



SALES INFORMATION SYSTEM DESIGN IN BUILDING SHOP USING ENTERPRISE ARCHITECTURE PLANNING METHOD

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Abstract

A sales information system is a system that regulates procedures and methods for generating, analyzing, distributing, and obtaining information needed for making decisions related to sales. The Mulya Kunci Building Store experienced problems with an information system that was still manual in processing transactions, checking stock, ordering goods, and preparing reports. This study aims to help store owners and employees by introducing applications that can help them check lists and stock items, add items, create reports, manage purchasing and financial data, and manage sales transactions. This application was built using the MySQL database and the PHP programming language with the Waterfall system development method. Data collection methods used include observation, interviews, and literature studies. Context diagrams, entity relationship diagrams, and data flow diagrams are used as a system design methodology. The results showed that careful and structured needs analysis and designing a good sales information system can increase productivity and make it easier for employees to increase sales by facilitating checking of goods, processing transactions, and preparing sales reports. It can also reduce errors in each process. In the context of Mulya Kunci Building Stores, the use of a good sales information system is very important in increasing the efficiency and effectiveness of business processes.



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I. INTRODUCTION

The current era is growing, and these developments are very influential, one of which is technology. It can be said that business activities have shifted from a manual system to an automated system. For example, information technology that can be used to manufacture sales information systems. One of them is the Mulya Kunci Building Store located in Mulyo Sari Village, Way Ratai District, Pesawaran Regency which also sells various construction materials such as: bricks, cement, sand, ceramics, iron, nails and other construction tools. However, at the Gedung Mulya Kunci

store, purchases are still recorded by handwriting on paper, and sales transactions are still carried out manually, which often results in errors in recording data reports. Based on data from the building shop, the results of product marketing include annual material sales transactions at the Mulya Kunci store. With income in 2020 reaching 732,000,000.00 per year. Income in 2021 will reach 872,000,000.00 per year. In the era of the industrial revolution where technology has become a necessity for humans, the use of technology will help a person or group in many aspects, one of which is speed, budget savings, time and easier access.

(Muslihudin, Wulandari, & Mei Listiarini, 2017; Putri, Wibawa, & Laksamana, 2017) Online sales are the best solution as a marketing and promotional medium for Pekalongan Batik by anyone, anywhere and anytime. E-commerce websites make it easy for store owners to provide maximum service to customers and can be done 24 hours. (Maselena, 2020; Terzi, 2011) Security in the development of e-commerce websites is a problem in itself, so that further research can be carried out using methods that can overcome this problem. Building Material Sales Information System was created to help process sales transactions that occur at the Berkah Building Store. Previously, sales transactions and inventory management of incoming goods were still done manually, so with this system, the process becomes more effective and efficient. This system can also print profit reports which are useful for knowing the net profit from sales according to the selected date range. The black box test results show that this system is running according to its function, and the SUS test results show an average value of 75. Thus, it is concluded that this system is feasible to use. The creation of a web-based agricultural drug sales information system application at the Butani Blora store has been able to reduce the problems that exist in the agricultural drug store. This application makes it easier to record sales transactions, makes it easier for cashiers to carry out drug sales transactions, and makes it easier for admins to make stock reports, customer data, supplier data, sales reports, purchases and profit and loss. The report is stored and structured properly, so that the shop owner can view it at any time if needed. This application also makes it easier to control sales made by the cashier, makes it easier to control inventory, and is equipped with a minimum limit stock application, so you can save on expenses for drug supplies (Janner Simarmata, 2006). This system can assist employees in managing drug sales more easily and safely at the Butani Blora drug store, which can be accessed online or web-based and equipped with access rights for each user. In addition, this system also makes it easier for buyers to buy products without the need to come to the store, just through the available web, so it doesn't take much time. This information system can also be a company tool in managing transactions and reporting sales and shipping goods.

(Anggraeni, Muslihudin, & Street, 2021; Mukodimah & Muslihudin, Muhamad, 2019; Nadiatul Munawaroh, 2022; Sri Hartati, Novi Ayu Kristiana Dewi, Dwi Puastuti, Muhamad Muslihudin, 2017) Based on the research above, it was found that designing a sales information system could increase sales and make it easier for store owners and employees to do their jobs. Computerized applications have been developed to assist in transaction processing, stock control, etc., thereby facilitating and speeding up the work of employees. However, there are still problems in managing data and reducing errors in the transaction process, checking stock, ordering goods, and preparing reports. Therefore, we need a sales program that can be an alternative to solve the problem.

