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ACCOUNTING INFORMATION SYSTEM FOR PURCHASING, SALES, AND SERVICE

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Abstrak

PT. GM Motor Pontianak merupakan perusahaan yang bergerak di bidang penjualan dan service motor. Pengolahan data transaksi service dan penjualan motor masih dikelola secara sederhana, yaitu mencatat transaksi ke dalam buku besar dan disalin ke Microsoft Excel untuk rekapitulasi atau penyajian laporan. Permasalahan utama yang menjadi kendala bagi perusahaan adalah admin sebagai pelaku pengolah data transaksi sering melakukan kesalahan dan keterlambatan dalam pembuatan rekapitulasi transaksi penjualan bulanan, serta kesalahan dalam pembuatan laporan keuangan. Maka dari itu, penelitian ini membahas mengenai rancangan sistem informasi akuntansi pembelian, penjualan, dan service yang diimplementasikan pada PT. GM Motor Pontianak. Metode yang digunakan dalam pengembangan sistem ini adalah model waterfall, karena desain sistem dilakukan secara sistematis dengan melalui tahapan analisis, desain, implementasi, pengujian, dan dukungan. Sistem informasi akuntansi yang dihasilkan ini menyediakan fasilitas kepada dua pengguna, yaitu Admin dan Direktur. Admin yang dapat mengelola data akun, merk spare part, data spare part, data mekanik, data tarif, data akun, transaksi pembelian spare part, transaksi penjualan spare part, transaksi jasa service, penjualan, serta transaksi pengeluaran. Direktur dapat mengolah data pengguna, mengakses laporan stok spare part, laporan pembelian, laporan penjualan, laporan jasa service, laporan insentif mekanik, laporan jurnal umum, laporan buku besar, laporan neraca saldo dan laporan laba rugi. Sistem yang dibangun ini diharapkan membantu PT. GM Motor Pontianak dalam pengelolaan transaksi pembelian, penjualan dan jasa servis dan menghasilkan laporan keuangan sesuai dengan standar akuntansi keuangan.

Kata kunci: sistem informasi akuntansi, model waterfall, jasa service, penjualan, pembelian

Abstract

PT. GM Motor Pontianak is a company engaged in the sale and service of motorbikes. Service transaction data processing and motorbike sales are still managed in a simple way, namely recording transactions into a ledger and copied to Microsoft Excel for recapitulation or report presentation. The main problem that becomes an obstacle for the company is that the admin as a transaction data processor often makes mistakes and delays in making a recapitulation of monthly sales transactions, as well as errors in making financial reports. Therefore, this study discusses the design of the accounting information system for purchases, sales, and services implemented at PT. GM Motor Pontianak. The method used in the development of this system is the waterfall model, because the system design is carried out systematically through the stages of analysis, design, implementation, testing and support. The resulting accounting information system provides facilities to two users, namely Admin and Director. Admin who can manage account data, spare part brands, spare part data, mechanical data, tariff data, account data, spare part purchase transactions, spare part sales transactions, service transactions, sales and expense transactions. The director can process user data, access spare part stock reports, purchase reports, sales reports, service service reports, mechanical incentive reports, general journal reports, general ledger reports, trial balance reports and income statements. The system built is expected to help PT. GM Motor Pontianak in managing purchases, sales and service transactions and producing financial reports in accordance with financial accounting standards.

Keywords: accounting information systems, waterfall model, service, sales, purchases

INTRODUCTION

The development of information & communication technology demands the need to make changes, both individuals and companies (Otinur, Pangemanan, & Warongan, 2017). Computers provide an important role as an efficient tool, and can summarize the process of an activity so that it can simplify all existing work. PT. GM Motor Pontianak is a company engaged in the sale & service of motorbikes. The data processing of motorbike sales & service transactions is still managed in a simple way, namely recording transactions to a ledger and copied to Microsoft Excel as material for data recapitulation or report presentation (Frieyadie, 2015). The main problem for the company is that the admin, as a transaction data processor, often makes mistakes and delays in making a recapitulation of monthly sales transactions, and mistakes in making financial reports (Uddin, Suryadi, & Maesaroh, 2020).

