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Design and build a web-based guitar inventory system

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ABSTRACT

With the rapid technological developments, many companies continue to make efforts and strategies to survive in their business. The role of company in managing the availability of goods (inventory) is one of the success factors for a company to maintain its business. Therefore, the customers demand can fulfill their requests as much as possible. Almoon's Guitar Gombong shop uses a manual recording system. The shortcomings of the current manual system include inefficiency in terms of time to find out the stock of goods when consumers arrive. In addition, the calculation of incoming goods data and outgoing goods data is still manual, which may result in errors or inaccuracies in the calculations, hampering the store performance. In the report that is required to be submitted to the leadership, it will take a long time and there is even a possibility that the archive will be lost or damaged. Therefore, the researchers aim to create a system to make it easier to collect data on goods, with the hope that the system will facilitate the work at Almoon's Guitar Store in managing inventory. The inventory system designed in this project can manage incoming and outgoing goods data as well as stock data in one web-based application.

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1. INTRODUCTION

Almoon's Guitar shop has established since 2018. Almoon's Guitar Shop is a musical instrumen store in Gombong Kebumen, which operates in the field of selling guitar musical instruments. This store aims to provide services to musicians or music performers or enthusiast in looking for a set of guitar musical instruments. The role of this shop in managing (availability of goods) inventory is one of the success factors for maintaining its business. Thus, customers can fulfill their requests as fully as possible. By having good inventory management (availability of goods), it can fulfill customer needs, making customers feel comfortable and this shop can maintain its business properly. Inventory (availability of goods) in this shop is crucial because the company can manage goods, one of which is managing stock of goods. Inventory (stock of goods) is something that is very necessary to carry out the production process, particularly for the accuracy of data and information about goods in the production process as it will be used for reporting bookkeeping information (W. Chen et al., 2022; Fabinyi et al., 2015; Jørgensen et al., 2007; Maseyk et al., 2017).

The searching process for the availability of goods in this store still uses manual methods, which results in time inefficiency in finding out the stock of goods when consumers arrive (Kurdi et al., 2022; Oladele et al., 2021; Sasanuma et al., 2022). Moreover, the calculation of incoming goods data and outgoing goods data is still manual, which may result in errors or inaccuracies in the calculations (L. Chen et al., 2020; Nurfi, 2020; San-José et al., 2022; Shamsuddin & Kaur, 2020; Soeltanong & Sasongko, 2021; Zimmer et al., 2022). As a result, hampering the store performance. In the report that is required to be submitted to the leadership, it will take a long time and there is even a possibility that the archive will be lost or damaged (Fawaidul Badri et al., 2022; Harimbawa et al., 2022; Mantik et al., 2021; Yogi Isro, 2018). Having an inventory system will make it easier to process stock data, calculations and reports to leaders because it can be done anytime and anywhere (Effendy et al., 2022; Famy & Tukino, 2022; Hidayatulloh & Ramadhan, 2022; Triansyah et al., 2021).

Based on this background description above, the research was carried out on "Guitar Inventory Design (Case Study: Almoon's Guitar Gombong Shop)" in order to make it easier to collect data on inventory, and make reports on incoming and outgoing goods. This research aims to design and build an inventory system that is appropriate to the problems above, to make it easier to manage data or report goods at the Almoon's Guitar shop so that it can provide information about the right and accurate stock of goods with this goods inventory system in accordance with what the Almoon's Guitar shop needs.

2. RESEARCH METHOD

In this research, data were obtained through interviews with informants from the leadership of Almoon's Guitar Shop. The research was conducted at Almoon's Guitar Shop, a musical instrument store in Gombong Kebumen. The complete address of Almoon's Guitar Shop is located at RT/RW 03/05, Semampir, Kemukus, Kec. Gombong, Kebumen Regency, Central Java. System design incorporates a Data Flow Diagram (DFD consisting Context Diagram, Hierarchy Diagram, DFD level 1, DFD level 2 process 1, and DFD level 2 process 2. The Context Diagram section discusses an overview of the process by the system and process from the highest level to the lowest level. Then, it will be detailed in DFD Level 1. It will then be divided into several smaller and more detailed sub-processes in DFD level 2 process 1 and DFD level 2 process 2. Physical Design used Entity Relationship Database (ERD).

3. RESULTS AND DISCUSSIONS

The Admin login page is the first page that appears when the website is opened. This page contains the username and password that will be used by the Almoon's Guitar Shop admin. Before the user can operate this system, the admin must log in first. Admin must enter the username and password data that has been provided.

