

Point of Sale (POS) Application in Plastic Shops in Bumdes Ngarum Village, Sragen District Based on Website

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Abstract — Transaction sell buy at the shop plastic in village BUMDES Ngarum happen every day with large amount. In transactions sell buy during This Still carried out manually with _ write on note paper, then new do recap on the book transaction every the day. In doing data collection goods, shops Plastic in BUMDES Ngarum Village during This Still done manually, that is with write goods that come in and goods that go out in a book. System ongoing management _ done manually, create management goods become not enough effective and efficient, so needed something more system _ as effective as it can be accessed with fast and easy that is with develop Point of Sale (POS) application in stores plastic in village BUMDES Ngarum Regency Sragen Website based. Application Point of Sales (POS) cashier created use waterfall method. The waterfall method has 5 stages in construction, that is analysis requirements, design, development (coding), testing, and implementation. Results obtained that is web based Point Of Sales application that can make it easier recording, managing and storing data on goods and transactions carried out. The system also helps minimize possible errors _ occurs in the calculation transactions and make it easier in search for the desired data.

Keywords : POS, Waterfall Method, love system, website

I. INTRODUCTION

Development middle technology happen Now This succeed create developments in technology information in various fields, incl field trade. Technology information own impact positive, for example can increase efficiency and effectiveness in processing proper, accurate and fast administration _ with own objective as enhancement performance organization [1] .

Increasing use of the internet develop one way with development technology moment this, of course can utilized For designing get up system cashier based *website*. That matter naturally give Lots convenience for actors in the field trading especially entrepreneur. System Cashiers are also expected can give convenience in data processing.

Most transactions carried out Still use Manual systems also include data collection and storage. While doing search for stored data manually of course need a long time and cause risk high error. _ So that matter the cause Enough Lots problem Because error or possible negligence _ happen When just [2] . In order to streamline time and minimize happen error moment access existing data, then make it A design get up system information cashier. System the besides as tool transactions, also possible record data required by the shop.

One of the Micro, Small and Medium Enterprises (MSMEs) in Sragen that is form shop new plastic BUMDES Arjuna Bakti Karya just opened and needed A system cashier For can make it easier work and as form balancing against the times. Plastic shop need For system that can record available data, item data Enter, item data outbound, supplier data, sales data, and reports sale.

With there is a list of needs from shop plastic the then design it A design get up system information cashier with method *waterfalls* [3] as method its development. Planning A system information cashier This naturally aim For fulfil all over need from shop plastic. Benefits obtained _ from planning system information cashier the Of course obtained either by the developer nor client. Great hope If system Designed cashier _ has fully in accordance with desire shop plastic and can make it easier existing work. _

II. RESEARCH METHODS

The Point of Sales (POS) application developed by researchers uses a *waterfall approach* [4]–[8] . 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.

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 [9] , [10] .

Use case diagrams [11] 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.

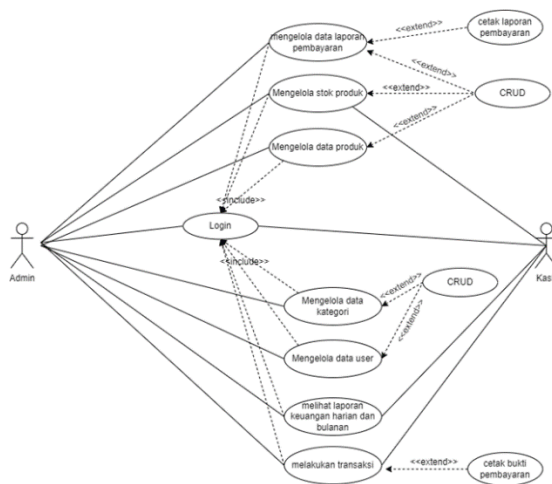


Figure 1. Use Case Diagram

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*.