This problem is similar to a research conducted by (Damayanti & Hernandez, 2018), the Finance Department managing financial transactions using Microsoft Excel. The main obstacle occurred when conducting data searches, the delivery of information required by the bookkeeping division and management often experienced delays. Therefore, this study produces an accounting information system designed using the waterfall model. The accounting information system can assist the Finance Department in processing financial transactions, as well as simplify and accelerate the presentation of reports so that leaders can immediately make decisions based on the reports received. Similar issues are also discussed in other research sourced from (Putra & Megawati, 2018). Financial transactions that have used the accounting cycle are still managed manually (handwritten), and Microsoft Excel is used in the preparation of financial reports. The main problem that arises is that there are often errors in posting daily journals to the ledger so that it has an impact on unbalanced balance reports. Therefore, this study produces an accounting information system with a waterfall model to make it easier for admins to input all financial transactions and automate financial statements. The results of this research test show the percentage of the success of this system is 100%.

Therefore, this study aims to provide solutions for companies in processing purchase, sale, and service transactions in the form of an accounting information system. Accounting information systems can be a tool in managing physical resources and other resources to convert economic data into accounting information needed by various parties (Mahatmyo, 2016), as well as assist in making decisions related to various transactions in a company (Mulyani, 2016). With this accounting information system, so that it can make it easier for the admin to process data and the Director in monitoring the transactions that have occurred.

RESEARCH METHODS

This research focuses on designing an accounting information system that is implemented at PT. GM Motor Pontianak as a solution in processing purchase, sales, and service transaction data. The software development method used is the waterfall model (Achyani & Velayati, 2020). According to Sommerville in (Fridayanthie & Mahdiati, 2016), the waterfall model is a software development method that is systematic and can be used as a reference in developing innovative and complex projects. The reason for using the waterfall model in this research is because system development is carried out systematically through the stages of analysis, design, implementation, testing and support (Frieyadie, 2015).

Types of research

This study used qualitative research methods (Wangi, Udjulawa, & Parlindungan, 2015). In this qualitative research, the activities carried out by the object are directly observed. So that the technique of observation and in-depth interviews are needed to obtain the data needed in the study (Rukajat, 2018).

Time and Place of Research

This research was conducted at PT. GM Motor Pontianak, located at Jalan Ismail Marzuki No. 12 Pontianak. This research was conducted in November 2020.

Research Target / Subject

The target or subject in this research is PT. GM Motor Pontianak.

Procedure

The following describes the procedure for the system running at PT. GM Motor Pontianak:

1. Procurement of goods
   The admin section manages the goods at PT. GM Motor is then processed and recorded into goods data. This item data is used as the basis for the Admin section to create a procurement form. Goods data and goods procurement forms are submitted to the Director for approval. Admin procures goods by contacting the supplier, then submitting the procurement

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form to the supplier. The supplier prepares the requested items, then the admin pays the transaction and gets a purchase note.

2. Service and sales
   Consumers come to the company and meet the Admin to service or buy goods. Admin serves consumers. When buying goods, the admin immediately creates a sales note according to consumer orders, the consumer pays for and gets the goods and sales notes. If the customer performs service, the mechanic will do the repair or service. The mechanic reports the service description to the Admin. The customer pays a service fee to the admin, the admin makes a service note to be handed over to the consumer, after the car is serviced.
3. Report
   At the end of the month, the Admin collects the goods data archive, purchase notes, service notes and sales to be processed into reports and submitted to the Director.

Data, Instruments, and Data Collection Techniques

According to Saefudin and Ardhani in (Lisnawanty & Bambang Kurniawan, 2019), data collection techniques are a method used to collect data needed in a study. The data used in this study are data related to purchase, sale, and service transactions. The data collection techniques used in this study include:

1. Observation
   Observations were made by observing the activities carried out at the GM Motor workshop so that they could find out every process carried out by the workers, as well as observing the running system business processes related to purchase, sale and service transactions.
2. Interview
   Interviews were conducted by asking questions to Mr. Sugiato Ali, as the Head of PT. GM Pontianak, to find out business processes, problems, and needs in purchasing, sales and service transactions.
3. Literature Study
   The literature study technique is carried out by collecting references from books, journals, and other references related to the discussion in this research (Sari & Trisna, 2019).

