Pharmacy Inventory System Design Using Agile Methods

Frisi Atika[1], Deddy Irwan[2]
[1,2]Department of Information System, Universitas Harapan Medan, Indonesia

ABSTRACT

Currently, the information system has been used by many companies / agencies in Indonesia. All activities will be properly managed by the system, so that they will be more effective and efficient. And now, pharmacies also need systems that can control data properly. Every day there are people who need medicine, therefore pharmacies can be used as a profitable business ingredient. The pharmacy business must have a good system, so that the business can move forward and get a large turnover. The purpose of this study is to assist the pharmacy in processing data on incoming and outgoing stock data so that it will make it easier for the warehouse admin to provide the information needed. In developing this system the researchers used the Agile Software Development method where this method is used to develop systems in the short term that require rapid adaptation and development to changes in any form. The result of this research is the development of sInventory information system at pharmacies that can display drug data, drug stock, sales, expenses, purchase of goods, profit and loss, reports in real time.
Keyword : Information Systems, Pharmacy, Agile Method

Corresponding Author:
Frisi Atika,
Department of Information System,
Universitas Harapan Medan,
Jalan HM. Joni No. 70 C Medan 20216, Indonesia.
Email: frisiatika2814@gmail.com

1. INTRODUCTION

Inventory management systems have become a very important part of retail sales, wholesalers, and various other industries that involve stock management (Gondowijoyo & Sondak, 2017). Initially, this system only served as a simple spreadsheet for tracking inventory in the warehouse, but now its function has become increasingly complex (Agus Heryanto, Hilmi Fuad, 2014). In a general definition, the definition of Inventory (inventory) is an asset that exists in the form of goods that are owned for sale in company operations or goods that are in the process of manufacture (Saha & Bhattacharya, 2020).

Pharmacy is one of the health service places (Risøy et al., 2020), which provides over-the-counter drugs and prescription drugs that are needed by the community in helping achieve health (Ihsan & Akib, 2016). The ease, speed and satisfaction of people who need health services are very important in their efforts to make a profit (Suyitno, 2018). Therefore we need a system design that can provide fast and precise information and also a system that can be processed accurately. Information systems at pharmacies can help make it easier for pharmacy employees and people who want to buy drugs (Kresna & Kartika, 2012). For pharmacies, this information system can make it easier for employees to manage drugs and finances. Manage the income and expenditure of drugs as well as income and expenditure of money at the pharmacy (Khofiyatun Nida Taufik, 2018).

Several similar studies regarding sales and purchase information systems at pharmacies have been done previously. Research conducted (Monalisa et al., 2018), regarding "Design and Development of Drug Inventory Information System in a Web-Based Good Mental Hospital" using the FIFO method. Another research conducted (Nasution & Baidawi, 2016), at Apotek Perwira Jaya Bekasi, which produces a system to facilitate data processing such as drug data, drug sales data, making reports to leaders.

Based on the explanation that has been presented, the authors need to develop an information system and inventory at the pharmacy. Where the development of this system aims to assist the pharmacy in processing data on incoming and outgoing goods so that it will make it easier for the warehouse admin to provide the information needed(Reichwein et al., 2020).

In this study, using the Agile Method in the process, because Agile is a short-term development model that requires rapid adaptation and development to change in any form. With the aim of being able to produce systems that have high selling value, manufacturing costs can be reduced and the system can run well, interactive, evolutionary, develop systems based on needs.

2. RESEARCH METHOD

The preparation of research requires a clear structured framework in stages. This framework represents the steps that will be taken in solving the problems to be discussed. The research framework used is as follows.

1. Problem analysis
   At this stage, problem identification is carried out in the running system. Where researchers conduct field studies directly to Pharmacy Stores, it is intended that researchers find the constraints and problems that occur in the processing of stock items at the Pharmacy. So that researchers can find solutions to these problems.
2. Data collection
   At this stage, the data collection process is carried out using the method of observation, interviews and literature study to make observations and analysis of the ongoing process of pharmacy stock processing so as to obtain data and information needed in system development.
3. System Development
   The system development model used in this research is agile software development methods, using the Scrum Model.
4. Design
   After obtaining the data needed in system development, the next stage is design. Where is the system design using UML. The system design used by researchers is Use Case Diagrams, Sequence Diagrams and Class Diagrams.
5. Implementation
   In the next stage, the process of making a system is carried out according to the previously made design. The result of system development is an application that can be used by pharmacies for information and existing drug stocks.

