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Point of Sale (POS) Application Tire at the Diva Cirebon Store Based on Website

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***Abstract*—** *As technology develops, everyone wants easy things, one of which is the ease of shopping for tires and processing sales data. Manual data recording has several weaknesses, including the potential for errors in writing and reading, and is also prone to loss or damage. From the problems mentioned above, the ongoing management system that is carried out manually, makes sales data management not effective and efficient enough, so a more effective system is needed because it can be accessed quickly and easily, namely by developing a website-based Tire Point of Sale (POS) application at Toko Diva Cirebon. The purpose of making this Tire Point of Sale (POS) application is to help integrate data properly and enable easy and accurate data processing. The development of this system uses the waterfall system design method, which can assist in making the system by following a sequential process. This method is carried out starting from the requirements analysis stage, system and software design, implementation, system testing, and maintenance. Design tools use UML (Unified Modeling Language) to create use case diagrams, activity diagrams, and class diagrams. The results obtained are web-based Point of Sales (POS) applications that can facilitate recording, managing and storing data on goods and transactions carried out. This application helps minimize errors that may occur in transaction calculations and makes it easier to search for data.*

Keywords: *Waterfall Method, POS, Website*

I. INTRODUCTION

The role of technology is very helpful in completing various daily activities, such as shopping, with the development of technology, shopping activities do not have to come directly to the store, now you can do it at the same time as you work in the office for example, you only need to sit sweetly while resting and looking at the items you want. Therefore, a system is needed that can support this. One of them is through a website. With this website, a company or shop can carry out broader marketing activities. So that it can achieve the expected sales target. Information technology itself has a positive impact, for example, it can increase efficiency and effectiveness in precise, accurate and fast administrative processing with the aim of improving organizational performance [1].

Toko Diva Ban is one of the stores that sells various types or brands of tires. Toko Diva Ban in marketing its products and services is still uneven because only people around it know, because it has not made a broad introduction. So that sales are still minimal and not in accordance with what is targeted. Therefore, Toko Diva Ban needs a system that can increase sales in offering tire products and processing sales data at the store.

Most of the transactions carried out at Toko Diva Ban still use a manual system as well as in terms of data collection and data storage. When searching for data stored manually, of course, it takes a long time and creates a high risk of error. So that it causes quite a lot of problems due to errors or possible negligence that occurs [2]. To streamline time and minimize errors when accessing existing data. The system, apart from being a transaction tool, can also record the data needed by the store.

With a list of tire sales needs from the Diva Cirebon store, a sales information system design was made with the waterfall method [3] as the development method. This sales information system planning certainly aims to meet all the needs of tire sales from Diva stores. The benefits obtained from planning this sales information system are of course obtained by both developers and clients. It is hoped that the sales system designed is fully in accordance with the wishes of the Diva shop and can facilitate the work that is already running.

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II. RESEARCH METHODS

This The Point of Sales (POS) application developed by researchers uses a *waterfall approach* [4]. The *waterfall* method is a systematic method and must be sequential according to the stages. The following are the steps that researchers took to create the *waterfall method.*

a. Analysis

Identification of deeper problems is carried out at this stage, problems encountered after conducting interviews with shop owners include the need to build a system that can calculate the accumulated sales transaction value, can print transaction proof documents, can store a price list for each item, and can display all transactions that have been carried out.

Discovering functionality requirements is only the beginning of the analysis process used to gather information; Analysis is also needed to ensure that the system development process runs smoothly and that no errors are made during system testing and implementation. In this situation, the creation of a cashier system must be accompanied by security features, such as the use of passwords and *usernames* to differentiate between user levels and their respective access rights. In the system being built, all features are integrated into a web-based information system that can be accessed via various web *browser software*, such as *Google Chrome* and *Mozilla Firefox.* The cashier system development also offers an easy-to-use user interface, making it easier for consumers to run the system[4].

b. Design

Necessary data For make system cashier collected during step completed analysis _ before stage design. Method of use *use case diagrams, activity diagrams,* and *class diagrams* to express ideas and system designs to solve problems with system modeling software in creating cashier systems. [5]

Use case diagrams [6] shown in Figure 1 illustrates access actor to medium system _ developed ; in example this, actor First is a system administrator. Entire system can accessed by administrators, who can managing report data payment, stock product, product data, category data, user data, check report daily and financial, and complete transaction. The cashier is actor second, have access to system and can manage inventory products, view financial and monthly data, and complete transaction. Second actor the must do *login* first formerly For can access system.

