



Implementation of Extreme Programing in the Stock Inventory Information

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Abstract: Inventory information system is a software designed and built to manage inventory effectively and in real-time. In addition, to support the acceleration of business growth, business people are required to be able to adapt to technological advances. Pins perfume shop is a shop that presents a wide variety of perfume collections with different fragrances. The process of managing inventory at the pins perfume shop is still carried out conventionally, which has several risks such as loss of documents, damage to documents, and errors in recording the amount of inventory. To minimize these risks and support the acceleration of business growth, the authors design and build a website-based inventory information system. The author uses the Extreme Programming (XP) method, this research was conducted at the pins perfume shop. With this digital platform, it helps make it easier for the pins perfume shop to manage inventory, and makes it easier to print inventory reports, which are useful in making the right business strategy decisions.

Keywords: Information System, Goods Inventory, Pins Perfume Shop, Extreme Programming (XP).

1. INTRODUCING

Inventory information system is a vital tool in managing inventory for a business [1-3]. The inventory information system includes the process of recording, monitoring, and managing data related to inventory, which includes information about the number of items available, storage locations, and the history of incoming and outgoing goods. With the inventory information system, it helps users manage inventory effectively and minimize shortages or excess inventory. Inventory information system is very important for a business or company, to manage inventory effectively [4-6]. According to [7-10] inventory information system has a crucial role in a business.

A website-based inventory information system is a digital platform designed and built to manage and monitor inventory efficiently and in real-time. Through a website-based inventory information system, users can easily carry out various activities related to inventory management, such as recording incoming and outgoing goods, monitoring available goods, and generating reports automatically. According to [11-13] with a website-based inventory information system, it makes it easy for users to access inventory information from anywhere. With access via the web, it gives users the flexibility to access inventory information from anywhere and anytime, enabling fast and precise decision making based on real-time data. So that a website-based inventory information system is a very useful solution for a business in optimizing its overall inventory management. The inventory information system is an effective solution in managing inventory [14]

Pins perfume shop is an exclusive destination for fragrance lovers who prioritize quality and uniqueness in the selection of scents, pins shop presents a wide range of perfume collections with different fragrances. From fresh floral nuances to luxurious oriental touches, pins perfume shop offers a wide variety for every taste. Pins perfume shop is not just a place to buy fragrances, but also a destination where customers can explore the world of scents with wit and fun. Pins perfume shop now has two branches, the first is located in Lorong Halim Jalan Panca Usaha Kelurahan 5 Ulu Kecamatan



Seberang Ulu 1 Palembang City which operates or serves online purchases only, while the second store in Talang Jaya Village, Sungai Menang District, Ogan Komering Ilir Regency which operates or sells perfumes offline and online.

In terms of inventory management, the pins perfume shop still applies conventional methods, by manually recording every transaction of incoming goods, goods issued, and available goods in a notebook. This method has several significant risks, ranging from errors in recording the number of items, damage to inventory records, and loss of inventory records. These risks are a serious problem if they occur, because they can affect the accuracy and smoothness of the inventory management process. Therefore, to support an effective inventory management process, a digital platform is needed to handle all of this, so as to minimize the occurrence of these risks.

To minimize the risk of errors, damage to documents, and loss of documents regarding the inventory of goods and support the process of managing stock inventory that is effective and fast at the pins perfume shop, the authors design and build a website-based stock inventory information system. With the existence of this digital platform, it helps make it easier for the pins perfume shop to manage inventory, as well as making it easier to print inventory reports, which are useful in making the right business strategy decisions.

2. RESEARCH METHODOLOGY

In designing and building a stock inventory information system at the perfume pins shop, the author uses the observation method in data collection, and the extreme programming (XP) method for system development.

2.1 Data Collection Methods

The data collection stage aims to understand user needs, business environment, and system requirements. At this stage the author makes direct observations to the pins perfume shop, in order to know and understand how the inventory management process takes place, and also understand what kind of inventory management system is needed by the pins perfume shop. The author uses this information as an illustration in designing and building a goods inventory information system at the pins perfume shop later.

