

# Inventory Information System In Benostore Stores

Arrotama Hafedmawan, Dimas Aryo Anggoro  
Program Studi Informatika  
Universitas Muhammadiyah Surakarta  
Surakarta, Indonesia

Email: [L200164015@student.ums.ac.id](mailto:L200164015@student.ums.ac.id) [dimas.a.anggoro@ums.ac.id](mailto:dimas.a.anggoro@ums.ac.id)

**Abstraksi—** Abstraction-Benostore shop is a shop that sells clothing equipment in Surakarta. Inventory management at Benostore stores is still conventional with the records in the ledger so that its performance is limited. Then an inventory information system was created to optimize inventory management at the Benostore store. The method used is the SDLC method with a waterfall approach using UML (integrated modeling language) which consists of use case diagrams and activity diagrams. This system is designed using the Hypertext Preprocessor (PHP) web programming language with the CodeIgniter version 3 framework and MySQL which is used for database design and data storage. This system will be tested using the BlackBox method and user acceptance test (UAT). UAT testing uses the interview method involving shop owners and employees. This research produces an inventory system that can be implemented in the Benostore shop.

**Kata Kunci—** Inventory, Information, Codeigniter

## I. INTRODUCTION

Developments in the field of science and technology were developed with the aim of facilitating humans to carry out their work and interests. The development of science and technology cannot be separated from quality human resources. Therefore, the development of science and technology must be directly proportional to the quality of human resources because with the rapid development of computer technology people's requirements for the quality of life and the working demands is getting higher [1]. One examples of the rapid development of computer technology is on information technology and data management. The development of information technology and data management is also a concern of entrepreneurs. Enterprises are required to apply modern information technology to daily purchase, sale and inventory management, to improve the work efficiency of enterprises as well as reduce costs [1]. With modern information technology, business people can develop their business processes using systems that have been developed in computer programs to manage data to become more structured and efficient for a regular use. The program is an inventory information system.

Benostore is a type of business that carries out business activities by buying goods from suppliers or other parties for resale. To operate the trading business, the company must manage the inventory of goods by organizing warehouse management properly, because it requires investment goods that are very important for the trading business [2]. Inventory information

systems at Benostore store are currently conventional by recording on a book then data is recorded manually every month in the ledger. This causes the process to take a long time and a large error rate.

Development of an inventory information system the developer uses the waterfall method. Because in its application the waterfall method is a structured method of the sequence starting from analysis to support, besides this method also requires developers to do the process one by one to minimize the occurrence of errors that might occur. The process flow is divided into several SDLC phases such as requirements analysis, system design, coding, testing, and maintenance [3]. The several advantages of using the waterfall method are 1) This process defines the starting and ending point of a project. 2) Early detection of errors. 3) The amount of resources needed to implement the waterfall model is lower than other methods [4].

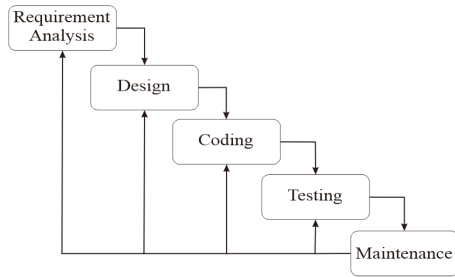
Based on these events, an idea appears to create an information system at the Benostore store in managing inventory data. With the aim of increasing efficiency and facilitating the management of data items. The results provided by research inventory information systems at Benostore stores in the form of product data information, incoming and outgoing stock data and inventory reports. It is also hoped that this research will be able to provide benefits for employees in managing inventory data in Benostore stores effectively both in terms of work and time.

## II. METHODS

The method used is the SDLC (software development life cycle) with a waterfall approach utilize UML (unified modeling language) consisting of case diagrams and activity diagrams. SDLC consists of several phases starting from the requirement analysis, design, coding, testing and maintenance phases [5]. The process of developing an inventory information system at a Benostore store is projected like a flow chart shown in figure 1.

