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Design of a Cashier Application for Pak Pak Pharmacy Based on Android

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Abstract

The advancement of information technology has encouraged business owners, including pharmacy stores, to shift from manual systems to digital solutions to improve operational efficiency and accuracy in data recording. Toko Obat Pak Pak previously relied on manual transaction and inventory management, which was prone to errors and delayed reporting. This study aims to design and develop an Android-based cashier application to simplify sales transaction recording, medicine stock management, and the automatic generation of daily and monthly sales reports. The development method used is the System Development Life Cycle (SDLC) with the waterfall model, utilizing Android Studio as the IDE, Java as the programming language, and SQLite as the local database system. The resulting application includes key features such as transaction processing, inventory management, sales reporting, and low-stock notifications. The testing results show that the application enhances transaction efficiency, minimizes recording errors, and provides accurate and real-time reporting. Thus, this application serves as an effective digital solution to replace the manual system at Toko Obat Pak Pak and supports better business decision-making.

Keywords: *Cashier Application, Android, Pharmacy Store, SQLite, SDLC, Sales Transactions*

1. Introduction

The rapid development of information technology has encouraged various business sectors, including drug stores, to adopt digital systems to improve operational efficiency and service quality. However, many small and medium-sized drugstores still rely on manual recording in the transaction process and stock management, which is vulnerable to recording errors, data loss, and delays in financial reporting. For example, research by Mulyani et al. (2022) shows that manual management of drug sales and inventory can cause losses due to miscalculations and inefficiencies in Drug Store operations. To overcome these problems, they designed and built an Android-based drug sales and inventory application using the Extreme Programming (XP) method, which has been proven to make it easier for Drug Store employees to make notes, manage sales data, and check drug inventory.

Faizal et al. (2023) developed an Android-based cashier application for Pharmacy Nayla which previously used a simple cashier service with calculators and manual recording. The developed application is able to automatically calculate transactions, store sales data, and issue payment receipts using Bluetooth printers, reducing miscalculations and loss of sales data. Kaharu (2023) designed a drug sales data management application in a mobile-based Drug Store using the System Development Life Cycle (SDLC) waterfall model. The app is designed to provide the convenience of efficiently recording, processing, and tracking drug sales data, with an intuitive and responsive user interface.

Based on these studies, it can be concluded that designing Android-based cashier applications in drug stores can improve operational efficiency, reduce recording errors, and speed up the transaction process. Therefore, this research aims to design and build a cashier application at the Android-based Pak Pak Drug Store, which is expected to help stores manage sales transactions, drug inventory, and financial reports more effectively and efficiently. Therefore, the author will make a research entitled "Designing Cashier Applications at Android-Based PAK PAK Drug Stores".

The author assesses relevant data, information, and design techniques based on user needs and real conditions at Pak Pak Drug Store. This Android-based cashier system is designed to replace manual methods that have been used with the aim of improving efficiency, accuracy, and transparency in transaction recording, stock management, and financial reporting. With an approach that focuses on the operational

needs of the Drug Store, this system is expected to be able to facilitate a more organized work process and support fast and precise decision-making.

Before starting the system development stage, the author first conducts a conceptual analysis by creating a flowchart, data flow chart (DFD), and database structure analysis to make it easier for the author and readers to understand the work process of the system to be developed. At this stage of the research, it is hoped that the Android-based cashier application at the Pak Pak Drug Store can run more systematically, effectively, and in accordance with the needs of users in supporting the operation of the Drug Store optimally.

2. Research Method

This research begins with a problem analysis. This analysis includes the presentation of the condition of the store as the object of research, the ongoing business process, the identification of the weaknesses and advantages of the manual system currently used, and the proposed development of the system as a solution to the existing limitations. This study aims to provide a comprehensive overview of the need for a cashier application system that is more efficient, practical, and adaptive to current information technology developments.

Furthermore, an analysis of the process that runs according to the field is carried out. The process takes place using manual methods based on handwriting notes without the support of application systems or digital devices. All cashier activities are still carried out conventionally, starting from price recording, total purchase calculation, to stock management and sales reports.

The researcher designed an Android-based cashier application that makes it easier for Pak Drug Store officers to record and monitor sales transactions and stock management Real-time. The developed application is integrated with an online database so that the process of recording incoming and outgoing goods is carried out automatically, accurately, and efficiently. The transaction process and stock management can be done through a user-friendly application interface and can be easily accessed through a smartphone device. In addition, the app provides sales report features, product data search, and low stock notifications, which aim to improve operational efficiency and transparency in drug store management.

In making cashier applications at Pak Pak Drug Stores, a system design is needed that functions as a guideline in building applications in a structured manner, both in terms of software and process flow. Flowcharts are needed to understand the workflow of the application to be developed. When the app is launched, users will interact through an Android-based interface to enter, manage, and access transaction data and drug stock. Data entered into the application, such as product name, stock quantity, and price, will be sent to the server and stored in the database in real-time. All components in this system are integrated with each other, from the user interface, the management of transaction and stock data, to the information storage process. This cashier application not only functions as a data input medium, but also as a tool to display data in the form of sales reports, stock recapitulations, and inventory notifications.

