Engineering Division Website Goods Control System Based Using the Laravel 9 Framework

(Case Study of a Pharmaceutical Company in Bandung)

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ABSTRACT

Technology is becoming progressively sophisticated and expediting all processes and facets across several domains, mainly using precise technology. Within a company, digitalization is crucial in facilitating many processes like recapping and reporting. Digitalization refers to the transformation of physical commodities into a digital format. On the other hand, semi-computerization has yet to fully optimize the current computerized system fully, making it inefficient and time-consuming. There is a significant demand for generating data reports on borrowed and returned things. However, there are frequent challenges in accurately determining the availability of these products, as the process is currently done manually using a web-based application. The research methodologies include survey, Research & Development, and Field Study. The RUP (Rational Unified Process) system development process utilizes UML (Unified et al.) modeling techniques, including Use Cases, Use Case Scenarios, Activity Diagrams, Sequence Diagrams, and Class Diagrams. The findings derived from this conclusive project application and report are as follows: The synchronization of data between physical and reporting may be easily managed due to the inclusion of a printing feature in this application tailored to the specific needs of borrowers and returners.

Keywords: Controlling System Engineering Division, Controlling that correlates with the total quantit

INTRODUCTION

Presently, the utilization of technology is more sophisticated and accelerates all processes and facets in every domain—particularly the utilization of websites that may accommodate diverse information. Users can accomplish any task solely with the technology at their disposal. By addressing all requirements, whether they are individual or collective.

(Wicaksono & Pakereng, 2020; MatTaib, Shukri, Zukri & Ghazali, 2020; Rais & Zahra, 2020)

Particularly in the utilization of precise technology, a database system is utilized to store data about the availability of commodities. Within a firm, digitalization is crucial in facilitating several processes like recapping, reporting, and other related tasks. (Al, 2022; Tenzin, 2022) Digitalization refers to the transformation of physical commodities that are partially digital (such as Excel files) into a more efficient computerized system. (Nugraha, Agus, Fathi & Baginda, 2023; Razikin, Sari & Maulidiya, 2023)

Creating data reports on borrowed and returned products manually through a website-based application is considered useless, inefficient, and time-consuming. Additionally, accurately assessing the availability of these goods poses challenges. Human errors, such as careless entry, frequently pose obstacles for companies. Thus, implementing this system will enhance the efficacy and efficiency of data management, encompassing both the borrowing and returning of items. (Basaruddin, 2021; Ali, Yulianti & Putra, 2021; Ramelan, Adriyanto, HB Apribowo, H Ibrahim, E Sulistyo & S Arief, 2021)

When it comes to managing company human resource data, several issues arise. These include data input errors and incomplete item information in the application, resulting in discrepancies between physical and paper goods inventory due to decentralized control and reliance on letter-based communication. Nevertheless, certain things need certificates, and there needs to be more communication between the borrowing employees and the returning personnel. (Diantoro, 2023; Niarman & Candri, 2023)

Creating a new system to address existing problems will incorporate three key concepts: development, maintenance, and utilization of human resources. The proposed system aims to serve as a comprehensive human resource management information system for a pharmaceutical company in Bandung. It will effectively manage data related to technical goods, including tracking the availability of goods, monitoring borrowing and returning activities by the technical department, and generating weekly, monthly, and annual reports.

The answer entails the development of a novel system to enhance performance in alignment with the context above. The author intends to propose a research title on Website-Based Engineering Goods Control Systems, focusing on a case study of a pharmaceutical company in Bandung. (Kambivi, Junirianto & Fadhliyah, 2020; Barzilai & Gafni, 2023)

A system is a collection of two or more interrelated components that work together to achieve a common objective. This web-based program utilizes the HTTP protocol, where the server-side application connects with the client through the web server. Client-side applications often take the form of a web browser. Web-based apps, which consist of client-side and server-side scripts, operate on top of Internet-based applications. (Novaliendry, Huda, Cuhanazriansyah, Sani, Hendra & Karnando, 2021)

Controlling is a managerial job encompassing planning, organizing, monitoring, and directing. *Control* is a crucial role that enables the identification of errors and facilitates informed and decisive action, reducing deviations from established standards and ensuring the successful attainment of organizational goals.