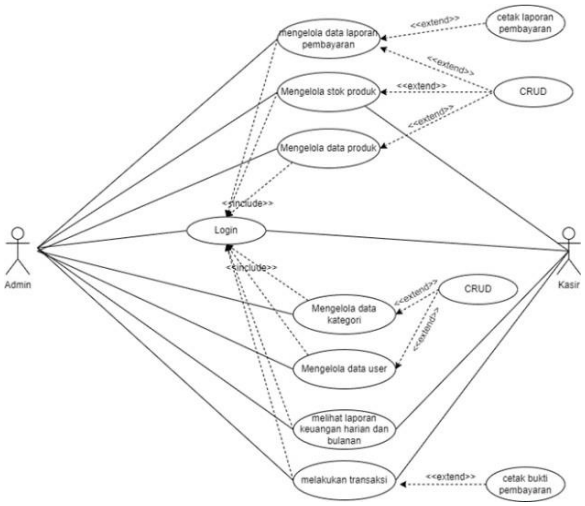

Figure 1. Use Case Diagram

Activity diagram in Figure 2 illustrates How activity system or channel task done. The flow of events that occurred when user enter For use system cashier explained in the activity diagram. While doing *login,* system will displays the *login* form consisting of from *username* and *password* are mandatory filled in by the user. If *login* successful, then system will displays page *dashboards.* However if *login* no successful, then system will stay on the page *login.*

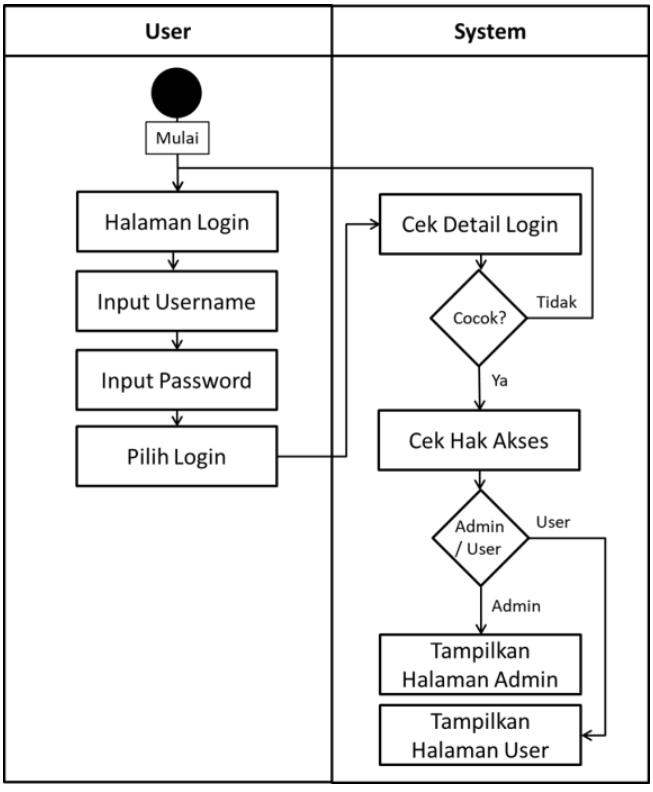

Figure 2. Activity Diagram

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The class diagram in Figure 3 depicts the direct structure of the cashier system development. Class diagrams are used to improve understanding of broad program descriptions or schematics. Developers can also provide a summary of system relationships and other features using class diagrams.

