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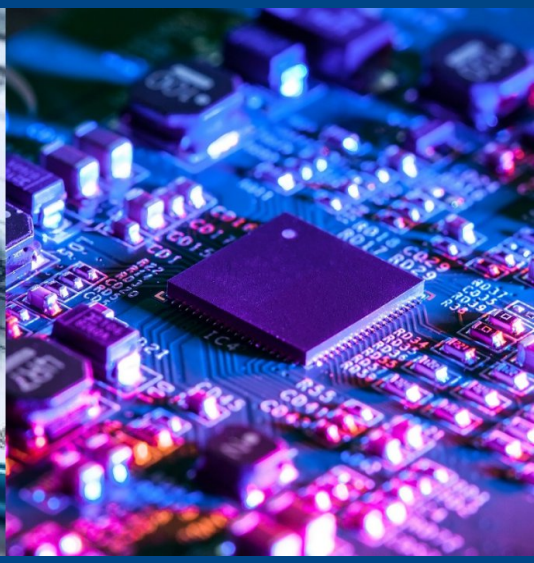

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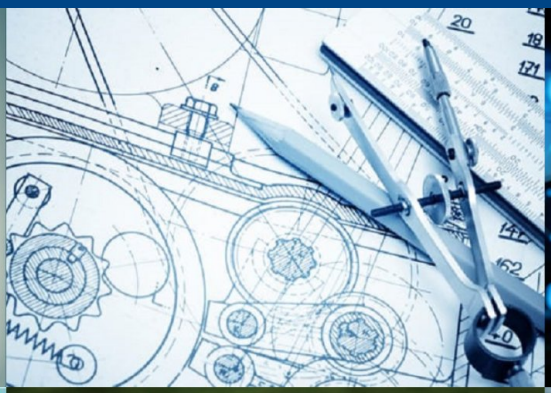

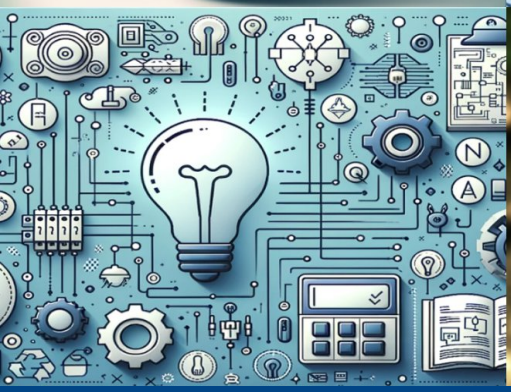

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SALBAR: A Web-Based Health Management and Information System for Rural Health Units

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ABSTRACT: This study presents SALBAR, a web-based health management and information system designed for Rural Health Unit (RHU) Cortes. The system centralizes patient records, appointment scheduling, and inventory management to improve efficiency and reduce errors from manual processes. Developed using PHP, MySQL, HTML, CSS, and JavaScript, SALBAR provides a user-friendly and secure platform for healthcare staff and residents. Evaluation based on ISO 25010 standards shows high performance in functionality, usability, and security. The system enhances healthcare service delivery and supports better data management in rural healthcare settings.

KEYWORDS: Health Information System, Web-Based System, Patient Management, Rural Healthcare, Inventory Management.

I. INTRODUCTION

Healthcare delivery in rural areas remains challenged by inefficient manual processes, fragmented data management, and limited access to real-time information. Rural Health Unit (RHU) Cortes is one of the many healthcare facilities that rely on paper-based systems for managing patient records, appointments, and medicine inventory. These traditional methods often result in data redundancy, delays in service delivery, and increased risk of errors.

With the advancement of information technology, web-based health information systems have become essential tools for improving healthcare services. These systems provide centralized data storage, enhance accessibility, and support real-time decision-making. The integration of digital solutions into healthcare operations significantly reduces administrative workload and improves service efficiency.