2.2 System Development Method

To design and build a stock inventory information system at the pins perfume shop. The author uses the Extreme Programming (XP) method. in the Extreme Programming method there are four stages of work, as follows:

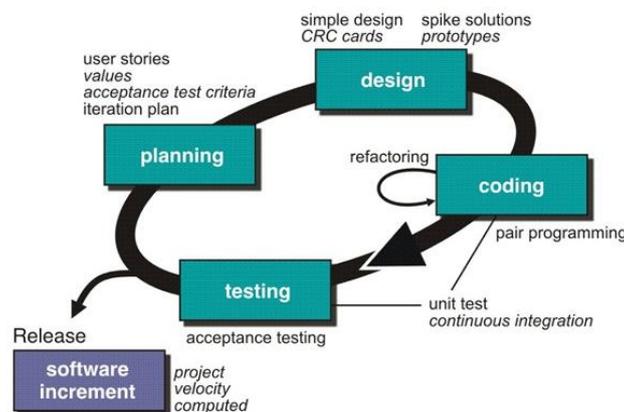


Figure 2.1. System Development Methods

- Planning

The planning stage is the initial stage of the Extreme Programming (XP) method, at the planning stage or planning is done to analyze the needs in building a web-based inventory information system



at the pins perfume shop, including analysis of system needs and analysis of user needs. Analysis of system and user needs aims to find out what is needed by users and the system, starting from what menu is needed, how the menu functions, and who will use this system later.

- Design

At this design stage, the author does two stages of work, namely making use case diagram designs and activity diagram designs. This design stage aims to make it easier when building the system later, the process of building the system will be carried out at the coding stage. Use case diagrams have the benefit of explaining what the user can do, while the activity diagram design is useful for explaining how the interaction between the user and the system is.

- Coding

The Coding stage is the implementation of the planning and design stages, where at this stage the system is built according to the needs of the user and the system described at the planning stage, and also based on the system workflow and display that has been made at the design stage. In building a website-based inventory information system at the pins perfume shop, the author uses the PHP programming language and is supported by the laravel framework, for the database the author uses MySQL (My Structured Query Language).

- Testing

Furthermore, the testing stage, as well as the last stage of the extreme programming method. At the testing stage, the author tests the system that has been built, testing this system aims to find out whether the system that has been built is running well in accordance with the objectives or not. By doing this test, it can be seen if there are errors or errors in the system, it will be immediately corrected before implementation. In testing the system to be more optimal the author uses the black box testing method.

3. RESULT AND DISCUSSIONS

3.1 RESULTS

The result of this research is a website-based stock inventory information system, which is used by the pins perfume shop in managing incoming goods, outgoing goods, and available goods. On this information system website there are two users or users, namely admin and employees. The admin is the full controller, who has access to all pages of the website, starting from managing incoming goods data, outgoing goods, available goods, and registering employee accounts. Meanwhile, employees have limited access, employees can only add incoming goods and outgoing goods, and search for data.

3.2 DISCUSSION

The following is a discussion of the research the author did at the pins perfume shop, by applying the Extreme Programming (XP) system development method:

- Planning

At the planning stage, the authors carry out two stages of work, namely analyzing user needs and analyzing system requirements, as follows:

- a. User Requirement Analysis

In the pins perfume shop website-based inventory information system, there are two users or users, namely admin and employees. Admins and employees have different access rights to the pins perfume shop inventory information system, as follows:

- Admin: as the full controller of the website-based inventory information system at the pins perfume shop, the admin can add incoming goods, delete incoming goods, change incoming goods, download incoming goods reports, search for incoming goods, add outgoing goods, delete outgoing goods, change outgoing goods, download outgoing goods reports, search for outgoing goods, register employee accounts, change employee account data, and delete employee accounts.