Data analysis technique

Data analysis is a step used to organize data, determine problems in a data processing process, and draw conclusions. In this study, data were analyzed based on input documents and output documents used by PT. GM Motor Pontianak in processing purchases, sales and service transactions. The techniques used in collecting this document are observation and interviews (N & Nugroho, 2018). After the data is obtained, it is known the problems and system requirements, then the database design and system design using the Unified Modeling Language will be created (Frieyadie, 2015).

RESULTS AND DISCUSSION

The design of accounting information systems for purchases, sales and services at PT. GM Motor Pontianak consists of two accesses, namely Admin and Director, as described below:

1. Software Requirements Analysis

The following is a description of the system requirements analysis for the Admin and Director.

A. Admin
A1. Login
A2. Manage spare part brand data
A3. Manage spare part data
A4. Manage mechanical data
A5. Manage service tariff data
A6. Manage account data
A7. Manage spare part purchase transactions
A8. Manage spare part sales transactions
A9. Manage service and sales service transactions
A10. Manage expense transactions
A11. Logout

B. Director
B1. Login
B2. Manage user data
B3. Access spare part stock reports
B4. Access purchase reports
B5. Access sales reports
B6. Access service reports
B7. Access mechanical incentive reports
B8. Access general journal reports
B9. Access general ledger reports
B10. Access the trial balance report
B11. Access the income statement
B12. Logout

2. Design

a. System Design

Description of this system design using UML modeling. Admin and Director facilities in using the system are described as follows:

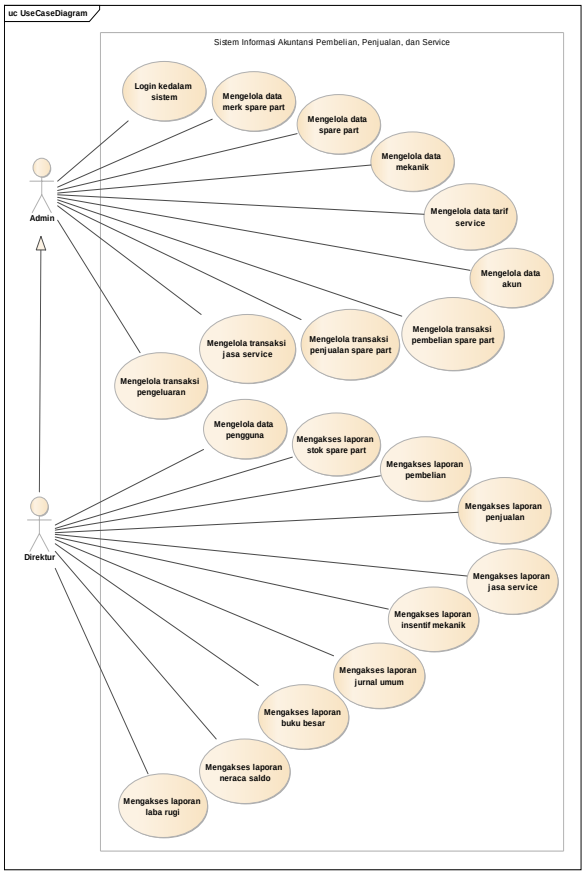

Figure 1. Use Case Diagram

Table 1 below is a description of the use case diagram based on Figure 1 (Fatayat & Frieyadie, 2019).