METHOD

This study aims to create a system for managing items in the Technical Division of a pharmaceutical firm in Bandung. The main emphasis is on utilizing web-based technology by implementing the Laravel 9 Framework. The research methodologies utilized encompass literature review, survey, research and development (R&D), field study, and the

implementation of the Rational Unified Process (RUP) development approach with Unified Modeling Language (UML) modeling.

A literature review was undertaken to gain a comprehensive understanding of product control, utilizing Laravel 9 Framework, and implementing RUP in system development. The researchers utilized the literature findings to develop a customized conceptual framework that meets the specific requirements of the Technical Division in the pharmaceutical industry. A survey was conducted to ascertain user requirements and assess preferences regarding the product's control system. The survey data yielded valuable insights into the precise obstacles encountered by the Technical Division.

The essence of this study centers around the execution of Research & Development (R&D), with a particular emphasis on creating and advancing modules that facilitate goods control. The researchers aim to actively engage users in this stage to develop innovative technology solutions that align with user demands and expectations. In addition, a field study was carried out at a pharmaceutical firm in Bandung as a case study, allowing researchers to collect real-time data on the working environment of the Technical Division and acquire a more comprehensive understanding of the issues encountered.

The system development adheres to the Rational Unified Process (RUP) methodology, encompassing distinct phases, including Inception, Elaboration, Construction, and Transition. UML serves as a technique for generating visual documentation, encompassing Use Case Diagrams, Use Case Scenarios, Activity Diagrams, Sequence Diagrams, and Class Diagrams. This research employs UML to produce precise and organized visual depictions of the functionality, workflow, and class structure of the produced system.

The system implementation method utilizes the Laravel 9 Framework, followed by testing phases to guarantee the system's performance, security, and stability. The survey and field research data analysis are used to assess the effectiveness of the system, while the testing findings offer a comprehensive understanding of the developed system's quality and performance. The research report is meticulously assembled, including all stages and accomplishments of the research, to offer guidance and scholarly contributions to advancing the goods control system in the Technical Division of pharmaceutical firms. The results of this research are anticipated to provide novel and enduring solutions to improve the efficiency of product control in the pharmaceutical business.

RESULTS AND DISCUSSION

System Analysis and Design

1. System Analysis and Design

    The subsequent sequence outlines the process for acquiring items from a pharmaceutical firm in Bandung, commencing with the input of operator data by the administrator.
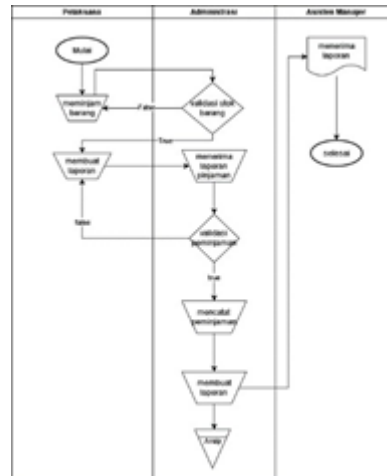
Figure 1. Process Flow For Borrowing Goods

2. Analysis of the Goods Return Process

The subsequent sequence outlines the procedure for returning merchandise at a pharmaceutical company in Bandung, commencing with the entry of operator data by the administrator.
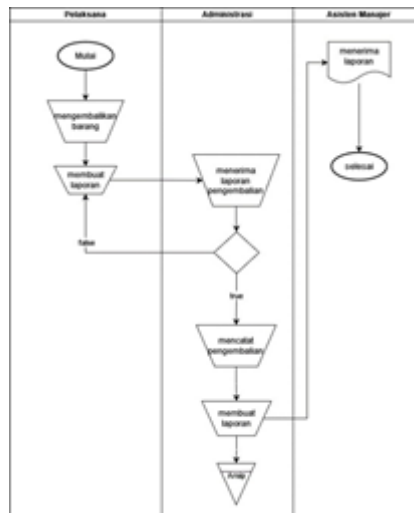

Figure 2. Goods Return Process Flow

3. SWOT Analysis

The analysis is specifically:

a. Strength

Inventory data is collected based on the physical state of commodities and the individuals involved in borrowing or returning them.

b. Weakness

Due to the absence of an automated MySQL-based system for item data calculation, the auditing process takes time and effort.

c. Opportunities

Due to the absence of an automated MySQL-based system for item data calculation, the audit process becomes protracted.

d. Threats

Potential threats, such as system and database faults, can vanish and result in damage or vulnerabilities within the system. This challenge can be mitigated by consistently creating data backups.

