Analysis and Design of Web-Based Inventory Receipt and Management Information Systems at Heycaps.Co Stores Using the *Prototype* Method

Ni Putu Tia Ananda [1], I Gusti Agung Pramesti Dwi Putri [2], Ni Putu Noviyanti Kusuma [3]

[1,2,3]*Sistem Informasi Akuntansi, Universitas Primakara, Denpasar*

Email: *tiaananda1805@gmail.com , pramesti@primakara.ac.id , kusuma@primakara.ac.id*

ABSTRACT

Effective inventory management is crucial for Heycaps.co to ensure smooth operations and customer satisfaction. However, the current manual system results in inventory data inconsistencies, delays in the receipt of goods, and challenges in inventory tracking. This study aims to design a web-based inventory receipt and management information system to address these issues. The system is developed using a prototype approach, incorporating Flowcharts, Data Flow Diagrams (DFD), Entity Relationship Diagrams (ERD), Table Relations, and Database Table Structures. The interface design employs the Bootstrap framework to ensure a responsive and user-friendly display. The findings of this study present a system design that can be utilized by the *owner*, warehouse staff, and store staff to enhance inventory data management, streamline the receipt process, and improve the accuracy of inventory reporting. User evaluations indicate that the proposed system meets user requirements and offers ease of use.

Keywords: Information System, Inventory, Prototype Method, Heycaps.co, Inventory Management.

INTRODUCTION

The advancement of technology, particularly in the fields of information technology and information systems, has progressed rapidly, encouraging various business sectors to integrate technology into their operations [1]. Information systems play a significant role in improving efficiency and reducing operational errors, especially in data and information management. In the trade sector, one of the most crucial aspects is inventory management [2]. Poorly organized inventory management can lead to significant errors, such as unnecessary overstocking or stock shortages that disrupt business operations. Accounting Information Systems (AIS) enable

companies to process data more efficiently and make accurate decisions. A crucial component of AIS is inventory management, which requires a system capable of monitoring item status quickly and accurately. Amid the rapid growth in demand and product variations, many companies, including Heycaps.co, face challenges in managing inventory manually.

Heycaps.co, a fashion-focused store, faces challenges in inventory management due to its manual system. This has led to errors in stock recording and difficulties in updating data. Implementing a computerized information system at Heycaps.co is essential to streamline the recording and management of inventory. This system is expected to reduce errors, expedite monitoring processes, and enhance the store's operational efficiency. Based on the outlined issues, the research problem to be addressed in this study is: *How can the analysis and design of a web-based inventory receipt and management information system at Heycaps.co be conducted using the prototype method?*

The system design for Heycaps.co will be carried out by utilizing various design tools, such as flowcharts, data flow diagrams (DFD), entity relationship diagrams (ERD), and database designs to map and organize the system structure [3], [4]. Once the design is completed, the system prototype will be developed using HTML, CSS, and the Bootstrap framework to create a responsive and visually appealing website interface. The evaluation and improvement process will be carried out continuously, based on user feedback, to ensure that the developed system meets the needs and expectations of users. The prototype will be considered complete after a series of improvements and validations are made.

The objective of this research is to design a web-based inventory receipt and management information system for Heycaps.co using the prototype method. This system aims to simplify the processes of receiving goods and managing inventory in a computerized manner, thereby reducing errors in record-keeping and data duplication [5]. Additionally, this system is also expected to serve as a reference for Heycaps.co in developing a more efficient system in the future.

LITERATURE REVIEW

Previous research, such as the study conducted by Wini Fadhilah Nugraha et al. (2022) on the goods distribution management system at CV Welas Asih Tasikmalaya [6], and Rudi Setiyanto et al. (2019) on the inventory system at Vahncollections [7], show that the prototype method is effective in improving stock management efficiency and supporting operational decision-making. This study adapts a similar approach to design a web-based inventory receipt and management information system at Heycaps.co. The system aims to simplify inventory recording, clarify workflow, and ensure a more focused and efficient development process.

RESEARCH METHODOLOGY

In this study, the prototype method is used as a system development approach that facilitates interaction between developers and users during the design phase. This method allows the creation of an initial model of the application or website, providing a clear enough picture of the system to be developed, although it does not include the entire initial view of the system [8]. Nevertheless, the prototype method plays a crucial role in ensuring that the system design being developed meets the user's expectations [9].
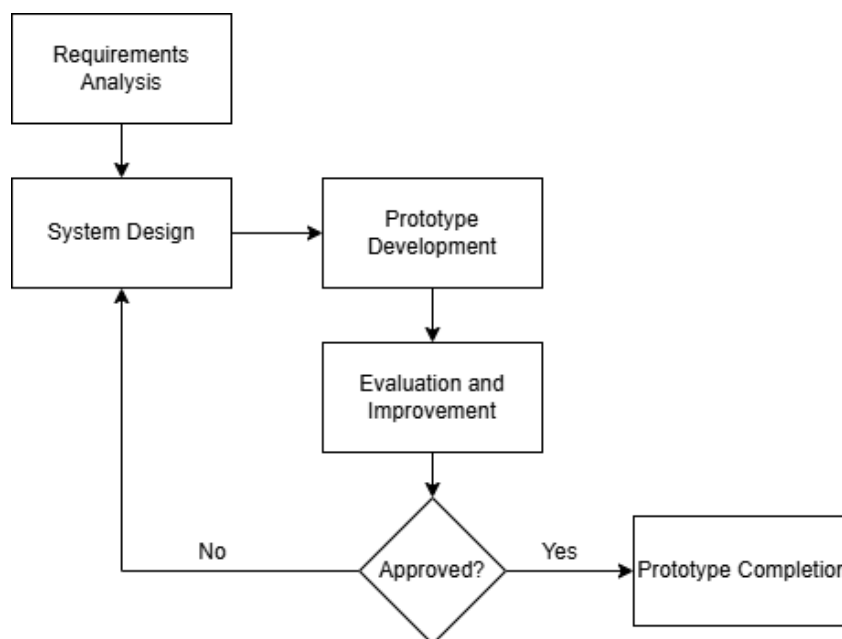

