



Android-Based National University Logistic Information System Using Sdlc Model Waterfall Method

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ABSTRACT

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Utilization of computerized information systems is very important, especially in higher education. The existence of a computerized information system makes a process of processing important data can be arranged and stored properly and makes it easier to find data when needed. Included in the logistics department of the National University which still needs the support of a system that is able to facilitate the processing of data entry and exit of goods contained in the National University logistics warehouse. The purpose of this research is to be able to alleviate the work on the logistics in terms of streamlining the use of time, energy and costs incurred in recording and making logistical reports. Then an android-based logistics information system will be built using the information system approach method used in making and developing applications, namely the system development life cycle (sdlc) method using the waterfall model. The construction of this system was made using sublime text 3 and MySQL as its database. This system will be able to manage the data of incoming and outgoing goods and also perform data searches on a mobile basis using an Android smartphone. With the creation of a logistics information system at the Android-based National University it is hoped that it can help and speed up the work in processing logistical data that will be used as material for making reports.

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1. Introduction

The development of information technology at this time is fairly rapid in various fields. This makes what was originally still done manually becomes computerized. The use of manual systems will be very risky for the data because it still relies on human labor that has many weaknesses. This can make data management slow. So it is not uncommon to find errors in the processing of data items. For that we need a data processing system that uses information systems as a support that can simplify and speed up the data processing.

Logistics information system is a goods management system that is able to provide convenience or ease work in managing various logistical data and information. This system can also save time, energy, and costs in data processing compared to systems that are still done manually. Therefore this system is needed because it can help or at least reduce the risks of errors in inputting data that might occur. This system will greatly assist the work in the process of managing data items on a mobile basis, both when goods enter and exit.

The purpose of this research is to design or build an android-based logistics information system using the waterfall model development system life cycle (sdlc) method which is expected to be a solution to problems arising from the application of data processing that is still done manually. With the change of the manual system to a computerized system, it is expected to be able to assist and facilitate the work in the process of managing logistical goods data to be more effective and efficient.

2. Research Methods

In this research method, the author uses one of the information systems approach methods used in developing or making an application, namely the system development life cycle (sdlc) with the waterfall model.



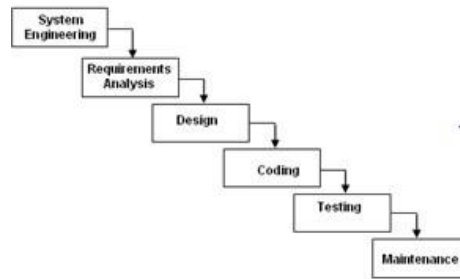


Fig 1. SDLC Method, Waterfall Model

This method was chosen because it has a sequential process from the planning stage to the system maintenance stage. By using this method the system can be built and developed according to what is needed.

2.1. Research Stages

- a. Planning

At this stage the planning process will be carried out by collecting all information about the system that will be built later. Like information about logistics, applications used, databases.
- b. Analysis

This stage is the stage where the writer will analyze the system requirements, so that later it can create a system concept needed by searching information about the system to be built.
- c. Design

This stage is defining what is needed and prepared in making a logistics information system. This stage will create a display application interface, making the flow of the application system and logistics information system design, including use case diagrams, interface design, database.
- d. Implementation

This stage is the process of analyzing what device requirements are needed as a support for building systems, including software requirements and hardware requirements. So that it can implement these needs.
- e. Program Testing

The stage where the system will be tested for ability to run properly or no, so that it can be known what are the weaknesses and weaknesses of the system that has been made, then later it will be made improvements so that the information system becomes better.
- f. Maintenance

Maintenance is the stage of maintenance or maintenance of the system regularly to prevent damage to the system.

2.2. Materials and Research Tools

In making this system will require some software and hardware including:

Table 1.
Software

Software
Sublime Text 3.0
XAMPP

Table 2.
Hardware

Perangkat Keras
Processor Intel core i7
Graphic AMD Radeon R5 M230
RAM 4GB
HDD 1TB

3. Result and Discussion

3.1. Use Case Diagram

Use case Logistics Information System Diagram Functioning to explain some functions contained in the logistics information system. Use case diagrams can be seen in Figure 2



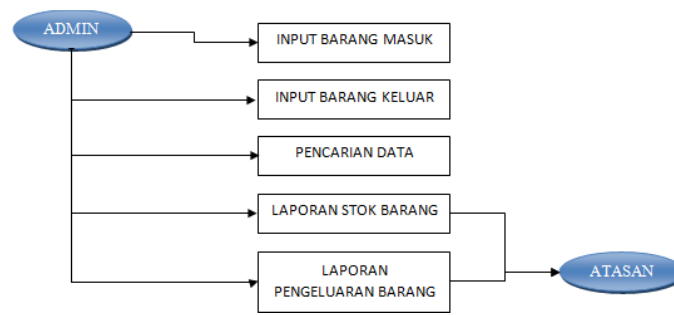


Fig 2. Use case diagram

From the picture above can be seen what are the functions that can be run on the system. As it records data on incoming and outgoing goods as well as looking for data on goods in the logistics warehouse

3.2. Activity Diagram

Activity Diagram Logistics Information System Used to describe a process from logistics information systems. Activity diagram can be seen in Figure 3.