Table 1. Use Case Diagram Description

Use Case Narative	
Goal	The Admin and Directors section can process and access data in the accounting information system for purchases, sales, and services.
Description	This designed system provides facilities for the admin to manage spare part brand data, spare part data, mechanical data, service tariff data, account data, spare part purchase transactions, spare part sales transactions, service and sales transactions and expenditure transactions. The director can process user data, access spare part stock reports, purchase reports, sales reports, service reports for mechanical incentives, general journal reports, general ledger reports, trial balance reports and income statements.
Main Scenario	
Actor	Admin and Director
Pre-condition	Admin and Director must log in by filling in the username and password.
Actor Action	**System Reaction**
1. Admin selects the spare part brand data.	The system displays the spare part brand data page.
2. Admin selects the spare part data.	The system displays spare part data page.
3. Admin selects the mechanical data.	The system displays a mechanical data page.
4. Admin selects the service tariff data.	The system displays the service rates page.
5. Admin selects the account data.	The system displays the account page.
6. Admin selects the spare part purchase transaction.	The system displays the spare part purchase transaction page.
7. Admin selects the spare part sales transaction.	The system displays the spare part sales transaction page.
8. Admin selects transaction services and sales services.	The system displays the transaction page for service and sales services.
9. Admin selects the expenditure transaction.	The system displays the expense transaction page.
1. The director selects the user data.	The system displays the user data page.
2. The director selects the spare part stock report.	The system displays the spare part stock report page.
3. The director selects the purchase report.	The system displays the purchase report page.
4. The director selects the sales report.	The system displays a sales report page.
5. The director selects the service report.	The system displays the service report page.
6. The director selects the mechanical incentive report.	The system displays a mechanical incentive report page.
7. The director selects the general journal report.	The system displays general journal report pages.
8. The director selects the general ledger report.	The system displays the ledger report page.
9. The director selects the trial balance report.	The system displays a trial balance report page.
10. The director selects the income statement.	The system displays the income statement page.
Post-condition	If according to the command, the accounting information system will display the menu selected by the user.

Table 1 above shows the description that the Admin and the Director have different data access. Admin focuses on input and processing of master data and transactions. Meanwhile, the Director focuses on user management and transaction reports based on

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the output of transactions that have been filled in by the Admin. Both actors must log in to be able to access the data.

The work flow of login processes in the accounting information system for purchases, sales and services is described in the form of an activity diagram as follows (Figure 2).

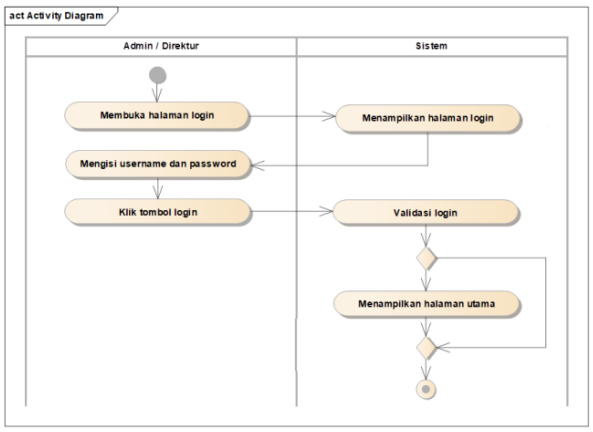

Figure 2. Activity Diagram

b. Database Design

In designing this accounting information system, the tools used to model the database design are Entity Relationship Diagram (ERD) and Logical Record Structure (LRS). ERD is one of the most frequently used conceptual models in the process of developing relational type data (Lubis, 2016). Meanwhile, the Logical Record Structure (LRS) is formed from the transformation of the Entity Relationship Diagram (ERD) into a structure of records in tables (Fridayanthie & Mahdiati, 2016).

