Android Based Inventory Stock Design Case Study On The North Jakarta Transportation Service Subject

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***Abstract**.*

Study This aim For visualize design general Android- based Inventory Stock system for the North Jakarta Transportation Sub – Department. Referring to Law Number 1 of 2004 concerning state treasury , goods or assets belonging to the state/ region in is all purchased items _ or obtained on burden Budget State/Regional Revenue and Expenditure (APBN/D) or originate from acquisition other valid ones , or items obtained _ based on decision powerful court _ law fixed (provisions of Article 2 paragraph (2) of the Regulation Government Number 27 of 2014). Analysis the need will used in do development of "Android Based Inventory Stock Design Case Study On The North Jakarta Transportation Service Sub". Planning application , at stage This done making structure navigation , UML diagrams (use case diagrams, activity diagrams and class diagrams) for use make it easier stage planning to features that will made on the website and also the design appearance for the UI (User Interface) website version using Prototype High Fidelity (Figma). Planning system mean For something method after assessment from movement development , stage preparation For development or creation of application programs . With hope the system will made later can become solution on problems that exist in the North Jakarta Transportation Sub-dept. The Android- based Inventory Stock application provides solution to problem human error in recording inventory Manually. With automated and structured systems , risks _ error write , loss sheet paper , and errors calculation can minimized in a way significant . With connected system _ in a way direct with inventory database , information stock goods can accessed with fast and accurate , enabling takers _ decision For Act in a way more appropriate time . Application This give convenience in tracking inventory , even moment happen error or lost goods . Facility integrated tracking_simplify the process of searching and recovering accurate inventory data.

Keywords: *Design general Android, Inventory Stock system and Transportation.*

I.   INTRODUCTION

Technological developments from year to year are growing rapidly, almost everyone uses technology to get the information they need, technological developments are now used by almost everyone to get information, improve company performance, make work easier or open business opportunities. That matter means that development technology has bring impact positive in various field including management *stock inventory* .Referring to Law Number 1 of 2004 about treasury country, item or assets belonging to the state/region are all goods purchased or obtained at the expense of the State/Regional Revenue and Expenditure Budget (APBN/D) or originating from other legitimate acquisitions, or goods obtained based on a court decision that has permanent legal force (provisions of Article 2 paragraph (2) Government Regulation Number 27 of 2014). State assets have role important in operate function governance , therefore its management need done with careful and structured. Department of Transportation is element executor autonomy area in the field relations that are subordinate and responsible _ answer to Governor through Regional Secretary (SEKDA). Department of Transportation have task principal carry out affairs government area field relationship based on principle autonomy areas and tasks assistance . As part important in operate task , management *stock inventory* become things that don't Can ignored .

II.   LITERATURE REVIEW
(SPOK)

1. Manual Recording Process: Inventory data noted manually use _ paper in form table that includes Name goods , quantity stock , and attributes other .

2. Identify Problem : Managers inventory identify a number of problems that arise consequence manual methods , such as data inaccuracy , unavailability real-time information , difficulties tracking inventory , and limited accessibility information .

3. Analysis Impact Problem : Impact from problems the analyzed , like the effect to data accuracy , retrieval decisions , efficiency operations , and capabilities accessibility information .

4. Solution Preparation : Based on identification problems and analysis impact , appropriate and effective solutions _ will arranged For overcome problems the .

5. Design Android Stock Inventory Application : One selected solution _ is design and development Android based Stock Inventory application for overcome problems in management inventory at the North Jakarta Transportation Sub-Department .

Internet

The internet is a network that functions to connect one electronic media to other media.

System planning

Design is the depiction, planning and sketching or arrangement of several separate elements into one complete unit and functions as a system design. It can be designed in the form of a system flowchart, which is a graphic tool that can be used to show the process sequences of the system. . In information system design, on Generally there are 2 (Two) models system which commonly used viz structured modeling and modeling oriented object k .

Unified Modeling Language (UML)

UML is a visual language for modeling and communicating about a system using diagrams and supporting texts.

