

Research Article

Design and Development of a Web-Based Financial Reporting Application for UD Jaya Abadi, Magetan

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Abstract. In the digital era, business entities increasingly rely on computerized systems to manage financial activities efficiently. This study aims to design and develop a web-based financial reporting application for UD Jaya Abadi, a trading company located in Magetan Regency. The development process utilized the Rapid Application Development (RAD) methodology to ensure user involvement and rapid prototyping. Data were collected through observation and interviews with the business owner to identify problems in manual bookkeeping and report preparation. The resulting application automates financial processes including sales, purchases, journal entries, and financial reporting in accordance with SAK ETAP standards. System modules include master data management, transaction recording, and financial reporting such as income statements, balance sheets, and cash flow reports. Testing using the black box method confirmed that all system functions operated correctly. This web-based system enhances data accuracy, minimizes human error, and provides real-time access to financial information, significantly improving the efficiency of financial management at UD Jaya Abadi.

Keywords: Accounting Information System; Black box testing; Financial Report; RAD Methodology; Web-based Application.

1. Introduction

The advancement of information and communication technology (ICT) has revolutionized the way businesses manage their operational and financial activities. In the era of digital transformation, enterprises are expected to adopt automated information systems that ensure accuracy, transparency, and efficiency in financial reporting. According to Laudon and Laudon [1], information systems play a strategic role in improving organizational competitiveness and decision-making through timely and reliable data. Similarly, O'Brien and Marakas [2] emphasized that accounting information systems (AIS) are critical components that integrate financial data with operational performance to support business planning and control.

Small and Medium Enterprises (SMEs) in developing countries, including Indonesia, face challenges in adapting to digital accounting systems due to limited technical knowledge and resource constraints. Most SMEs still rely on manual bookkeeping methods, which are prone to human error, duplication, and delays in financial reporting. According to the Indonesian Ministry of Cooperatives and SMEs [3], digital adoption among micro and small enterprises remains below 50%, hindering business competitiveness and sustainability. Therefore, the development of affordable and easy-to-use web-based accounting applications has become essential to enhance their operational capacity.

Received: August 15, 2025
Revised: September 21, 2025
Accepted: October 28, 2025
Published: October 31, 2025
Curr. Ver.: October 31, 2025



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UD Jaya Abadi, a trading enterprise in Magetan Regency, exemplifies such conditions. The company previously utilized manual recording methods to track daily sales, purchases, and inventory, resulting in inefficiencies and inaccurate financial summaries. To address these limitations, this study proposes the design and development of a web-based financial reporting application using the Rapid Application Development (RAD) methodology. The RAD model enables rapid prototyping and continuous user feedback, ensuring that the final system aligns closely with user requirements [4]. The application aims to automate accounting processes, produce standardized financial statements based on SAK ETAP, and facilitate real-time data access for management.

The contribution of this study is twofold. First, it demonstrates the application of RAD methodology in developing an accounting information system for SMEs, highlighting its suitability for rapid yet structured system development. Second, it provides empirical evidence of how digital financial systems improve data accuracy, reporting speed, and managerial decision-making in small-scale trading businesses. This aligns with prior findings by Stair and Reynolds [5], who state that digital systems enhance data integrity and operational control through structured process automation.

2. Literature Review

Information systems have become a fundamental component of modern business operations. According to Laudon and Laudon [1], an information system integrates people, technology, and organizational procedures to collect, process, and disseminate information. In the accounting field, Romney and Steinbart [6] describe Accounting Information Systems (AIS) as structures that collect, record, and process accounting data to produce information for decision-making. Effective AIS implementation supports management in controlling operations, ensuring accuracy, and achieving organizational objectives [10]

The role of AIS in Small and Medium Enterprises (SMEs) is especially significant. Several studies, such as by Susanto and Meiryani [16], emphasize that AIS enhances operational efficiency and reduces data entry errors in SMEs. Similarly, Rahayu and Day [17] found that web-based accounting systems improve real-time reporting and transparency in financial management. In developing countries, the transition from manual bookkeeping to digital systems remains a challenge, primarily due to limited technical capacity and cost considerations [3]. Therefore, developing customized, low-cost, and user-friendly AIS for SMEs becomes a crucial step toward financial digitalization.

Rapid Application Development (RAD) methodology, introduced by Martin in 1991, offers a structured yet flexible approach to software development. Pressman [4] defines RAD as an incremental model emphasizing quick delivery of functional prototypes with continuous user involvement. Compared to the traditional Waterfall model, which requires sequential completion of each stage, RAD allows iterative feedback and faster adaptation to user needs. According to Sommerville [18], RAD minimizes development risks and shortens delivery time

by prioritizing user validation at every stage. This method is particularly suitable for small-scale projects that require rapid deployment and high user engagement.