In the design of the Android-based cashier application at the Pak Pak Drug Store, a local database is needed as a place to store data input by the user so that it can be processed and displayed by the application directly without relying on an internet connection. This local database allows applications to run offline so that sales transactions and stock management can still be carried out smoothly. In the development of an Android-based cashier application at the Pak Pak Drug Store designed by researchers, software design is a very important first step. The design of an Android-based cashier application consists of a home menu, a transaction menu, a stock menu and a report menu.

The Home page is the main page that is first accessed by users after successfully entering the Android-based Pak Drug Store cashier application. This page is designed to be an initial information hub that provides a concise overview of the store's operational activities in real-time. Some of the important information displayed includes a summary of sales on the current day, the number of transactions that have been made, and notifications related to drug stock that is close to the minimum limit. By presenting data directly and easily understandable, the Home page helps users to immediately know the current state of the store without the need to open other menus separately.

The Transaction Page is an important part of the Android-based Pak Drug Store cashier application which is used by users, especially cashiers, to carry out the sales recording process directly. On this page, the cashier can select the products that customers buy from the available list, determine the quantity or quantity of goods they want to buy, and see the unit price of each product clearly. The transaction page design is designed to make the recording process quick and easy, thereby reducing customer waiting time and improving service efficiency in the store.

The Stock Page is one of the main features that has a very important role in the Pak Pak Drug Store cashier application, especially in order to manage and monitor drug supplies effectively and accurately. Through this page, users can carry out various important activities directly related to drug stock management, ranging from the process of entering new drugs into the system, editing or updating existing stock data, to checking the availability of goods in real-time. The user-friendly interface design on the Stock page is designed in such a way that it makes it easier for users to update information related to inventory quickly and accurately, so that the data stored in the system always reflects the actual physical condition of the inventory in the field.

The Report Menu page is one of the important features that can be accessed by users after successfully entering the Android-based cashier application of the Pak Pak Drug Store. This feature serves as an information center that displays data and a summary of sales results in a complete and structured manner. With this menu, store owners and managers can easily monitor sales performance over various time

periods, ranging from daily, weekly, to monthly reports. The systematic presentation of data makes it easier to conduct sales analysis, so that it can identify trends, best-selling products, and evaluate the business strategy that is being run.

3. Result and Discussion

The Android-based cashier application developed in this study is a digital solution to the transaction recording system and stock management which was previously still carried out manually at the Pak Pak Drug Store. The results of the development and testing process show that this application is able to improve the overall efficiency of store operations, both in terms of customer service, stock management, and sales reporting. One of the main advantages of this application lies in the efficiency of the transaction process, where the system automatically calculates the total payment and records sales data into a local database. This not only speeds up the service process, but also minimizes miscalculations and reduces customer queue times.

In addition, the app features *real-time stock management that* allows store owners and cashiers to easily monitor the stock amount, price, and expiration date of medications. The existence of notifications when stocks are low is also an added value in preventing empty goods and maintaining product availability continuity. System discussion In terms of ease of use, the application interface is designed simply and intuitively using XML, while the program logic is developed in Java. This design keeps the app lightweight and responsive, and it can be operated easily by users who don't have even a technical background.

Another advantage is the ability of applications to operate offline thanks to the use of SQLite as a local database. This allows the app to continue running even without an internet connection, which is certainly very useful for small-scale stores with limited network access. In addition, the app also supports automatic integration of product and transaction data. The cashier can add new products directly through the app without the need for additional configuration, and the data will be directly connected to the stock and transaction menus, thus ensuring data consistency and accuracy.

Overall, the application has proven to be able to answer various challenges in the manual system that was previously used. By presenting an efficient, structured, and easy-to-use system, this application makes a significant contribution to improving the accuracy of record-keeping, reducing cashier workload, and providing data that supports accurate and fast business decision-making at Pak Pak Drug Store.

3.1. Home Menu

The home page is a key component of the cashier app that serves as the initial display after the user successfully logs in. On this page, users can see a summary of important information related to store operational activities, such as today's total sales, the number of transactions that have been made, and notifications of drug stock that is close to the minimum limit. The main function of the home page is to provide quick access to other key features such as transactions, stock management, and sales reports.

In the context of an Android-based cashier application at Pak Pak Drug Store, the home page has an important role in providing users with an overview of the latest sales and inventory conditions. This real-time displayed information helps users, both cashiers and store owners, in making the right decisions quickly and efficiently.
The appearance of the home page interface in the application that has been developed can be seen in the following Figure 1 :

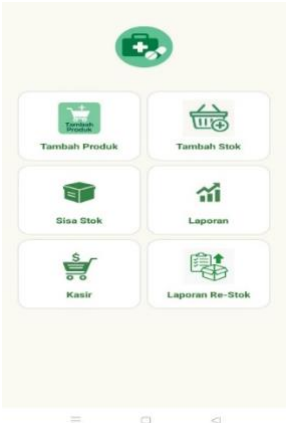

Fig 1. Home Menu

3.2. Transaction Menu

The transaction menu page is a key feature in the Android-based cashier application that is used to record sales quickly and automatically. Users can select products, determine the purchase amount, and the system will calculate the total price automatically. Transaction data is then stored in a database for record-keeping purposes.