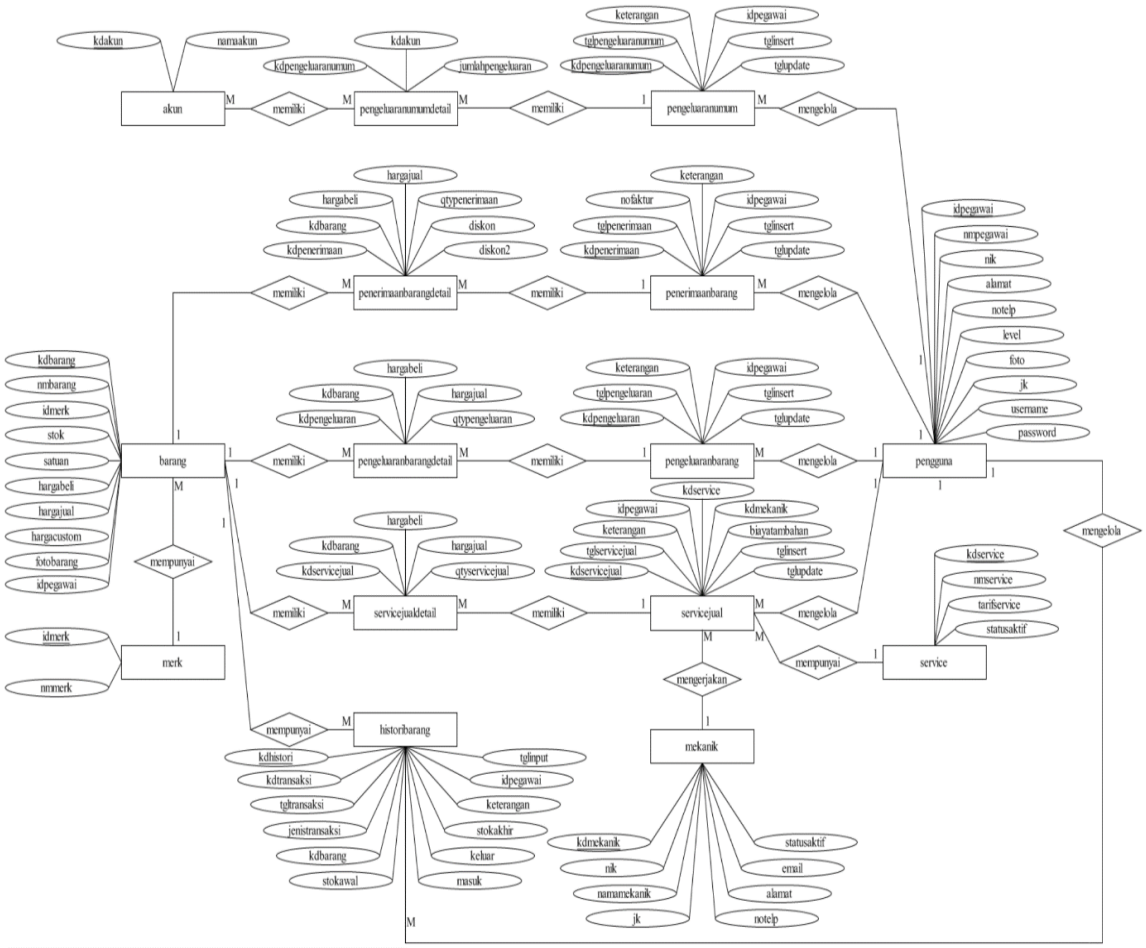

Figure 3. Entity Relationship Diagram (ERD)