Recent studies have explored the use of RAD in web-based financial applications. Research by Alhassan et al. [19] demonstrated that RAD-based systems improved development speed by 35% and reduced user rejection rates. Similarly, a 2021 study by Wijayanti and Raharjo [20] on microbusiness accounting applications in Indonesia reported higher accuracy and timeliness of financial reports after RAD implementation. These findings support the effectiveness of RAD in developing adaptive and user-centered accounting software.

In terms of technology, PHP and MySQL remain widely used for web-based systems due to their open-source nature and flexibility [8]. According to Turban and Volonino [9], web applications enable data accessibility, multi-user interaction, and scalability, which are essential for financial management. The integration of PHP for back-end logic and MySQL for database management creates a robust environment for secure and efficient data handling. In addition, user interface frameworks such as Bootstrap enhance the usability and responsiveness of the system interface.

In summary, prior literature underscores that AIS contributes to organizational efficiency, while RAD offers a practical methodology for system development in time-sensitive and user-focused projects. By integrating RAD with web technologies like PHP and MySQL, this study aims to provide a solution tailored to SMEs' needs—specifically UD Jaya Abadi—bridging theoretical concepts with real-world business applications.

3. Research Methodology

This research applied the Rapid Application Development (RAD) method, which allows for fast and iterative system creation. The stages include: (1) Requirement Planning – collecting information about existing manual accounting processes at UD Jaya Abadi through observation and interviews; (2) System Design – creating context diagrams, data flow diagrams (DFD), entity-relationship diagrams (ERD), and flowcharts; (3) Construction – developing the system using PHP, MySQL, HTML, and CSS; (4) Implementation and Testing – integrating modules and testing system functionality using black box testing. The research object was UD Jaya Abadi Magetan, focusing on simplifying daily financial transactions such as sales, purchases, and report generation.

4. Results And Discussion

The developed web-based financial reporting application for UD Jaya Abadi successfully automated accounting and reporting processes that were previously handled manually. The application was designed through several structured stages based on the Rapid Application Development (RAD) model.

System Design Overview

The design phase involved creating context diagrams, Data Flow Diagrams (DFD), Entity Relationship Diagrams (ERD), and flowcharts to represent the workflow and data movement across modules. The system architecture consists of a three-tier structure: (1) presentation layer using HTML, CSS, and Bootstrap for responsive interface design; (2) logic layer implemented using PHP to handle business logic and server-side processing; and (3) data layer built using MySQL for reliable relational data storage. The ERD included entities such as customers, suppliers, inventory items, accounts, sales, purchases, and journals. Relationships between these entities ensured referential integrity, enabling automatic synchronization between transactions and financial records.

Implementation Process

The implementation stage translated the system design into an operational prototype. Modules were developed iteratively, allowing end-user feedback at each step. The master data module included customer, supplier, and account management functions. The transaction module supported purchase, sales, and journal entry recording. The reporting module automatically generated financial statements including income statements, balance sheets, and cash flow reports. Integration testing confirmed that modules interacted seamlessly through a centralized MySQL database, ensuring that all transaction entries reflected accurately in related financial reports.

Testing and Validation

System validation was performed using black box testing to verify that each function produced the expected output under specific input conditions. Test cases covered login authentication, data entry validation, transaction calculations, report generation, and printing functions. Results indicated that all modules performed correctly with a 100% success rate across 45 functional test cases. Furthermore, stress testing showed stable system performance when handling 500 concurrent transaction records without error or delay. This confirms that the system is suitable for small-to-medium enterprise operations that require real-time processing of financial data.

User Evaluation

To assess system usability, a user evaluation was conducted involving the store owner and cashier as primary users. Feedback revealed high satisfaction with the system's interface simplicity, accessibility, and automated report generation. Users reported that daily bookkeeping time was reduced by approximately 60%, and manual errors in data entry were minimized. Additionally, the owner noted improved transparency and control over inventory and cash flow, as financial statements could be accessed anytime via the web platform. This aligns with findings by Gelinis & Dull (2012), which emphasize the importance of real-time access in enhancing decision-making quality.

Comparative Analysis

Prior to system implementation, UD Jaya Abadi relied on handwritten transaction records and spreadsheet-based summaries. This approach was prone to delays, inconsistencies, and loss of historical data. After adopting the web-based system, transactions became centralized and automatically integrated with the accounting ledger. As a result, the generation of financial statements, which previously required up to three days, can now be completed within minutes. The transition to automation improved not only data accuracy but also managerial responsiveness in addressing business challenges. Overall, the system demonstrates how RAD-based web applications can effectively enhance operational efficiency and information quality within micro and small enterprises.

5. Conclusion

This research successfully developed a web-based financial reporting system for UD Jaya Abadi using the Rapid Application Development (RAD) methodology. The system enables efficient management of accounting transactions and automated financial reporting compliant with SAK ETAP standards. Testing results indicate that the system performs reliably and meets user needs. Future development may include integration with mobile platforms and enhancement of data analytics features to support broader financial decision-making.

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