Figure 1. Prototype Method

The prototype method is used in the design of the web-based inventory receipt and management information system at Heycaps.co to facilitate communication between developers and users. Direct feedback from users is used to refine the features and appearance of the system to meet

their needs. Evaluation and improvements based on feedback make it easier to implement a system that aligns with user expectations. The design stages with this method are as follows:

1. **Requirements Analysis**: Information gathering is conducted to understand the needs of the system to be designed. Interviews with relevant parties at Heycaps.co are carried out to analyze existing issues and define the goals of the system to be developed.

2. **System Design**: In the system design phase, the design is carried out using tools such as flowcharts, Data Flow Diagrams (DFD), Entity Relationship Diagrams (ERD), and database designs to illustrate the process flow and data structure that will be implemented in the system.

3. **Prototype Development**: After the system design is complete, the next phase is to build the system prototype. In this phase, the user interface is developed using HTML, CSS, and the Bootstrap framework to create a responsive and user-friendly website design.

4. **Evaluation and Improvement**: After the prototype is completed, evaluation is conducted by users to ensure the system meets their needs. If any shortcomings or discrepancies are found, improvements are made, and development continues until the prototype meets user expectations.

5. **Prototype Completion**: After evaluation and improvements are made, and the prototype is deemed to meet user needs, the system design phase is considered complete, and the prototype is ready for further processing.

RESULTS AND DISCUSSION

The following are the results of the design of the inventory receipt and management information system at Heycaps.co:

System Design

a. Flowchart

The proposed system flow, which includes the inventory receipt and management information system at Heycaps.co, can be seen in Figures 2 and 3.
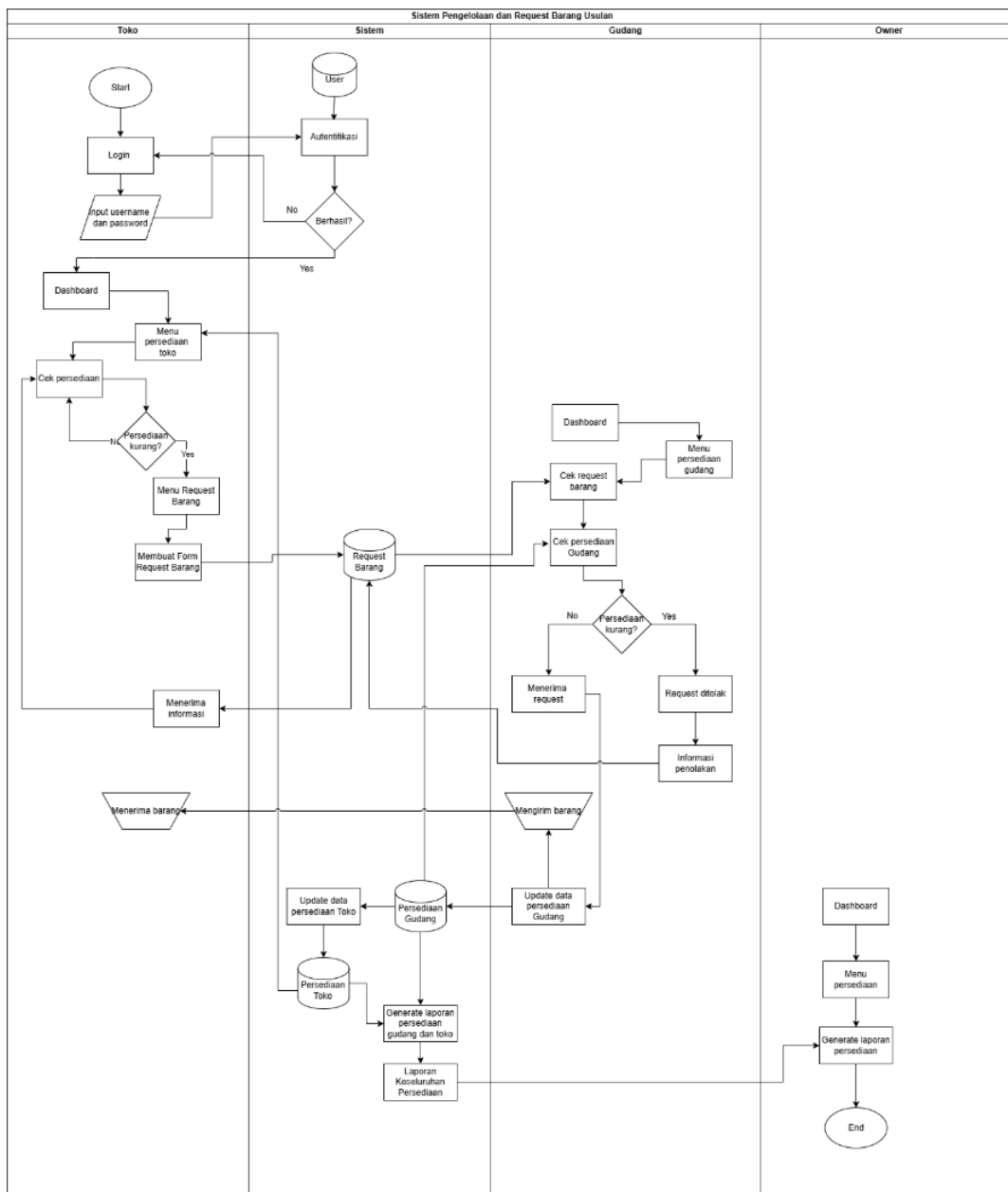