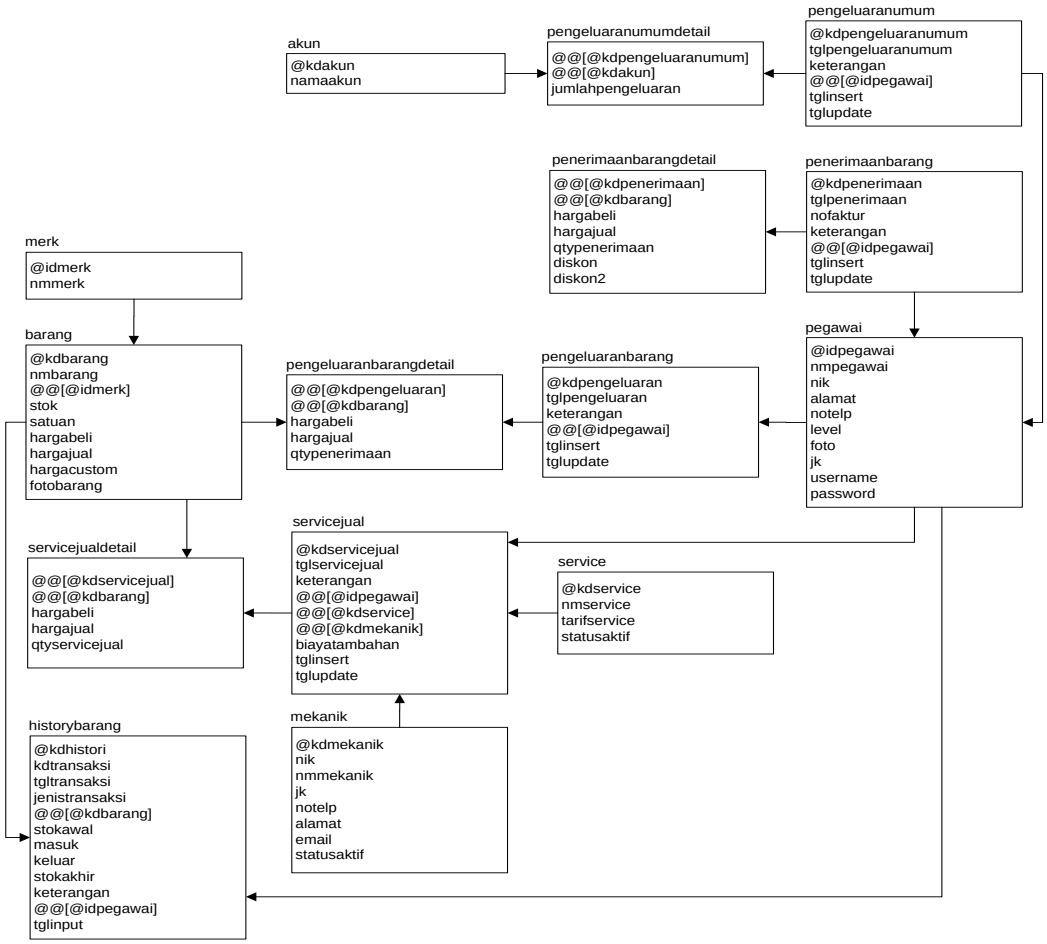

Figure 4. Logical Record Structure (LRS)

3. Implementation

Based on the above design, the following is the result of the interface design or user interface design of the accounting information system for purchases, sales and services at PT. GM Motor Pontianak.

User interface for Admin Level

The admin must log in by filling in the username and password (Figure 5) to be able to access the application according to the access level.

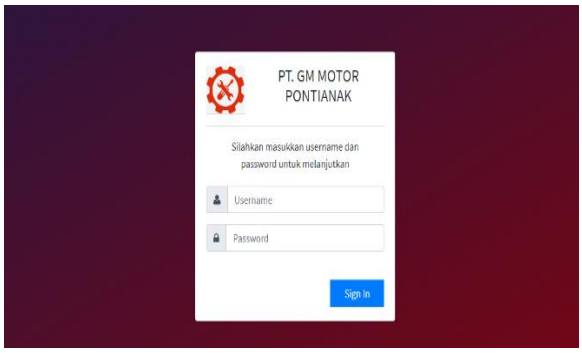

Figure 5. Log In

Admin can access the dashboard or homepage page (Figure 6) if they have passed the login stage.

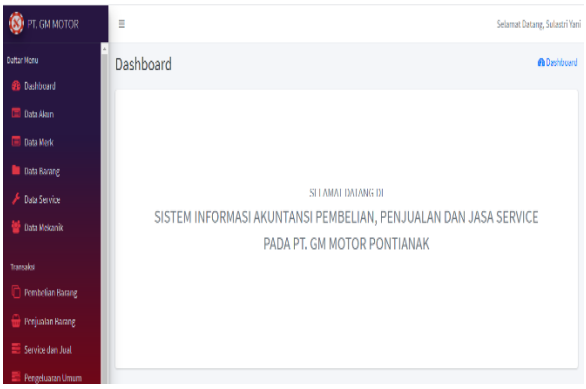

Figure 6. Admin Dashboard

In Figure 7, Figure 8 and Figure 9, to process data on purchase transactions, sales transactions, and service transactions the admin can add, change, delete, and search for data as needed..

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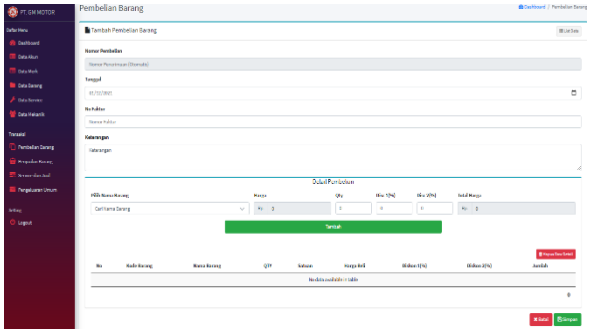