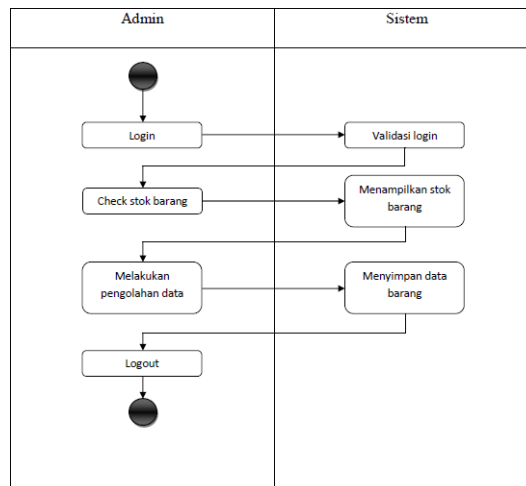


Fig 3. Activity diagram

From the picture above it can be seen how the process or work method of this logistics information system. Starting from the login to inputting data items.

3.3. Class Diagram

Is a depiction of the system design created. By using class diagrams, it can be seen the relationship between classes in the system being built. Class diagram can be seen in Figure 4.

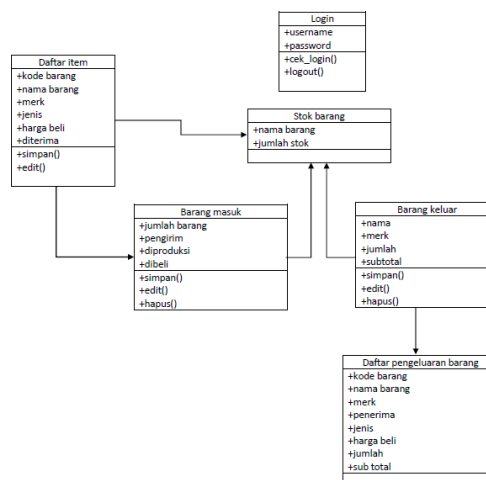


Fig 4. Class diagram

There are 6 tables in the logistical information system class diagram that collaborate to be able to achieve the objectives that suit your needs.

3.4. System analysis

This logistics information system is designed to be used mobile using an Android smartphone. Where its use does not affect the performance of the system on a smartphone and does not overload RAM. Based on testing on an android smartphone, this logistics information system is able to manage goods data quickly enough so that it can save time in the process of inputting logistical goods data into a database which will later be used as material for making National University logistics reports.

3.5. System description

a. Admin Login

A page that serves to input the username and password that belongs to the National University logistics admin.

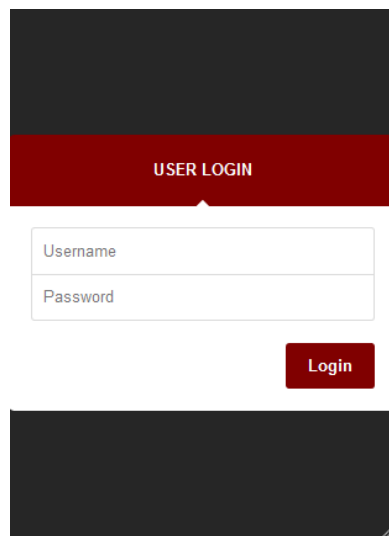


Fig 5. Login page display

Admin input username and password which will be processed by the system. The system will only directly display the main page if the admin can input username and password correctly.

b. Main Page

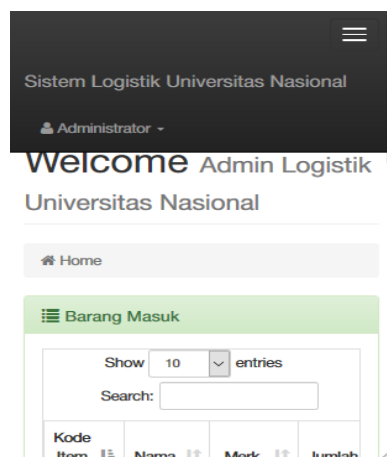


Fig 6. Main page display

The page where the admin can immediately see the data incoming goods and goods that want to be removed from the warehouse stock.