In the Pak Pak Drug Store cashier application, this menu makes it easier for cashiers to serve customers without manual recording, reduce errors, and allow receipt printing as proof of transactions. This menu is the center of daily sales activities in the store.

The interface of the transaction menu page on the application that has been developed can be seen in the following Figure 2:

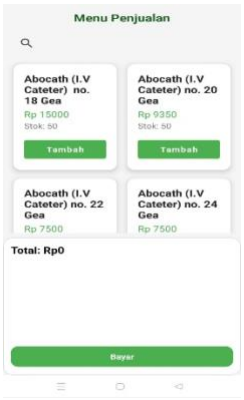

Fig. 2: Transaction Menu

3.3. Stock Menu

The stock menu page is a feature in the cashier application used to manage drug inventory data at the Pak Pak Drug Store. Through this page, users can add, edit, or remove product information such as drug name, stock quantity, price, and expiration date. This feature helps ensure that the availability of goods is always properly monitored.

With the stock menu page, owners or cashiers can know the condition of inventory in *real-time* and take immediate action if stock runs low. This structured stock management aims to avoid shortages and excess goods, so that store operations can run more efficiently and controlled.

The interface of the stock menu page in the developed application can be seen in Figure 3 below:

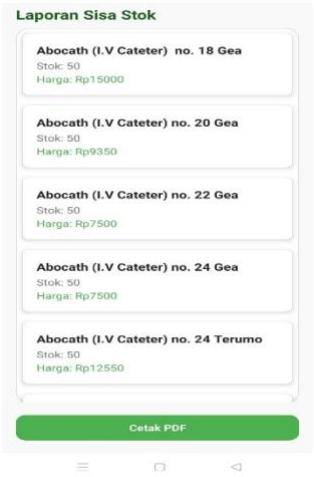

Fig. 3: Stock Menu

3.4. Report Menu

The report menu page is a feature in the cashier application that functions to present sales data in the form of a structured and easy-to-understand summary. Through this page, users can view daily, weekly, or monthly sales reports, including transaction details such as products sold, amounts, and total revenue.

In the Pak Pak Drug Store cashier application, this page makes it easier for store owners to monitor sales performance regularly and become a basis for business decision-making. With reports that are presented automatically, users no longer need to compile reports manually, so that time and effort can be saved with more accurate results.

The interface of the stock menu page on the application that has been developed can be seen in the following Figure 4:

Fig. 4: Report Menu

3.5. Additional Product Menu

A product add-on page is a feature in the cashier app that is used to enter new product or drug data into the system. Through this page, users can fill in important information such as product name, price, initial stock quantity, and expiration date. The data entered will be immediately stored in the database and automatically integrated with the stock menu.

In the Pak Pak Drug Store cashier application, this page makes it easier for cashier or admin to update the list of products available in the store without having to change the data manually. This feature is essential to keep inventory data accurate and ensure that every product sold is properly recorded in the system.

The appearance of the product additional page interface in the application that has been developed can be seen in the following Figure 5:

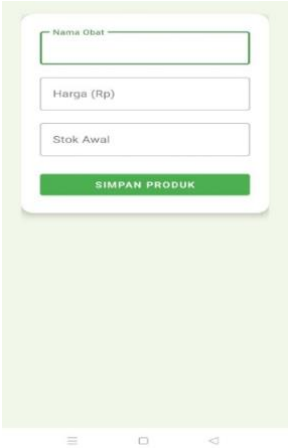

Fig. 4: Product Page

Notification Page

The Notification page is a feature in the cashier application that automatically displays notifications if the stock of a product or drug is low, especially when the number of stock left is less than 10 units. This feature is designed to help cashiers or admins monitor the availability of goods in the store in real-time without having to check individually.

With this page, users will immediately get a notification every time the product stock reaches the minimum limit, so that reprocurement can be carried out immediately. This feature plays an important role in maintaining product availability, avoiding empty goods, and ensuring that sales operations at Pak Pak Drug Stores run smoothly.

The appearance of the product additional page interface in the developed application can be seen in Figure 6 below:

Fig. 5: Notifications Page

4. Conclusion

The Android-based cashier application is designed to replace the manual system that has been used, by providing an automatic, fast, and accurate sales transaction recording feature, thereby increasing the efficiency of store operations. The in-app drug stock management feature helps users monitor the availability of goods in *real-time***,** simplify the process of adding or decreasing stock, and avoid recording errors or data loss**.** The integrated sales report system provides a complete and easy-to-understand summary of daily and monthly sales data, making it easier for store owners to evaluate and make more informed business decisions.

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