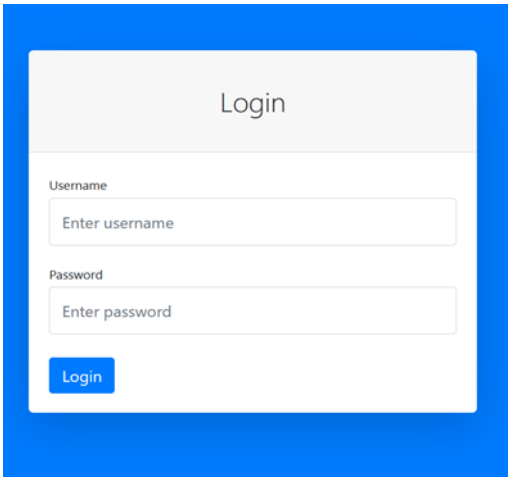

Figure 1. Login Display

Figure 2 shows the inventory/stock data page. This item stock page is a page that contains stock of existing item data. Admin can monitor and see the condition of available stock. Besides, there is a print data button which functions to print stock data reports, which will be reported to the shop owner or leader. In the stock data report section there are three options, namely PDF, Excel, and Print.

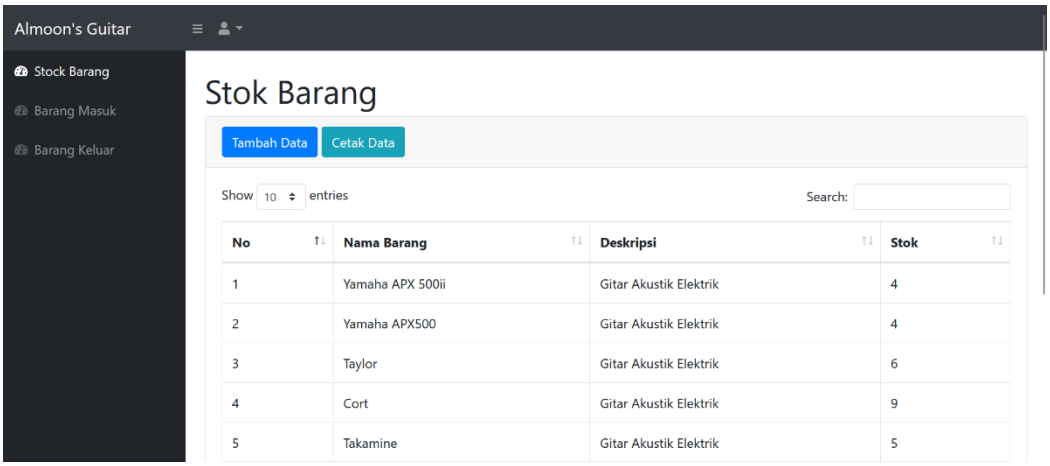

Figure 2. Display of the Stock Items Page

Based on Figure 3 on the incoming goods page. Admin can add item data if there are new items. Moreover, the admin can also edit the item data if an error occurs in entering the data and can also delete item data. When the admin makes a mistake in entering data, the admin can also delete the data. In the date column, it will be filled in automatically on the date on which the data was entered.

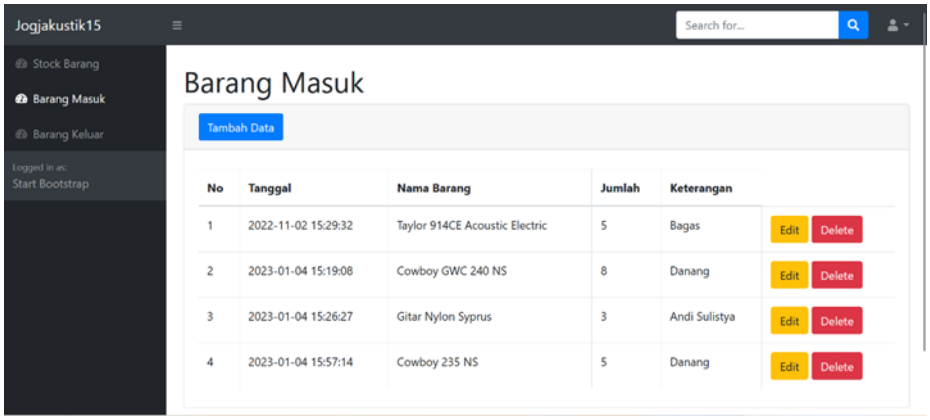

Figure 3. Display of the Incoming Goods Page

Based on Figure 4, on the outgoing goods page, admin can add item data if goods are out. Besides, the admin can also edit the item data if an error occurs in entering the data and can also delete item data. When the admin makes a mistake in entering data, the admin can also delete the data. In the date column, it will be filled in automatically on the date on which the data was entered.