- Employees: have limited access rights to the pins perfume shop inventory information system, employees can only add incoming goods, search for incoming goods, add outgoing goods, and search for outgoing goods.



b. System Requirements Analysis

In the pins perfume shop website-based inventory information system, there are three menus and six features that have different functions and uses, as follows:

- Incoming goods menu: functions to display incoming goods data that has been added to the system, all incoming goods data in the database system will be displayed on the incoming goods menu page, the data presented in tabular form.
- Outgoing goods menu: functions to display outgoing goods data that has been added to the system, all outgoing goods data in the database system will be displayed on the outgoing goods menu page, the data is presented in tabular form.
- User data menu: serves to display all user or user data registered in the database system.
- Data add feature: used by admins and employees to add data on incoming goods and outgoing goods according to predefined data fields.
- Data change feature: used by admin to change incoming goods, outgoing goods, and user data that has been added, according to the data fields that you want to change.
- Delete data feature: used by admin to delete incoming goods, outgoing goods, and user data that has been added if needed.
- Data download feature: used by admin to download reports on incoming and outgoing goods data, downloaded data can be customized by date or all data.
- Search data feature: used by admins and employees to search for incoming and outgoing goods data, with predefined keywords.
- Register feature: used by the admin to register employee accounts, all employee accounts are registered by the admin. As for the admin account, it will be created when building the system.

• Design

At this design stage, the author makes a system flow design of a website-based inventory system at the pins perfume shop. The system design that the author makes is a use case diagram and activity diagram design, as follows:

a. Draft Use Case Diagram

Use case diagram is a visual design that serves to explain what can be done by the user and the limitations of the user's access. In the website-based inventory information system for the pins perfume shop, there are two users with different access, the use case design below explains what the user can do. This stage is made based on the user needs analysis stage that the author has done at the planning stage, the following is the use case diagram of the pins perfume shop inventory information system that the author has made:

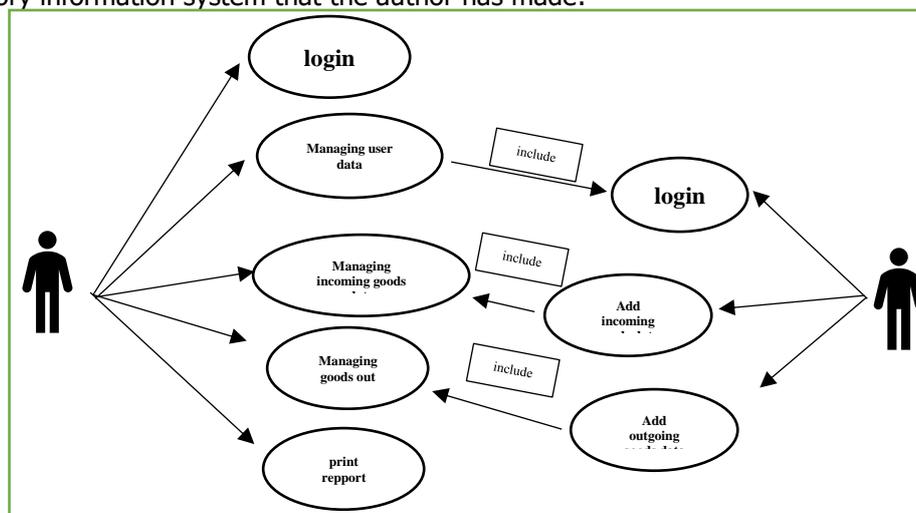


Figure 1. Draft Use Case Diagram

b. Activity Diagram Design

The activity design is a detailed explanation of the flow of the website-based inventory system at the pins perfume shop. The activity diagram design aims to explain how the user and system interact, from the user logging in, processing incoming goods and outgoing goods data, to the user logging out of the system. With a detailed explanation of the design of this activity diagram, it helps make it easier for the author to build an inventory information system at the pins perfume shop later. Because at this stage it has been explained how the system and user interact, the following is the activity design of the pins perfume shop website-based inventory system that the author has made:

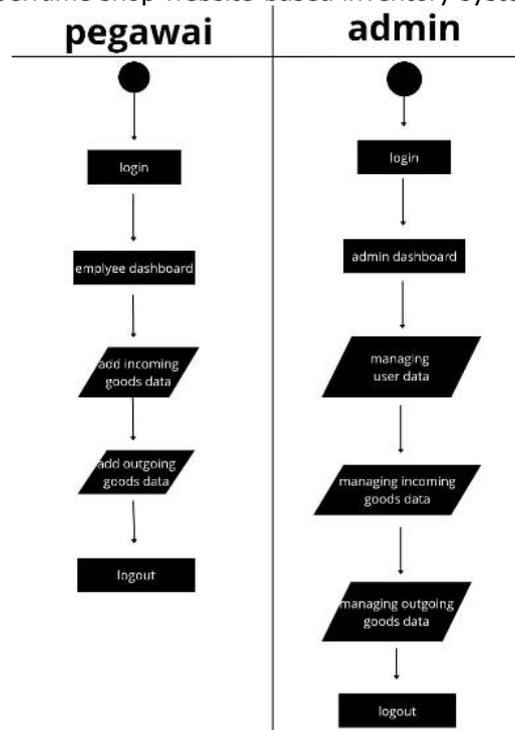


Figure 2. Activity Diagram Design

- Coding

At this coding stage the system has been built, using the PHP programming language and assisted by the Laravel framework with the MySQL database. The following is a display of a website-based inventory information system at the pins perfume shop, which the author has built:

The login page is a page used by admins and employees to enter their respective dashboards. The system will detect the level of the user, if the user is an employee then the system will direct to the employee dashboard page, but if the user is an admin then the system will display the admin dashboard page. The first login page when the user visits the website address of the pins perfume shop inventory information system.

The admin dashboard page is a page used by the admin to control the inventory information system for the pins perfume shop, the admin dashboard page will appear when the admin successfully logs in with an account registered in the database system. The system will detect whether it is really the admin who enters or not, namely through the user level. If the user level is admin then this admin dashboard page.

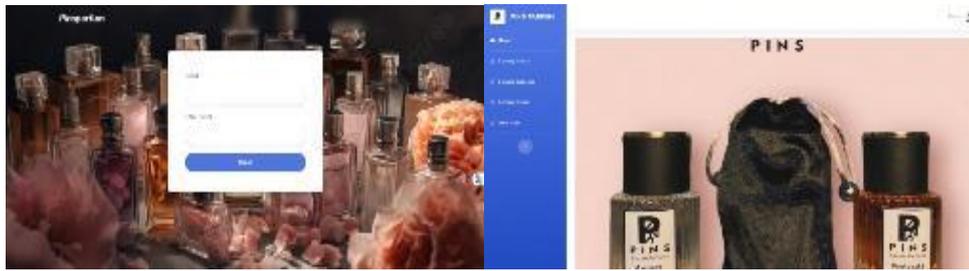


Figure 3. Login Page and admin dashboard page

The incoming goods menu page on the admin dashboard is a page that displays incoming goods data, which has been added to the system. All data stored in the incoming goods database will be displayed on this page, the data is presented in tabular form. On this page there are also five features, namely the add data, search data, download data, delete data, and change data features.

The add incoming goods form page on the admin dashboard is a page used by the admin to add new incoming goods data, the admin fills in the data form according to the format then the admin clicks the "add incoming goods" button. Then the added data will be stored in the incoming goods database and will be displayed on the admin incoming goods menu page.

