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Web-Based Antam Gold Savings and Pawn Calculation Application (Case Study of a Gold Jewelry Manufacturing and Trading Company)

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ABSTRACT

The demand for a user-friendly website that enables the withdrawal of funds from gold savings accounts at Pegadaian has experienced substantial growth amidst the ongoing epidemic. Due to its inherent value and stability, gold assumes particular significance in times of economic uncertainty, allowing individuals to liquidate their savings when necessary. The old approach entailed the manual input of customer information through Excel, which consequently required face-to-face interactions for payment processing. Nevertheless, a significant shift has transpired through the integration of an internet-based platform, facilitating the provision of personal data by clients and thereby establishing virtual profiles to conduct online transactions. Implementing this transformation has resulted in a more streamlined process, enhancing efficiency and improving accessibility for clients.

The research methodology employed for this project is descriptive, encompassing direct field observations. Furthermore, the system employs the Object-Oriented Analysis and Design (OOAD) methodology to analyze and design the system. The main objective is to develop a system that streamlines the procedures of gold pawning and online savings for consumers. The data input process utilizes the PHP programming language, whereby the data is safely stored within a MySQL database. The integration of these elements guarantees a system that is both secure and efficient, effectively addressing the requirements of both customers and administrators.

Keywords: Application, Pawnshop, Savings, OOAD, PHP, MYSQL

INTRODUCTION

The trajectory of human existence, which initially commenced with a state of simplicity, has undergone a significant transformation, resulting in a contemporary era characterized by advanced development and complexity. In the current period characterized by rapid advancements in information and communication technologies,

viable solutions are available for resolving many issues. Information and communication technology (ICT) is a highly advantageous tool that has effectively optimized several facets of human existence. In contemporary times, the delineation between information and technology is indiscernible. The increasing prevalence of information and communication technology (ICT) among the general populace has led to a gradual advancement in technological sophistication. The advent of technology has significantly expedited the communication process, formerly characterized by prolonged durations.

During periods of economic uncertainty, such as the ongoing epidemic, the possession of gold savings emerges as a significant asset, in addition to the prudent maintenance of emergency funds. Gold possesses inherent worth and enjoys widespread recognition, appreciation, and significant demand. This condition can be attributed to its underlying universal characteristics. To clarify, allocating funds toward gold as an investment offers a heightened financial stability and predictability compared to alternative assets. (Ayisi Nyarko & Kozári, 2021; Ferreira & Valente 2023)

Pegadaian is a duly authorized financial organization that is granted official authority to engage in operational operations, encompassing the provision of credit financing to the general public through the disbursement of funds. This financing is offered in varying amounts, both small and large, and is contingent upon the provision of collateral. Additionally, the pawnshop provides supplementary services, like item appraisal and safekeeping, whereby the pledged objects must possess economic worth to serve as collateral. Pegadaian guarantees valuable objects in exchange for monetary compensation, wherein consumers are granted the right to redeem their items by the mutually agreed terms and conditions. (Kaur & Singh, 2019; Lobov & Tran 2020)

Investing in gold bars is one of the favored approaches for protecting assets. In addition to their persistent upward price trend, gold bars possess an enduring inherent value, rendering them perpetually valuable owing to their substantial demand. The fundamental rationale behind gold being a preferred option for investment is as follows. As a result, the organization necessitates a software program that adequately caters to its requirements and handles prevalent challenges, including the labor-intensive process of inputting data manually through Microsoft Excel. Additionally, the application should address concerns related to client access transparency and online payment alternatives. (Marjanović, Meschke & Damnjanović, 2021; Molina-Ríos & Pedreira-Souto 2020)

Therefore, the researcher has developed an innovative application addressing these concerns. For example, replacing manual data

entry with a web-based application instead of Microsoft Excel is one giant step. Furthermore, a significant enhancement is implementing a hosting-based application that enables both the corporation and customers to access it for data entry and virtual account payments. In addition, the program will produce both efficient and effective reports to improve transparency. (Şora& Chirila, 2019; Zhang, Khan, Dagar, Saeed & Zafar, 2022)

This novel methodology not only optimizes the company's operational processes but also enhances the customer experience to a great degree. Utilizing a web-based platform for data entry and online payment choices enables consumers to effectively administer their gold pawn and savings accounts, offering a range of benefits, including convenience, security, and efficiency. In addition, a hosting-based application guarantees the accessibility and transparency of the firm's operations, yielding advantages for both the organization and its consumers. (Sukardi, Wijayanti & Fachrurazi, 2023; Zygiaris, 2018)

In summary, the transition from manual data entry to a web-based application and hosting-based platform represents a substantial advancement for Pegadaian. The solution above is following the changing demands of customers amidst the pandemic, hence improving effectiveness, ease, and openness in the procedures related to gold pawning and savings. Pegadaian, through its adoption of technology, endeavors to maintain its reputation as a dependable and trustworthy financial institution, specifically in safeguarding and investing in gold.

