

Design of Web-Based Point of Sale Information System at Inti Peraga Mandiri

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Abstract: Inti Peraga Mandiri is a business engaged in the sale of school teaching aids starting from kindergarten to high school levels. In carrying out its business, it is necessary to collect data, so that all types of transactions that occur can be monitored and checked by cashiers and business owners. The manual data collection process can be done, but the manual process has many shortcomings that can later cause losses for business owners. Based on these problems, this research focuses on building an automated Point of Sale (POS) system so that it can reduce misinformation and can help business owners in managing the flow of their business. POS is an application system applied to shops or supermarkets to handle the processing of data on purchase transactions, retail sales transactions, purchase return transactions, and transaction reporting which is generally important in making strategic decisions by self-service businesses, organizations, or small and medium-sized companies. The POS system is built on a web-based using the Waterfall model development method and system design using Unified Modeling Language (UML) diagrams. The results of this study get a POS system that has been developed and can carry out the transactions process, management of goods category, management of goods, manager of purchases, user management, and sales reports. Based on these results, it can be concluded that the point-of-sale system is running well and to the needs of business owners so that it can help develop their business.

Keywords: POS(Point Of Sale), UML, Waterfall

1. Introduction

The development of technology in the modern era is currently experiencing very rapid progress, where everyone can find various technologies in various fields around human life, one of which is the existence of information technology [11]. Inventory management is an activity carried out in maintaining the optimum amount or quantity of each inventory item [8]. Inventory can be interpreted as goods obtained by the company to be sold or further processed to run the company [9].

POS (point of sale) system is an application system applied to minimarket or shop businesses to handle the processing of purchase transaction data (purchases), retail sales transactions (retails), purchase returns transactions (purchase returns), and transaction reporting (reporting) which is generally important in making strategic decisions by self-service business people, organizations, or companies on a small and medium scale [12]. The establishment of the point of sale application system can provide better service to consumers, as in the calculation of prices and the number of goods purchased can become faster and the quantity of goods no longer depends on manual recording [4]. Therefore, a company must have an automated system so that it will be more effective and reduce misinformation [6].

Several researchers have conducted research on the point of sale system, among others, the results obtained with the existence of a web-based point of sale application system on UD. Es Drop Cita Rasa Trenggalek, can avoid messy sales data and messy sales reports. In addition, it can also provide ease for user admins in managing sales data, reporting sales data, and searching for sales data for goods on UD. Es Drop Cita Rasa. Seeing the point of sale system built can help UD. Es Drop Cita Rasa, the researcher took the concept of point of sale and added a recapitulation of the report on an annual basis and added a graph [2]. Other studies with results obtained from the results of observation techniques and interviews conducted periodically produced 33 functional needs. The functional needs analysis in the form of looking at sales reports, products, and stocks solves the rm owner's problems in obtaining important information about what happened to the restaurant. While on functional needs see the order queue helps kitchen users in preparing food orders in a more organized manner. Looking at the point of sale system built can help RM. Pecel Pincuk Bu Tinuk, the researcher took the concept of point of sale

and added a discount feature to the transaction. From the previous research presentation, the scientific contribution was to add a discount feature, add a recapitulation of the report annually and add graphs [10].

Based on the background description that has been explained, the purpose of creating a point of sale system is to assist entrepreneurs in managing the transaction process, collecting goods, user management, and making accurate reports to provide good benefits for entrepreneurs in making decisions to develop their business.

2. Methods

The software development method used in this study is a waterfall method that has successive stages ranging from analysis, design, coding, testing and supporting stages, but in this study, it only reaches the testing stage. Meanwhile, the system development method uses the OOAD (object-oriented analysis design) method which emphasizes the object approach.

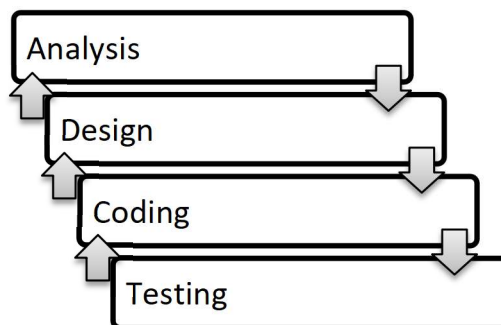


Figure 1. Research Methods

2.1. Time and Place of Implementation

The time and implementation of this research were carried out within a period of 6 months starting from January 1st to August 1st, 2022, located on Ahmad Yani Street, Pekanbaru as the object of research and data collection related to the system to be built.