A. Method of Collecting Data

The method in collecting this data is to use several steps that must be carried out, including:

1. Focusing on solving problems that exist in the transaction system at the Pharmacy.
2. The data collected is first compiled, described and then analyzed.

B. System Planning

In carrying out the design it is necessary to pay attention to the factors factors that become the process of working on an application, namely by implementing a system of work methods that have been implemented and the system design required for the development of the proposed information system. By using the method that has been selected, the application that will be made later can be implemented and used as needed and can solve the existing constraints at this time (Syahputra & Oktavianasembiring, 2019).

The design of the system developed using UML (Use Case, Sequence and Class Diagram).

1. Use Case Diagram

Use Case diagram is used to describe all of the functions of the present system which contains features that can be used by the admin and user. Here is presented the design of use case diagram on the development of information systems and pharmacy inventory.

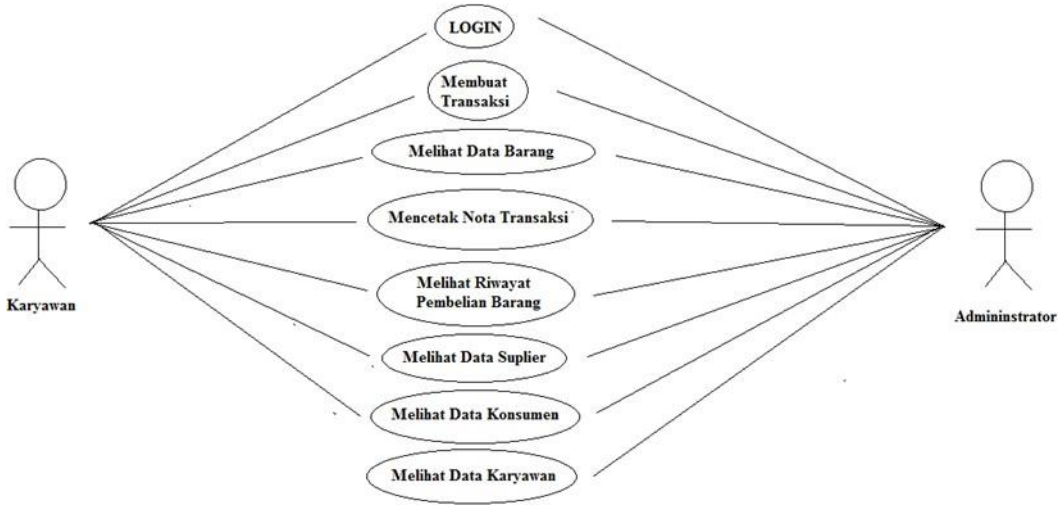

Fig 1. Use Case Diagram

Use Case Diagrams in this application, namely actor user employees can see the Home page, make transactions so that they can print receipts that have been ordered, display item data so that they can input and update data for existing medicinal goods, print notes to get proof of purchase receipts, view the entire transaction history and purchase history of goods so that data can be analyzed. Meanwhile, administrators are given the right to be able to view employee user accounts and be able to edit their data. Where the two actors have the right to login.

