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*by* Rio Febrian

# Web-Based Price Estimation and Data Entry Application in Pawnshops
## (Case Study on One of The Private Pawnshop Companies in Bandung)

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**Abstrak**

This study introduces a web-based application that has been developed to offer price estimation services and facilitate data input within pawnshop establishments. The primary objective of this program is to optimize the effectiveness of collateral evaluation procedures and streamline data entry for pawnshop personnel. The application's development methodology integrates web technology and advanced data management systems to enhance the accuracy and efficiency of price evaluation. The application's users will be able to access it via the web-based platform, where they may input pertinent collateral information. Subsequently, they will receive prompt and precise price estimates. The experimental findings suggest that this application can enhance productivity and mitigate the risk of human errors in the pricing calculation procedure. In addition, the web interface's user-friendly design enhances the application's ease of adoption among pawnshop officers. This application is anticipated to streamline customer care procedures and improve overall customer satisfaction within the pawnshop establishment.

Keywords: Price Estimation, Data Input, Web

## Introduction

Pawnshops are financial institutions that provide credit services to individuals in the community, allowing them to access money promptly. Pawnshops significantly bolstered the economy, particularly for individuals from the lowest to middle socioeconomic classes, aligning with their guiding principle of "Resolving Challenges Without Compounding Them." One notable benefit of pawnshops is that they allow customers to obtain immediate finances without liquidating their possessions. Individuals can utilize them as collateral rather than selling their items outright when seeking a loan. Upon the complete repayment of the loan, the pledged items may be reclaimed by the borrower, subject to the specified time constraint established by the pawnshop. Suppose the borrower cannot fulfill their repayment obligations within the designated timeframe. In that case, they can seek an extension, wherein they would solely be required to remunerate the accrued interest. Pawnshops also contribute to and endorse government initiatives in economic and national advancement by extending loans to the general populace, wherein movable assets are pledged as collateral, assuring their commensurability with the borrowed sum.

A private pawnshop enterprise has become a prominent alternative financing option in Indonesia, particularly in smaller urban areas. In essence, individuals engage in pawning their possessions to acquire a monetary loan, which can be repaid at their discretion, circumventing the need to adhere to a predetermined deadline. Nevertheless, the creditor retains the option to settle the outstanding obligation by a single payment or a series of periodic payments. Hence,

if the obligation remains unpaid one day past the stipulated due date, it is permissible to submit a request for an extension, granting an additional month for repayment. If the pledged objects are not reclaimed within the specified timeframe, the pawnshop will proceed with an auction or sale of those things.

The preceding statement provides an overview of the foundational structure of a pawnshop. Regrettably, the utilization of Excel (manual entry) persists in estimating prices and inputting customer data within certain private pawnshop enterprises. This approach has limitations, including the potential for human mistakes during the recording process, the time-consuming nature of report generation, and the restricted access to only available data when the file is opened.

This is in opposition to the utilization of more sophisticated technology that is accessible in the contemporary period. Web-based apps provide enhanced transparency for data input of pawning consumers since they can be conveniently accessible. Moreover, these applications enable the organization to generate comprehensive and precise reports on client data. Therefore, given the context above, the author is interested in undertaking a study titled "Web-Based Price Estimation and Data Input Application in Pawnshops: A Case Study of a Private Pawnshop Company in Bandung."

**Metode**

The author utilizes a descriptive research methodology in their study. Descriptive research is a methodology employed to examine the current state of a collective of individuals, an entity, a circumstance, a cognitive framework, or a category of occurrences. This descriptive inquiry aims to methodically and objectively generate a comprehensive depiction, portrayal, or representation of the information, attributes, and interconnections among the phenomena under investigation.

The topic of interest is the system development method. The methodology employed for system development is Object Oriented Analysis and Design (OOAD). Object-Oriented Analysis and Design (OOAD) is a systematic approach to analyzing requirements by considering the classes and objects involved in the issue domain. This method informs the software architecture by focusing on manipulating system or subsystem objects. Object-Oriented Analysis and Design (OOAD) is a contemporary approach that entails a paradigm shift in problem-solving, employing models that align with real-world notions. The fundamental basis of creation is an entity encompassing a data structure and activity in a unified manner. Object-Oriented Analysis and Design (OOAD) is a comprehensive methodology that systematically examines and conceptualizes a system using an object-oriented perspective. This technique encompasses two distinct but interconnected processes: Object-Oriented Analysis (OOA) and Object-Oriented Design (OOD). Object-Oriented Analysis (OOA) is a systematic approach used to evaluate the needs of a system, focusing specifically on the classes and objects that are relevant within the organization's context. In software development, Object-Oriented Design (OOD) is a methodology that facilitates the structuring of software architecture by manipulating objects inside a system or its subsystems.