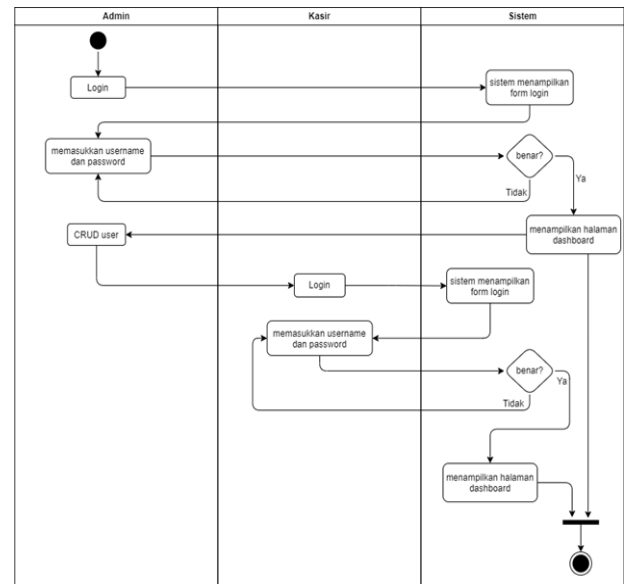


Figure 2. Activity Diagram

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.

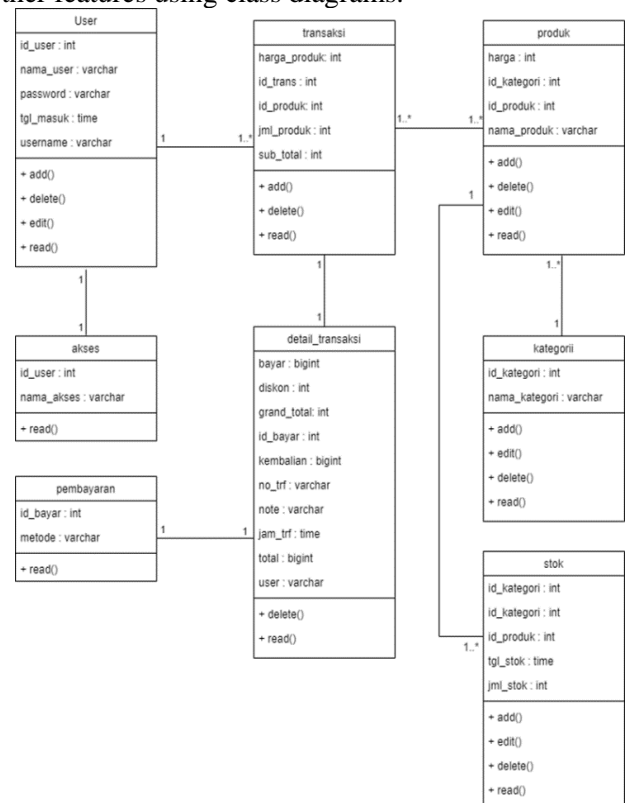


Figure 3. Class Diagram

c. 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.

d. 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.

e. 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. RESULTS AND ANALYSIS

Stages analysis that has been done previously succeed produce *Point Of Sales (POS) Application* with easy design _ For understood and used. Admin from system information cashier can access all over existing functionality _ inside it like *login*, supplier data, availability product, item data Enter, item data outgoing, sales data, reports sales, *user data*, transactions sales, and *log out*. Apart from that, admins can also do add data, edit data, and delete existing data. Whereas For *user* the cashier also has access almost functional _ The same with admin, except cashier No can access *user data*. System need *databases* For store information data required by the system.

Figure 4 shows appearance from page *databases* with Name *databases* dbkasir. *Databases* consists from nine table that is table *p_item*, *p_category*, *p_unit*, *supplier*, *t_sales details*, *t_jual*, *t_sales*, *t_stok*,

and user. Every tables that exist in the *database* own attribute.