### A. Requirement Analysis

The first phase in the process of developing an inventory information system is by collecting data obtained through interview, observation and documentation study techniques. Data requirements in the development of the proposed inventory information system are store profiles, item data, item prices. The author obtained valid data through interviews with the store owner and reviewed directly to the location. System



Gambar 1. Waterfall Method [5]

requirements analysis includes functional and non-functional requirements analysis. Functional requirements describe the functions that must be performed by a system to achieve goals. Medium, non-functional requirements describe other features such as characteristics, system limitations, documentation and others for the system to run successfully [6]. functional requirements in the inventory information system at Benostore stores include, the system can help in entering data items, the system can display the availability of stock items, the system can display a history of incoming and outgoing goods stock, the system can print incoming and outgoing goods reports, the system has a function for the user (owner) to get access to information about Benostore store inventory. While the non-functional requirements of the inventory information system at Benostore stores include, software with Windows operating system (XP, 7, 8, 10) that supports XAMPP and WEB applications. It also takes Sublime Text as a code editor and Web Browser.

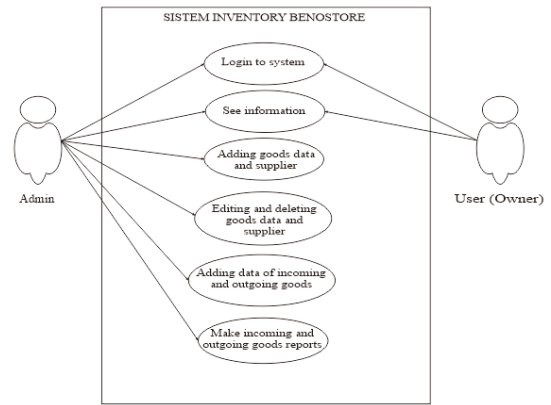
**B. Design**

1) *Use Case Diagram:* The UML use case diagram models how the system interacts with actors to illustrate a series of actions that can be carried out by actors on the system [7]. In the figure 2 Shows the use case diagram of the inventory information system. This diagram illustrates two actors who have different access rights, Admin and User. Admins have access rights to manage the system, such as creating, updating, deleting system data, creating reports on incoming and outgoing stock data. The admin actor will later be managed by the store employee. While, the user has access rights to view information on the system and print reports on stock and sales results. The user actor will later be managed by the shop owner.

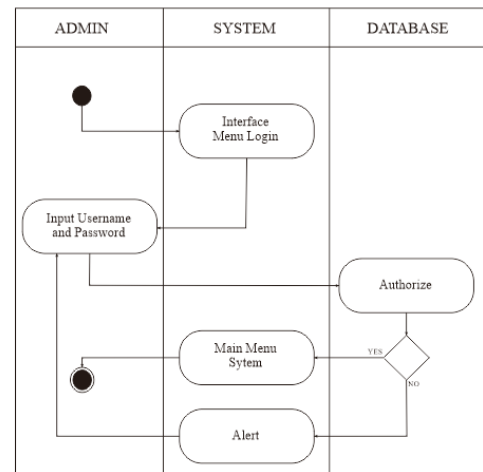
2) *Activity Diagram:* Activity Diagram is a design flow of interconnected activities in a system [8]. in this activity diagram the developer explains each system function that can be performed by each actor. Starting from the system login function, manage the system, create reports, and print reports.

In figure 3 It is explained how the system works from the admin’s point of view to log in to the Benostore inventory system by entering a username and password which after logging into the admin system will manage the system.

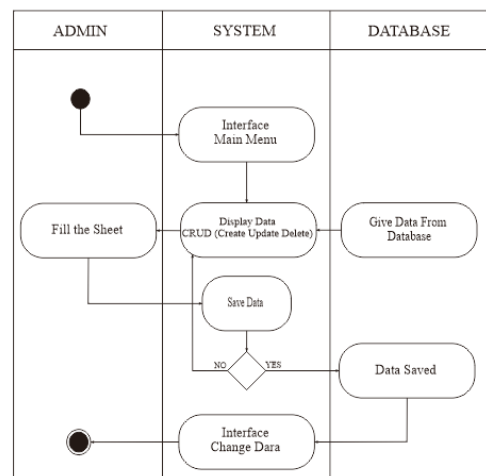
In figure 4 It is explained how the system works in the admin to manage internal data from the Benostore inventory system by creating, updating and deleting the data on the system after completion of the data will be stored into the system database.