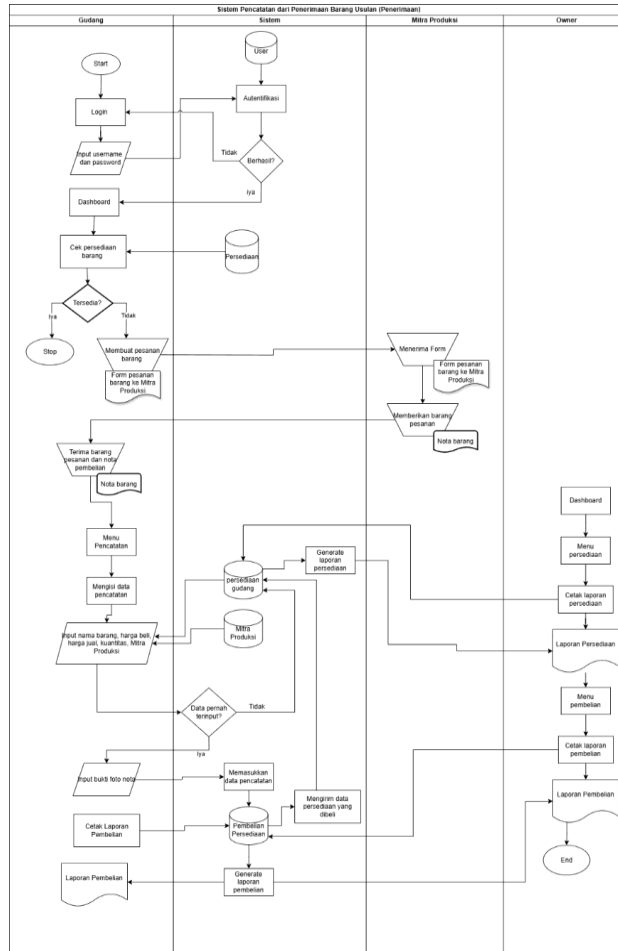**Figure 2.** Proposed Goods Management and Request System Flowchart

Figure 3. Proposed Goods Receipt Recording System (Receipt)

b. Data Flow Diagram (DFD)

The context diagram provides an overview of the system, mapping the entire system from all data sources involved. It includes three entities: Cashier, Warehouse Department, and Owner, as shown in Figure 4.
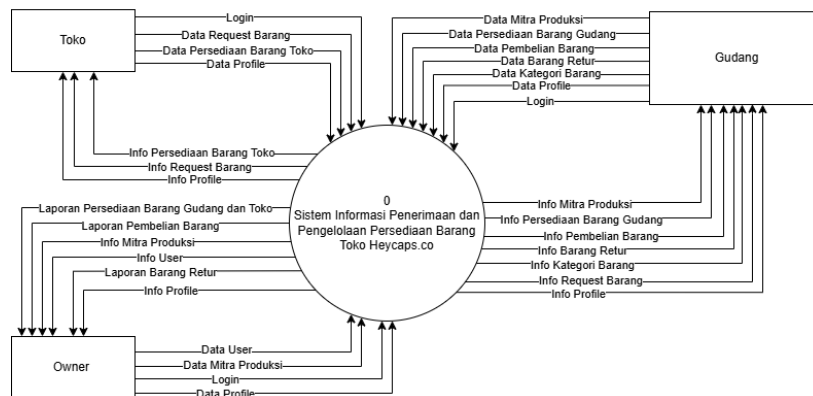
Figure 4. Context diagram

c.   Entity Relationship Diagram (ERD)