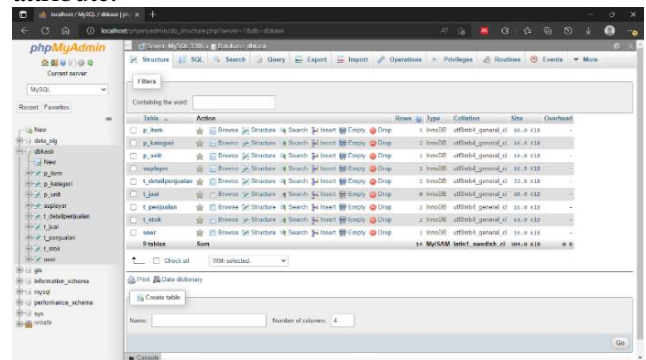


Figure 4. Figure database

Application functions required by the user above is as following :

Figure 5 shows bafi user login display. User logs in with Enter the username and password you have provided registered previously. Then press knob enter. If system displays *pop up* with information succeed do *login* then the *login* process has succeed. However conversely, if system displays *pop up* with information fail then the *login* process No succeed Because error enter *username* or *password*. Figure 6 shows appearance from page *dashboards*. When *user* succeed do *login*, system will leads to the page *dashboards*. On the page the containing the amount of data available on product items, supplier data, sales data, and user data. Besides that the page also contains statistics sale product bestseller of the month This.

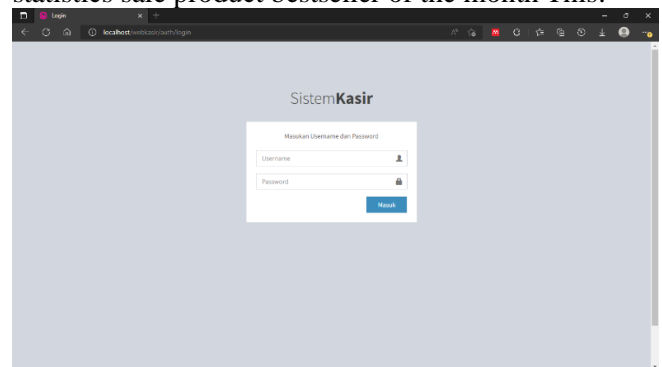


Figure 5. Figure login page

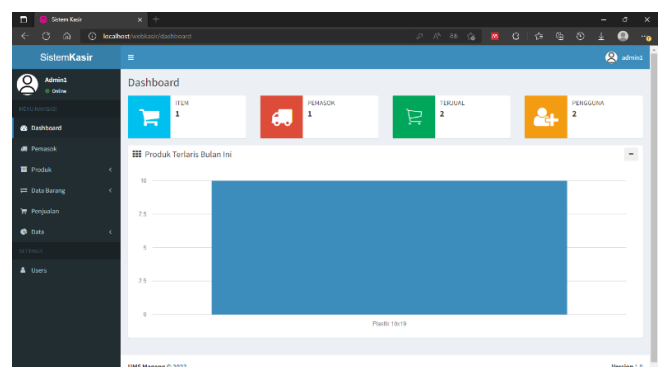


Figure 6. Dashboard figure

Figure 7 shows appearance page supplier which contains a list of supplier data product. There is table containing _ column number, name, number telephone, and a description containing the edit and delete menus. Figure 8 shows appearance the *form* used For add supplier data. Charging *form* with enter Name supplier, no telephone, address and information. Then click Save then the supplier data will added to the list.