2. Sequence Diagram
   - Sequence Diagram Manage Item Data

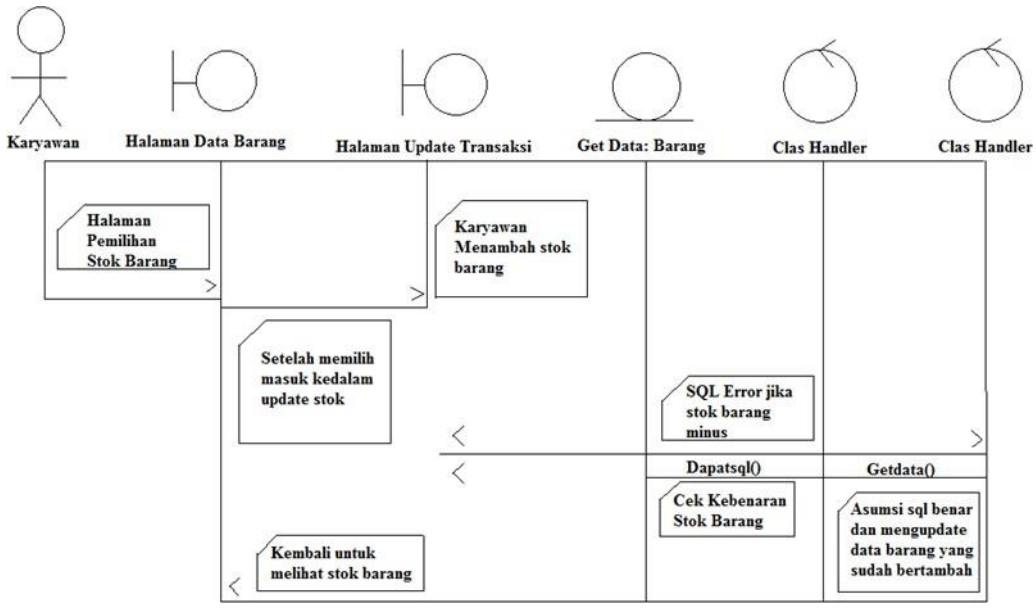

Fig 2. Sequence Diagram to Manage Item Data

Figure 2 presents the flow of how employees add to the desired stock of goods according to the incoming stock in the warehouse, where this stock will later be processed through an ongoing transaction. So that it can minimize employee ignorance in seeing the stock of items that are still available and those that have run out.

- Transaction Sequence Diagram

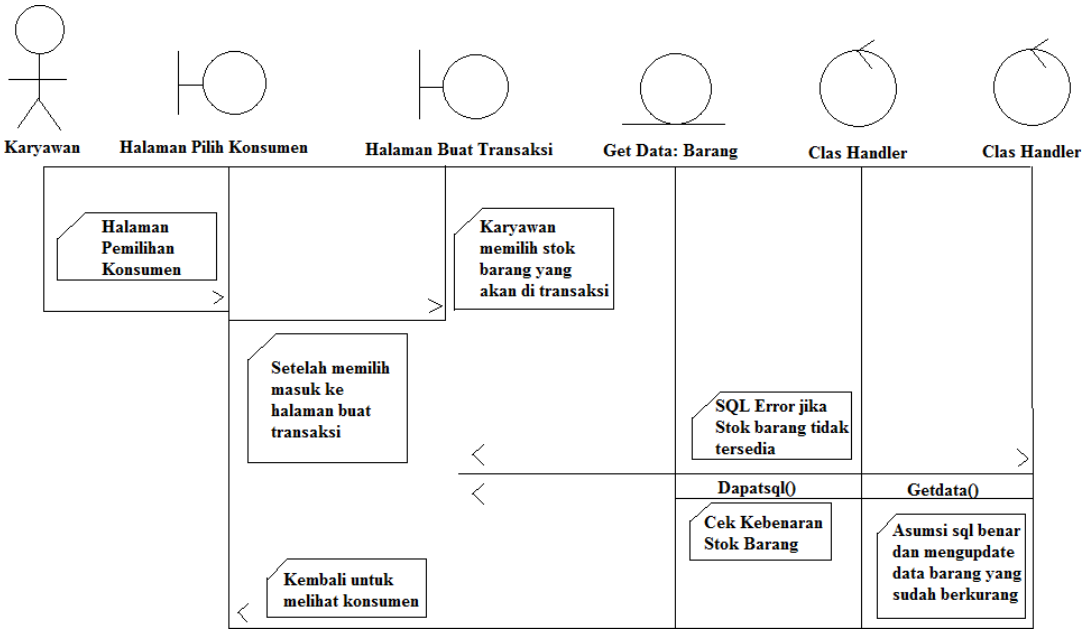

Fig 3. Transaction Sequence Diagram

Figure 3 presents flow of how employees make purchases of goods to be processed, and find out what stock of items are still available or which are out of stock, so that later they can be input into the database and printed proof of the receipt.

3. Class Diagram

The following is a class diagram designed.