The Entity Relationship Diagram (ERD) resulting from the design contains 10 entities: user, request, item, return, item category, e-commerce inventory, e-commerce sales, purchase, production partner, and platform. The following is the Entity Relationship Diagram (ERD) from the design, which can be seen in Figure 5.
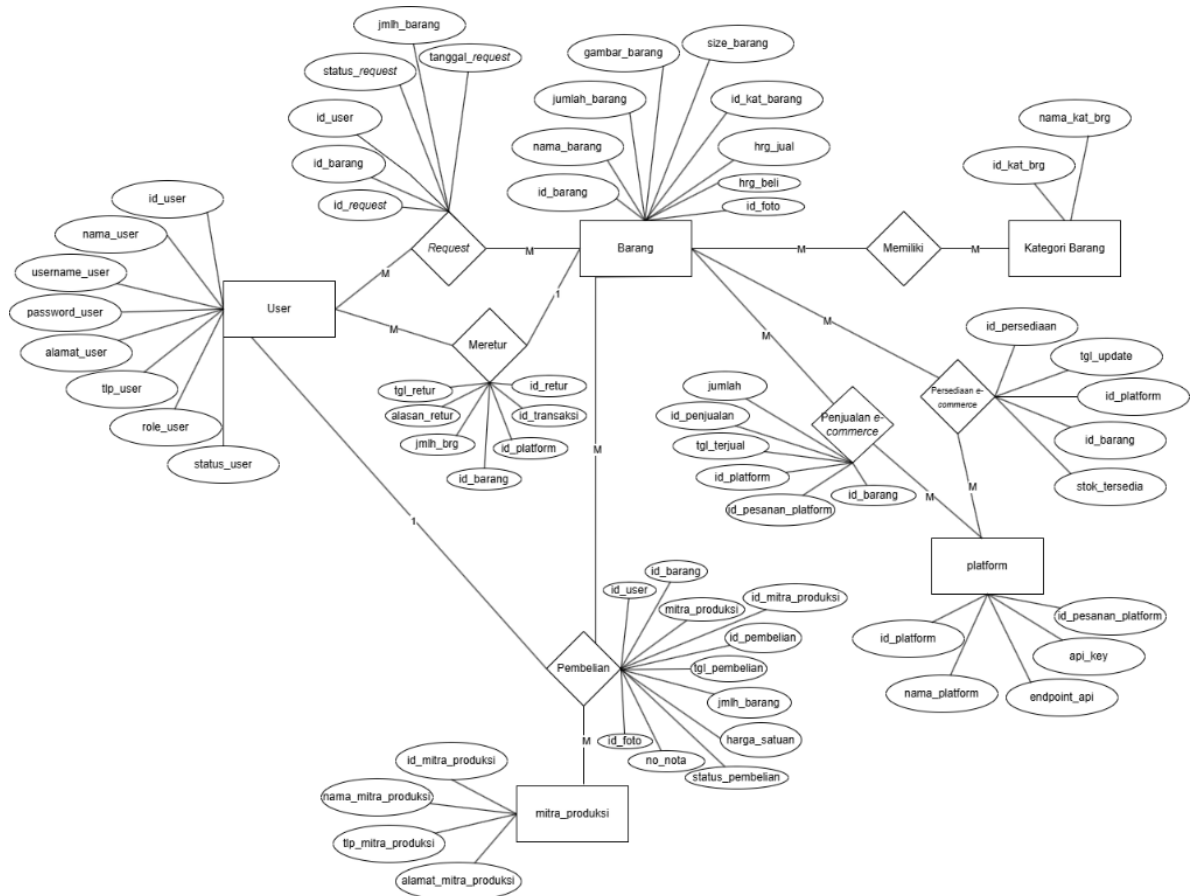
Figure 5. *Entity Relationship Diagram (*ERD)

d.   Design Results

After conducting the user needs analysis, the system design is developed based on the results of the analysis. The user interface design is divided into three parts: for the owner, the store department, and the warehouse department.

1.   The Login Page Display for the Owner, Store, and Warehouse

This login page functions to verify users, allowing them to access the system based on the access rights assigned. On this page, users are required to enter their registered username and password.
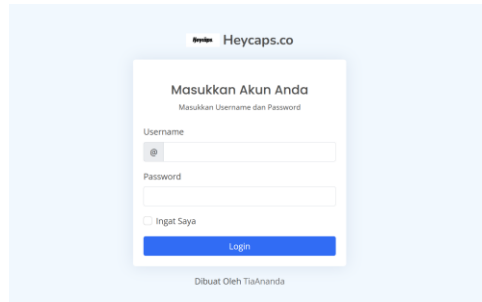
Figure 6. Owner *Login* Page

2. Dashboard Menu Display for the Owner, Store, and Warehouse

The Dashboard menu on the Owner, Store, and Warehouse accounts displays inventory data charts, the quantity of incoming and outgoing goods, and information on item requests made by the store to the warehouse. This feature enables the owner to track which items are being requested from the store to the warehouse.
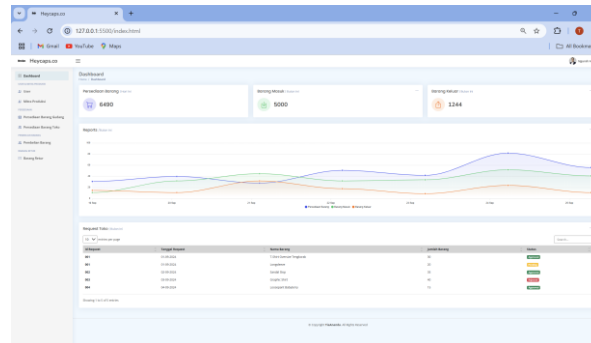