The information system that has been implemented at the Mulya Kunci Building Store is still done manually, starting from the transaction process, checking stock, ordering goods, to preparing reports. However, by utilizing the currently available information technology, all of these processes can be accessed easily and in detail. By applying the enterprise architecture planning method to information technology, it is hoped that it can help increase sales and make it easier for employees to carry out computerized inventory records and sales transactions. The purpose of designing a store sales information system using the enterprise architecture planning method is to assist store owners and employees in checking stock, increasing the number of items,

making reports, managing data on purchasing goods, managing finances and sales transactions. As well as making it easier for visitors to see a list and stock of available items so they can see easily and avoid repeat visits if the item they are looking for is not available. Thus, transactions and purchases can be made quickly and in detail.

II. RESEARCH METHODS

2.1. Data Collection

To carry out the research process several stages must be carried out by collecting data, including:

1. Observational method, which is a research method that is carried out by making direct observations of the goods or phenomena to be studied. Observation is often used to find out and trace a phenomenon that is happening or has happened. This method is carried out by reviewing, researching what systems are used in the key building shop, to obtain valid and accurate data.
2. The interview method is a data collection technique that is carried out by interviewing the building shop owner directly to obtain the information needed in the research such as proof of annual sales transactions, what system is used to service transactions at the building shop.
3. Literature study method, which is a data collection technique that is carried out by collecting the necessary data, such as proof of transactions, records, and others contained or produced by the building shop.

2.2. Waterfall method

The waterfall method is a software development model that is carried out systematically and sequentially. The process itself can be carried out by various project teams divided according to their respective expertise. (Jeffery, Bentley, & Dittman, 2004; Kenneth C. Laudon, 2005) the waterfall model provides a sequential or sequential software life-flow approach starting from analysis, design, coding, testing and supporting stages.

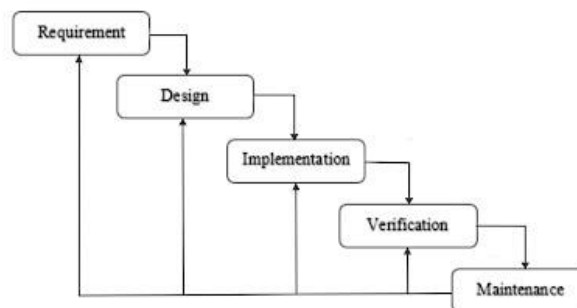


Figure 1. Waterfall method

Information system development is the same as a software development technique known as the waterfall method, in which software development is divided into 5 stages that must be completed, namely:

1. Requirements Analysis

is the stage where we need to gather what kind of requirements are needed by the user. Namely the ease of conducting sales transactions, such as ordering products, payments, and shipping. Access to accurate and up-to-date product information. Ease in managing customer data and transactions. Detailed and easily accessible sales report features and Ability to manage product stock and monitor availability.

2. Design

is the stage where the focus is on system design, i.e. planning and problem-solving processes for software solutions. the process of determining the desired sales information system specifications and Documentation of the process of writing the sales information system specifications needed to be implemented and run in the next stage.

3. Implementation
is the stage where the focus is more on technical matters, namely the platform used is web-based, a database for storing product, customer and transaction data. Features to manage product stock and monitor availability. Detailed and easily accessible sales report features and an intuitive and easy-to-use user interface.
4. Verify
is the stage where the system created is tested by finding a way out for debugging the newly created system, where bugs and glitches are found, then repaired and refined.
5. Maintenance
is the stage where an application requires maintenance engineering measures in order to cover the possibility of changes occurring when they have been submitted by the user. Sometimes changes can occur due to errors detected when testing the system.

2.3. Research Flow Framework

The following is a research flowchart from a sales information system at a building shop.