Waterfall Method

The waterfall method or often called the classic Life Cycle, the waterfall method is a classic model that has a systematic or sequential nature following example of the Waterfall development model .
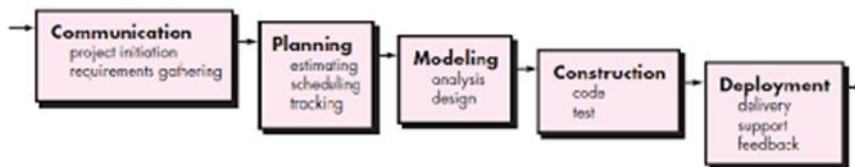
For information on the stages above as follows:

1) Communication

The first step in this method is the analysis step of the needs for the website, usually a meeting is held with the stackholder or customer to discuss the website needs.

2) Planning

After the communication step, the next step is for the author to make a plan from the results of the first stage. The resulting output is a website requirements document or what is usually referred to as information that correlates with stackholder or customer requests in creating the website and the data that the author has designed.

3) Modeling

The third step is to translate the requirements that have been prepared into a website design that will be coded later.

4) Construction

When a website has been modeled, the next step is the construct or code creation step. The author will translate the needs of the stackholder or user into code.

5) Deployment

This step is the final step in designing a website or system. After carrying out the 4 steps above, the system can be used by customers.

Android

Android is an operating system for smartphones and tablets.

Android Studio

Android Studio is an Integrated Development Environment (IDE) specifically for building applications that run on the Android platform.

Kotlin

Kotlin is a pragmatic programming language, meaning this language combines object oriented and functional programming. This programming language was developed by JetBrains and is based on the Java Virtual Machine (JVM).

PHP

Hypertext Preprocessor or PHP is a programming language that runs on server-side scripting and is open source.

Database (database)

Database consists of the words base and data. Databases can be interpreted as marks or warehouses.

MySQL

MySQL is a very popular type of database server, this is because MySQL uses SQL as the basic language to access its database.

Black Box Testing

Black box testing or also known as Behavioral Testing is testing carried out to observe the input and output results of the software without knowing the code structure of the software.

III.   RESEARCH OVERVIEW/RESEARCH SOLUTIONS

Research Review

Manual inventory recording using paper at the North Jakarta Transportation Sub-Department causes several problems, including:

1. Manual methods are susceptible to human error such as writing errors, missing sheets of paper, or calculation errors which can cause inaccurate inventory data.

2. Due to manual processes, information about stock is not always available in real-time, which can hinder timely decision making.

3. When an error occurs or goods are lost, inventory tracking becomes complicated because there is no integrated system.

4. The use of paper limits the accessibility of inventory information to only certain physical locations.

Research plan

This research was carried out by the North Jakarta Transportation Sub-dept. In this research, an Android-based inventory stock application will be built using the SDLC development method, namely waterfall

Research purposes

The aim of this final assignment is to design and develop an Android-based Inventory Stock application that can help increase efficiency in inventory management at the North Jakarta Transportation Sub-Department.

1. Create a system that can reduce human error in recording and managing stock.

2. Presents an application that provides accurate and real-time inventory information.

IV.   METHODS

SDLC Research Method

The software development method used in this Scientific Writing is SDLC (Software Development Life Cycle) with the Waterfall method:

a.   Application planning, needs analysis that will be used in developing "ANDROID-BASED INVENTORY STOCK DESIGN, CASE STUDY IN THE NORTH JAKARTA TRANSPORTATION DEPARTMENT". Application design, at this stage, the navigation structure, UML diagrams (use case diagrams, activity diagrams and class diagrams) are created to facilitate the design stage of what features will be created on the online forum website and also the display design for the UI (User Interface) website version uses Prototype High Fidelity (Figma).

b.   Creation, this stage is the stage where the design results are converted into source code. For the web version with admin access rights, it was created using the programming languages used, PHP and

Javascript, and for the mobile application, the author used the Kotlin programming language and Android Studio as a text editor and used a MySQL database.

c.   Trial, this stage is carried out after the application that has been built has been completed, then a trial is carried out to find deficiencies in the application.