Figure 7. Owner Dashboard Menu

3. User Menu Display

The user menu on the owner's account displays a list of users registered to use the system. On this page, the owner can add new users (add data), view details, and edit user data.
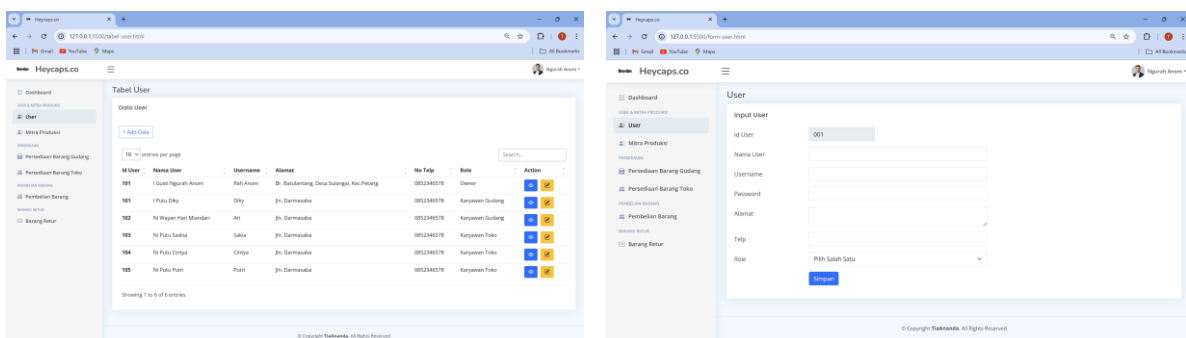
Figure 8. User Menu

4. Production Partner Menu Display for the Owner and Warehouse

The Production Partner menu on the owner's account displays a list of production partners. On this page, the owner can add new partners (add data), view details, and edit production partner data.
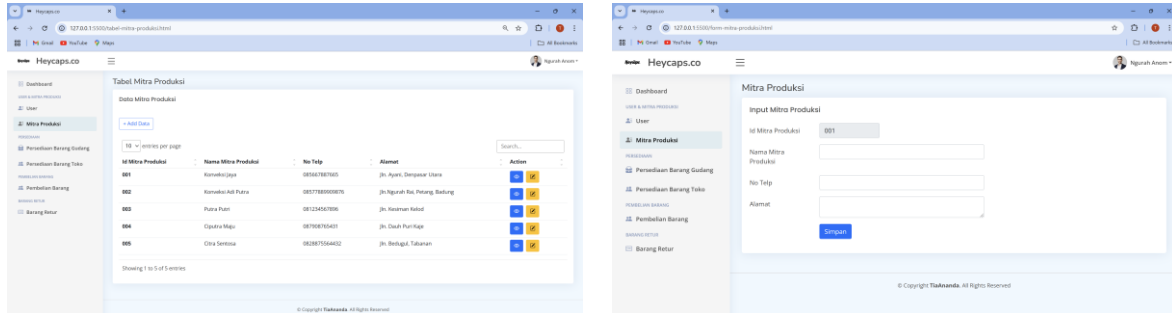
Figure 9. Production Partner Menu

5. Inventory Menu Display for the Warehouse and Store

The Inventory Menu for the Warehouse on the owner's account displays the available inventory data in the warehouse. The owner can print the existing inventory, search for item names using the search column, view item details, edit information, and view action details.
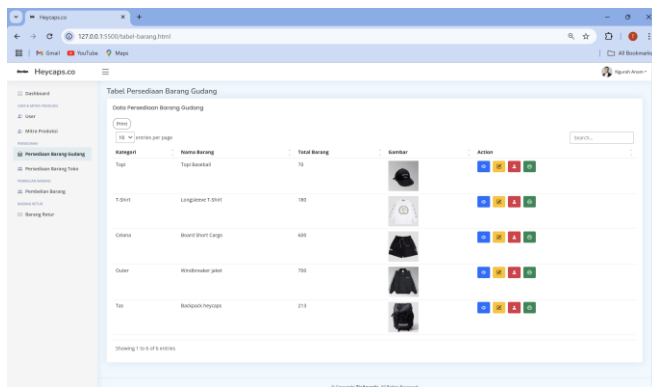
Figure 10. Inventory Menu for Warehouse and Store
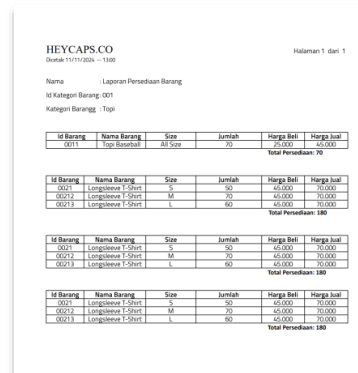
Figure 11. Inventory Report

6. Purchase Item Menu Display

The Purchase Item menu on the owner's account displays data on purchased items (receiving goods that were ordered) for recording purposes. The owner can print the records according to the selected date and search for information using the search column.
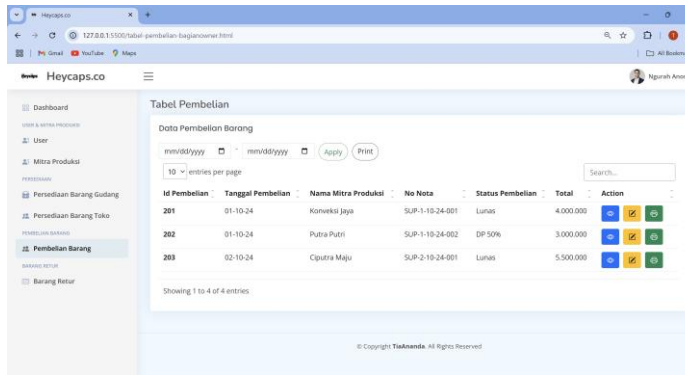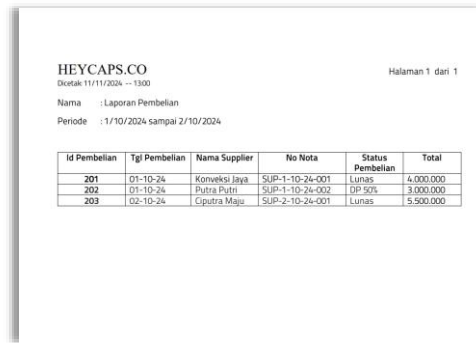
Figure 12. Purchase Item Menu