METHOD

Research methods encompass a set of systematic procedures, frameworks, and algorithms employed as instruments for measurement while conducting research. The research employed the Descriptive Analysis Method as its primary methodology. The analytical descriptive technique is a research approach that comprehensively describes a current symptom, event, or incident by direct observations conducted in the field. Collecting data, surveys, and the construction of systems further reinforce this method. In this context, the present study employs data collection techniques that can be categorized as follows:

The term "interview" refers to a structured conversation between two or more individuals, typically conducted to gather information or assess qualifications.

In conducting this research, the author employed a comprehensive approach by utilizing a question-and-answer method to gather information about various company aspects. This condition encompassed the company profile, transactions, reports, and the presence of non-computerized systems. Additionally, the author

considered the existing system while considering the development of the proposed system.

The present discourse centers on the concept of observation. The author conducts firsthand observations of the organizational context under investigation, gathering relevant reports about the subject matter or issue at hand in order to identify potential resolutions.

The present study focuses on the analysis and examination of literature.

In addition to conducting interviews and observations, the author also engaged in a comprehensive literature review by consulting references available in libraries and online sources. This approach was undertaken to enhance the depth of understanding in the present research.

Object-oriented analysis and design (OOAD) represent a novel cognitive approach to problem-solving, wherein models are constructed based on principles derived from real-world phenomena. Object-Oriented Analysis and Design (OOAD) encompasses systematically examining and formulating a system utilizing an object-oriented approach, specifically object-oriented analysis. Object-Oriented Analysis (OOA) and Object-Oriented Design (OOD) are two fundamental concepts in software engineering. OOA refers to the process of identifying and understanding the requirements and functionalities of a system. At the same time, OOD involves creating a design that encapsulates these requirements and functionalities in the form of objects. OOA and OOD play crucial roles in developing object-oriented software systems. Object-Oriented Analysis (OOA) is a systematic approach used to analyze the needs of a system, specifically focusing on the classes and objects that are relevant within the organization's context. In software architecture, Object-Oriented Design (OOD) is a methodology that revolves around manipulating system objects or subsystems to effectively develop computer software that aligns with a predetermined set of client requirements.

The Unified Modeling Language (UML) is a graphical language utilized to visualize, specify, construct, and document software development systems that adhere to the principles of Object-Oriented (OO) design. As a methodology, UML encompasses established guidelines for documenting a system's blueprint. This condition entails capturing business process concepts, specifying classes in specific programming languages, designing database schemas, and identifying the necessary software system components. The Unified Modeling Language (UML) is a widely accepted and standardized language used for Object-Oriented Design (OOD). It is a process that converts conceptual models generated during object-oriented analysis while considering the limitations imposed by the selected architecture and any non-functional constraints, such as transaction throughput, response time, runtime of the platform,

development environment, or programming language.

RESULTS and DISCUSSION

The term "implementation" frequently serves as the central concept in numerous endeavors to effect change and foster progress throughout diverse domains of human existence. In several domains, such as technology, education, business management, and the public sector, the implementation process is a crucial phase necessary for transforming ideas and plans into tangible outcomes. In order to gain a comprehensive understanding of the underlying significance and function of implementation, it is imperative to delve into the etymological and terminological dimensions associated with this term.

The term "implementation" has its etymological roots in Latin, especially in the word "implementare," which conveys the notions of 'execution' or 'application.' Within this particular framework, the origin of the term highlights the fundamental nature of the action at hand: the act of implementing or putting into effect a course of action or applying a concept to manifest it in reality. Hence, implementation refers to carrying out a preconceived plan or idea.

Upon closer examination of the terminological definition, it becomes evident that the implementation concept encompasses multifaceted and intricate aspects. In terminology, the concept of implementation comprises more than just the act of execution. It also includes various activities, actions, and procedures to accomplish a predetermined objective. Implementation refers to the tangible process by which a plan transitions from the initial planning phase to the subsequent action stage. Implementation is a crucial component within a series of activities encompassing the allocation of resources, coordination, and diligent endeavors to attain pre-established objectives.