**Result and Discussion**

The topic of interest is system design.

The system design process is a subsequent and sophisticated phase that occurs after examining and evaluating the existing system. In system design, it is customary to create a visual representation of the intended system before commencing the coding process in a programming language. The design of a system is intricately linked to the outcomes of the analysis, as it is via the analysis results that a novel system can be formulated, leading to the development of a fresh system design. System design's primary objective is to fulfill system users' requirements and establish a coherent and comprehensive design before the commencement of program code development.

Software engineering uses A sequence diagram to represent the interactions between objects or components in a system. It illustrates

A *Sequence Diagram* is a graphical representation that elucidates the dynamic interaction between items and delineates the communication exchanges occurring among these things.

1. Login Sequence Diagram

    The image below explains the flow of an action that has been designed in a sequence diagram, namely the action in the form of logging in (the process of accessing the system). It can be seen as follows:
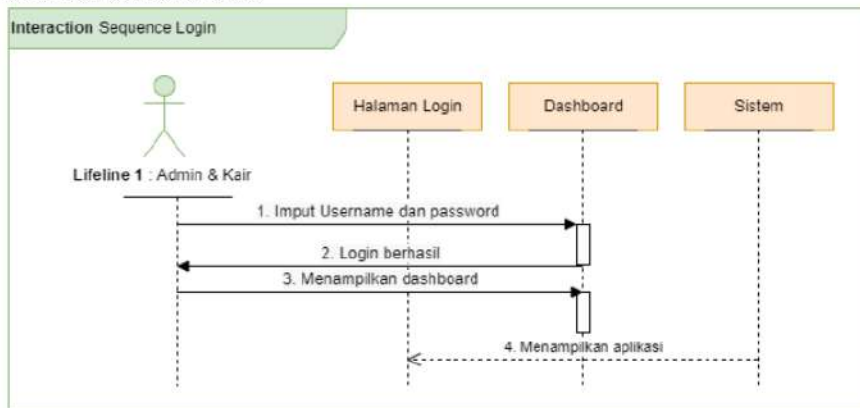


Figure 1. Login Sequence Diagram

2. Sequence Diagram Managing Estimates

    The image below explains the flow of an action that has been designed in a sequence diagram, namely the action of managing estimates. It can be seen as follows:
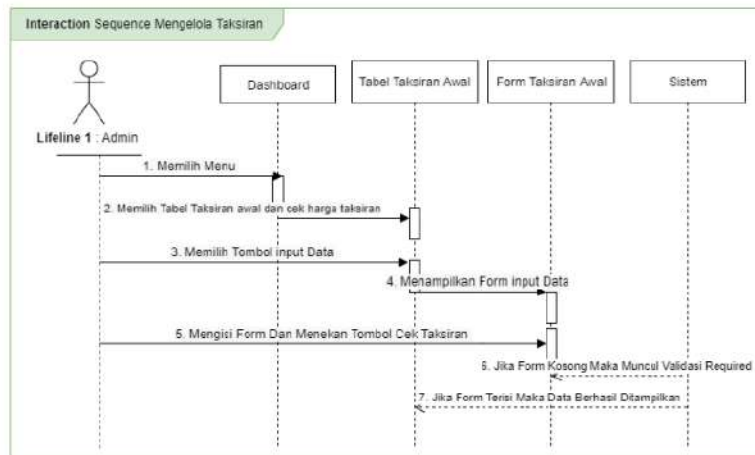
Figure 2. Sequence Diagram for Managing Estimates