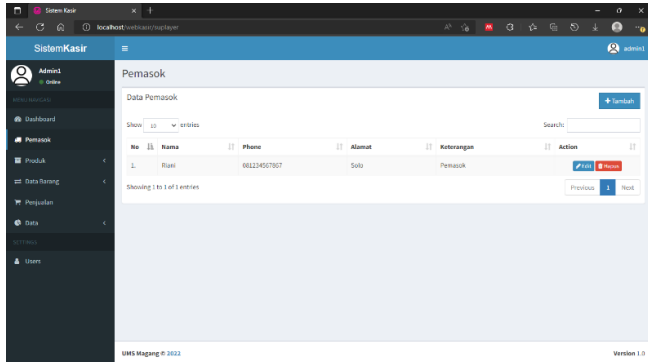


Figure 7. Supplier menu page display

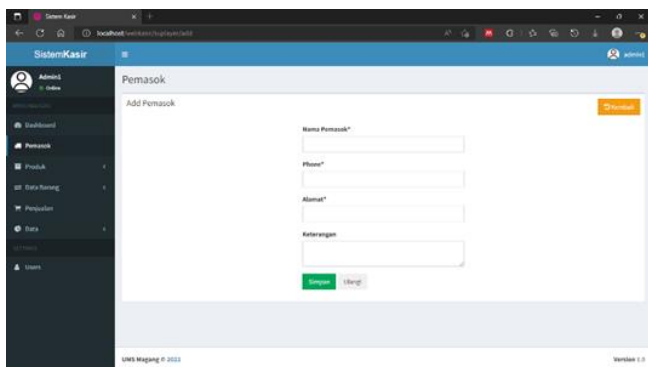


Figure 8. Display the form to add supplier data

Figure 9 shows appearance from *form* For edit existing supplier data. _ Enter the data you want changed Then click Save, then the data will be changed. Figure 10 shows appearance from the category menu product. the menu displays a list of category data product with table containing _ column number, name, and action consists of edit and delete. *Users* can add data with push Add and get do search for data in the *Search bar*. Figure 11 shows appearance from the product unit menu. the menu displays a list of product unit data with table containing _ column number, name units, and actions consists from edit and delete. Users can too Add product unit data with push Add and get do search for data in the *Search bar*.

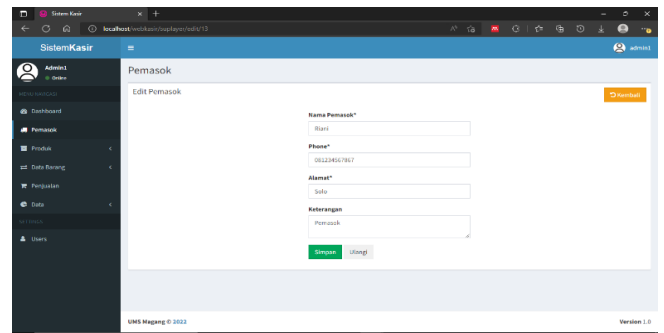


Figure 9. Display supplier data edit form

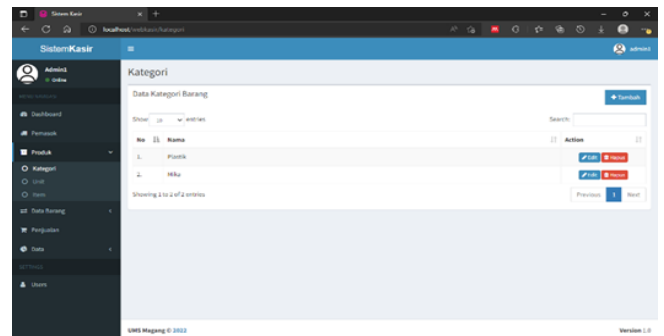


Figure 10. Product category menu page display

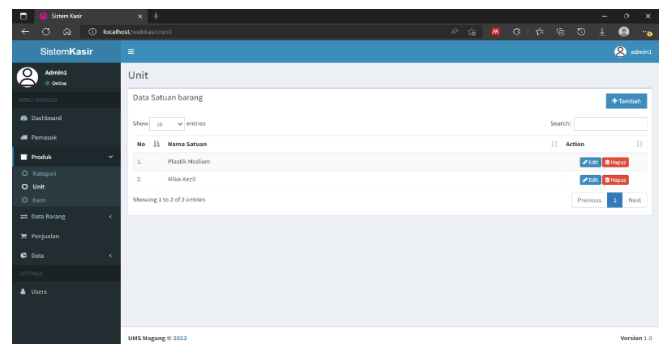


Figure 11. Display of the product unit menu page

Figure 12 shows appearance from the product items menu. the menu displays a list of product item data with table containing _ column number, code item, name, category, unit, price, stock, and action consists from edit and delete. *Users* can too add product item data with push Add and get do search for data in the *Search bar*.