This study introduces SALBAR, a web-based health management and information system designed to address these challenges. The system integrates patient record management, appointment scheduling, and inventory tracking into a single platform. By doing so, it aims to improve operational efficiency, reduce manual errors, and enhance healthcare service delivery in RHU Cortes.

The primary objective of this study is to design, develop, and evaluate SALBAR using ISO 25010 software quality standards. Specifically, it seeks to assess the system's functionality, usability, performance efficiency, security, reliability, and maintainability.

II. LITERATURE REVIEW

The adoption of digital health information systems has significantly transformed healthcare delivery worldwide. Previous studies have highlighted the effectiveness of web-based systems in improving data management, reducing errors, and enhancing communication among healthcare providers. [1] emphasized that electronic health records

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improve data accuracy and accessibility, enabling healthcare professionals to make informed decisions. [2] discussed the benefits of integrated healthcare systems in streamlining operations and reducing administrative workload.

In the Philippine context, M. V. Gumabay and C. B. Corpuz [4] demonstrated that web-based healthcare systems improve service delivery in local health units by centralizing patient data and automating processes. However, challenges such as limited infrastructure and user adaptability remain significant concerns. Epizitone et al. [3] highlighted that user-friendly interfaces and system reliability are critical factors for successful system adoption. Their study emphasized that systems designed with user needs in mind are more likely to be accepted and effectively utilized. Overall, existing literature supports the implementation of digital health systems but also identifies the need for systems tailored to local healthcare environments. SALBAR addresses these gaps by providing a localized, user-friendly, and integrated solution for rural healthcare management.

III. METHODOLOGY

Research Design

This study utilized a developmental-descriptive research design to develop and evaluate the SALBAR system. The approach focused on designing a functional system and assessing its effectiveness based on user feedback and system performance.

System Development

The system was developed using the Agile development model, which allows iterative development and continuous improvement. The following technologies were used:

- PHP for backend processing
- MySQL for database management
- HTML, CSS, and JavaScript for frontend development

System Features

SALBAR includes the following modules:

- Patient Record Management
- Appointment Scheduling System
- Medicine Inventory Tracking
- User Role-Based Access (Admin, Staff, Resident)
- Report Generation and Analytics

Evaluation Method

The system was evaluated using ISO/IEC 25010 standards, focusing on:

- Functional Suitability
- Performance Efficiency
- Usability
- Reliability
- Security
- Maintainability

A survey questionnaire was used to collect data from users and IT experts. The responses were measured using a Likert scale and analyzed using weighted mean.

IV. RESULTS AND DISCUSSION

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The evaluation results indicate that SALBAR performs effectively across all ISO 25010 quality characteristics.

Table.1. System Evaluation Results

Quality Characteristic	Mean	Interpretation
Functional Suitability	4.44	Very Good
Performance Efficiency	4.36	Very Good
Usability	4.53	Excellent
Reliability	4.20	Very Good
Security	4.48	Very Good
Maintainability	4.30	Very Good
Overall Mean	4.38	Very Good

Discussion

The results show that SALBAR achieved high ratings in usability and functionality, indicating that users find the system easy to use and effective in performing required tasks. The system also demonstrated strong security measures, ensuring data confidentiality and integrity.

Performance efficiency received slightly lower ratings compared to other criteria, suggesting the need for further optimization in system responsiveness. However, the overall results confirm that SALBAR is a reliable and effective solution for healthcare management in rural settings.

V. CONCLUSION

SALBAR successfully addresses the challenges faced by Rural Health Unit Cortes by providing a centralized and efficient digital system. The system improves data accuracy, reduces manual workload, and enhances healthcare service delivery.

The evaluation results confirm that SALBAR meets the required software quality standards and is suitable for real-world implementation. Future improvements may include system optimization, mobile integration, and enhanced reporting features.

Overall, SALBAR demonstrates strong potential as a sustainable health information system for rural healthcare environments.

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