3. Sequence Diagram for Managing Customers

The picture below explains the flow of an action that has been designed in a sequence diagram, namely the action of managing customers. It can be seen as follows:
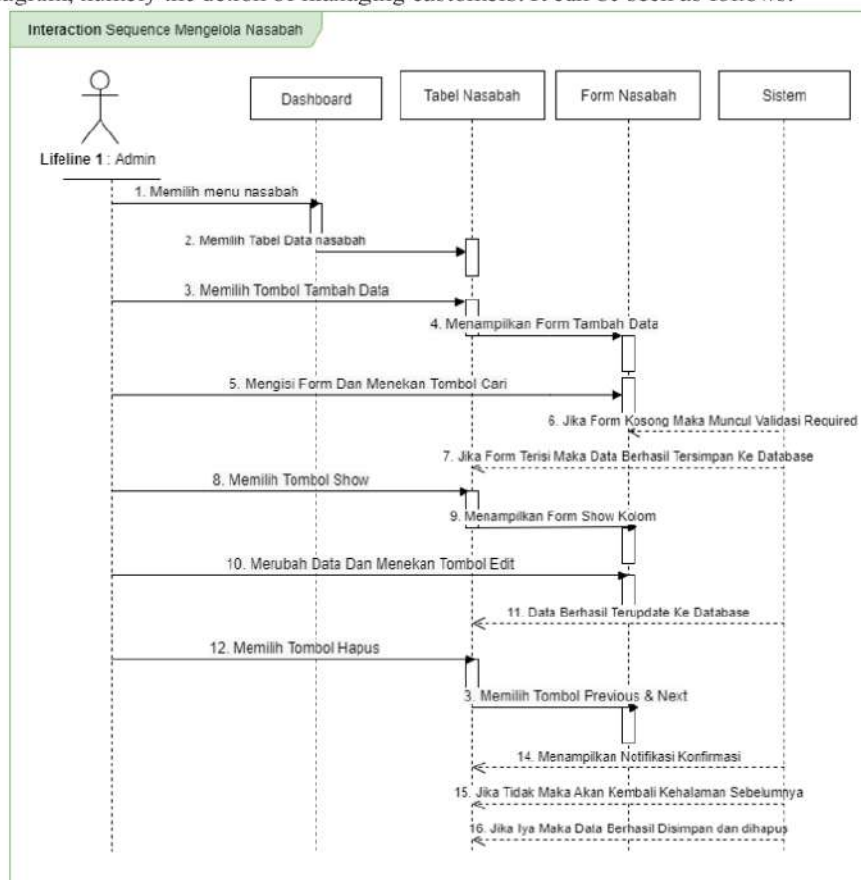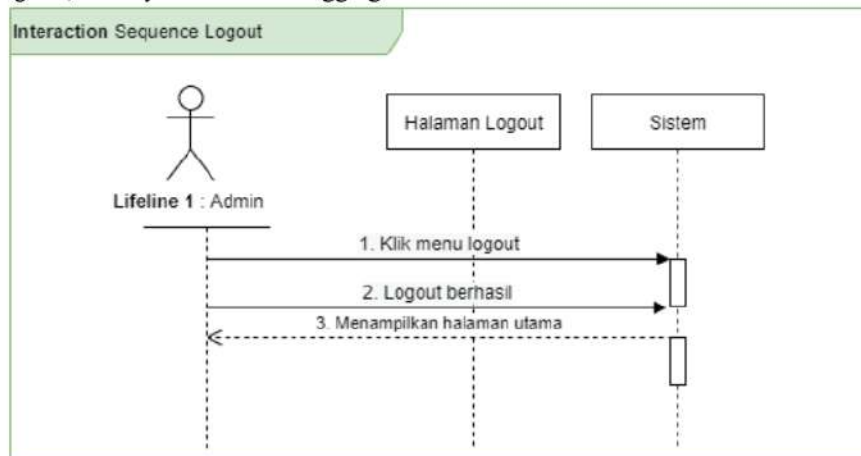
Figure 3. Sequence Diagram for Managing Customers