Proposed Business Process Using UML (Unified Modeling Language)

There are 3 actors that the author proposes in this application process, namely user, division admin and admin who have different activities for each actor which the author displays in the form of use case diagrams, flow diagrams, activity diagrams and class diagrams and can be seen in the following image :
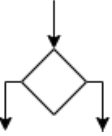
Use case Proposed Diagram
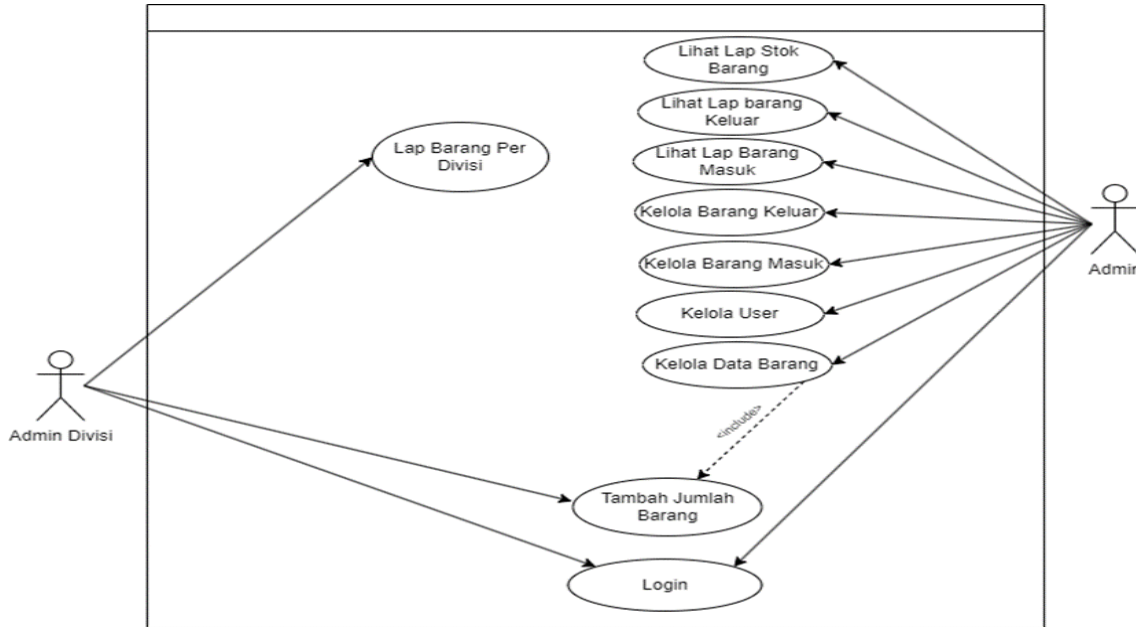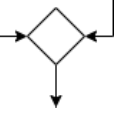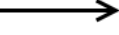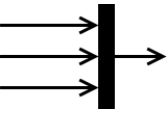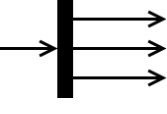
In the picture above the following conclusions can be drawn:

Admins can monitor and manage item data such as adding new item data, updating the number of items or releasing goods from all divisions, while division admins can only monitor and manage item data according to their respective divisions.After the item data has been added by the admin or division admin, the user or Android application user can input the number of items into the database.

Proposed Activity Diagram

Symbol	Information
Activity	Memperlihatkan bagaimana kegiatan atau aktivitas yang bekerja dalam aliran kerja.
Initial state	Awal dimulainya suatu aliran kerja pada *activity diagram*
Finals state	Bagian akhir dari suatu aliran kerja pada *activity diagram*.
Decision	Menggambarkan pilihan kondisi yang membuat aliran kerja terbagi menjadi lebih dari satu aliran atau jalur.

|	
Merge	Untuk menggabungkan kembali aliran kerja yang sebelumnya telah terpecah oleh *decision*.
Transitions	Menunjukan aliran proses.
Join	Recombine _activity Which parallel.
Forks	Memecah *behaviour* menjadi aktivitas yang paralel.

Table Activity Diagram symbols

There are 3 factors in the Activity diagram, namely user, division admin and admin. In the admin activity, users are created for the staff and in the admin activity and division admins can add master item data which will later be used as validation when goods are input using barcodes.