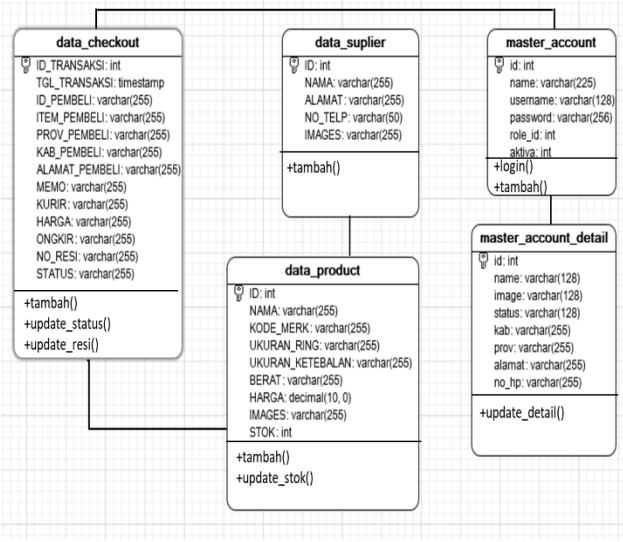

Figure 3. Class Diagram

a. Development (*Building/Coding*)

CodeIgniter framework is used in the cashier system as a development platform, making it easier for developers to divide the model, view and controller parts. In addition, the system uses the PHP programming language to create dynamic sites and uses MySQL as a data storage facility.

b. Testing

When all the main functions have been built, testing will be carried out. To identify weaknesses, the entire system functionality will be evaluated. The process used to test the cashier system is called *black box testing* [10], [12]. During *black box* testing, the programmer will use data from each form to test each function, ensuring that each input of data into *the database* runs without a hitch. Additionally, the coder will validate each type of data *input.*

c. Implementation

The final stage of the *waterfall methodology* is implementation, which will be carried out if the four stages have run smoothly. The programmer will review the results of testing carried out in the previous stage if deficiencies are found so that the testing stage can be used to measure how well the system was planned and built. At this stage, the system will be implemented according to store specifications, and the installation of additional hardware, such as a printer for printing sales reports will also be built. Shop owners and people who have access to the system will also provide brief instructions on how to use it.

III. RESULT AND ANALYSIS

The analysis stages that have been carried out previously have succeeded in producing a Point Of Sales (POS) application with a design that is easy to understand and use. The admin of the cashier information system can access all the functionality in it such as login, master account, master account details, supplier data, product data, checkout data, sales data, sales reports, user data, sales transactions, and logout. In addition, the admin can also add admin data, edit data, and delete existing data. As for the user, the cashier also has access that is almost the same functional as the admin, except that the cashier cannot access user data and admin data. The system requires a database to store the information data needed by the system.

Figure 4 shows the appearance of the Entity Relationship Diagram (ERD) in the form of a database design with the database name dbpenjualan. The database consists of five tables, namely table_data_checkout, table_data_product, table_data_supplier, table_master_acoount, table_master_acoount_detail.Each table in the database has its own attributes.

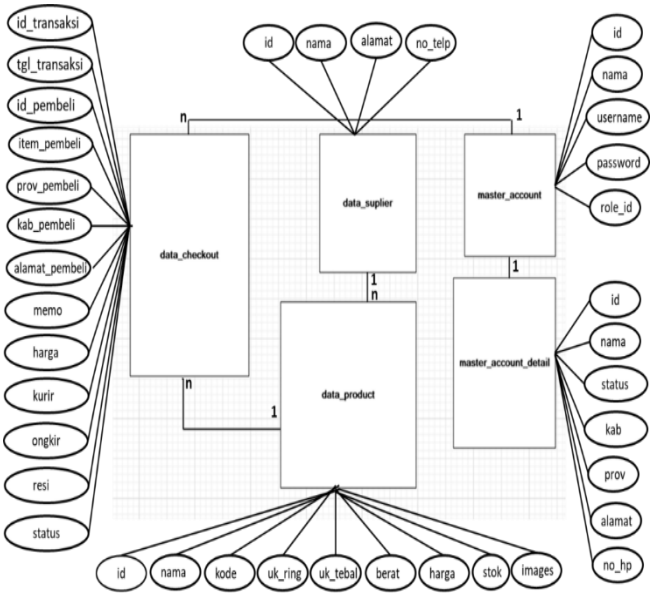

Figure 4. Entity Relationship Diagram (ERD)

Figure 5 shows the Logical Record Structured (LRS) depiction display starting with the relationship between the two models that can be converted to LRS.