4.  Sequence Diagram for Managing Goods

The image below explains the flow of an action that has been designed in a sequence diagram, namely the action of managing goods. It can be seen as follows:
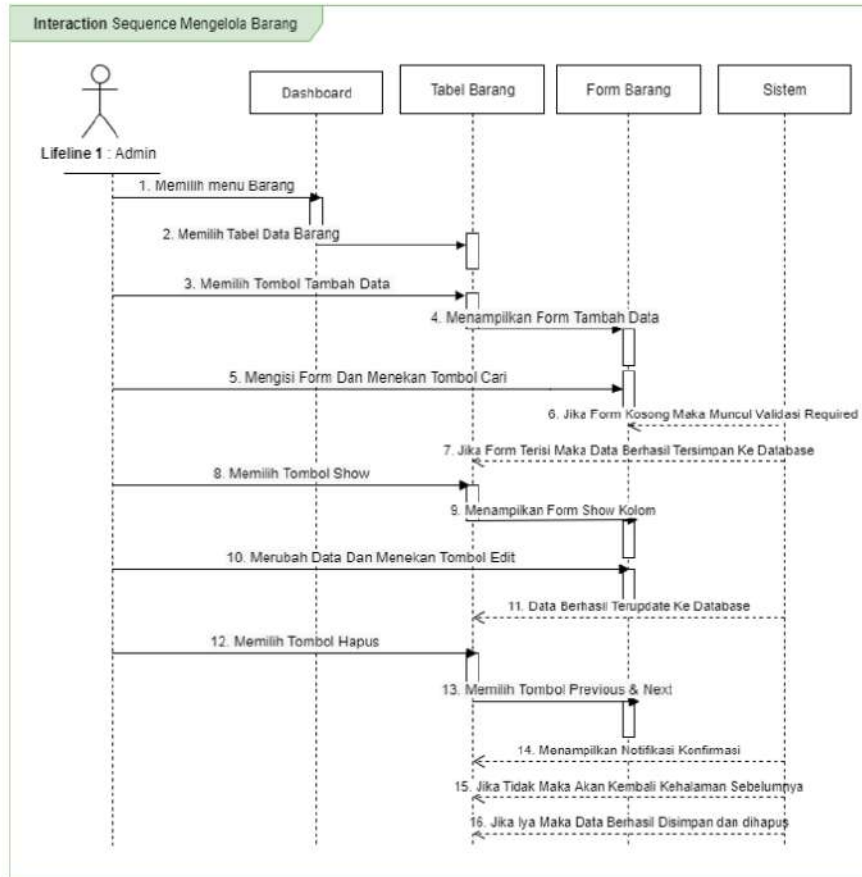


Figure 4. Sequence Diagram for Managing Goods

5.  Sequence Diagram Managing Transactions

The image below explains the flow of an action that has been designed in a sequence diagram, namely the action in the form of managing transactions starting from the actor running the program until the program is completed. as follows:
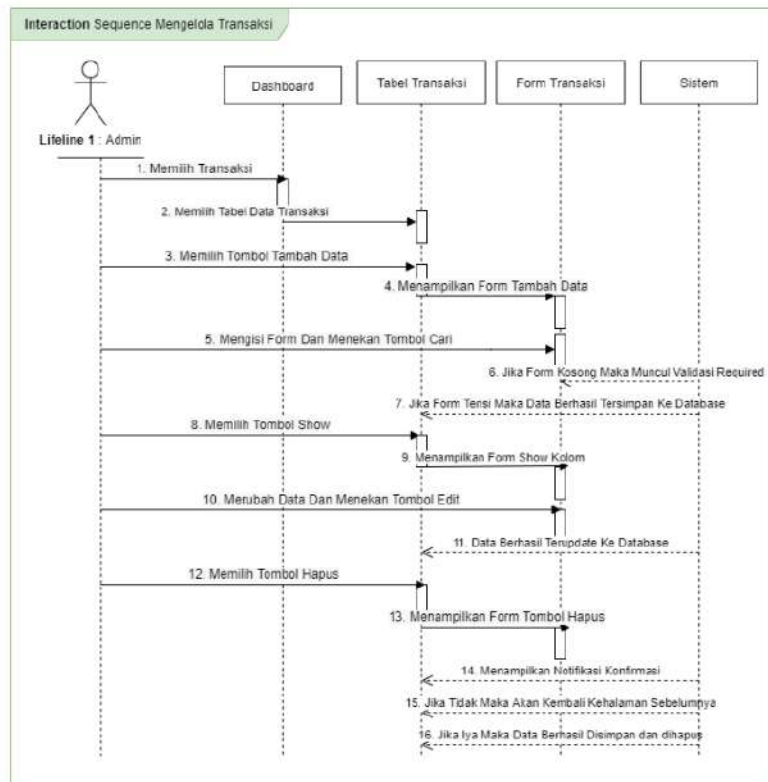
Figure 5. Sequence Diagram for Managing Transactions