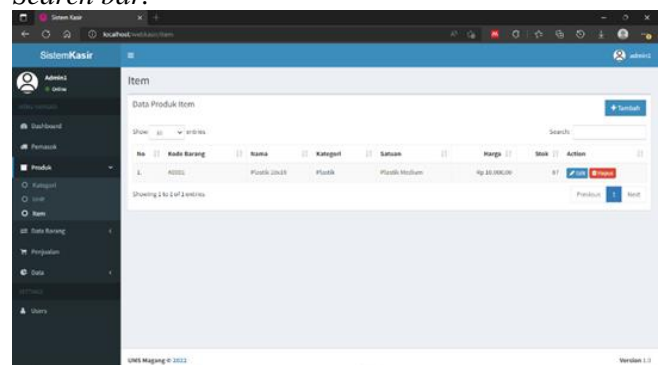


Figure 12. Product menu item page display

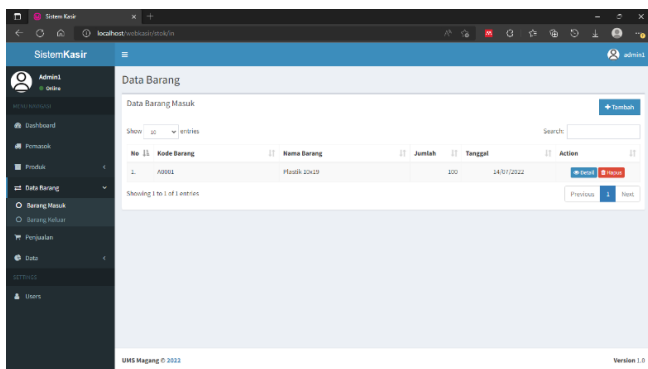


Figure 13. Display of the incoming goods data menu page

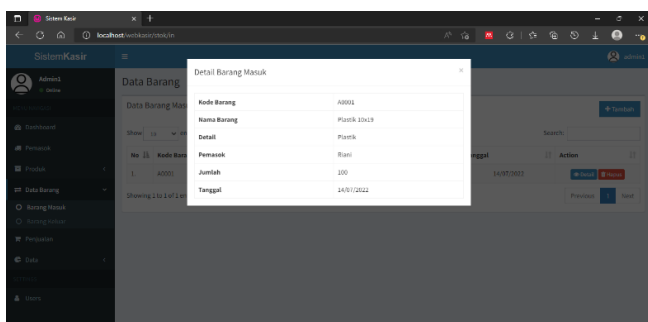


Figure 14. Detailed view of incoming goods

Figure 15 shows appearance from the item data menu go out. the menu displays a list of outgoing goods data with table containing _ column number, code item, name item, quantity, date, and action consists from details and delete. Users can too add item data go out with push Add and get do search for data in the *Search bar*. Figure 16 shows appearance from item details go out. These details is containing information _ code item, name item, details, quantity, and date.