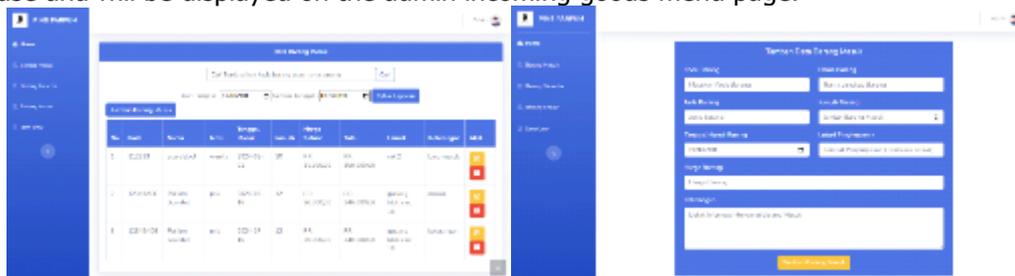


Figure 4. Admin Dashboard Incoming Goods Menu Page and Add Item Form Page in Admin Dashboard

The change incoming goods form page on the admin dashboard is used by the admin to change the incoming goods data that has been added, if there is an error in the data field added. So the admin does not need to add or delete incoming goods data again, the admin simply changes the wrong data field then clicks the "change incoming goods" button, then the data stored is the latest data that has been changed. Then the data displayed on the incoming goods page is also the latest or changed data.

The available goods menu page on the admin dashboard is a page that displays the available inventory of goods, all inventory items will be displayed on this page. The available goods page makes it easier for admins to manage inventory, so as to avoid shortages of inventory, thus consumer demand can always be fulfilled. The data displayed is real time or the latest, on this page there are also features to remove available items, delete available items, download available item reports, and search for available items using predetermined keywords.

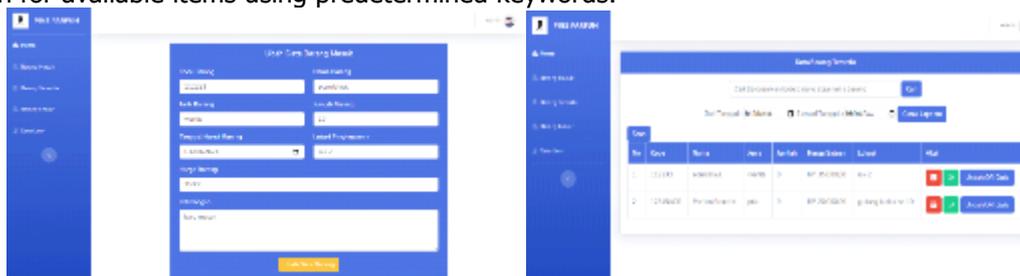


Figure 5. Admin Dashboard Change Item Entry Form Page and Menu Page Available Items Admin Dashboard

The remove goods form page is available on the admin dashboard, used by admins to remove available items, by filling out the form according to predetermined data. The number of available items will adjust to the goods issued, if the goods issued exceed the inventory then the system will reject and display the message "insufficient inventory", but if the goods issued are the same amount and or less than the inventory then the system will display the message "goods successfully issued".

This form page is used by the admin to release available items, but it is slightly different from the release form. With this scan feature, the admin only needs to scan the qr code, the data will appear automatically.

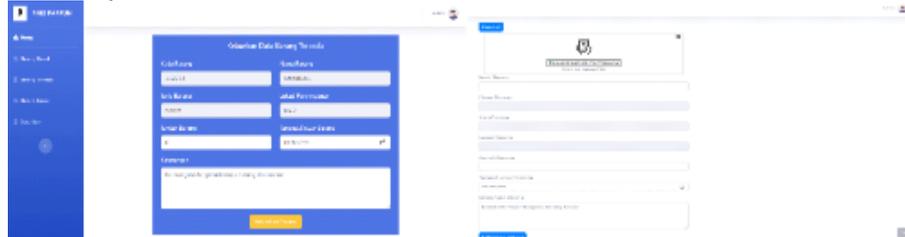


Figure 6. Form Page Remove Items Available Admin Dashboard and Admin Item Qr Code Scan Form Page

The outgoing goods menu page on the admin dashboard is a page that displays all outgoing goods data. Outgoing goods are goods issued from available goods, each available item is issued, it will be stored in the outgoing goods database and will be displayed on this outgoing goods menu page.