4. Proposed New System
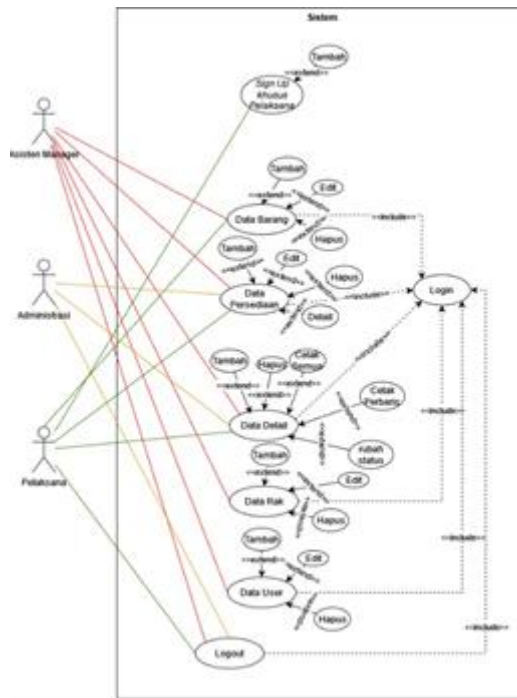   1. Use case Diagrams

Figure 3. Usecase Diagram

2. Scenario Table

| No	9
Nama	Mengelola Data Detail
Deskripsi	Aplikasi mengelola data detail dari mulai tambah data detail, hapus dan cetak
Aktor	Administrasi, Asisten Manajer dan Pelaksana
Skenario Tambah	
Kondisi Awal	Tampilan berada di halaman *dashboard*.
Aksi Aktor	**Reaksi Sistem**
1. Aktor memilih menu detail 3. Aktor menekan tombol tambah detail 5. Aktor memasukan data lalu menekan tombol *simpan*	2. Sistem menampilkan halaman data detail 4. Sistem menampilkan halaman data detail 6. Sistem menyimpan data detail ke *database* dan menampilkan halaman data detail
Kondisi Akhir	Tampilan berada di halaman data detail.
Except Scenario	Apabila terjadi kesalahan saat penyimpanan data ke *database*, maka akan muncul pesan yang dikeluarkan oleh sistem.

Figure 4. Scenario Table

3. Activity Diagrams
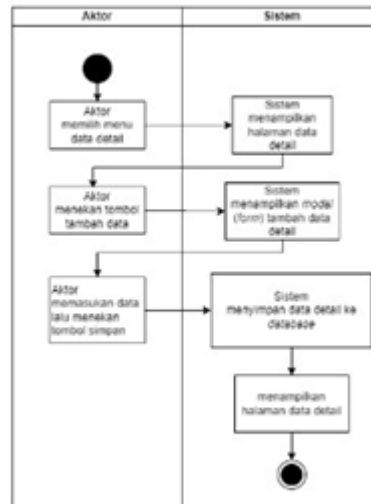
Figure 5. Activity Diagrams

5. System Design
   a. Database Design
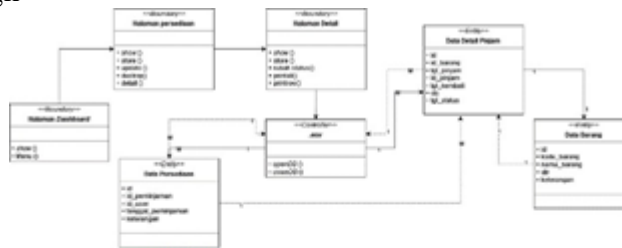
No	Nama Field	Tipe Data	Field Size	Keterangan
1	Id	Int	10	PK
2	id_barang	Varchar	255	
3	tgl_pinjam	date	255	
4	id_pinjam	Varchar	255	
5	tgl_kembali	date		
6	Qty	Int	11	
7	Status	Varchar	Enum ('sudah di kembalikan','di pinjam')	
8	created_at	timestamp		
9	update_at	timestamp		