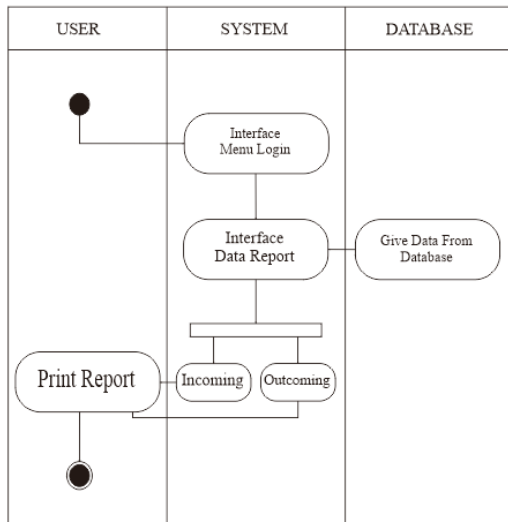
Gambar 2. Use Case Diagram



Gambar 3. Activity Diagram Login



Gambar 4. Activity Diagram CRUD (Create, Update, Delete)

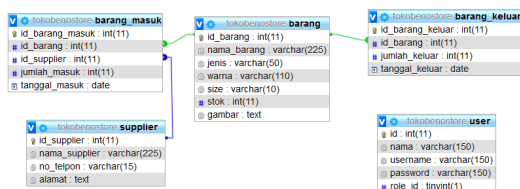


Gambar 5. Activity Diagram Print Report

In figure 5 It is explained how the system works for the user to print goods stock data reports on the Benostore inventory system by means of which the user can have the option to print an incoming or outcoming stock data report.

C. Database Structure

Database design consisting of tables, attributes, values that are useful for designing systems to store data. Details of the relational database diagram are shown in Figure 6.



Gambar 6. Relational database diagram

D. Coding

In this stage, the inventory information system will be built using the PHP programming language with a CodeIgniter framework. Codeigniter which is a PHP framework that is claimed to have the fastest execution compared to other frameworks [2], and has fairly complete documentation. besides CodeIgniter is an open-source that is used to build dynamic PHP applications. Meanwhile, a Database can be created with one of the Open Source applications namely MySQL which is easy to use [9]. MySQL itself can be defined as a database management system [10]. In addition, there is CSS to make the website look more attractive and artistic.

E. Testing

Testing is to check whether the functionality of the website is as expected by users of the Benostore store inventory

system [11]. Besides, testing is also used to raise awareness about how a site is used and provide a model for periodic evaluation [12]. This test is executed the BlackBox method and UAT (user acceptance testing), the BlackBox test method discusses the system without knowing the internal structure of the code or program. The test is carried out to find out whether the system developed can be approved successfully or failed [5]. The aspects tested are all the functions of the overall admin data processing features and inventory system users in Benostore. While, the user acceptance testing method is used to measure the system running according to initial needs [9]. testing is carried out by employees as admin and shop owners as users. Testers operate the system according to the permissions that have been granted. After that, the examiner will provide responses related to the system with the interview method [13]. In the research, the stability of inventory was also considered. Some researchers who discuss the issue of stability are [14]–[27]

F. Maintenance

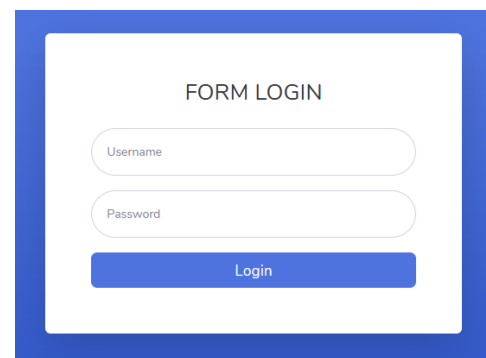
The last phase in the waterfall method is maintenance. The system that is ready will be submitted to the Benostore shop owner who will later be operated by the employee as the website system admin. To maintain the continuity of the system functional maintenance system is carried out by the admin every 6 months. Maintenance of the system can be done by repairing, changing or developing the information system.