Figure 7. Add Purchase Transaction

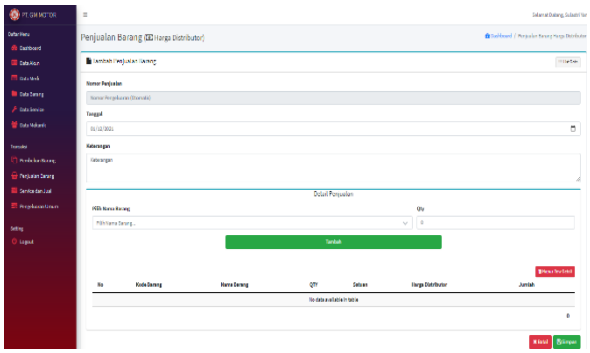

Figure 8. Add Sales Transaction

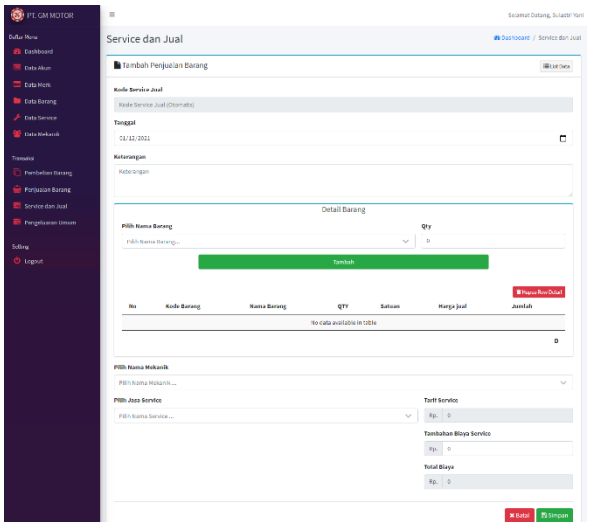

Figure 9. Service and Sales Service Transactions

The data that has been inputted will be displayed on each page in Figure 10 and Figure 11.

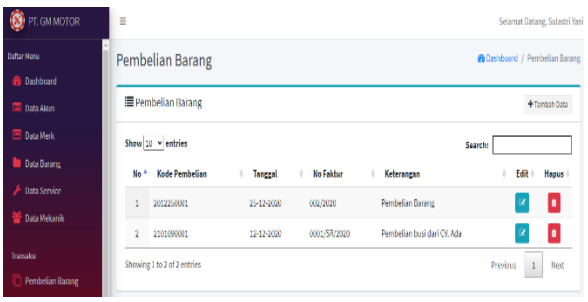

Figure 10. Purchase Transaction Data

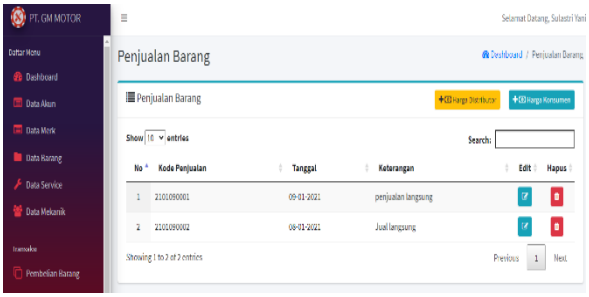

Figure 11. Sales Transaction Data

User interface for Director Level

To be able to access the Director page, the Director must also log in by filling in the username and password to be able to access the application according to his access level, as shown in Figure 5. Then the Director will be able to access the dashboard page (Figure 12).

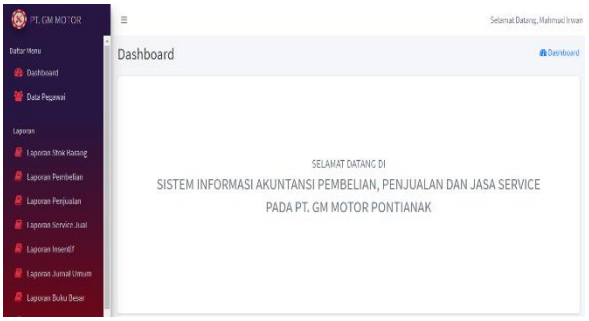

Figure 12. Director Dashboard

The Director can manage user data, access inventory reports, purchase reports, sales reports, service reports, mechanical incentive reports, general ledger, general ledger reports, trial balance reports, and general income reports. Purchase reports, sales reports, service reports, general ledger, trial balance reports, and general income reports, can be viewed by selecting the reporting period (start date and end date). Meanwhile, to be able to view general ledger reports, the Director must select the reporting period and one of the accounts. This accounting information system provides adequate control to guarantee all transactions has been recorded, is valid, accurate, and can protect company activities effectively and efficiently (Nuryanti & Suprantiningrum, 2016).