Table 1. Time and Conduct of Research

Information	Detail
Time	January 1st – August 1st, 2022
Place	Inti Peraga Mandiri
Address	Ahmad Yani Street

2.2. Analysis of Running Systems

From the results of the author's interview with the admin or business manager, Zia is the manager who is in charge of system matters on sales. The following is an explanation of the currently running system:

1. Incoming goods
When the goods come in, the manager will record each item and enter it on the general ledger, every detail of the item is recorded.
2. Sales
After the incoming goods are recorded every item in the general ledger and then ledger will be stored by the head of the warehouse who is in charge of the ledger
3. Outgoing goods
When the goods are about to come out, it is recorded again what items will come out into the ledger, namely, the date of exit, goods, type, and destination.
4. Officers make recapitulated reports
The warehouse head will make monthly reports in the form of incoming goods and goods out of the month from the data that has been obtained from the ledger.

2.3. Needs Analysis

Software needs analysis is an activity to obtain information, models, and system specifications desired by the user. Software needs analysis can also be said to be the process of determining the limitations that can be

done by the system and in its implementation, this is done so that all functions can be coordinated properly and run appropriately [13]. The following is an analysis of the needs of the system to be built:

1. The company wants information related to warehouse goods to be accessed easily and quickly.
2. The company hopes that the system can print reports per day.
3. The company hopes that the new system can support the performance of the warehouse, especially the warehouse section

2.4. User Case Diagram

Use Case Diagram consists of actors, use case, and their relationships. Use case diagrams are important for specifying, describing, and documenting system behavior. Use case diagrams are used to describe what activities an actor can perform on a running system or what conditions must be met by the system from the point of view of the actor or system user. The proposed new system to be built can be seen in the use case picture in the following diagram:

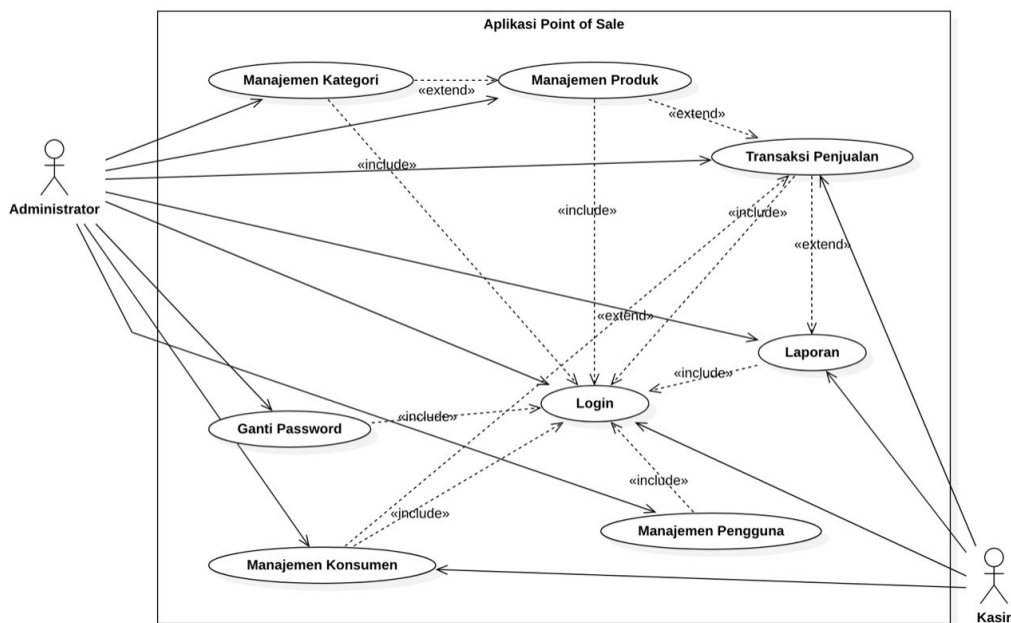


Figure 2. Usecase Diagrams

2.5. Class Diagram

The class diagram serves to describe the classes contained in the system and their relationships logically. The creation of the diagram class at this stage is a complete description of the classes handled by the system, where each class is equipped with the necessary attributes and operations. Diagram classes can provide a broad view of a system by showing its classes and their relationships. The class diagram on the inventory administration information system can be seen in the image below:

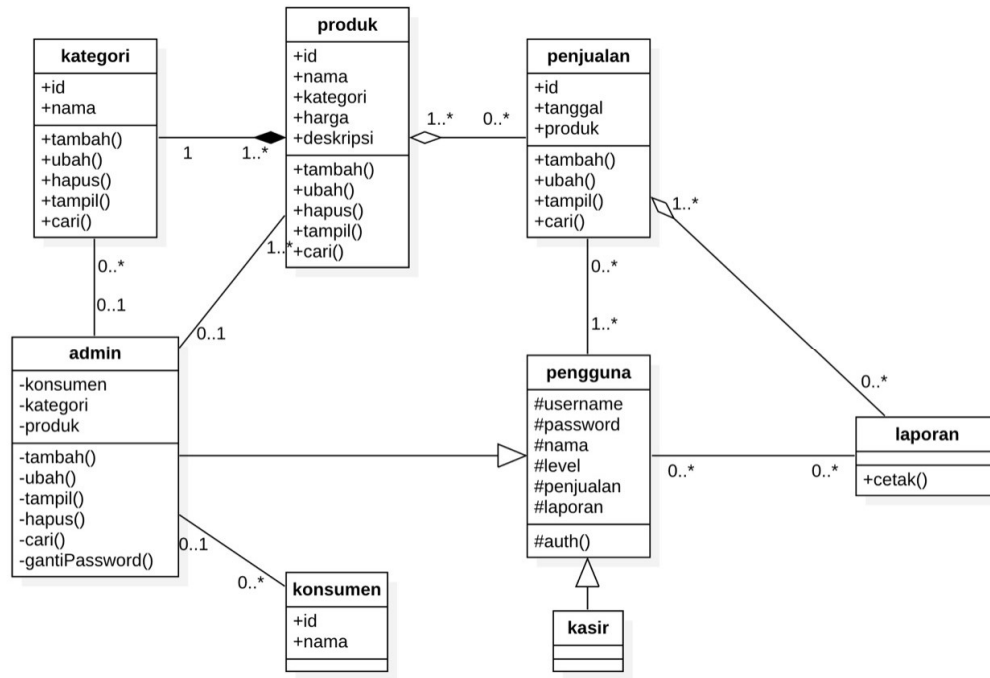


Figure 3. Class Diagram

3. Result and Discussion

The result is an implementation of the design that has been done before so that the system can be functioned and be managed in its actual state and it can be known whether the developed system has succeeded in achieving the desired goal. Based on the stages in the waterfall method that have been passed, a POS information system is produced which in the process of developing the system uses object-oriented analysis or OOAD. It is hoped that later the system can manage sales data at inti Peraga Mandiri and assist business owners in disseminating information related to sales transactions to employees.

3.1. Login Page

The login page is the start page in the system, where before the actor enters the system must first carry out the login process by entering the username, and password and choosing access rights as an administration or cashier. The login page can be seen as shown below:

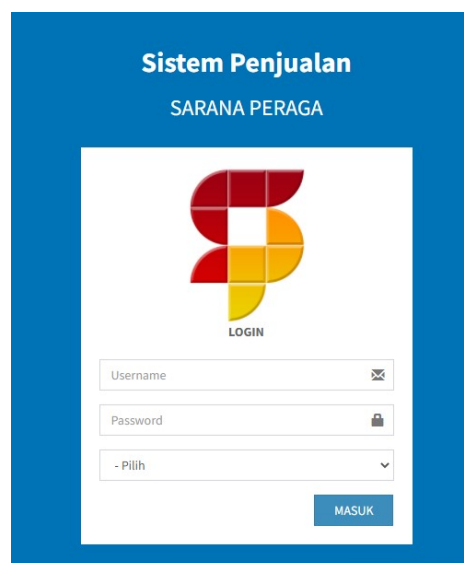


Figure 4. Login Page

3.2. Dashboard Page

The dashboard page is a page where the actor in this case an admin or cashier can see information on sales data today, monthly, yearly, overall sales, and users on the system. The dashboard page can be seen in the image below:



Figure 5. Dashboard Page

3.3. Sales Input Page

The Sales Input page is a page where the actor in this case an admin or cashier can enter a list of product purchases. The Sales Input page can be seen in the picture below:

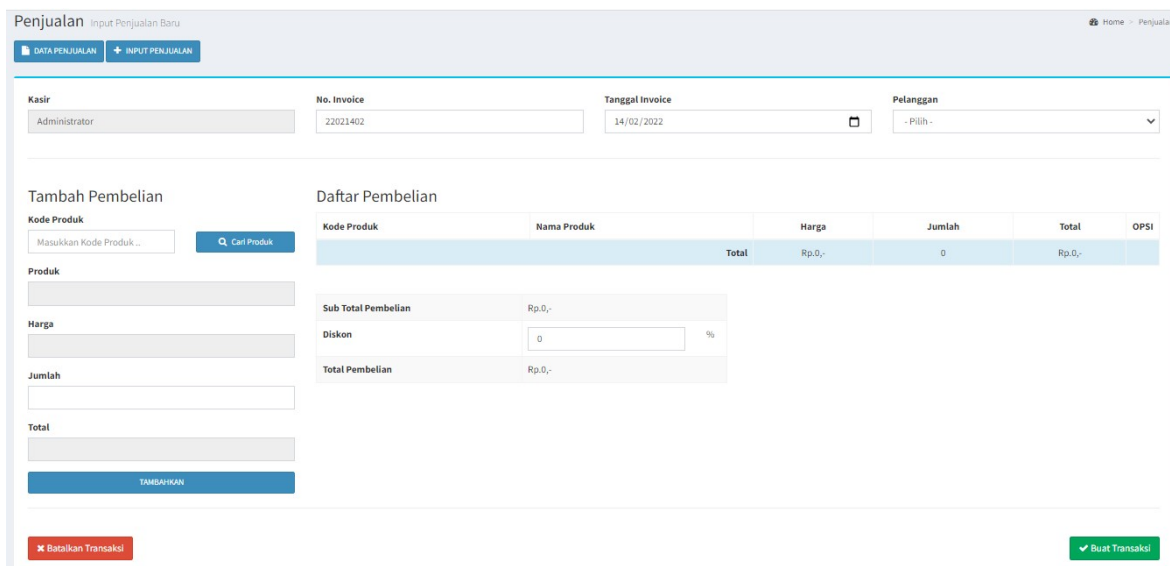


Figure 6. Sales Input Page

3.4. Cashier Input Page

The Cashier Input page is a page where the actor in this case an admin can add a new Cashier user. The Cashier Input page can be seen in the picture below:

The screenshot shows the 'Tambah Kasir' page in the POS system. The page has a blue header with navigation links: POS | Point Of Sales, DASHBOARD, MASTER DATA, PENGGUNA, PENJUALAN, LAPORAN, and GANTI PASSWORD. The user is logged in as Administrator - ADMINISTRATOR. The main content area is titled 'Kasir' and 'Tambah Kasir Baru'. The form includes fields for Nama, Username, Password, and Foto (with a 'Choose File' button). A 'Simpan' button is at the bottom. Footer text includes 'Copyright © 2022 - Sistem Informasi Penjualan Kasir - POS (Point Of Sales)' and 'Version 1.0'.

