of NEMSU Cantilan Campus.

V. CONCLUSION

The study successfully developed and evaluated a Cloud-Based Record Management System for the Guidance Office of NEMSU Cantilan Campus as a modern solution for managing counseling records, student information, and guidance office operations. The system effectively addressed the limitations of the existing manual and paper-based process, particularly issues involving slow record retrieval, filing errors, risks of data loss, and limited accessibility.

The system integrated secure cloud storage, automated reporting, efficient record retrieval, backup and recovery mechanisms, and role-based access controls that improved accessibility, efficiency, organization, and confidentiality of records. The evaluation results based on the ISO/IEC 25010 Software Quality Model revealed that the system achieved “Very Great Extent” ratings in functionality, reliability, usability, maintainability, efficiency, compatibility, and security.

These findings confirm that the developed system is functional, reliable, user-friendly, efficient, and secure for actual implementation in the Guidance Office. Therefore, the Cloud-Based Record Management System is considered an effective solution for improving guidance office record management and enhancing service delivery within NEMSU Cantilan Campus.

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