6. Sequence Change User Data

The image below explains the flow of an action that has been designed in a sequence diagram, namely the action in the form of managing changes to user data starting from the actor running the program until the program is finished. as follows:
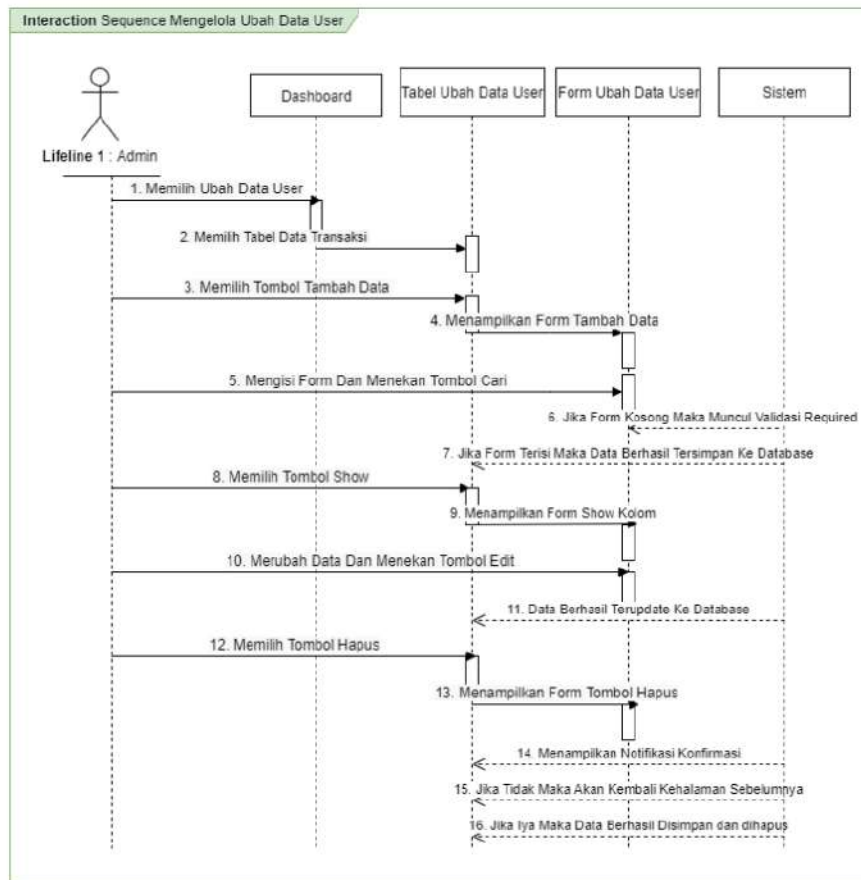
Figure 6. Sequence Diagram for Managing User Data Changes

7. Logout Sequence Diagram

The image below explains the flow of an action that has been designed in a sequence diagram, namely the action of logging out. It can be seen as follows:



Figure 7. Logout Sequence Diagram

## DATABASE DESIGN

In creating this program, the database used is MySQL, which is software for managing SQL database systems. This software functions as a database query creator and more. MySQL is a free distributed relational database management system (RDBMS) under the GPL (General Public License) license.

## Class Diagram Design

The class diagram depicts the classes containing attributes and objects in the software developed for the proposed system. This diagram shows the interconnections or relationships between the classes. Below is the proposed class diagram for the system of one private pawnshop company in Bandung.
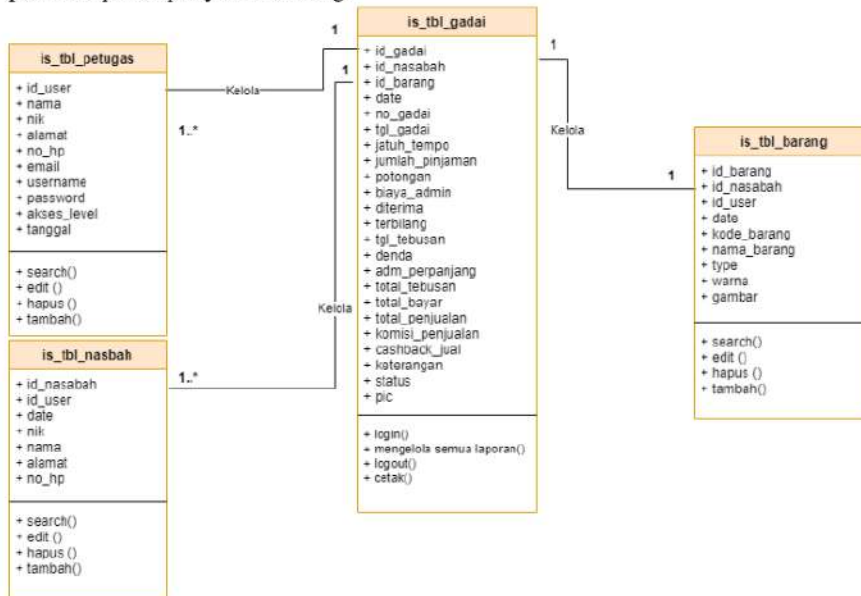


Figure 8. Proposed Class Diagram

## Table Structure Design

The use of this database is considered suitable for use because it can run in various information systems. Following are the database specifications:

Database Type: MySQL

Database Name: rumahgadai

The following are table designs from the database:

1. Table is_tbl_items

Table 1. Structure table is_tbl_item

| FIELD | TYPE | PRIMARY |
|---|---|---|
| id_ goods | int(11) | * |
| id_ customers | int(11) | foreign key |
| id_user | int(11) | foreign key |

| | | |
|---|---|---|
| date | detetime | |
| code_item | varchar(30) | |
| name_item | int(100) | |
| type | varchar(40) | |
| color | varchar(20) | |
| picture | varchar(100) | |

2. Table is_tbl_customer

Table 2. Structure table is_tbl_customer

| FIELD | TYPE | PRIMARY |
|---|---|---|
| id_ customers | int(11) | * |
| id_user | int(11) | foreign key |
| date | datetime | |
| nik | varchar(30) | |
| name | varchar(60) | |
| address | varchar(255) | |
| no_hp | varchar(15) | |

3. Table is_tbl_officer

Table 3. Structure table is_tbl_pekerja

| FIELD | TYPE | PRIMARY |
|---|---|---|
| id_user | int(11) | * |
| name | varchar(60) | |
| nik | varchar(30) | |
| address | varchar(255) | |
| no_hp | varchar(255) | |
| email | varchar(60) | |
| username | varchar(60) | |
| password | varchar(255) | |
| Level_access | varchar(20) | |
| date | timestamp | |

4. Table is_tbl_gadai

Table 4. Structure table is_tbl_gadai

| FIELD | TYPE | PRIMARY |
|---|---|---|
| id_gadai | int(10) | * |
| id_customer | int(10) | foreign key |

| | | |
|---|---|---|
| id_item | int(10) | |
| date | detetime | |
| no_ pawn | varchar(20) | |
| date_ pawn | detetime | |
| due_date | date | |
| loan_amount | decimal(16,3) | foreign key |
| piece | decimal(16,3) | |
| admin _fees | decimal(16,3) | |
| accepted | decimal(16,3) | |
| spelled_out | varchar(40) | |
| ransom_date | detetime | |
| fine | decimal(16,3) | |
| admin_renew | decimal(16,3) | |
| total_ransom | decimal(16,3) | |
| total_paid | decimal(16,3) | |
| total_sales | decimal(16,3) | |
| sales_commission | decimal(16,3) | |
| cashback_sale | decimal(16,3) | |
| information | varchar(100) | |
| status | tinyint(1) | |
| pic | varchar(255) | |

## Menu Structure Design

The menu structure design that will be created is as shown in the image below:
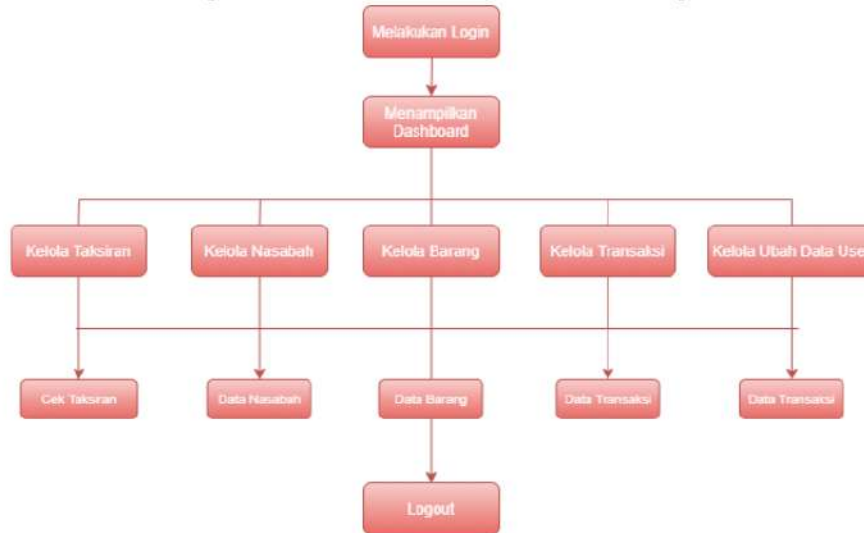


Figure 9. Menu Structure for Admin



Figure 10. Menu Structure for Customers

## Interface Design

Interface design or user interface is an important part of a system for users to understand how to communicate. It is important for users to understand how to communicate and how to use the system. The more user friendly a system is, the easier it is for users to understand how the system works using only intuition.