Figure 13. Purchase Item Report

7. Return Item Menu Display

The Return Item menu on the owner's account displays information about return items from e-commerce. The owner can print the records according to the selected date and search for information using the search column.
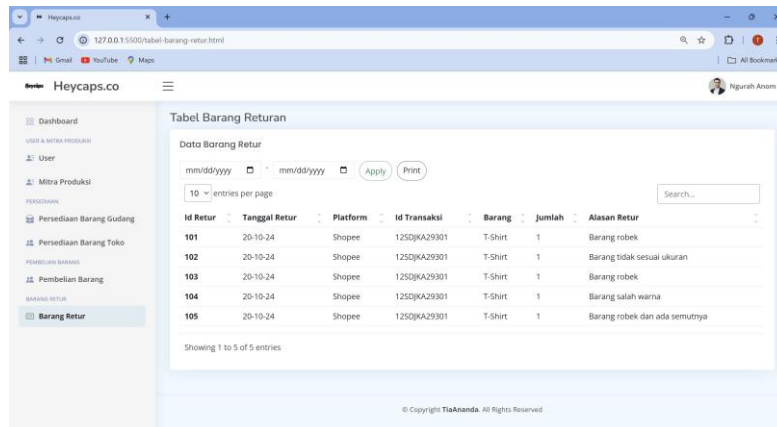

Figure 14. Return Item Menu

8. Item Request Menu Display (Store)

The Item Request menu on the Store account displays information about items that have been requested for shipment to the system in the warehouse. In this menu, users can add data (add data), view, edit, and delete data if it has not been approved by the warehouse department.
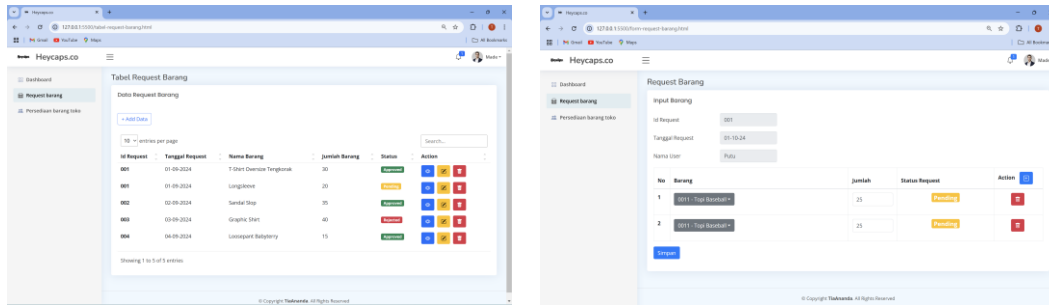
Figure 15. Item Request Menu

9. Item Category Menu Display (Warehouse)

The Item Category menu is used to store information about the item categories owned by the company. Warehouse staff can add new categories (add data) and search for item categories using the search column.
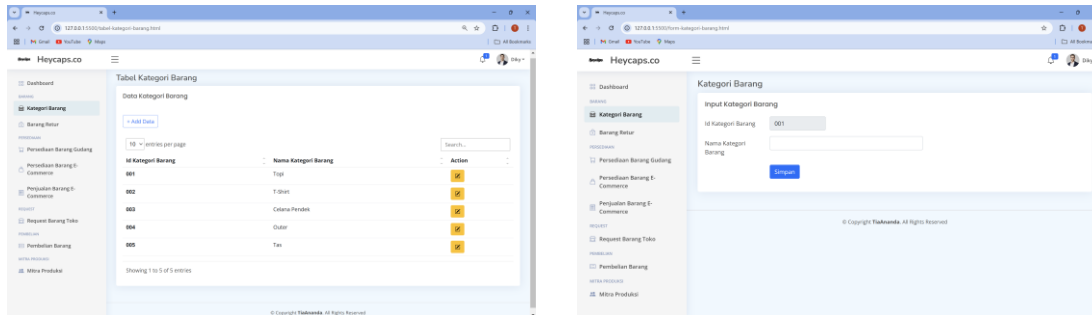

Figure 16. Item Category Menu

10. Return Item Menu Display

The Return Item menu on the warehouse account displays information about return items from e-commerce. Warehouse staff can add (add data) items returned by customers for recording purposes. Staff can also edit, view actions, and search for information using the search column.
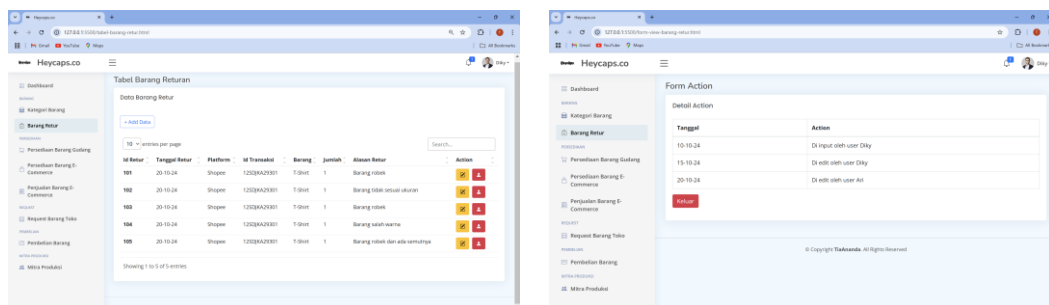