The change outgoing goods form page on the admin dashboard is used by the admin to change the outgoing goods data if there is an error when inputting outgoing goods. If the number of outgoing goods is reduced, the number of available goods will increase, but if the number of outgoing goods is increased, the number of available goods will decrease. The admin fills in the data fields on the form according to what has been determined, then the admin clicks the "change goods out" button, then the changed goods out data will automatically change according to what was changed. The data displayed on the outgoing goods page is also the latest data, which has been changed.

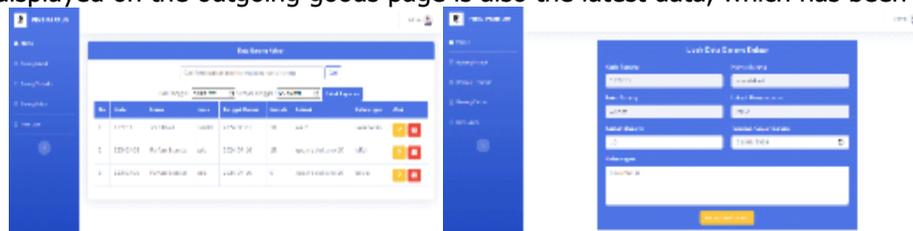


Figure 7. Admin Dashboard Outgoing Goods Menu Page and Admin Dashboard Change Outgoing Goods Form Page

The user data menu page on the admin dashboard is a page that displays all user account data registered in the system, the admin can control who has access to enter the admin dashboard page or employee dashboard.

The register form page on the admin dashboard is a form used by the admin to register a new user account, be it admin or employee. Each new user account can only be registered through the register form found on this admin dashboard.

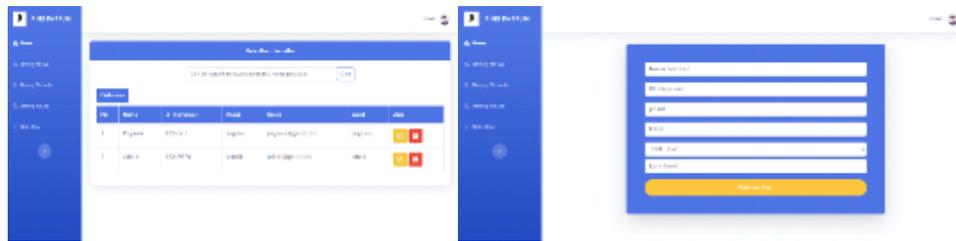


Figure 8. Admin Dashboard User Data Menu Page and Admin Dashboard Register Form Page

The change user data form page on the admin dashboard is a form used by admins to change registered user account data if needed.

The employee dashboard page is a page that will appear when the logged in user status is an employee, this employee dashboard page is used by employees to access the pins perfume shop inventory information system. However, employees have limited access rights, they can only add incoming goods data, issue available goods, search for incoming goods, and search for outgoing goods.

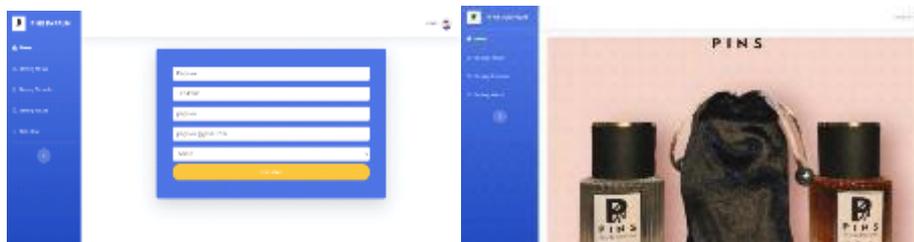


Figure 9. Admin Dashboard User Data Change Form Page and Employee Dashboard Page

The incoming goods menu page on the employee dashboard, used by employees to view incoming goods data. the incoming goods menu on the employee dashboard is different from the admin, where on this employee page there is only an add incoming goods feature and a search feature for incoming goods only.