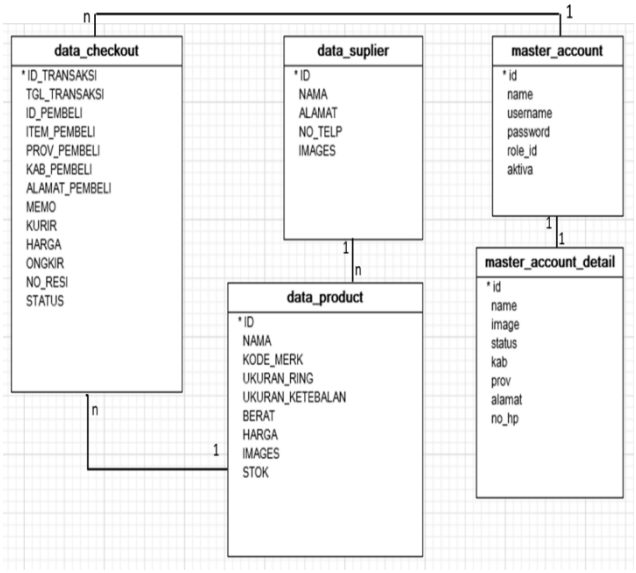

Figure 5. Logical Record Structured (LRS)

The application functions required by the above users are as follows:
Figure 6 shows the user login view. The user logs in by entering the username and password that you have been given that has been registered previously. Then press the enter button. If the system displays a pop up with information on successful login then the login process has been successful. On the other hand, if the system displays a pop up with failed information then the login process was unsuccessful due to an error in entering the username or password.

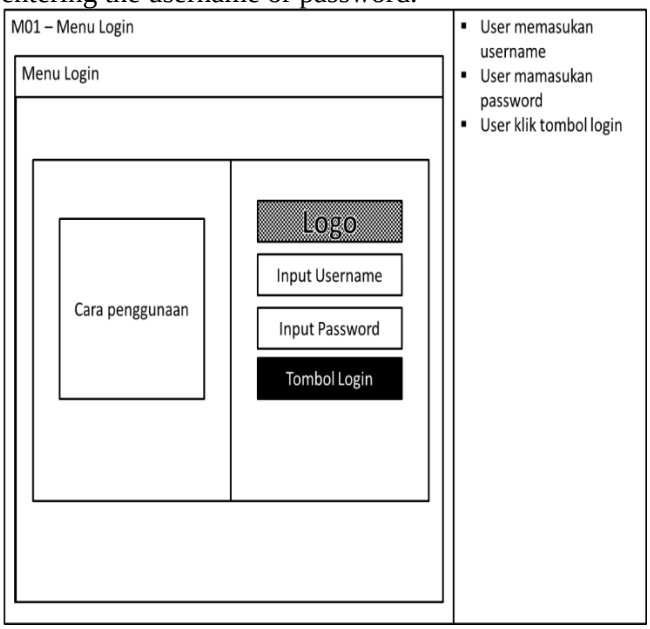

Figure 6. Form Login

Figure 7 shows the display of the main menu page. When the user successfully logs in, the system will redirect to the main menu page. The page contains a list of products, product checkout menu. In addition, the page also contains sales statistics of the best-selling products this month.