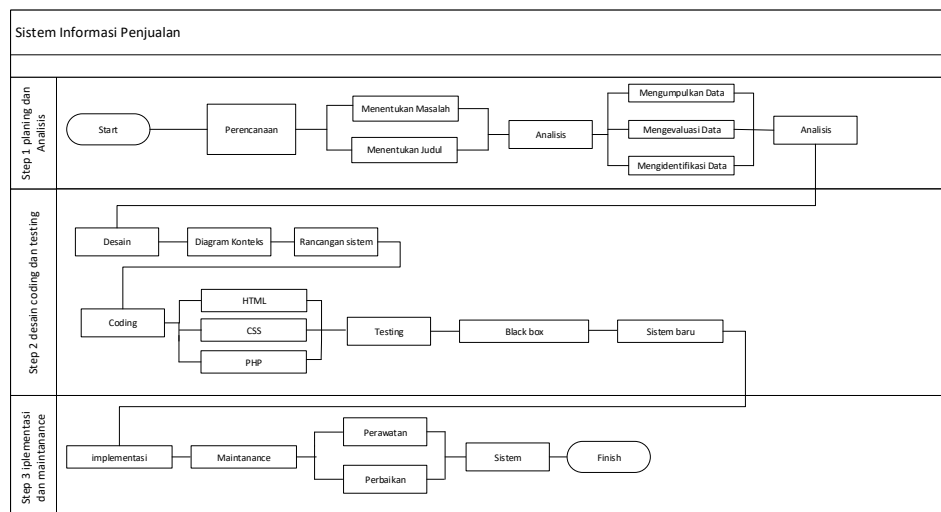


Figure 2. Research flow framework

The sales information system for building stores is designed using a web application to make it easier for administrators to enter data into the database.

III. DISCUSSION RESULT

3.1. Results

The results showed that the stages of needs analysis and careful and structured design of a sales information system can ensure that the system built meets business needs and increases productivity, so that the system can make it easier for employees to increase sales. Making it easier to check goods, simplify the transaction process, and make it easier to make sales reports, thereby reducing the number of errors in each process.

System design

System design is a process that defines the architecture, product design, modules, interfaces, and data for the system that includes the specified requirements. Systems design can be seen as the application of systems theory to product development.

Data Architecture

Determine the key data types required to support business operations. The data architecture consists of data entities that each have attributes and relationships with other data.

Entity Relationship Diagram (ERD)

ERD is a data model or system in a database that is used to model relatively complex structures and relationships between data. The existence of ERD is very important for companies in managing their data. Here is the ERD of the sales information system.

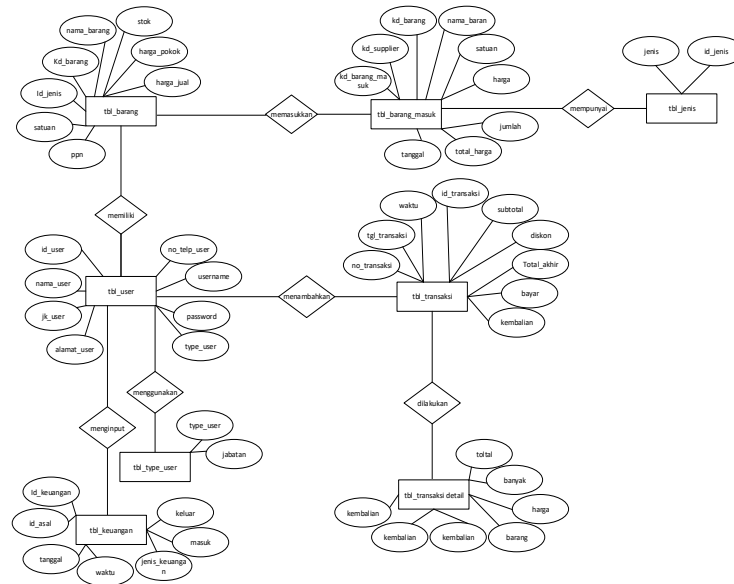


Figure 3. Entity Relationship Diagrams

3.2. Application Architecture

Determine the main types of applications needed to organize data and support business operations. This includes the process of defining the applications that will manage the data and provide management with information about business operations.