4. Testing

The system that has been created must be tested first to find out the errors that exist in the system. Testing is carried out aiming to find out errors and correct these errors. The testing technique used is the black box testing method. The following are the results of testing the accounting information system for purchases, sales and services at PT. GM Motor Pontianak.

a. Browser Testing

Table 2 below is a blackbox testing in browser use. This test uses two browsers, namely Mozilla Firefox and Google Chrome.

Table 2. Browser Testing

	Test Scenario	Test Case	Expected Results	Test Results	Conclusion
1	Open with Google Chrome	Google Chrome (open)	Applications can be accessed and displayed according ly	According to expectations	Valid
2	Open with Mozilla Firefox	Mozilla Firefox (open)	Applications can be accessed and displayed according ly	According to expectations	Valid

Table 2 above shows that the system can be accessed and displayed properly on both browsers.

b. Login Testing

Table 3 below is a blackbox testing to check the system login functionality can run well and as expected.

Table 3. Login Testing

	Test Scenario	Test Case	Expected Results	Test Results	Conclusion
1	If any column is left blank	username: (empty) password: (empty)	Application refuses access and displays a message "Login failed ... Username and Password cannot be empty"	According to expectations	Valid
2	Filled and appropriate fields (appropriate username and password)	username: (admin) password: (admin)	The application receives access and opens a Dashboard page.	According to expectations	Valid

Table 3 above shows that users can log in smoothly, by entering a username and password. When the entered username and password do not match, the system will refuse so that unauthorized users cannot enter the system.

c. Add User Testing

Table 4 below is a blackbox test to check functionality in the process of adding users to run well and as expected.

Table 4. Add User Testing

	Test Scenario	Test Case	Expected Results	Test Results	Conclusion
1	Add data, if the column is blank	All columns: (empty)	The application denies access and displays a message in each column "(Column Name) May Not Be Empty"	According to expectations	Valid
2	Add data, if the column is filled	All columns: (filled)	The application receives access and saves the data and displays the message "Data Successfully Saved"	According to expectations	Valid
3	Edit data, if the column is filled	One of the columns: (modified)	The application receives access and changes the data and displays the message "Data was successfully updated"	According to expectations	Valid
4	Clear data	Pressing the delete button on the row of data you want to delete	The application receives access and deletes the data and displays the message "Data was successfully deleted"	According to expectations	Valid

Based on Table 4 above, it can be seen that the system can process the addition of users so that it can run with the specified scenarios, such as:

1) If all fields are empty, the application will reject the process of adding user data and display a message "Columns cannot be empty".
2) If all fields are filled in correctly, the system will successfully save data and is indicated by displaying the message "Data saved successfully".
3) The process of changing the data has also been successfully carried out on the condition that it meets the conditions of the data being changed correctly and completely.
4) The process of deleting data has also been successfully carried out by selecting the deleted data and clicking the delete button.

d. Support

The specifications that a computer must have to be able to run this accounting information system include:

a. Operating System: Windows 10 32/64-bit.
b. WebServer:
   1) Apache: Apache 2.4.43
   2) MySQL: MariaDB 10.4.11
   3) PHP: PHP 7.4.6 (VC15 X86 64bit thread safe) + PEAR
c. Web Editor: Sublime Text 3.
d. Web Browser:
   1) Mozzila Firefox: Version 77.01
   2) Google Chrome: Version 83.0.4103.97

CONCLUSIONS AND SUGGESTIONS

Conclusion

Accounting information system for purchases, sales and services at PT. GM Motor Pontianak provides facilities to the Admin who can manage account data, spare part brands, spare part data, mechanical data, service tariff data, account data, spare part purchase transactions, spare part sales transactions, service and sales transactions and expense transactions. This system provides facilities to the Director to process user data, access spare part stock reports, purchase reports, sales reports, service service reports, mechanical incentive reports, general journal reports, general ledger reports, trial balance reports and income statements. This system that has been created helps PT. GM Motor Pontianak in improving company performance such as processing and processing data on purchases, sales and services as well as producing information or reports that are fast and efficient.

Suggestion

Features for consumers or general users so that they can make reservations or booking services, as well as an Android-based system design can also be added in the next research.

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