III. RESULT AND DISCUSSION

Based on the research design that has been made, the goal of this study is to produce a stock management system at the Benostore store that can be used by every employee at Benostore. Following are the results and discussion of the system being developed.

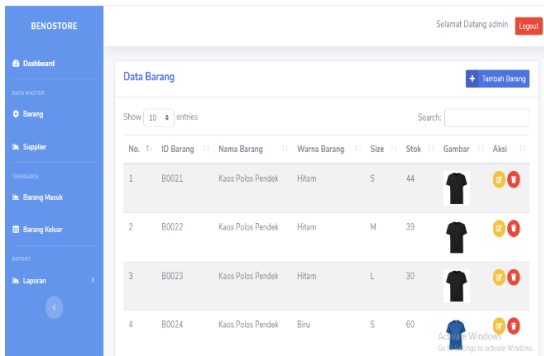
A. System display result

1) Login: In the goods data stock management system at the Benostore store, there is a login page for Admin and User. Admin and User is required t fill in the Username and Password correctly in order to enter the login.



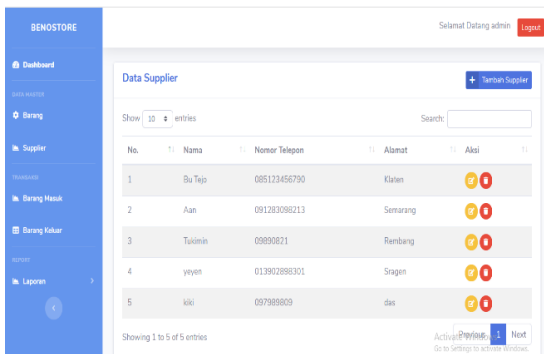
Gambar 7. Form Login Page

2) Goods: In the goods data stock management system at the Benostore store, there is an goods page for the Admin. Admin can fill in goods according to type and can include pictures of goods.



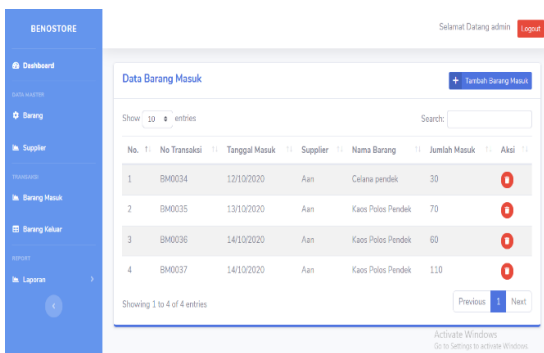
Gambar 8. Goods Page

3) *Supplier*: In the stock data management system at the Benostore store, there is a supplier page for Admin. The admin can fill in the supplier’s name, address and mobile number.



Gambar 9. Supplier Page

4) *Incoming goods data*: In the stock data management system at the Benostore store, there is a incoming goods data page for Admin. Admin can choose the type of goods and the number of goods entered on that date.



Gambar 10. Incoming Goods Data Page

5) *Report*: In the stock data management system at the Benostore store, there is a report page for Admin. Admin can sort the reports by date.

**B. System testing**

The testing stage is carried out by two methods, namely BlackBox and user Acceptance Tests which purpose to measure the level of ability and needs of the user.

LAPORAN TRANSAKSI BARANG MASUK

Dari Tanggal :01-Oct-2020  
Sampai Tanggal:31-Oct-2020

No.	No Transaksi	Tanggal Masuk	Supplier	Nama Barang	Jumlah Masuk
1	TBM-034	12/10/2020	Aan	Celana pendek	30
2	TBM-035	13/10/2020	Aan	Kaos Polos Pendek	70
3	TBM-036	14/10/2020	Aan	Kaos Polos Pendek	60
4	TBM-037	14/10/2020	Aan	Kaos Polos Pendek	110