Figure 6. Database Design
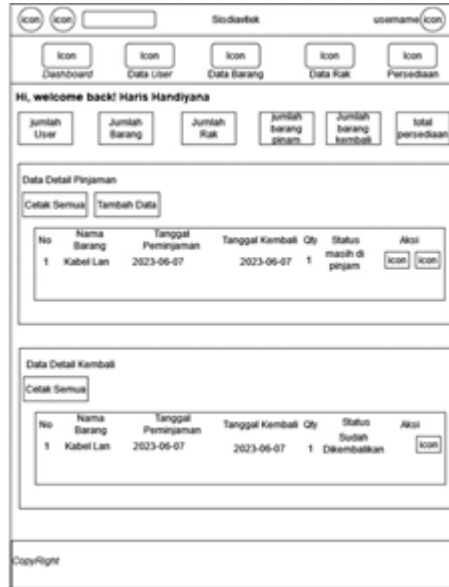
   b. Interface Design

Figure 7. Interface Design

System Implementation

The system implementation stage is the stage of describing an application system so that the application system is ready to operate.
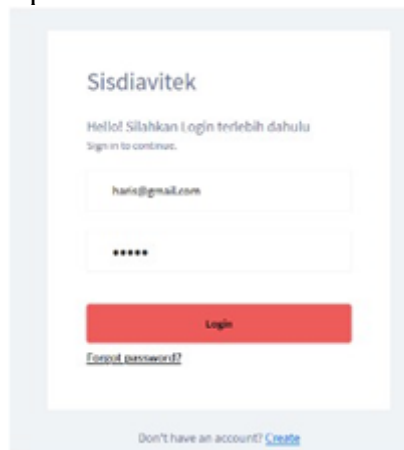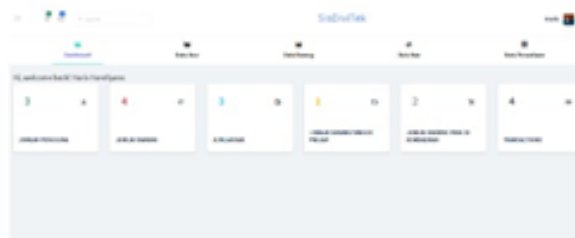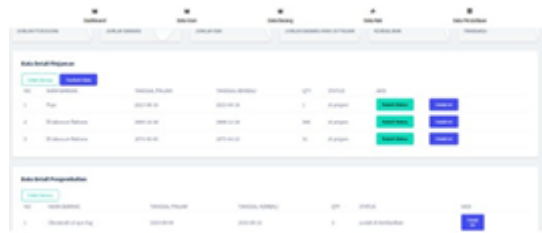

Figure 8. Page display

Figure 9. Display of the Home Page/Dashboard

Figure 10. Loan Details Page Display

CONCLUSION AND RECOMMENDATION

The research indicates that the engineering division's inventory system is built upon a web application that utilizes the Laravel 9 framework, facilitating the system's implementation. The application offers a printing feature that ensures data synchronization between physical and reporting by accounting for individuals' borrowing or returning activities. To reduce the likelihood.

The human mistake arises from utilizing the item code-filling functionality in this application, which results in adjustments to the inventory quantity. This program streamlines the data entry by automatically populating specific fields with pre-filled information.

Other recommendations can serve as input and contemplation for future studies. This application encourages companies to utilize the built system effectively and efficiently. To prevent data manipulation, it is necessary to have oversight from authorized individuals such as Assistant Managers and Supervisors. Perform routine audits. The following generation is expected to expand this report further as the current application still utilizes Laravel 9.

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