Context diagrams

Context diagram is a simple diagram that describes the relationship between external entities, inputs, and outputs of a system. The context diagram is shown with a single circle representing the entire system being created, with the following drawing design:

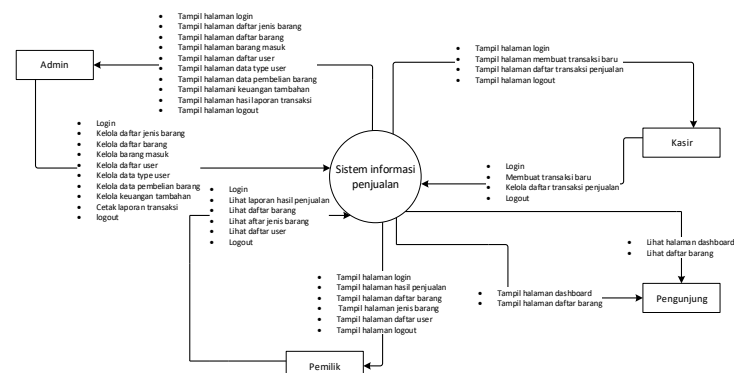


Figure 4. Context diagram

The context diagram illustrates the process of a sales information system where the administrator must login first before being able to manage the system, such as

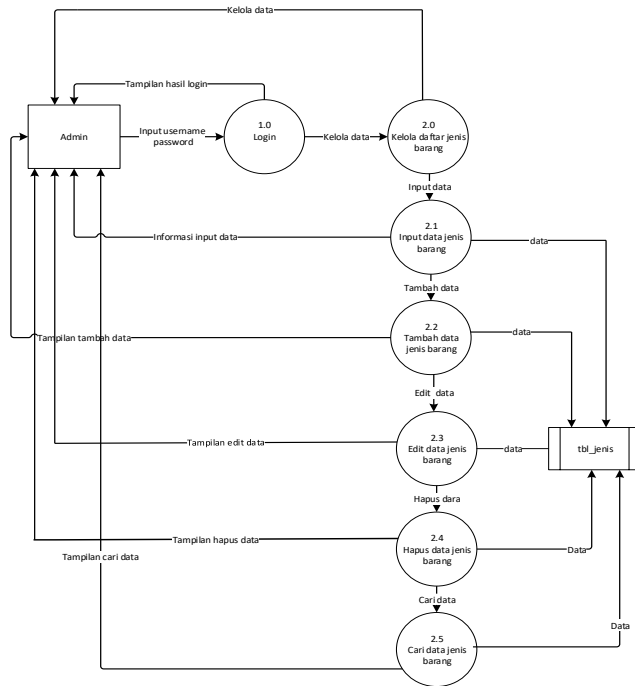


Figure 6. DFD Level 1 (manage the list of types of goods)

3.3. Technology Architecture

Sales information systems at building stores are designed with a technology architecture that utilizes the latest technology to ensure system performance and reliability and uses a web-based technology architecture to allow easy and fast access. According to Lankhorst, Enterprise architecture is defined as interrelated principles, methods, and models used to design and implement organizational structures, business processes, information systems, and enterprise infrastructure. [16]

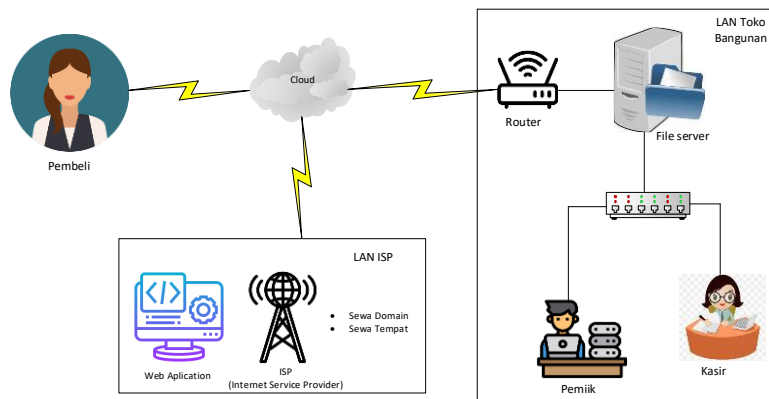


Figure 7. EAP network architecture

3.4. Program implementation

Login page display

This login page can be used by the admin, cashier, and owner by inputting a username and password.

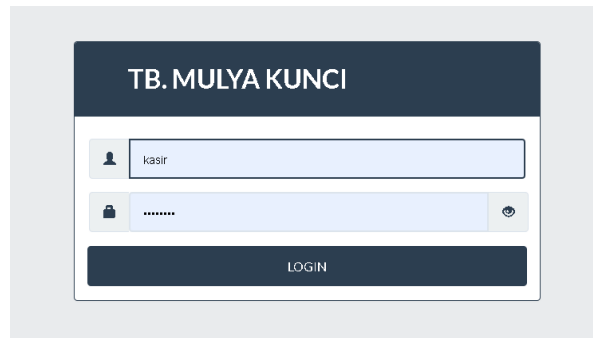


Figure 8. Login interface

Main menu display

On this page the officer can see all the information about the data already stored in the system.