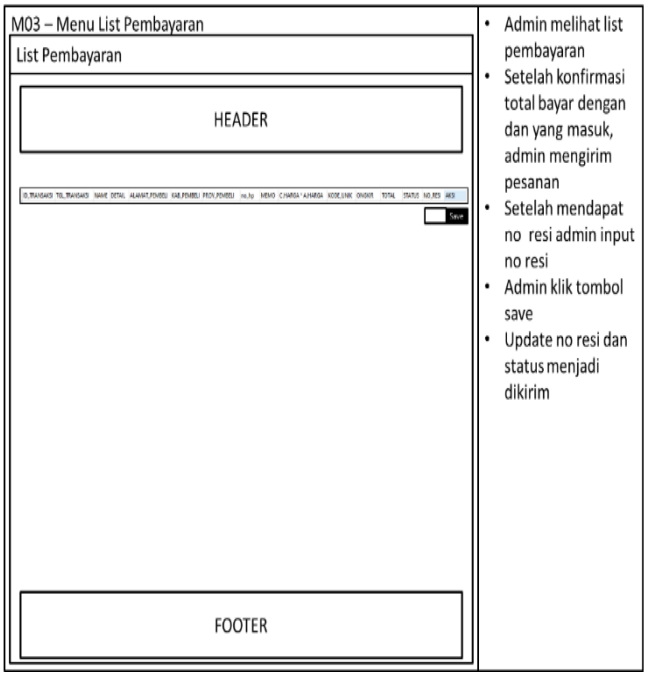

Figure 7. Form List Product

Figure 8 shows the product page view which contains a list of product data. There is a table containing the product name, name, price and product photo which contains the add product menu.

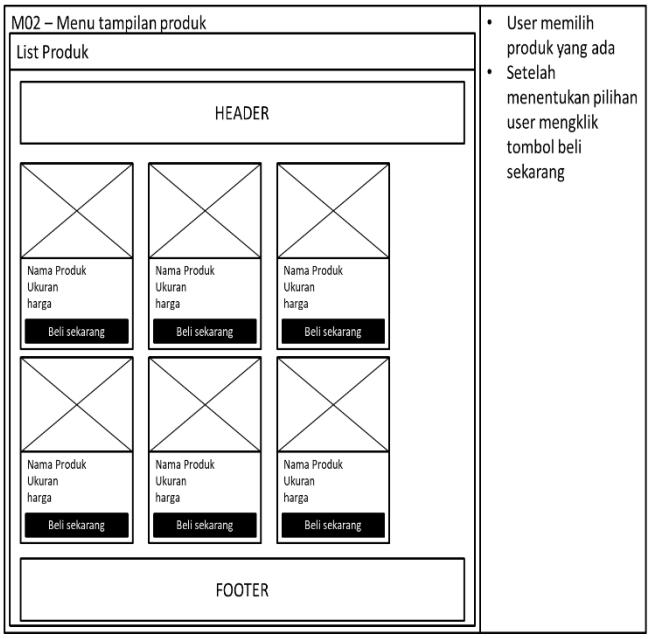

Figure 8. Form Data Product

Figure 9 shows the product checkout page which contains a list of product data consisting of product name, size, stock, product price and sender data consisting of sender name, sender address.

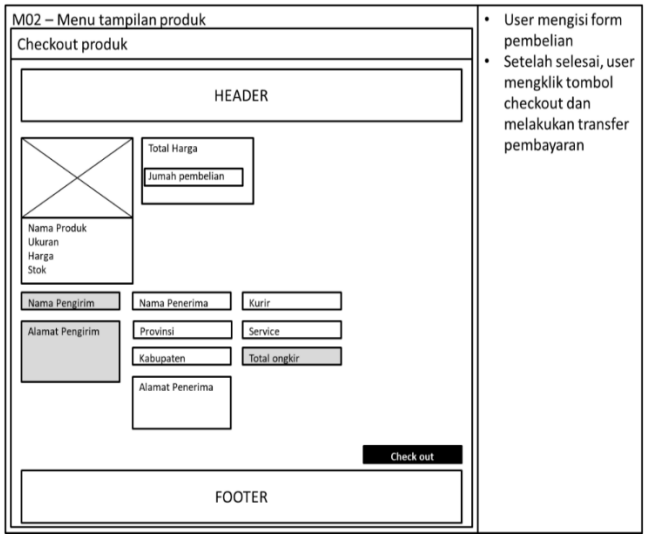

Figure 9. Form Checkout Produk

VI. CONCLUSION

Based on the results of the system developed, it is concluded that the sales information system for diva Cirebon stores for tire sales is that the system makes it easy to record, manage and store data on goods and transactions carried out. The system also helps minimize errors that can occur in transaction calculations, as well as facilitate the search for the desired data. The cashier system can also be used to check monthly reports which can be used for evaluation so that plastic stores become more advanced and profitable not only for sellers but also for customers.

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