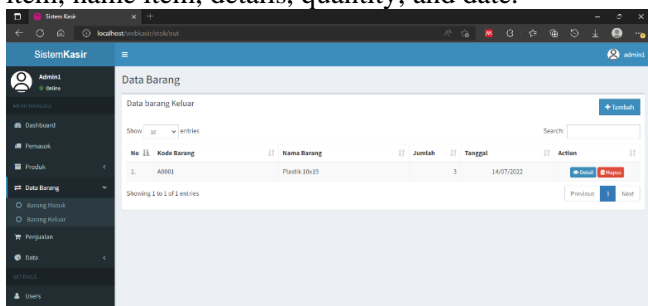


Figure 15. Display of the outgoing goods data menu page

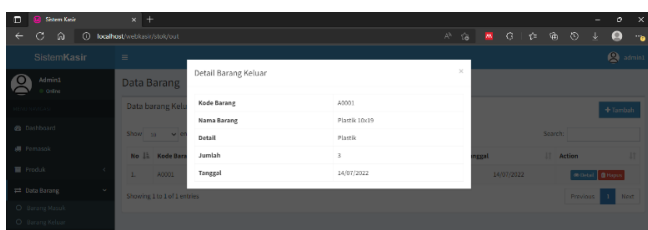


Figure 16. Detailed view of outgoing goods

Figure 17 shows appearance from the sales menu which is the menu used as recording sales data goods and records invoice purchase. Recording done with enter code goods sold and quantity _ Then click Plus For add to the purchase list. Piece price if there is and payment is also necessary added For can processed final total payment due _ paid. Figure 18 shows appearance page from the sales data menu. the menu displays a list of data from sale with table containing _ column number, invoice, date, total price, discount, price so, and action consists of detail and print. Users can too Add sales data with push Add and get do search for data in the *Search bar*.

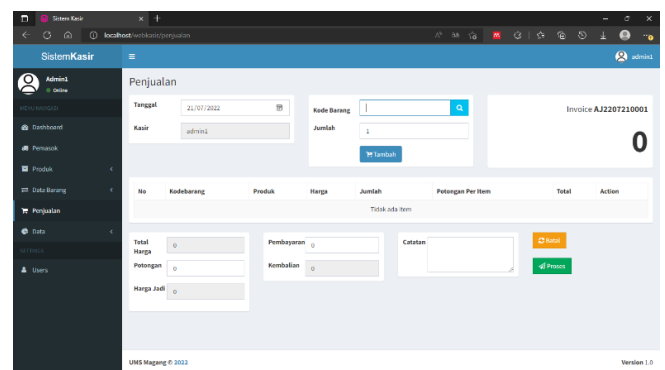


Figure 17. Sales menu page display

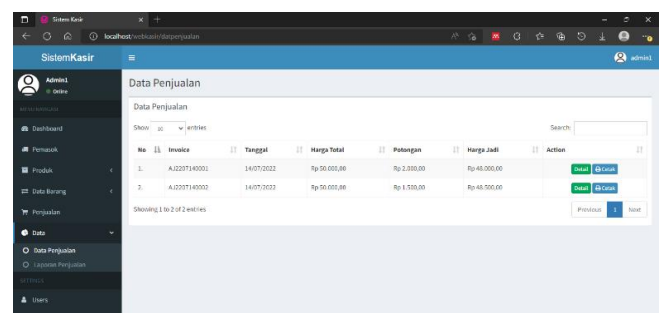


Figure 18. Display of the sales data menu page

Figure 19 shows appearance from detailed sales data. These details is containing information _ *invoice*, cashier, total, discount, price So, date, time, payment, change, notes, and product. Figure 20 shows appearance from print sales data. Print sales data is invoice printed purchases _ For given to buyer. Invoice the containing information contained in detailed sales data. Figure 21 shows appearance from the report menu sale. the menu displays a list of report data sale with table containing _ column number, *invoice*, date, total price, discount, price so, and action consists from print and delete. Users can do Search for data in the *Search bar* and filter reports existing sales _ with arrange the date you are looking for or enter *invoices*. Figure 22 shows appearance from the *user* menu which contains a list of

registered account data. Registered account _ the can do login to the system. User menu displays table containing _ column number, username, name, password, level, and action consists from edit and delete. Implementation appearance functional for the user cashier The same with appearance functional admin user. But at the cashier No there is a user menu which means cashier No can access a list of existing user data including No can edit and delete.