Proposed Flow Diagram

The following is the systematics of carrying out stock of local employees at the North Jakarta transportation service as follows:

1. Login as Admin or Division Admin and add an Item Master as user validation when stocking oknam

2. The user opens the stock oknam application and scans the barcode to validate the existing goods

3. If the goods are valid, the user inputs the number of goods according to the number in the warehouse

4. Data on the number of items that have been updated by the user can be monitored by the Admin or Division Admin

5. Admin or Division Admin can manage goods according to the availability of the number of goods
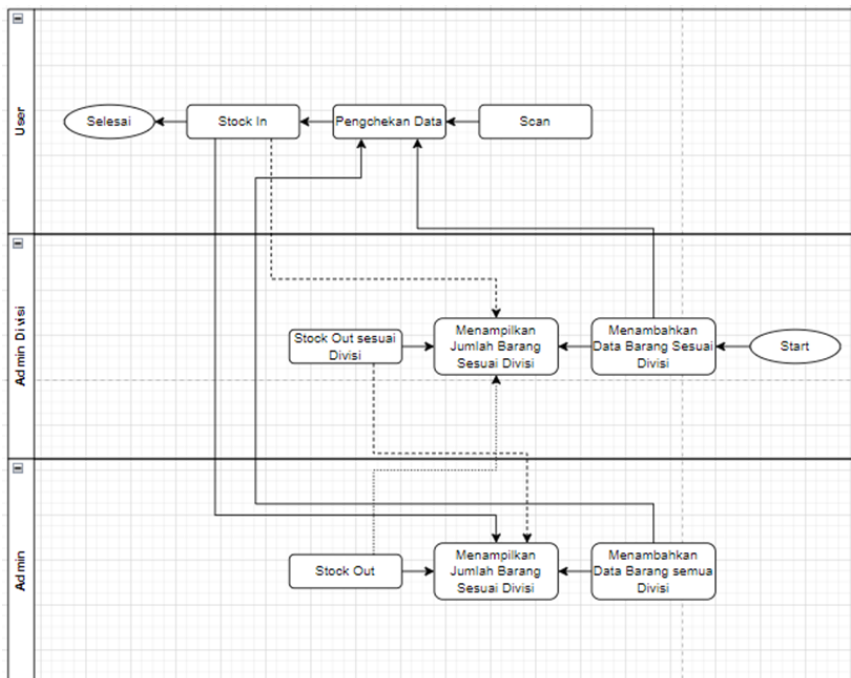
Procedure

In the face of project complexity and limited resources, the following are the limitations that will be applied to the Final Assignment "Android Based Inventory Stock Design, Case Study for the North Jakarta Transportation Sub-Department":

1. The Inventory Stock application will be developed specifically for Android-based devices, so there will be no versions for other platforms such as iOS or Windows Mobile.

2. This final assignment will focus on a case study in the North Jakarta Transportation Sub-Department as an implementation environment, so it will not include implementation in other institutions or organizations.

3. The application will focus on recording and tracking stock of goods with basic functions such as adding, deleting and changing inventory data. Other features such as finance will not be included in the scope of this Final Project.

4. This application will function as an independent entity without being integrated with the existing backend system or database at the North Jakarta Transportation Sub-Department.

Research Implementation

System implementation can also be said to be the creation of software from the design process to the coding operations process using a programming language which will then produce a result in the form of a system or device that has been previously agreed upon and prepared .