The add incoming goods form page on the employee dashboard, used by employees to add each incoming item. By filling in the form according to the specified data fields, each column on the form must be filled in, if so, employees click the "add incoming goods" button and the data will be stored in the database system, then will be displayed on the incoming goods menu page.



Figure 10. Employee Dashboard Incoming Goods Menu Page and add Employee Incoming Goods form Page

The available goods menu page on the employee dashboard is a page that displays available goods data, on this page employees can see all available goods data.

The release form page on the employee dashboard is a form used by employees to release available items, employees only need to select which item data they want to release, then fill in the number of items released, select the date, and fill in a description of why the item was released. If the number of items issued is less than the number of available items, the system will display a message "new items successfully issued". However, if the goods issued are more than the inventory

of goods, the system will display a message "insufficient inventory of goods". Each item data issued will be displayed on the outgoing item data menu page.

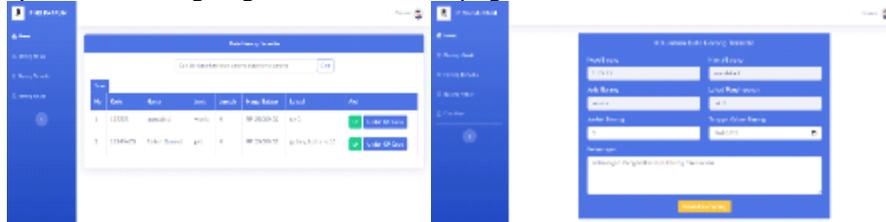


Figure 11. Employee Dashboard Available Items Menu Page and Employee Dashboard Item Release Form Page

This form page is used by the admin to release available items, but it is slightly different from the release form. With this scan feature, the admin only needs to scan the qr code, the data will appear automatically.

The outgoing goods menu page on the employee dashboard is a page that displays all items removed from inventory. But unlike the available goods menu page found on the admin dashboard, the employee dashboard only has a search feature. Because to change outgoing goods data and delete outgoing goods data can only be done by the admin.

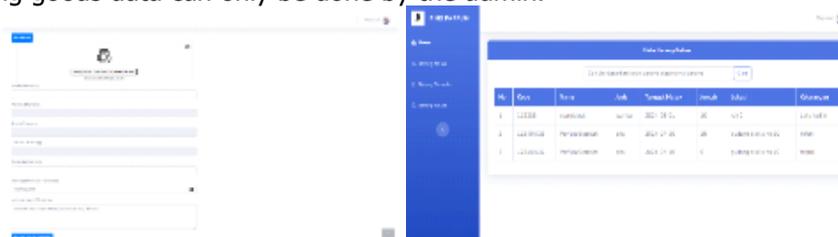


Figure 12. Employee Goods or Code Scan Page and Employee Dashboard Outgoing Items Menu Page

• Testing

In the testing stage, the author tests the website-based inventory information system at the pine perfume shop using the black box testing method, this test aims to find out whether the system is running properly or not. If there are errors, they can be corrected immediately, before being implemented in the pine perfume shop. The following are the results of the tests that the author did:

Login form black box testing: 100%

Black box testing add user: 100%

Black box testing add goods: 100%

Black box testing delete items: 100%

Black box logout testing: 100%

4. CONCLUSION

The research that the author conducted at the pins perfume shop for four months, from March to June 2024, was successfully conducted by the author using the extreme programming method using this method the research became structured. In this study, it produces a website-based inventory information system, this information system will be used by the pins perfume shop to manage inventory, starting from incoming goods, available goods, and outgoing goods. The following are the conclusions of this research: The website of the goods inventory information system at the pins perfume shop was successfully designed and built by the author using the extreme programming (XP) method. The inventory information system for the pins perfume shop has been tested, no errors or errors were found using black box testing. The pins perfume shop inventory information system is already hosted, can be accessed through a browser, and is ready to use. With this inventory information system, pins perfume shop can manage inventory more efficiently.

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