Figure 7. User Input Page

3.5. Product Input Page

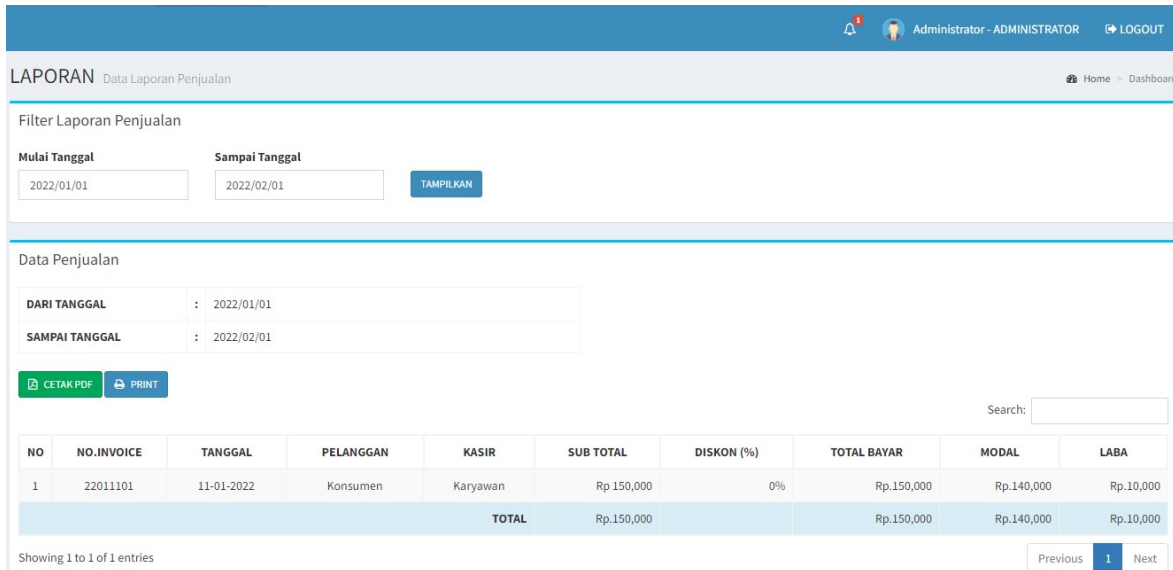
The Product Input page is a page where the actor in this case an admin or cashier can enter new product data. The Product Input page can be seen in the picture below:

The screenshot shows the 'Tambah Produk' page in the POS system. The page has a blue header with navigation links: POS | Point Of Sales, DASHBOARD, MASTER DATA, PENGGUNA, PENJUALAN, LAPORAN, and GANTI PASSWORD. The user is logged in as Administrator - ADMINISTRATOR. The main content area is titled 'Produk' and 'Tambah Produk Baru'. The form includes fields for Kode Produk, Nama Produk, Satuan, Kategori, Stok, Harga Modal, and Harga Jual. A 'Simpan' button is at the bottom. Footer text includes 'Copyright © 2022 - Sistem Informasi Penjualan Kasir - POS (Point Of Sales)' and 'Version 1.0'.

Figure 8. Product Input Page

3.6. Report Page

The Report page is a page where the actor in this case an admin or cashier can enter sales date data per period. The Report page can be seen in the image below:



The screenshot shows a web interface for a sales report. At the top, there is a navigation bar with a notification icon, a user profile icon, and the text 'Administrator - ADMINISTRATOR' and 'LOGOUT'. Below this is a breadcrumb trail: 'LAPORAN Data Laporan Penjualan' with links for 'Home' and 'Dashboard'. A filter section allows selecting 'Mulai Tanggal' (2022/01/01) and 'Sampai Tanggal' (2022/02/01), with a 'TAMPILKAN' button. The main content area is titled 'Data Penjualan' and includes a summary box with 'DARI TANGGAL: 2022/01/01' and 'SAMPAI TANGGAL: 2022/02/01', along with 'CETAK PDF' and 'PRINT' buttons. A search bar is present on the right. The data is presented in a table with the following columns: NO, NO.INVOICE, TANGGAL, PELANGGAN, KASIR, SUB TOTAL, DISKON (%), TOTAL BAYAR, MODAL, and LABA. The table contains one entry for invoice 22011101 on 11-01-2022, with a total of Rp.150,000, a 0% discount, total payment of Rp.150,000, modal of Rp.140,000, and laba of Rp.10,000. A 'TOTAL' row summarizes these values. At the bottom, it indicates 'Showing 1 to 1 of 1 entries' and has 'Previous', '1', and 'Next' navigation buttons.

NO	NO.INVOICE	TANGGAL	PELANGGAN	KASIR	SUB TOTAL	DISKON (%)	TOTAL BAYAR	MODAL	LABA
1	22011101	11-01-2022	Konsumen	Karyawan	Rp.150,000	0%	Rp.150,000	Rp.140,000	Rp.10,000
TOTAL					Rp.150,000		Rp.150,000	Rp.140,000	Rp.10,000

Figure 9. Report Page

4. Conclusions

Based on the results of the design of the Point Of Sale(POS) system that has been successfully built and the tests that have been carried out, it can be concluded that POS system can help business owners and cashiers in managing the flow of their business. POS system that has been developed provides convenience in processing transactions, managing product categories, product management, profit information per day, month and year, user management and report formation. Where it can help in the business development process. In further research, point of sale systems can be developed by adding barcode features, integrated databases and designed into mobile applications.

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