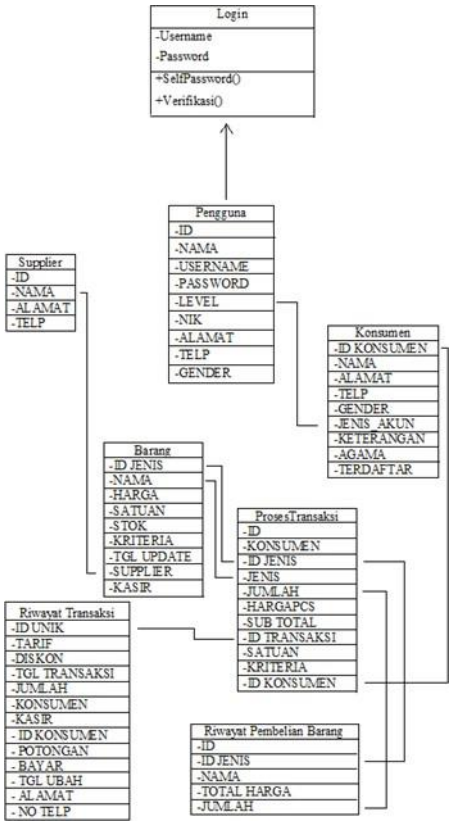

Fig 4. Class Diagram System

3. RESULTS AND DISCUSSION

This application was built with the aim of being a tool or media that will be used by the pharmacy to facilitate transactions, view data on goods (inventory), regular consumers, transaction history, and suppliers for the supply of drug stock at the pharmacy.

The following are the views of the application that the author is working on which will later be used for processing Pharmacy Data on trials conducted. With a user friendly interface and easy to use by the user or users.

A. Display Item Data

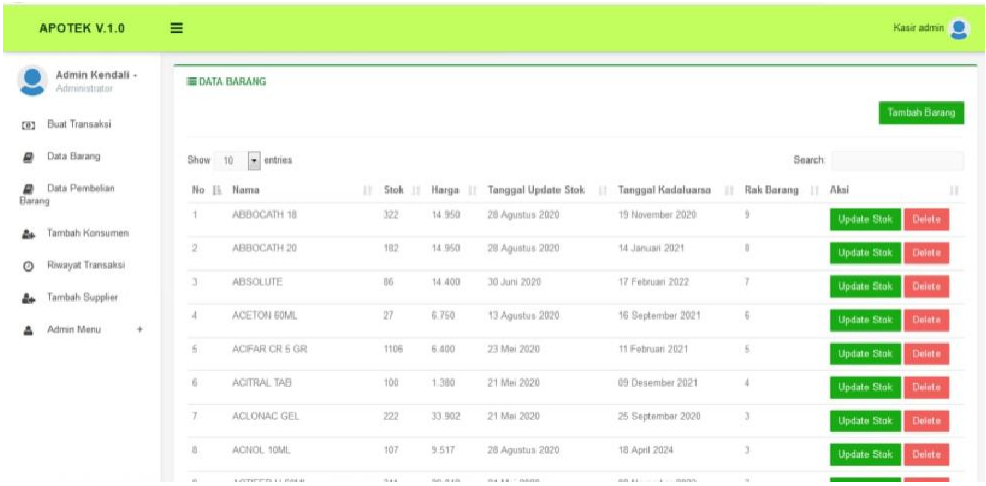

Fig 5. Display Item Data

In Figure 5, the stock data available in the inventory at the pharmacy is presented. The menu displayed is in the form of Add, Edit and Delete so that inventory data processing can run as needed.