At a more granular level, the implementation stage frequently assumes a pivotal role in the system development process. Once a system has undergone thorough planning and analysis, the subsequent phase involves transitioning to the implementation stage. This stage marks the transition from abstract concepts created during the planning and design phases to actualizing tangible manifestations. The implementation phase involves the arrangement and positioning of system components in a manner that prepares the system for operational use. The task mentioned above necessitates meticulous attention to detail, a high standard of execution, and effective coordination.

One of the principal objectives of implementation is to verify the functionality of all the modules outlined in the system design, ensuring they perform as intended. This condition implies that system users initiate their interaction

with the system, provide input, and potentially reveal deficiencies or concerns that require prompt resolution. The implementation phase is characterized by the active involvement of stakeholders, who play a pivotal role in providing vital input that contributes to the refinement of the system.

When implementing a system, it is imperative to consider certain crucial factors. One aspect to consider is the extent of implementation, which spans multiple components, including the software and hardware environment. Within software development, the implementation process encompasses several activities, such as program installation, testing, debugging, and configuration. Within the hardware domain, implementation encompasses several activities, such as installing hardware components, configuring network infrastructure, and executing functional tests.

It is crucial to acknowledge that the effectiveness of implementation is not merely contingent upon the technical positioning of the system but also on the degree to which stakeholders, users, and the execution of supporting plans are established. Hence, in addition to deploying hardware and software, it is crucial to ascertain that the implementation team comprehends the objectives and advantages associated with the impending system implementation.

Furthermore, it is imperative to recognize and mitigate any obstacles that may emerge during the implementation phase. The hurdles may manifest as internal opposition to change, technical limitations, or unanticipated external circumstances. In order to address these obstacles, the implementation team must possess sufficient contingency plans and adaptability to ensure the seamless execution of the implementation process.

When considering the execution of software applications, the software environment assumes a crucial role. This condition encompasses various factors, such as the technological infrastructure, compatibility with pre-existing systems, and integration with other systems a business utilizes. The hardware implementation process necessitates the careful evaluation and selection of appropriate hardware components and the configuration and testing of these components to ensure optimal performance.

In summary, the implementation phase plays a crucial role in the development of systems, execution of projects, and attainment of organizational objectives. Gaining a comprehensive understanding of the significance and function of implementation while considering its etymological and terminological aspects facilitates a more profound comprehension of its intricate nature. The implementation process extends beyond mere technical application, encompassing various organizational features,

communication strategies, and problem-solving techniques that facilitate translating plans into tangible outcomes. Hence, the successful attainment of planned objectives heavily relies on efficiently managing implementation processes.

1. Hardware Implementation
   This application Information System can be run on computers with the following hardware specifications:
   a. 1 GHz processor or faster processor with SSE2 instruction set
   b. 2 GB memory
   c. 3GB hard disk
   d. Monitoring
   e. Keyboard
   f. Mouse
   g. Printer
2. Software Implementation
   This system is supported by software (Software) as follows:
   a. Windows 7, Windows 8.1, Windows 8, Windows 10
   b. XAMPP
   c. Microsoft Office
   d. Browser

PHP, being a programming language that is open-source in nature, presents a wide array of benefits to developers, hence establishing itself as a widely favored option for web development. This narrative examines the advantages of PHP's open-source nature, its stability and interoperability across multiple systems, and its comprehensive support for databases and efficient page rendering.

PHP is widely recognized for its status as an open-source scripting language. This result implies that the software's source code is openly accessible to developers, allowing them to make modifications and contributions. The robust community of developers in the PHP ecosystem directly results from its open-source nature. This environment encourages ongoing efforts to enhance the language, address software defects, and broaden functionalities.

One of the foremost advantages inherent in open-source software, such as PHP, is the considerable degree of flexibility it affords users and developers. Users are not constrained within a proprietary framework or obligated to a particular corporation, as with Microsoft Windows. Using PHP allows for independence from exclusive reliance on a single corporate entity for updates and bug patches. Promoting openness fosters a climate conducive to innovation and guarantees the continued relevance and competitiveness of the language.

Additionally, the inherent open-source characteristic of PHP enables its utilization without incurring any financial expenses. PHP is a cost-effective option for people and companies due to the absence of licensing fees or purchasing prices. The affordability aspect is also extended to upgrades, as updates for PHP are generally accessible without any cost.