Gambar 11. Report Page

Tabel I. Blackbox Testing Results

No	Function	Input	Output	Information
1	Login (Admin/User)	Input username and password correctly	Go to dashboard page	valid
		Input username and password incorrectly	Back to login page	valid
2	Barang (Admin)	The system can input, update, and delete goods data	Displays the appropriate data done by the user	valid
3	Supplier (Admin)	The system can input, update, and delete supplier data	Displays the appropriate data done by the user	valid
4	Barang masuk (Admin)	the system can enter the number of goods according to the date of entry of goods	Displays the appropriate data done by the user	valid
5	Barang keluar (Admin)	the system can enter the number of goods according to the date of goods out	Displays the appropriate data done by the user	valid
6	Report (Admin)	the system can generate reports based on date in pdf format	Displays the selection data according to the one selected by the user	valid

1) *BlackBox*: Following the test carried out, the results of the test are listed in Table I below:

2) *User Acceptable Test*: Testing the User Acceptance Test (UAT) is carried out with the interview technique. The profiles of respondents in development of this system, namely shop owners and employee.

- Question: Is the Display System Easy to Understand? Owner: Yes, the system is easy to understand Employee: Yes, the system is quite easy to understand
- Question: Is the System Display Attractive? Owner: I think the display not too attractive, it is a simple Employee: The display is good enough
- Question: Is the System Easy To Operate? Owner: Yes, the system easy to operate Employee: Yes, the system easy to operate
- Question: Does this system make it easier to manage inventory? Owner: Yes, with the existence of this system we can record our data easily and effectively Employee: Yes, this system makes my job easier and effective

- 5) Question: Does this system provide a positive impact for store? Owner: Yes, with this system store performance will increase, especially in the field of goods management Employee: Yes, with this system we don't need any paper, so it give a positive impact on our finances

#### IV. CONCLUSION

After testing using the blackbox method and user acceptance test, it can be concluded that this inventory system can help the process of managing goods data at Benostore stores easily and effectively. Hopefully, that in further developing this system can be more useful and can display information that is more complex and informative.