B. Goods Purchase Data

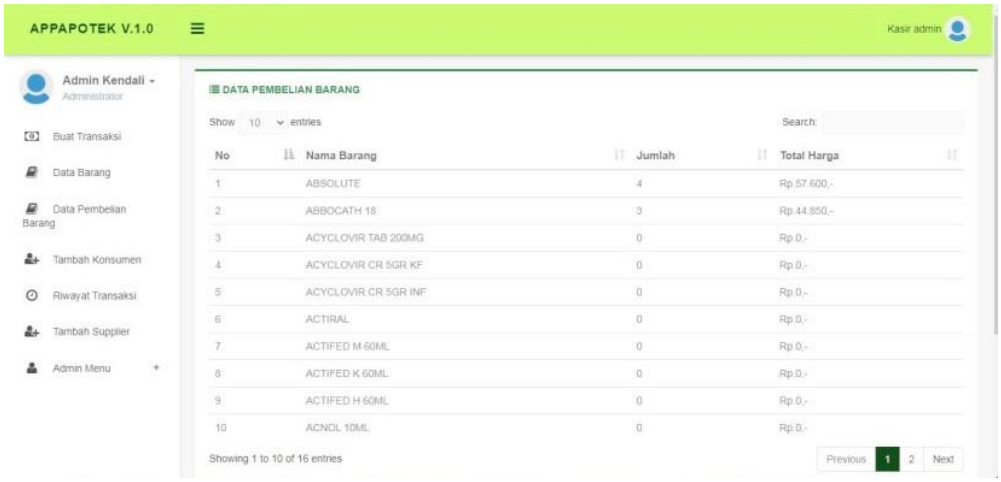

Fig 6. Goods Purchase Data

In Figure 6, data shows the number of purchases of each type of goods purchased by consumers, so that we can analyze which items are best-selling purchased.

C. Transaction History

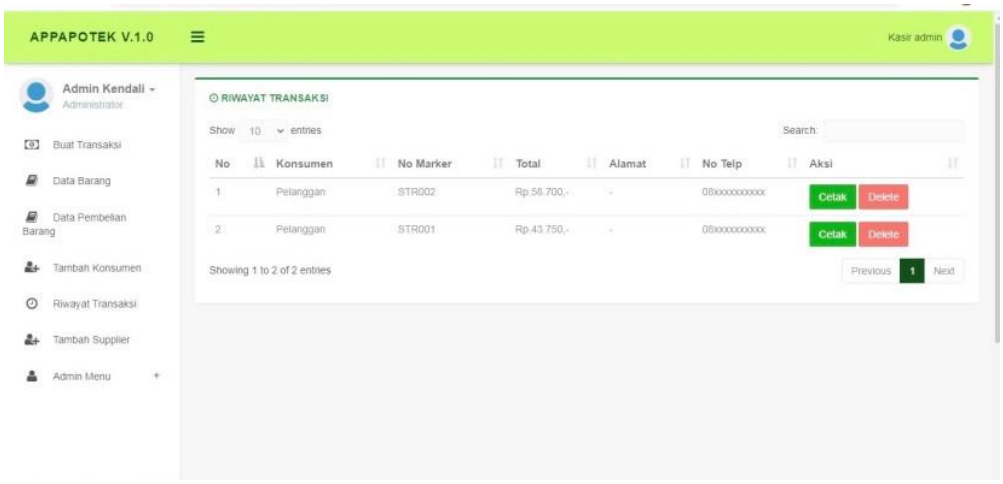

Fig 7. Transaction History

On this page there is a history of transactions that have occurred, and on this page there is a print action or button where the results of the transaction can be printed on hardcopy.

D. Print Billing

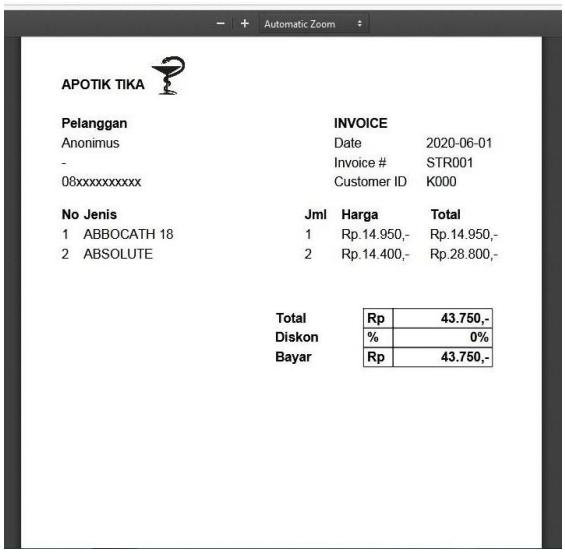

Fig 8. Print Billing

Figure 8 presents a display for the transaction results to be printed in hardcopy as proof of the transaction that has been carried out.