Implementation Goals

Implementation Goals is reason Why implementation created , ie as following

1. Finish appearance system existing system _ agreed previously .

2. Validate capable user _ operate system that has made

3. Testing is system new the in accordance with user

4. Validate the changes going to system created _ walk that is with create plan , monitor and organize installation new in a way appropriate .
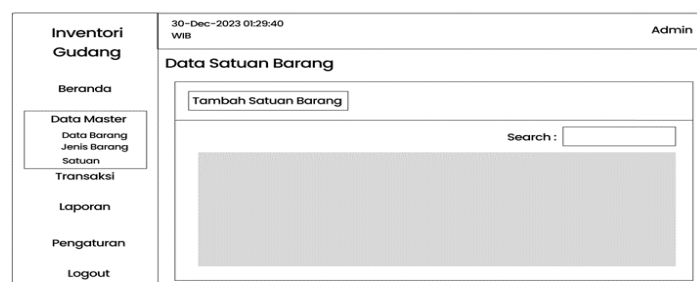
V.   RESEARCH RESULTS AND DISCUSSION

Design (Display)

Interface is design interface or visual display of medium system _ developed . Interface This aim For makes the design process easier appearance system moment do program code .
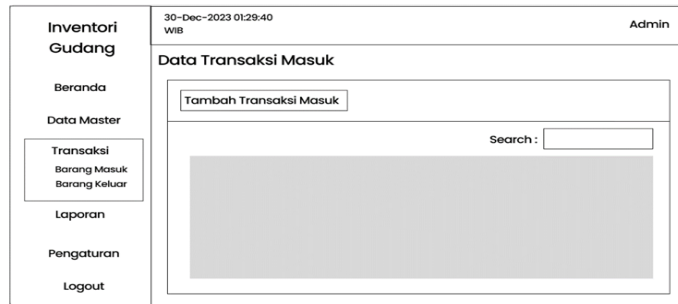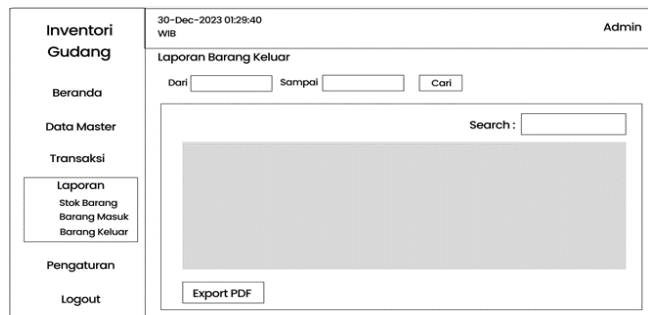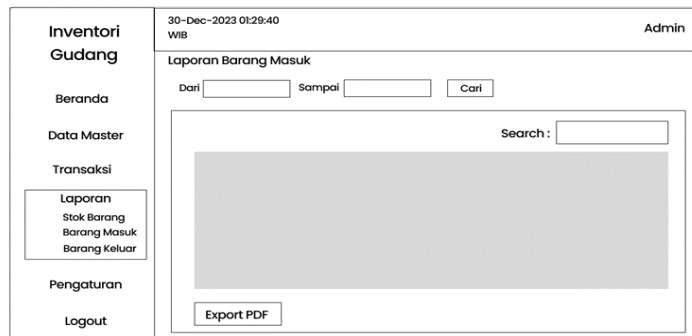
Admin Item Data Page Design
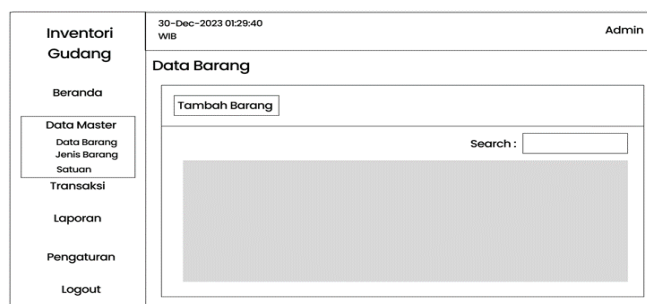
Admin Unit Data Page Design