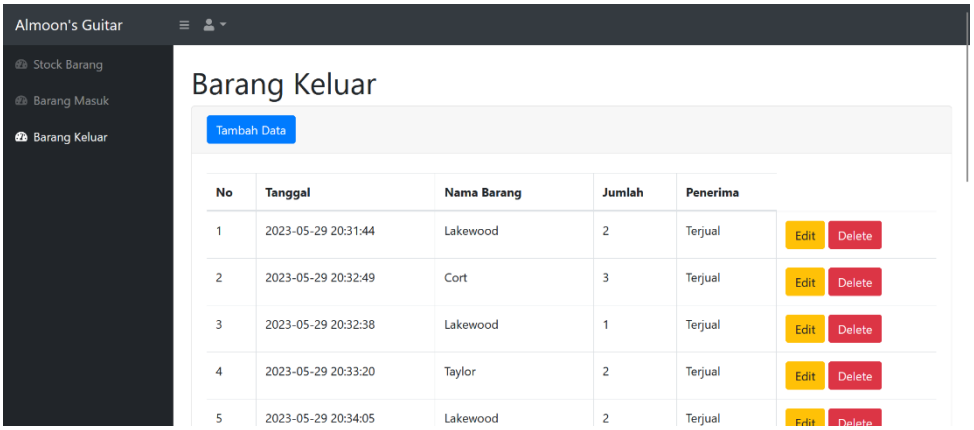

Figure 4. Display of the Outgoing Goods Page

The admin logs in, then the admin enters the data into the incoming goods page table. If there are new items that are not yet available in stock, the admin must input these items into the stock page table. Then, if there are outgoing goods, the admin can input data on the outgoing goods. When the admin makes a mistake in entering incoming goods data or outgoing goods data, the admin can update the data. In addition, if there is an error when inputting the data, the admin can delete the data. On the stock page, there is a print data button which functions to print a report on stock data to be reported to the shop owner or leader.

Refer to Table 1 and Table 2 below, it is used for testing on inventory system research.

Table 1 Testing Incoming Goods Transactions

No	Name	Add data	Edit data	Delete Data
1	Nur Rohman	✓	×	✓
2	Listia Wiji Winasti	✓	×	✓

No	Name	Add data	Edit data	Delete Data
3	Emillia Paraningtias	✓	✓	×
4	Muhammad Hidayat	×	✓	✓
5	Destia Mustikasari	✓	✓	×
6	Guide Bayu Pinandita	✓	×	×
7	July Hendra	✓	✓	×
8	Retno Widayanti	×	×	✓
9	Nanda Putra	✓	✓	×
10	Fahmi Hidayat	✓	×	×

In the table above, the test results of inventory system research are presented, namely testing incoming goods transactions. From the table it is known that based on the data above there were 10 respondents and most of them succeeded in adding data, editing data and deleting data. The system that will be built in this research has an ERD listed under admin processing incoming goods and admin also processing outgoing goods. As seen in Figure 9 below, there are 3 entities, namely admin, incoming goods, and outgoing goods. In the Admin entity there are the attributes id_user, username, and password. Then in the outgoing goods entity there are attributes in the form of outgoing_id, goods_id, date, and recipient. Next, in the incoming goods entity there are attributes in the form of incoming_id, goods_id, date, qty, and description

Table 2. Testing Outgoing Goods Transactions

No	Name	Add data	Edit data	Delete Data
1	Nur Rohman	✓	✓	×
2	Listia Wiji Winasti	✓	×	✓
3	Emillia Paraningtias	✓	×	×
4	Muhammad Hidayat	×	✓	✓
5	Destia Mustikasari	✓	✓	×
6	Guide Bayu Pinandita	✓	✓	×
7	July Hendra	✓	✓	×
8	Retno Widayanti	×	×	✓
9	Nanda Putra	✓	✓	×
10	Wawan Hidayat	✓	✓	×

The transaction process is divided into 2, namely incoming goods transactions and outgoing goods transactions. Admin inputs data. This data is in the form of incoming goods data and outgoing goods data. Then after the admin inputs the data, the data will be stored in the database. Next, after the admin inputs the data, the system will display the data that has been input and the admin can print the data to be used as a report to

the leader or shop owner. These reports are in the form of stock reports, incoming goods reports, and outgoing goods reports.

Then for transactions, there are 2 processes, namely incoming goods transactions and outgoing goods transactions. The admin inputs incoming goods, then the system will display the data that the admin inputs in table form. Then the data will be stored in the database. Next, items are coming out. Admin inputs outgoing goods data and then the system will display the data. When the data appears in the system, it means that the data has also been stored in the database.

Then for the final process, there is a report. Admin prints a stock report on items that are available on the page. Next, the admin prints the incoming goods report which is available on the incoming goods page. Then the admin prints an outgoing goods report that is already available in the system (X. Chen et al., 2023; Deng et al., 2020; Idlan Azmi et al., 2022; Lee & Lim, 2022; Murphy & Knemeyer, 2018) The results of the stock report, incoming goods report, and outgoing goods report will become a report to be submitted to the leadership

4. CONCLUSION

This inventory system is built to facilitate admins in managing the stock of goods in the Almoon's Guitar Gombong Shop in a more systematic and computerized manner. This helps to avoid calculation errors when collecting item data and make it easier for admins in the process of creating item data reports. This inventory system includes a menu that can be used by admins to manage item data. The menus available include admin login, transactions consisting of incoming goods transactions and outgoing goods transactions, and also a report menu, namely incoming goods reports, outgoing goods reports, and stock reports. The implication of this research is that this research can be input to facilitate the goods management process. Future research should carry out system development research.

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