4. CONCLUSION

From the results of the research carried out in accordance with the stages of the method, the following conclusions can be drawn.

1. The inventory information system at pharmacies has been successfully developed to assist pharmacy owners and cashiers in managing drug data.
2. The inventory information system at this pharmacy can display drug data, drug stock, sales, expenses, purchase of goods, profit and loss, reports in real time.

REFERENCES

Agus Heryanto, Hilmi Fuad, D. D. (2014). Rancang Bangun Sistem Informasi Inventory Barang Berbasis Web Studi Kasus di PT. Infinetworks Global Jakarta. *Sisfotek Global*, *4*(2), 2–5.

Gondowijoyo, F., & Sondak, M. R. (2017). Sistem Inventory Management Untuk Meningkatkan Volume Penjualan Di Toko Hokky Krian. *Business Management Journal*, *12*(1), 141–164. https://doi.org/10.30813/bmj.v12i1.604

Ihsan, S., & Akib, N. I. (2016). Studi Penggunaan Antibiotik Non Resep Di Apotek Komunitas Kota Kendari. *Media Farmasi: Jurnal Ilmu Farmasi*, *13*(2), 272–284. https://doi.org/10.12928/mf.v13i2.7778

Khofiyatun Nida Taufik, K. W. (2018). Zahir Accounting Dalam Laporan Keuangan Pada Apotek Asih Kota Bogor. *Information Management for Educators and Professionals*, *3*(1), 51–62. http://ejournal-binainsani.ac.id/index.php/IMBI/article/view/1018/903

Kresna, M. A., & Kartika, I. D. (2012). Rancang Bangun Sistem Informasi Manajemen Apotek Berbasis Client-Server (Studi Kasus: Apotek Bakita Kubu Raya). *Jurnal ELKHA*, *4*(2), 15–19.

Monalisa, S., Denni Prima Putra, E., Kurnia, F., Studi Sistem Informasi, P., Sains dan Teknologi UIN Suska Riau, F., Studi Teknik Informatika, P., Sains dan Teknologi UIN Suska Riau Jl Soebrantas KM, F. H., & Pekanbaru -Riau, P. (2018). Rancang Bangun Sistem Informasi Inventory Obat Pada Rumah Sakit Jiwa Tampan Berbasis Web. *Jurnal Sistem Informasi*, *02*(02), 2579–5341. http://jurnal.uinsu.ac.id/index.php/query/article/view/2610

Nasution, A., & Baidawi, T. (2016). Sistem Informasi Penjualan Obat Berbasis Web Pada Apotek Perwira Jaya Bekasi. *Informatics for Educators and Professionals*, *1*(11), 70–83.

Reichwein, J., Vogel, S., Schork, S., & Kirchner, E. (2020). On the Applicability of Agile Development Methods to Design for Additive Manufacturing. *Procedia CIRP*, *91*, 653–658. https://doi.org/10.1016/j.procir.2020.03.112

Risøy, A. J., Skeide Kjome, R. L., Svensberg, K., Råheim, M., & Sølvik, U. Ø. (2020). Pharmacists' experience of a diabetes risk-assessment service and analytical quality control in community pharmacies – A focus-group study. *Research in Social and Administrative Pharmacy*, *January*. https://doi.org/10.1016/j.sapharm.2020.09.011

Saha, K., & Bhattacharya, S. (2020). 'Buy online and pick up in-store': Implications for the store inventory. *European Journal of Operational Research*. https://doi.org/10.1016/j.ejor.2020.10.006

Suyitno. (2018). ANALISIS PENGARUH KUALITAS PELAYANAN, PENETAPAN HARGA DAN FASILITAS TERHADAP KEPUASAN PASIEN (Studi Pada Pasien Rumah Sakit Umum Daerah (RSUD) di Kabupaten Malang. *Journal of Applied Business Administration*, *2*(1), 129–143.

Syahputra, E. R., & Oktavianasembiring, B. (2019). *SISTEM INDESK KEPUASAN MAHASISWA (STUDI KASUS : PRODI SISTEM INFORMASI UNIVERSITAS HARAPAN MEDAN)*. *7*(2), 16–21.