Figure 17. Return Item Menu

11. Warehouse Inventory Menu Display

The Warehouse Inventory Menu helps staff manage inventory efficiently with features such as adding data, search, printing the list, viewing item details, editing data, and action history. These features ensure more efficient inventory management.
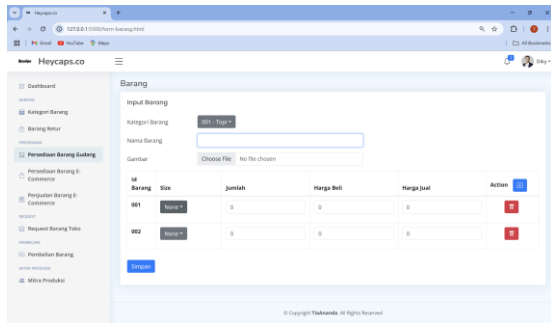

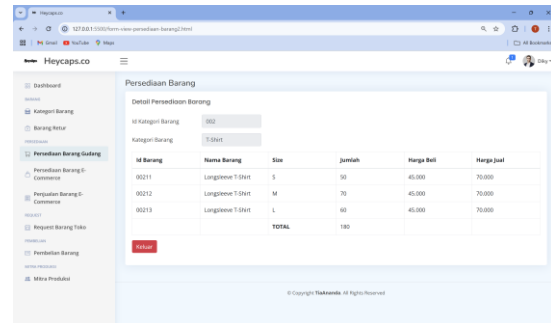**Figure 18.** Warehouse Inventory Input Menu

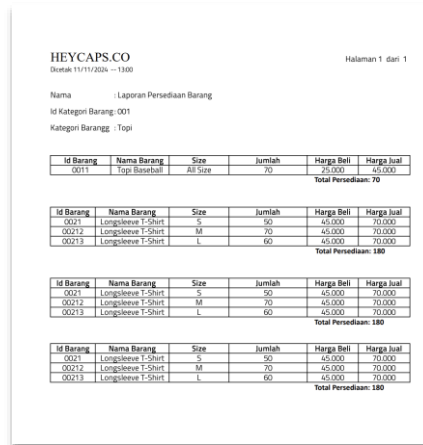**Figure 19.** Warehouse Inventory Detail Menu

Figure 20. Inventory Report

12. E-Commerce Inventory Menu Display

The E-Commerce Inventory Menu is designed to help warehouse staff manage inventory with features such as adding data and editing item information, ensuring that the data remains accurate and up-to-date.
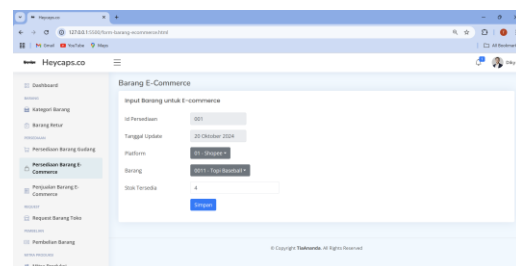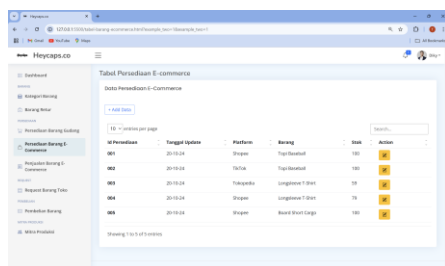
Figure 21. E-Commerce Inventory Menu

13. E-Commerce Sales Item Menu Display

The E-Commerce Sales Item Menu allows warehouse staff to easily monitor sales data and transaction details. The data in this menu is automatically generated through an API, so it cannot be updated manually.
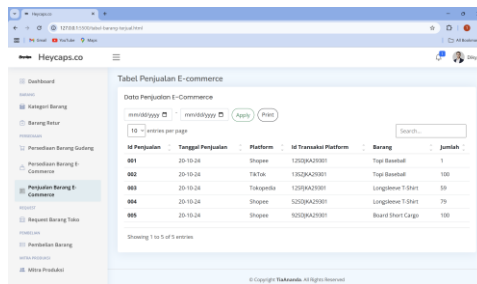

Figure 22. E-Commerce Sales Item Menu

14. Warehouse Item Request Menu from Store Display

The Store Item Request Menu helps warehouse staff efficiently manage and determine the status of item requests.
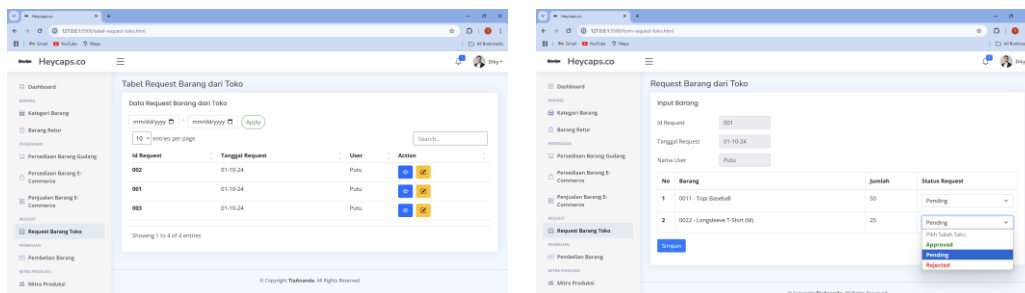