1. Login Display Form

Figure 11. Login Form Display

2. Dashboard Display Form



Figure 12. Dashboard Form Display

3. Estimate Display Form

Figure 13. Display of the Estimate Form

4. Customer Display Form



Figure 14. Customer Form Display

5. Item Display Form

Figure 15. Item Form Display

6. Transaction Display Form



Figure 16. Transaction Form Display

7. User Data Change Display Form



Figure 17. Display of the Change User Data Form

## SYSTEM IMPLEMENTATION
### Implementation Activities

*Programming* is a highly beneficial endeavor that facilitates the successful deployment of novel systems, as a well-designed and organized program can generate information by specific requirements. Before implementing the program, it is imperative to do thorough testing to ensure its error-free functionality. The testing process can be conducted for individual program modules, followed by comprehensive testing to verify proper and accurate integration. This part describes the visual interface of the application software, which has been developed based on the design specifications established during the system design phase.

Database

The database table structure display is part of the implementation of the tables in the database that will be accessed by the user.

1. Company Database

Figure 18. Company Database

2. Table is_tbl_gadai



Figure 19. Table is_tbl_gadai

3. Table is_tbl_item



Figure 20. Table is_tbl_item

4. Table is_tbl_officer

Figure 21. Table is_tbl_pekerja

5. Table is_tbl_customers



Figure 22. Table is_tbl_customer

**Homepage**

Upon initiating the application, the initial display that will be presented is the menu display. This menu display encompasses various options, including Dashboard, Estimates, Customers, Goods, Transactions, Change User Password, and Logout. The initial interface will present the login screen. The subsequent output is the visual representation produced by the application program.
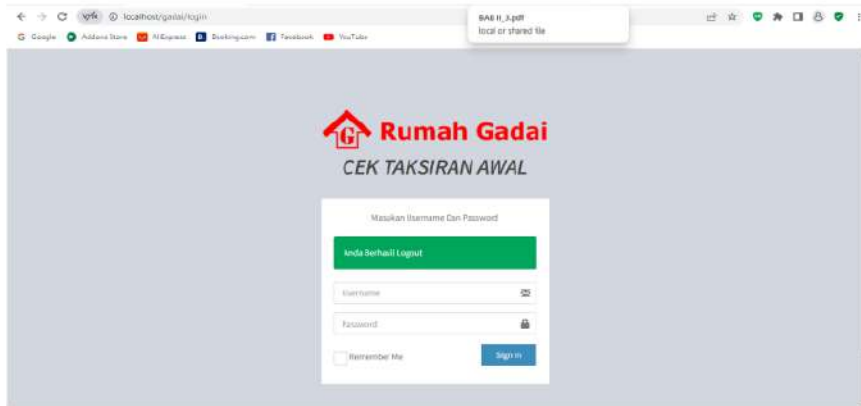
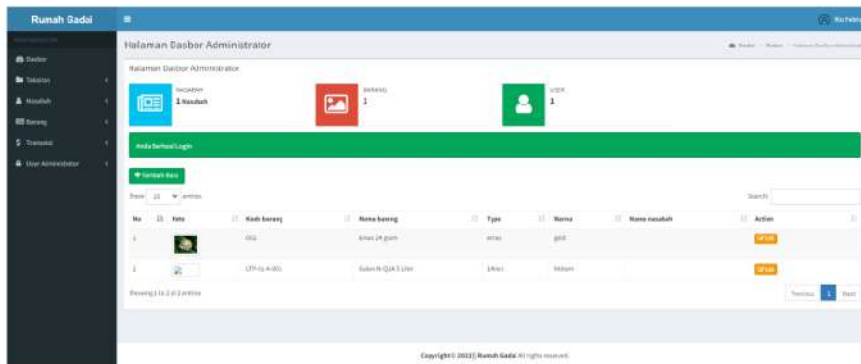Figure 23. Implementation of the Login Form Display



Figure 24. Implementation of the Dashboard Display

## Input Page

Input design is an input design in the form of a form for entering data. Input/output design is also a reference for application makers in designing and building systems. Input design is the design of input from the user to the system which will then be stored in the database.
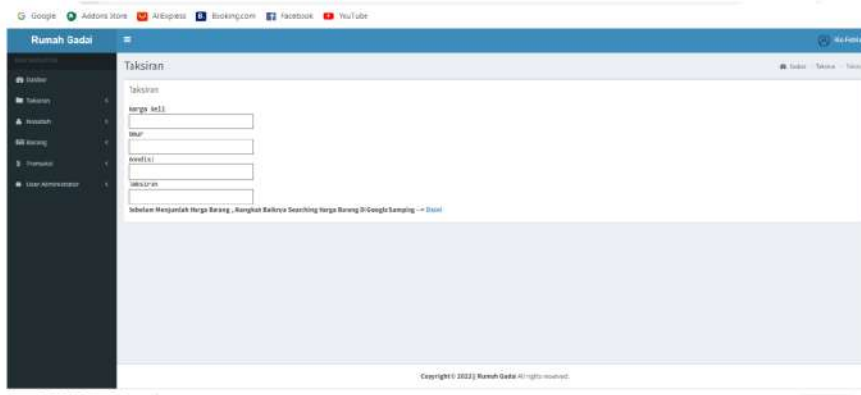
Figure 25. Implementation of the Estimated Price of Goods Display