Admin Entry Goods Data Page Design

Admin Incoming Goods Report Page Design

Admin Outgoing Goods Report Page Design

Division Admin Add Items Page Design

Division Admin Goods Report Page Design

Program Demonstration

Application to the *Inventory Stock information system* There are pages here. Some of the pages that will be shown are program pages that have been prepared previously.
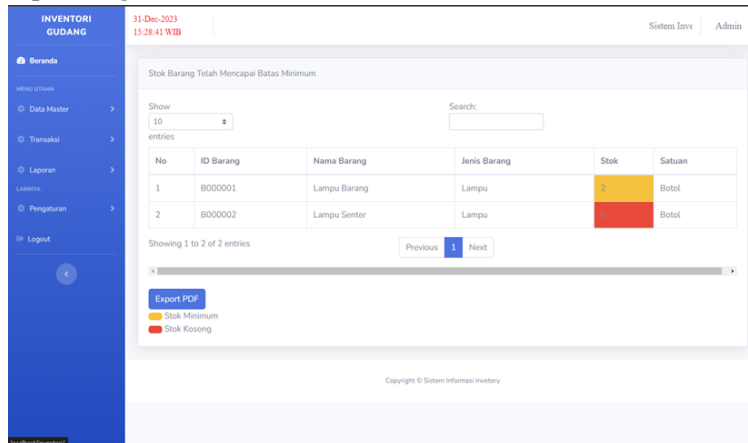
Admin Login Page

Admin Dashboard Page

Admin Login Goods Transaction Data Page
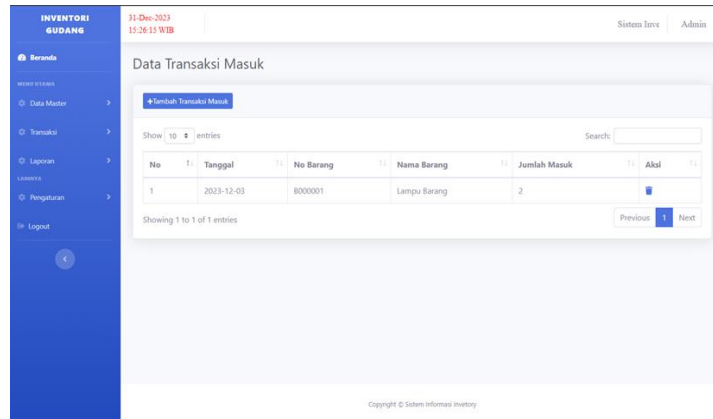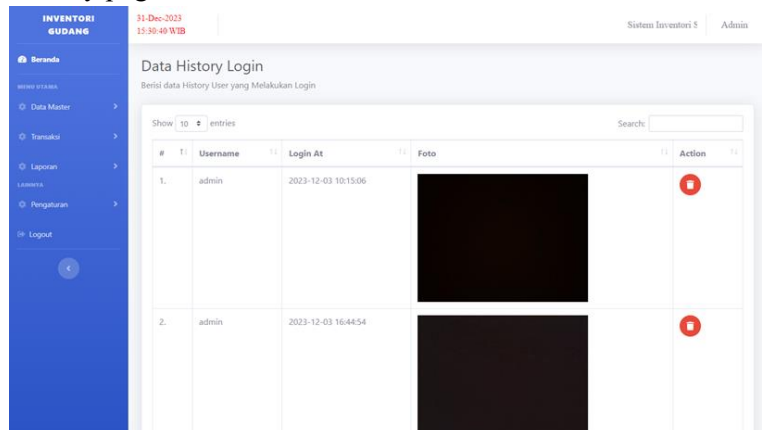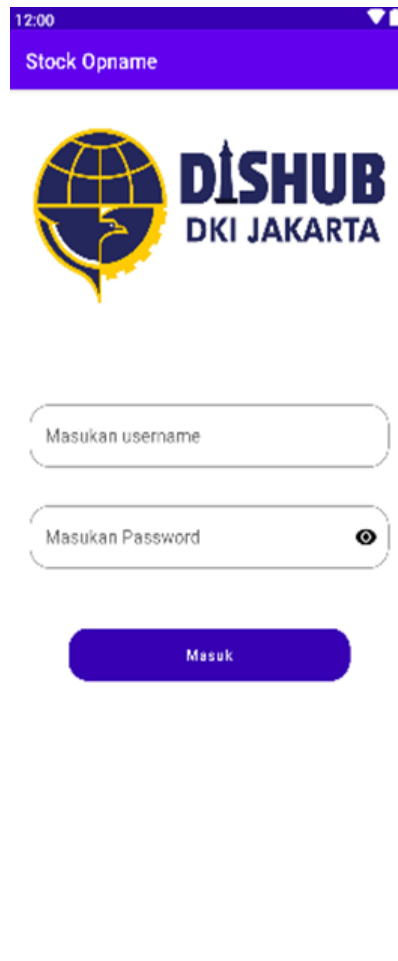