c. Item List Page

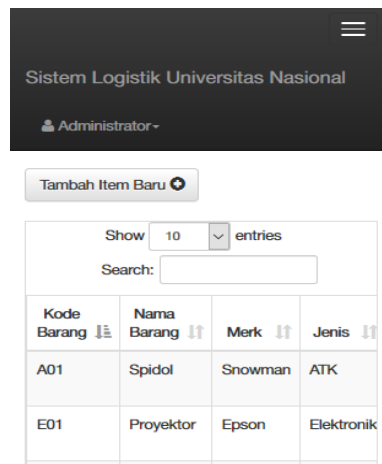


Fig 7. Item list page

A page display that lists what items are available in the warehouse. Then if you want to add a list of items, the admin can use the Add new Item button.

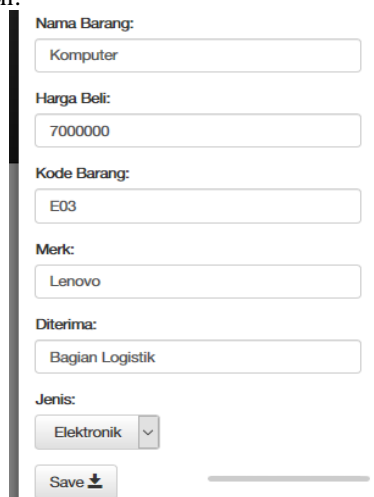


Fig 8. Display form add item

Admin can fill out the form from the name of the item, code, to what type of item is received. Then click the save button and the data will automatically be saved on the item list page.

d. Product / Entry page

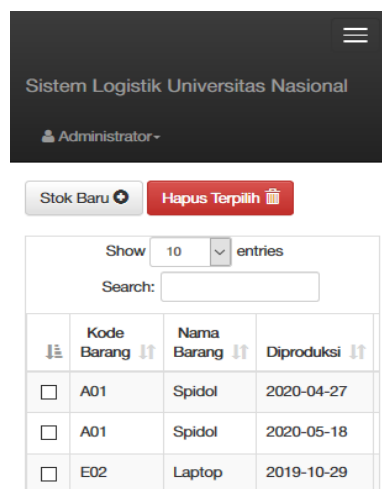


Fig 9. Product / entry page

Display page that displays the data stock of goods entering the warehouse. Then if you want to add stock, the admin can use the new stock button.

Fig 10. Display form to add new stock

e. Item Stock Page

Nama Barang	Jumlah Stok
Laptop	5
Proyektor	5
Spidol	85

Fig 11. Item stock page

A page display that displays all available stock items in the warehouse.

f. Expenditures List Page

Kode Barang	Nama Barang	Merk	Penerima
No data available			

Fig 12. Expenditures list page

A page that displays the list of items released in the warehouse along with the recipient and the date the goods were taken or removed from the logistics warehouse.

g. System Testing

At this stage, testing on the logistics information system is carried out using a black box that functions to test whether the system has been successfully run as expected or not.







No	Pengujian	Test	Tujuan	Hasil	Keterangan
1	Login dengan username dan password yang benar		Dapat masuk ke halaman utama		Berhasil
2	Login dengan username dan password yang salah		Gagal masuk ke halaman utama		Berhasil
3	Input data daftar item		Berhasil input data daftar item ke dalam sistem		Berhasil

Fig 13. Black Box 1 Results







4	Edit data daftar item		Berhasil edit data daftar item		Berhasil
5	Mencari data daftar item		Berhasil mencari data		Berhasil
6	Input data masuk		Berhasil input data ke dalam sistem		Berhasil

Figure 14. Black Box 2 Results







7	Mencari data masuk		Berhasil mencari data		Berhasil
8	Input keluar		Berhasil input data keluar		Berhasil
9	Mencari data keluar		Berhasil mencari data		Berhasil

Fig 15. Black Box 3 Results

10	Klik Logout		Berhasil keluar dari sistem dan kembali ke halaman Login		Berhasil
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Fig 16. Black Box 4 Results

4. Conclusion

From the results of this study, this android-based logistics information system can facilitate the admin in the logistics department in the process of inputting data of goods entering or leaving the National University logistics warehouse. All activities of the entry and exit of goods at the National University logistics will be recorded in this logistics information system. This system is expected to facilitate the process of processing data entry and exit of goods at the National University logistics warehouse to be faster and minimize the risks of errors in the processing of logistics data so that it can be used as logistical reporting material.

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