#### DAFTAR PUSTAKA

- [1] Q. Han, "Inventory System Based on ThinkPHP and Bootstrap Framework," pp. 1–6, 2019.
- [2] M. Rais, M. Apriyadi, and H. Sirad, "INVENTORY INFORMATION SYSTEM OF GOODS USING," vol. 3, no. 1, pp. 23–30, 2019.
- [3] K. Bhavsar, V. Shah, and S. Gopalan, "Scrumbanfall: An Agile Integration of Scrum and Kanban with Waterfall in Software Engineering," no. 4, pp. 2075–2084, 2020.
- [4] C. F. Ukhriyawati, T. Ningsih, T. Susilowati, and D. B. Maria, "The Integration of Innovation in Education Technology to Improve The Quality of Website Learning in Industrial Revolution Era 4 . 0 Using Waterfall Method The Integration of Innovation in Education Technology to Improve The Quality of Website Learning in Industrial Revolution Era 4 . 0 Using Waterfall Method," pp. 0–5, 2019.
- [5] A. Puspaningrum and E. Sudarmilah, "SISTEM INFORMASI MANAJEMEN PEMINJAMAN ( STUDI KASUS: PENGELOLAAN ASET DAN TATA RUANG TAMAN BUDAYA JAWA TENGAH )," vol. 11, no. 1, pp. 37–45, 2020.
- [6] D. D. Bestari, R. K. Dewi, and M. T. Ananta, "Pengembangan Sistem Rekomendasi Tempat Pembelian Makanan Korea Berbasis Android dengan TOPSIS dan LBS ( Studi Kasus: Kota Malang )," vol. 3, no. 5, pp. 5068–5076, 2019.
- [7] Z. A. Hamza, "Generating UML Use Case Models from Software Requirements Using Natural Language Processing."
- [8] S. E. Oct, "A framework for verifying deadlock and nondeterminism in UML activity diagrams based on CSP."
- [9] S. Shofia and D. A. Anggoro, "SISTEM INFORMASI MANAJEMEN ADMINISTRASI DAN KEUANGAN PADA TK-IT PERMATA HATI SUMBERREJO-BOJONEGORO," vol. 5, no. 2, pp. 221–230, 2020.
- [10] R. Bangun, S. Informasi, H. Widyastuti, and I. M. Muttaqien, "LO-WONGAN KERJA BERBASIS WEB Program Studi Sistem Informasi , Fakultas Teknologi Informasi," vol. 12, pp. 89–98, 2019.
- [11] A. E. YUNIAR, "SIDOHARJO SRAGEN BERBASIS WEB," 2019.
- [12] B. J. Kirk, E. A. Fox, and C. K. Iannaccone, "Final Project Report," pp. 1–31, 2019.
- [13] V. V. Wang, A. S. Sukamto, and E. E. Pratama, "Sistem Pendukung Keputusan Seleksi Mahasiswa Penerima Beasiswa BPP-PPA dengan Metode TOPSIS pada Fakultas Teknik UNTAN," vol. 7, no. 2, pp. 105–112, 2019.
- [14] Mustafa Turkyilmazoglu. Single phase nanofluids in fluid mechanics and their hydrodynamic linear stability analysis. *Computer Methods and Programs in Biomedicine*, 187:105171, 2020.
- [15] Yufeng Tian and Zhanshan Wang. A new multiple integral inequality and its application to stability analysis of time-delay systems. *Applied Mathematics Letters*, 105:106325, 2020.
- [16] Muhammad Kusban, Aris Budiman, and P. Bambang Hari. Optimized palmprint recognition with gabor parameters adjustment and matching method selection. *Advanced Science Letters*, 24(12), 2018.
- [17] Muhammad Kusban, Aris Budiman, and Bambang Hari P. An excellent system in palmprint recognition. *IOP Conference Series: Materials Science and Engineering*, 403:012037, oct 2018.
- [18] Shiyi Liu, Zhenning Su, Ming Li, and Longtan Shao. Slope stability analysis using elastic finite element stress fields. *Engineering Geology*, 273:105673, 2020.
- [19] Haijin Zheng, Hongjiang Zhang, Shaowen Fang, Jie Yang, Songhua Xie, and Xiaoran Chen. Effects of different soil and water conservation tillage on runoff, sediment and soil carbon. In *2011 International Conference on Remote Sensing, Environment and Transportation Engineering*, pages 268–271, 2011.
- [20] Jingling Li, X. Sun, J. Ma, and Jianwen Li. A model for soil water and nitrogen transport in water storage pit irrigation. In *2011 International Symposium on Water Resource and Environmental Protection*, volume 1, pages 676–679, 2011.
- [21] Peng Hao and Ma Chuanming. The investigation and evaluation of soil and water loss in the zhangjiachong watershed. In *2011 International Conference on Electric Technology and Civil Engineering (ICETCE)*, pages 6986–6988, 2011.
- [22] Hui Shi, Fengqin Chen, Huixia Wang, and Baojing Han. Using the energy integral of soil water retention curve to evaluate the soil water availability. In *2011 International Symposium on Water Resource and Environmental Protection*, volume 3, pages 1632–1635, 2011.
- [23] Lingling Kang, Feifei Dong, Xiaoqiang Liu, and Liping Zhang. Analysis of the problems and causes in defining soil and water loss control responsibility areas of development projects. In *2011 Second International Conference on Mechanic Automation and Control Engineering*, pages 2893–2896, 2011.
- [24] Yinhong Kang, Yinhong Kang, Xiaoyi Ma, S. Khan, and Jilong Liu. Modelling water balance at the irrigated crop level to identify pathways for improving water use efficiency. In *2011 International Symposium on Water Resource and Environmental Protection*, volume 1, pages 442–445, 2011.
- [25] Jinlong Zhou, Qiao Li, and Xianwen Li. Impact of mineral concentration on capillary water rise in sandy soil. In *2011 International Symposium on Water Resource and Environmental Protection*, volume 3, pages 1667–1669, 2011.
- [26] Chen Feng, Jiancang Xie, Bo Sun, and Ni Wang. Numerical simulation of soil water and salt transport based on hydrus model in the storage condition. In *2011 International Symposium on Water Resource and Environmental Protection*, volume 2, pages 830–833, 2011.