The concepts of stability and compatibility are essential in various fields and disciplines. These concepts refer to the ability of a system, process, or entity to maintain its intended

PHP is widely recognized for its remarkable stability and interoperability across various operating systems, rendering it an appealing choice for developers. The software demonstrates consistent functionality across multiple UNIX distributions, such as Linux, and operates effectively on Windows and Mac platforms. The ability of PHP to function across multiple platforms enables its versatility in various situations, hence accommodating a broad range of users.

In addition, PHP is highly compatible with many web servers, notably Apache and Microsoft IIS, which are well-recognized as prominent selections in this domain. The flexibility of PHP enables it to operate with optimal efficiency and security across many web hosting platforms, augmenting its attractiveness as a programming language for development purposes.

One further advantage of PHP is its robust compatibility with a wide range of widely used databases. Developers can seamlessly establish connections between their PHP applications and other databases, such as MySQL, PostgreSQL, and SQLite, among other options. Adapting and accommodating various requirements is crucial in developing interactive and data-oriented web applications capable of efficiently managing substantial amounts of data.

The architectural design of PHP exhibits a high degree of modularity and extensibility, enabling developers to incorporate bespoke extensions or modules to fulfill precise project prerequisites. The inherent adaptability of PHP enables it to retain its versatility as a programming language, allowing it to address various web development jobs effectively.

PHP is renowned for its resource-efficient design alongside its modular architecture. In contrast to several rival programming languages, PHP is characterized by its ability to operate efficiently with few system resources, facilitating smooth execution even on hardware-constrained systems.

One of the primary advantages of PHP is its capacity to generate web pages efficiently. The programming language is designed to enhance web development processes, demonstrating exceptional proficiency in generating dynamic content and efficiently delivering online pages. The velocity at which data is processed is paramount in ensuring a smooth and prompt user interface, an essential prerequisite in contemporary web-based applications.

It is imperative to acknowledge that although these advantages render PHP a tempting selection, the realm of programming is characterized by dynamism, with languages and technologies undergoing constant evolution.

Consequently, the advantages of PHP are subject to evolution as developers endeavor to enhance their platforms. However, PHP continues to be a programming language with a relatively low learning curve and the ability to accommodate a wide range of web development requirements.

System testing holds immense significance in web development and software applications and is considered necessary. The primary function of this process is to detect any deficiencies or variations from the original design, guaranteeing that the end product conforms to the previously established criteria.

System testing is a rigorous procedure that offers important insights into a system's functioning, reliability, and adherence to user expectations. Comprehensive testing enables developers to optimize and improve the system, resulting in a product that effectively serves its users.

Nevertheless, the functioning of software applications frequently entails modifications and sometimes interruptions. These issues may develop due to programming mistakes or user-initiated requests. Within this particular setting, maintenance assumes a paramount role in ensuring the stability and equilibrium of the system. Maintenance efforts should be by the particular operational context in which the program is implemented.

Proficient programming must be considered in developing a resilient and well-organized system that generates data according to user specifications. Prior to the implementation of any software, it is subjected to a comprehensive testing process aimed at identifying and rectifying mistakes and anomalies. The testing procedure commonly commences by scrutinizing individual software modules and subsequently advances to a complete evaluation of the integration of all modules.

Within this particular setting, the story's focus transitions towards elucidating the visual aesthetics of the application software, which has been meticulously crafted in adherence to the prescribed system design criteria. This result guarantees that the program adheres to the initial system design and effectively shows information in a practical and user-friendly manner. The visual representation of the program holds significant importance in the user's experience and the system's overall usability.

In brief, the open-source nature of PHP, along with its reliability, compatibility, and robust database support, renders it a favored option for web development. This tale explores the benefits of open-source software, with a particular focus on the autonomy it affords to consumers and creators. Moreover, the compatibility of PHP with many operating systems and web servers and its capability to support widely used databases effectively renders it a very suitable programming language for web development. The narrative's conclusion emphasizes the significance of system

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testing and maintenance in guaranteeing the stability and usability of software applications.