Figure 23. Store Item Request Menu

15. Purchase Item Menu Display

The Purchase Item Menu is designed to input data for received items. Data entered through this menu will automatically be added to the inventory, ensuring fast and accurate stock updates. This menu makes it easier for warehouse staff to record and manage newly received items.
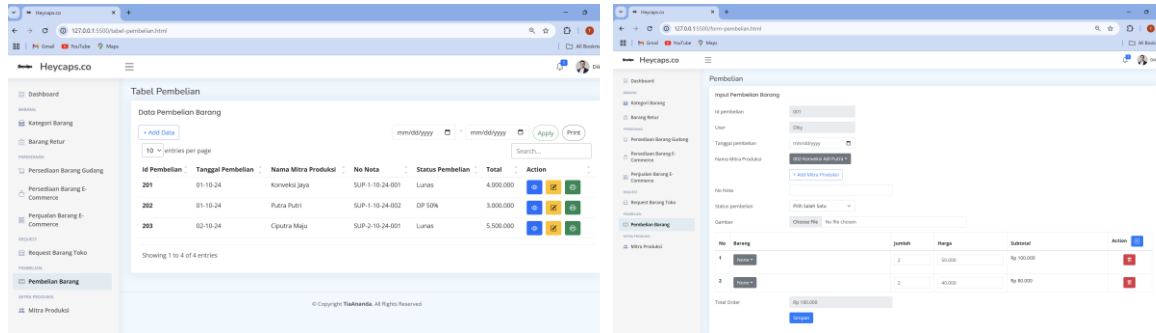
Figure 24. Purchase Item Menu

CONCLUSIONS AND SUGGESTIONS

The web-based inventory management and receiving system at Heycaps.co has been designed to improve operational efficiency by enhancing coordination between the store, warehouse, and *owner*. Through the application of the prototype method, the system successfully addresses user needs with an intuitive interface that supports inventory management, item requests, and e-commerce synchronization.

Based on the findings of this study, the following recommendations are proposed:

1. Future research should focus on the system's implementation to enable its direct application in real operational environments.

2. The findings of this study can serve as a reference for developing a real-time inventory management system that further enhances efficiency and facilitates data-driven decision-making.

These recommendations highlight the potential for further refinement and practical application of the system to optimize inventory control and streamline business operations.

REFERENCES

H. Y. Senduk and M. N. N. Sitokdana, "Perancangan Sistem Informasi Pencatatan Gudang Berbasis Website (Studi Kasus Slingbag Salatiga)," FTI UKSW, 2022. [Online]. Available: http://jurnal.mdp.ac.id

D. H. Dewi Angraini, "Pengaruh Sistem Informasi Akuntansi (Komputerisasi Kegiatan Pertanahan) Terhadap Pencatatan Penerimaan Negara Bukan Pajak pada Kantor Pertanahan Kabupaten Bengkalis," *Jurnal Akuntansi Syariah*, vol. Vol.3, pp. 20–36, 2019.

R. Rosaly, A. Prasetyo, and M. Kom, "Pengertian Flowchart Beserta Fungsi dan Simbol-simbol Flowchart yang Paling Umum Digunakan."

R. M. Widagdo1 and A. Warih, "Rancang Bangun Sistem Informasi Pemasaran (SIP) Business Intelligence Berbasis WEB-GIS pada PT.SPINDO Tbk," 2022.

N. P. A. Mentayani, I. P. Satwika, I. G. A. Pramesti Dwi Putri, A. A. I. I. Paramitha, and T. Tiawan, "Analisis Dan Perancangan User Interface Sistem Informasi Pembayaran Mahasiswa STMIK Primakara Berbasis Web," *Technomedia Journal*, vol. 7, no. 1, pp. 78–89, Apr. 2022, doi: 10.33050/tmj.v7i1.1850.

W. Fadhilah Nugraha, M. Farid Adiwisastra, and S. Bahri, "Perancangan Sistem Informasi Manajemen Distribusi Barang Pada CV Welas Asih Tasikmalaya Menggunakan Metode Prototype," *Indonesian Journal on Software Engineering (IJSE)*, vol. 9, no. 2, pp. 136–145, [Online]. Available: http://ejournal.bsi.ac.id/ejurnal/index.php/ijse136

N. N. , N. S. A. R. Rudi Setiyanto, "Perancangan Sistem Informasi Persediaan Barang Studi Kasus di Vahncollections," *Sisfotek Global*, vol. Vol. 9 No. 1, pp. 137–142, 2019.

N. W. U. N. P. N. K. Ni Made Esa Purnama Sari, "ANALISIS SISTEM PENGENDALIAN INTERNAL DAN PERANCANGAN SISTEM INFORMASI PENJUALAN DAN PEMBELIAN PADA UD ADI PUTRA MENGGUNAKAN METODE PROTOTYPE," *Jurnal TEKINKOM*, vol. Volume 7, Jun. 2024, doi: 10.37600/tekinkom.v7i1.1442.

E. W. Fridayanthie, H. Haryanto, and T. Tsabitah, "Penerapan Metode Prototype Pada Perancangan Sistem Informasi Penggajian Karyawan (Persis Gawan) Berbasis Web," *Paradigma - Jurnal Komputer dan Informatika*, vol. 23, no. 2, Sep. 2021, doi: 10.31294/p.v23i2.10998.