Figure 26. Implementation of the Customer Data Input Form Display



Figure 27. Implementation of Item Data Display



Figure 28. Implementation of the Transaction Data Input Form Display
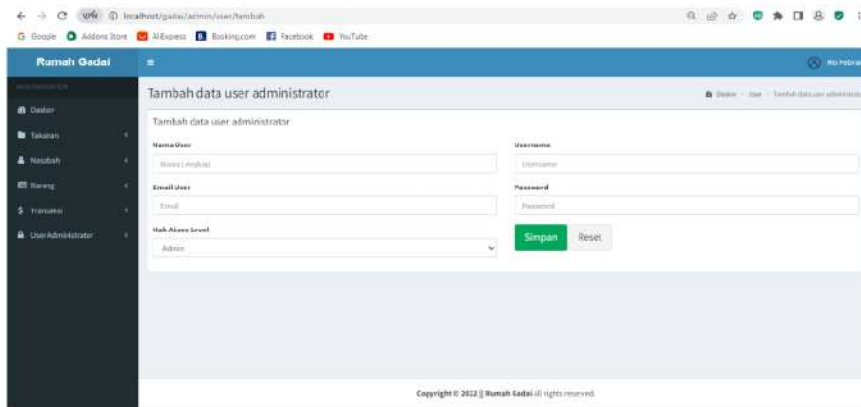
Figure 29. Implementation of Input Display and Change User Data

**Output Page**

Output design refers to presenting information derived from data processing as a report. The design and implementation of input/output systems serve as a valuable resource for developers in creating and constructing applications. Output design refers to designing reports generated from a system and presented to users, utilizing data retrieved from a database. The Report Page is the resultant output of the system that has been constructed, and it serves the purpose of analysis and documentation.
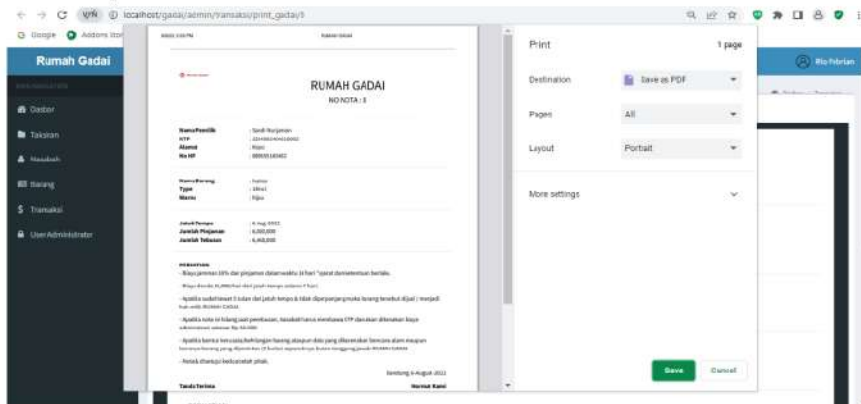


Figure 30. Implementation of the Transaction Data Report Output Display

Conclusion

After examining the existing system at the Pawnshop and the subsequent implementation of a novel system utilizing the PHP programming language, which the company had not previously employed for data entry and pricing estimating procedures, new functionality has been incorporated. This functionality facilitates the generation of transactional data, streamlining the process of generating pawn data reports for customers.

This system is anticipated to enhance the operational efficiency of the data entry and pricing estimating application. The results derived from this Final Project are:

The program has reduced the likelihood of errors in customer data input. Customers can make an approximate assessment of the worth of their possessions prior to entrusting them to the organization for pawning.

The following recommendations are suggested based on the analysis conducted.

Several recommendations can be provided:

The maintenance of software and hardware is crucial in ensuring the seamless functioning of a system. Regular data backups are necessary to mitigate the risk of data loss and play a critical role in facilitating program improvement and enhancement.

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