Database Implementation

1. Database Name: pawn
   Table name: gold_price
   Primary key: id

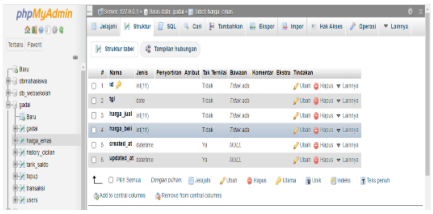

Figure 1. Database gold_price table

2. Database Name: pawn
   Table name: withdrawal_balance
   Primary key: id

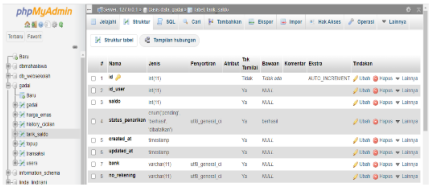

Figure 2. Database withdrawal_balance table

3. Database Name: pawn
   Table name: top-up
   Primary key: id

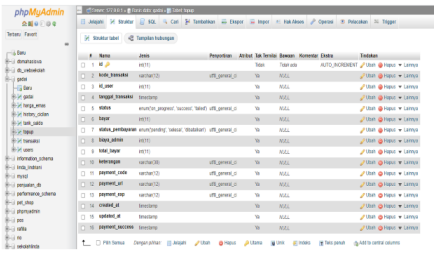

Figure 3. Database top-up table

4. Database Name: pawn
   Table name: transactions
   Primary key: id

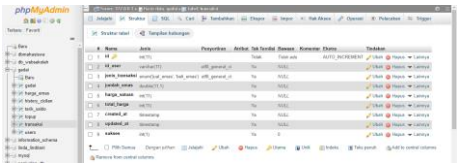

Figure 4. Database transaction table

5. Database Name: pawn
   Table name: users
   Primary key: id

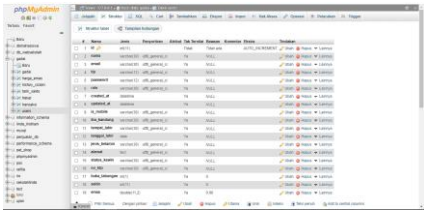

Figure 5. Database users table

6. Database Name: pawn
   Table name: pawn
   Primary key: id

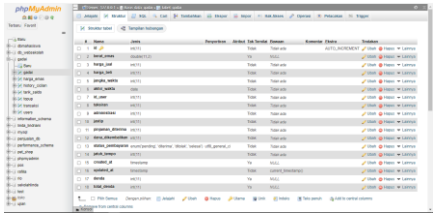

Figure 6. Database pawn table

7. Database Name: pawn
   Table name: history_cicilan
   Primary key: id

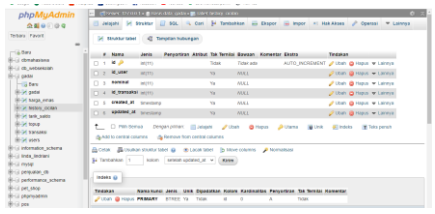

Figure 7. Database history_installment table

Program View Implementation

1. Login Page Display

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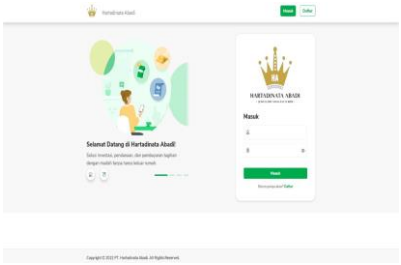