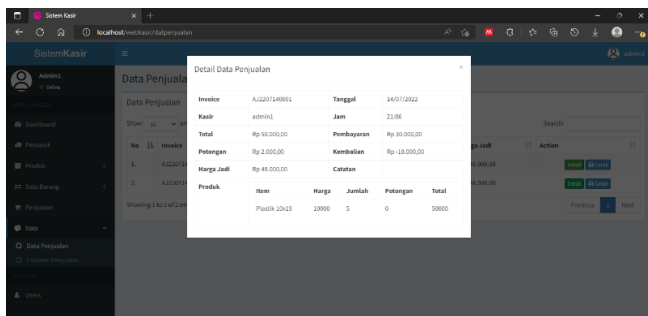


Figure 19. Detailed display of sales data

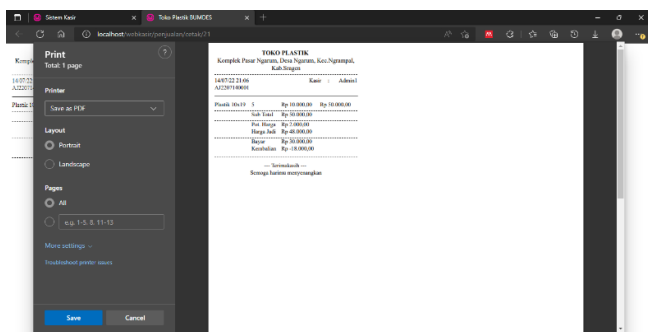


Figure 20. Sales data print display

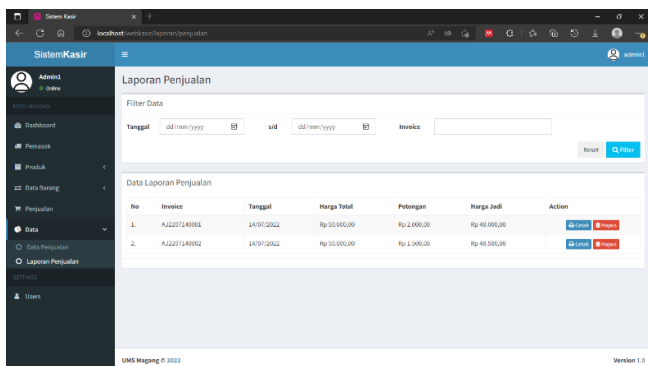


Figure 21. Sales report menu page display

Testing system done in accordance method that has been mentioned above _ that is with use testing black box. The purpose of testing For know success functional outline. _ _ Testing carried out during the login process and sales data recording process.

Table 1. Testing the login process

Action	The results expected	Test result	Conclusion
Log in user	dashboard menu display will appear appear	dashboard menu display appears	Valid
Empty fill in the data then click Sign in	System reject and display pop up "Please fill out this field"	System walk in accordance with its function	Valid
Just fill in your username or data password then click Sign in	System reject and display pop up "Please fill out this field"	System walk in accordance with its function	Valid
Username or the password was entered incorrectly then click Sign in	System reject and display pop up description login fail.	System walk in accordance with its function	Valid

Based on Table 1 it can be is known that testing the login process succeed walk as expected. _ Valid information means that tested functional _ succeed executed. There is four actions tested in testing the login process.

Table 2. Testing the sales data recording process

Action	Expected results	Test result	Conclusion
Enter code goods and quantities Then click Plus	Added data succeed Enter in the item list table	System walk in accordance with its function	Valid
Enter payment Then click Process	System displays pop up "Sure you are will processing transaction This ?" For confirm transaction	System walk in accordance with its function	Valid
Didn't enter payment Then click Process	System displays pop up " Payment Not yet input, please input payment moreover formerly !"	System walk in accordance with its function	Valid

Based on Table 2 it can be is known that testing the process of recording sales data succeed walk as expected. _ Valid information means that tested functional _ succeed executed. There is three actions

tested in testing the process of recording sales data. This is the process that follows will can printed as invoice purchase.

IV. CONCLUSION

Based on the results of the system developed, a conclusion was drawn regarding the BUMDES Arjuna Bakti Karya Sragen plastic shop cashier information system, namely that the system makes it easier to record, manage and store data on goods and transactions carried out. The system also helps minimize errors that can occur in transaction calculations, and makes it easier to search for the desired data. The cashier system can also be used to check monthly reports which can be used for evaluation so that the plastic shop becomes more advanced and profitable not only for *the seller* but also for *the customer*.

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