Figure 9. Main menu interface

The menu display adds a list of items

On this page officers can add a list of items according to the existing system.

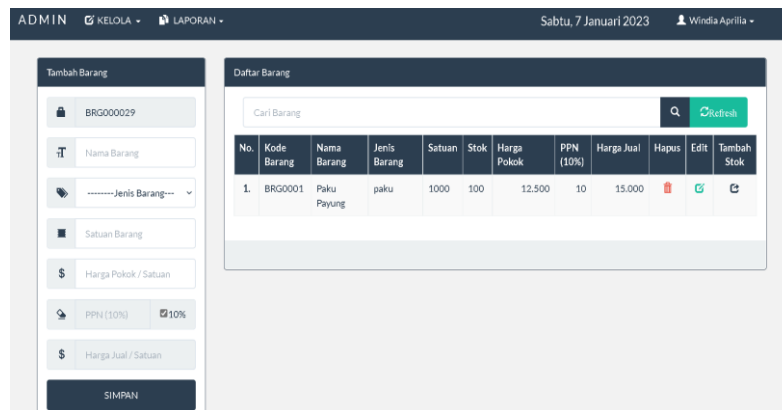


Figure 10. Added menu interface list of items

Item type list menu display

On this page the admin can view and manage the list of types of goods

No.	ID Jenis	Jenis Barang	Banyak Barang	Aksi
1.	25	aaa	1 Barang	Detail
2.	3	Alat Alat Listrik	4 Barang	Detail
3.	12	Alat alat Bengawan	2 Barang	Detail
4.	13	Alap ranah	4 Barang	Detail
5.	27	bahan kimia	1 Barang	Detail
6.	2	Botol	0 Barang	
7.	21	batu	0 Barang	
8.	11	batu	0 Barang	
9.	4	besi	4 Barang	Detail
10.	9	cat	0 Barang	
11.	10	gendang	0 Barang	
12.	6	kaca	1 Barang	Detail
13.	5	kayu	2 Barang	Detail
14.	7	karamik	2 Barang	Detail
15.	1	Palu	3 Barang	Detail
16.	8	pipa	1 Barang	Detail

Figure 11. List menu interface types of goods

Transaction print menu display

On this page, officers can directly print the results of transactions if there is a purchase of goods.

TB. Mulya Kunci

Jl. way ratai padang cermin

Daftar Transaksi Harian - Tanggal 18 Januari 2023

No.	Tanggal	No. Transaksi	Kasir	Total	Diskon	Total Akhir
Data Tidak Ada						
Pendapatan Harian Tanggal 18 Januari 2023 :						Rp. 0

Rabu, 18 Januari 2023
Hormat Saya,

Windia Aprilia

Figure 12. Transaction print menu interface

3.5. Analysis of System Test Results using Black Box Testing

Black box testing is a testing method that evaluates programs based on the expected input and output responses, regardless of how the program is implemented. The goal is to find errors in the program's functional specifications.

Table 1. Black Box Testing

No	Menu name	running	bugs	relationship
1.	Login Page	✓		The login process is successful and can access the dashboard page
2.	Login button	✓		The login button was successful to enter the menu page
3.	Dashboard menu	✓		The dashboard menu is successful to see the available menus
4.	Transaction print button	✓		The print button successfully prints the transaction results
5.	Item list menu	✓		The item list menu is successful to see the menu

Based on the black box test results shown in the table, it can be concluded that the building shop application program that has been designed is considered valid and does not contain errors or errors.

V. CONCLUSION

Based on the research results, it can be concluded that the Mulya Kunci Building Store, which still uses the system manually, needs to immediately switch to a computerized information system using the Enterprise Architecture Planning (EAP) method. The EAP method in this system is to help in measuring the performance of the building shop as well as helping to increase efficiency and effectiveness in the shop and reduce the risk of failure in each process. By switching to a computerized information system, building shop owners can obtain several benefits, such as increasing operational efficiency, increasing information accuracy, and increasing sales. The use of a computerized information system can help building shop owners optimize business processes and avoid errors that often occur in manual systems. Thus, switching to a computerized information system is a very necessary step for building shop owners because they still use a manual system, and will also. Helps improve overall business performance.

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