Figure 8. Login page display

2. Register Page Display

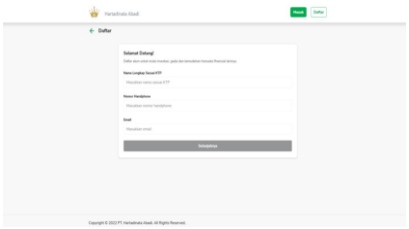

Figure 9. Display of the Customer List Page

3. Dashboard Page Display

Figure 10. Dashboard page display

4. View the Open Savings Page

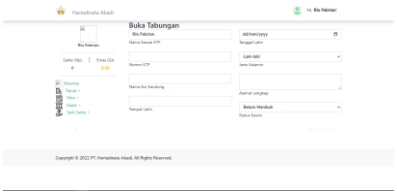

Figure 11. View of the Open Savings Page

5. Shop Page Views

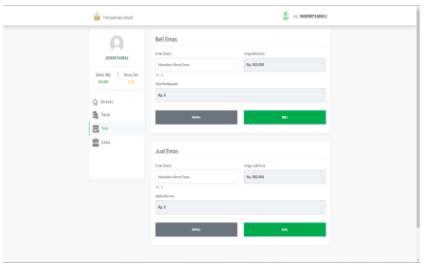

Figure 12. Shop page display

6. Display of the Gold Selling History Page

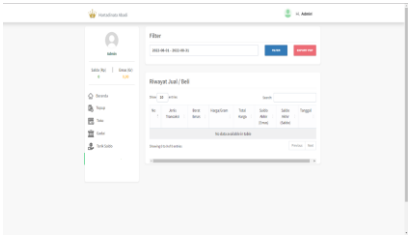

Figure 13. Gold Sales History Page View

7. Buy Gold Page Views

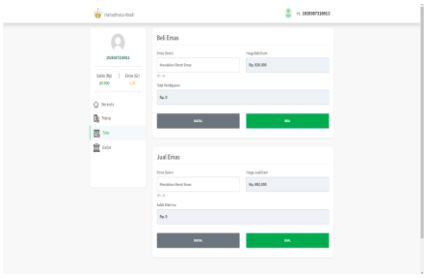

Figure 14. View of the Buy Gold Page

8. Top Up Page View

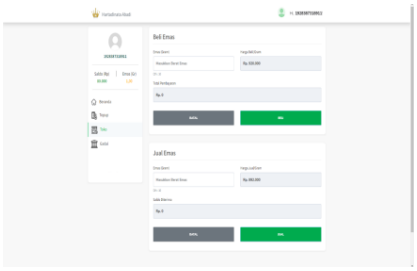

Figure 15. Top-Up Page Display

9. Pawn Page View

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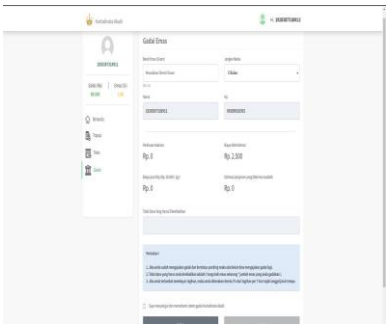

Figure 16. Pawn Page View

10. Report Page Display

Figure 17. Pawn Page View

11. Withdraw Balance Page View

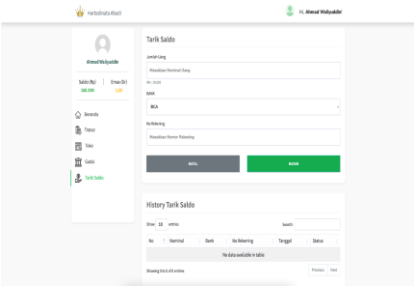

Figure 18. Display of the Withdraw Balance Page

12. Customer Data Page Display

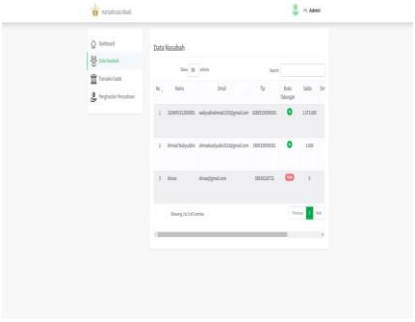

Figure 19. Customer Data Page Display

13. Pawn Transaction Page Display

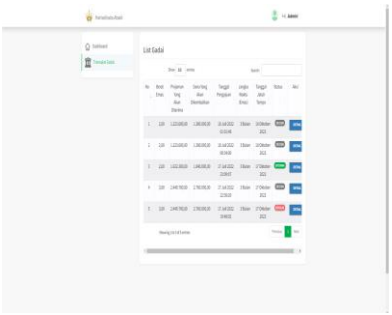

Figure 20. Pawn Transaction Page Display

14. Company Earnings Page Views

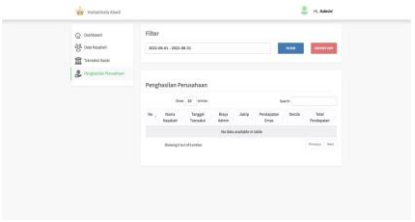

Figure 21. Company Earnings Page Views

15. Logout Page Display

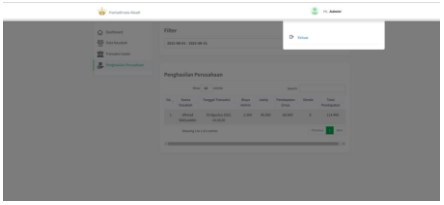

Figure 22. Logout page displays

CONCLUSION

Upon completing an observational analysis of the operational procedures implemented at a gold jewelry production and trade enterprise, it became apparent that the data entry protocol relied on manual input via Microsoft Excel. As mentioned above, the approach possessed the capacity for inaccuracies and necessitated a

substantial allocation of time. In addition, customers needed more resources to engage in online financial transactions. Faced with these obstacles, the author devised a novel method employing the PHP programming language. The present system is designed as a web-based application for savings and gold pawn services. Its main objective is to streamline the data entry procedure using a web-based platform. Additionally, it aims to enhance client convenience by enabling them to deposit funds into their accounts via a virtual account.