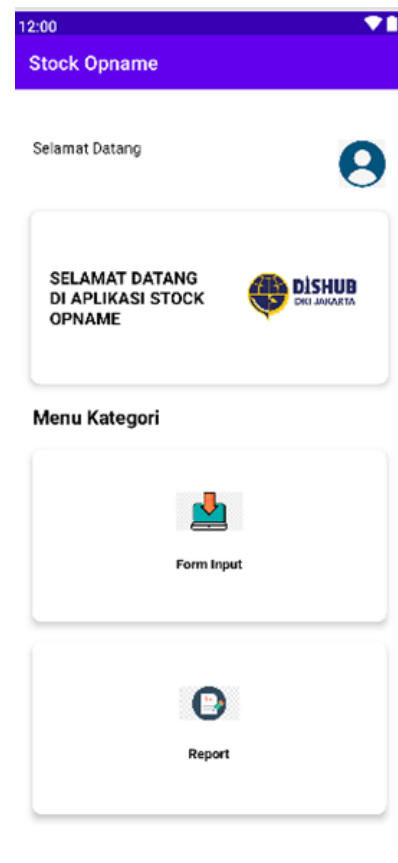Outgoing Goods Transaction Data Page Admin
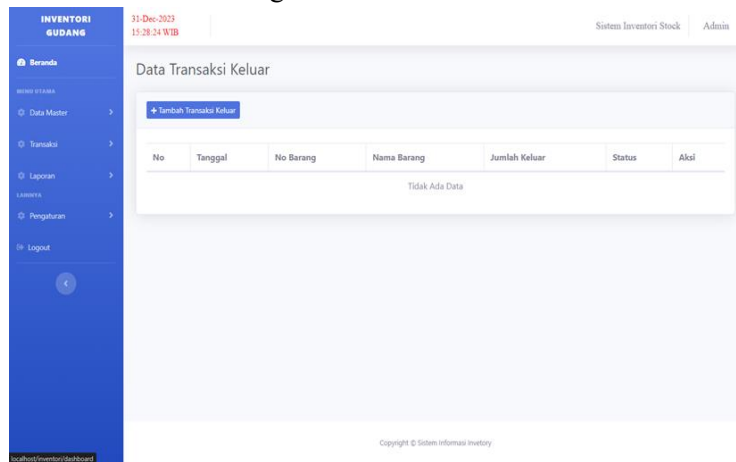
Admin Stock Report Page

Admin Login History page

Division Admin Login Page

Division Admin Main Page

Division Admin Item Input Page

VI.   CONCLUSIONS AND RECOMMENDATIONS
Conclusion
1. Minimize Error :

Android based Inventory Stock application provides solution to problem human error in recording inventory Manually . With automated and structured systems , risks _ error write , loss sheet paper , and errors calculation can minimized in a way significant .

2. Improved Real-Time Information:

Application application This has overcome constraint information stock stuff that doesn't always available in real time. With connected system _ in a way direct with inventory database , information stock goods can accessed with fast and accurate , enabling takers _ decision For Act in a way more appropriate time .

3. Tracking Efficient Inventory : _

Application This give convenience in tracking inventory , even moment happen error or lost goods . Facility integrated tracking _ simplify the process of searching and recovering accurate inventory data .

Suggestion
1. Development of Additional Features :

Do development more continue with the application with add feature possible additions _ increase functionality , like monitoring historical stock goods , notifications automatic moment stock reaching the minimum limit, and integration with system management other .

2. Training User :

Do training to user related use application . This matter will ensure that the managers inventory can utilise all over potency application optimally , as well minimize possibility error user .

3. Performance Evaluation :

Do evaluation performance application in a way periodically For ensure that application operate in accordance with hope and give mark added as desired by the North Jakarta Transportation Sub-Department .

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