The primary objective of developing this system is to effectively overcome the restrictions associated with the antiquated manual data entry system. Implementing a web-based system utilizing PHP is expected to result in improved efficiency in capturing and managing client data. Furthermore, the transition from manual procedures to an online platform will allow customers to execute various transactions, such as making installment payments for gold, through virtual accounts.

There are numerous anticipated advantages associated with the development of this technology. Initially, implementing the new system will enhance the efficiency of data entry and data management procedures inside the organization, hence minimizing errors and optimizing overall operational performance. Additionally, users will derive satisfaction from the convenience of doing transactions via virtual accounts, affording them a contemporary approach to account management. In conclusion, implementing a more transparent reporting system will yield advantages for the organization and its clientele, ensuring the availability and comprehensibility of all transactional and financial data.

The primary objective of this study is to design and implement a software application that facilitates the computation of savings and gold pawn services inside a specific manufacturing and trading enterprise specializing in gold jewelry production. The project's primary aim is to optimize the organization's operational efficiency by implementing modernized data entry and payment procedures. Implementing this novel technology is anticipated to enhance clients' overall transactional experience while simultaneously upholding transparency in financial reporting. As a result, implementing this system development would improve the organization's overall performance.

REFERENCES

Ayisi Nyarko, D., & Kozári, J. (2021). Information and communication technologies (ICTs) usage among agricultural extension officers and its impact on extension delivery in Ghana. *Journal of the Saudi Society of Agricultural Sciences*, *20*(3), 164–172. https://doi.org/10.1016/j.jssas.2021.01.002

Ferreira, F., & Valente, M. T. (2023). Detecting code smells in React-based Web apps. *Information and Software Technology*, *155*, 107111. https://doi.org/10.1016/j.infsof.2022.107111

Kaur, S., & Singh, P. (2019). How does object-oriented code refactoring influence software quality? Research landscape and challenges. *Journal of Systems and Software*, *157*, 110394. https://doi.org/10.1016/j.jss.2019.110394

Lobov, A., & Tran, T. A. (2020). Object-oriented approach to product design using extended NX Open API. *Procedia Manufacturing*, *51*, 1014–1020. https://doi.org/10.1016/j.promfg.2020.10.142

Marjanović, M., Meschke, G., & Damnjanović, E. (2021). Object-oriented framework for 3D bending and free vibration analysis of multilayer plates: Application to cross-laminated timber and soft-core sandwich panels. *Composite Structures*, *255*, 112859. https://doi.org/10.1016/j.compstruct.2020.112859

Molina-Ríos, J., & Pedreira-Souto, N. (2020). Comparison of development methodologies in web applications. *Information and Software Technology*, *119*, 106238. https://doi.org/10.1016/j.infsof.2019.106238

Şora, I., & Chirila, C.-B. (2019). Finding key classes in object-oriented software systems by techniques based on static analysis. *Information and Software Technology*, *116*, 106176. https://doi.org/10.1016/j.infsof.2019.106176

Zhang, C., Khan, I., Dagar, V., Saeed, A., & Zafar, M. W. (2022). Environmental impact of information and communication technology: Unveiling the role of education in developing countries. *Technological Forecasting and Social Change*, *178*, 121570. https://doi.org/10.1016/j.techfore.2022.121570

Sukardi, B., Wijayanti, N. R., & Fachrurazi, F. (2023). Literacy and strategic marketing to raise public awareness using Sharia pawnshops during the COVID-19 pandemic. *Qualitative Research in Financial Markets*. https://doi.org/10.1108/QRFM-12-2021-0205

Zygiaris, S. (2018). *Database Management Systems: A Business-oriented Approach Using ORACLE, MySQL, and MS Access*. Emerald Publishing Limited. pp. 291-299. https://doi.org/10.1108/978-1-78756-695-820181017