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Warehouse Inventory System Design in Implementing the CodeIgniter Framework and Scrum Method

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Abstract. *When collecting data, sometimes you need tools to make it neater and better at collecting data. The infrastructure section of the Pancabudi Development University which records all incoming and outgoing goods is so large and on a university scale it makes the infrastructure less effective. The research carried out built an Inventory Warehouse System. The research results of the warehouse inventory system that was built were very well used at the Pancabudi Development University in the Facilities and Pre-Means section in warehouse data collection. This system makes it easier for UNPAB Sapras to monitor data on incoming and outgoing goods and can record all types of conditions of goods carried out. The implementation of the Warehouse Inventory System is carried out using data on goods in the UNPAB warehouse. This results in orderly and neat digital data collection. Apart from that, it is more effective because it applies the Scrum method and applies the CodeIgniter framework.*

Keywords: *System, Inventory Warehouse, CodeIgniter Framework, Scrum Method, Website*.

INTRODUCTION

The inventory system is: Parts that are provided in the process contained in a company for production, as well as finished goods that are provided to meet demand from consumers at any time that are stored and maintained according to certain rules in a ready-to-use state and stored in a database (Fahrisal, Pohan, & Nasution, 2018) At Universitas Pembangunan Panca Budi, there is a General Infrastructure Bureau, namely BSPU, a work unit or part of Universitas Pembangunan Panca Budi which is used to support facilities and infrastructure at Universitas Pembangunan Panca Budi. The Bureau of Public Infrastructure Facilities of Panca Budi Development University has a sub-section that handles the procurement of goods at Panca Budi Development University. In carrying out a procurement, each unit / section at Universitas Pembangunan Panca Budi must fill out a form containing a description of the items needed by the unit. Before the form is given to the procurement department the form must be signed by the head of the requesting unit / section (Syahputra, 2019). Because the form is still in the form of sheets of paper submitted via correspondence, the form must wait for the head of the unit / section to be in place to process the form, besides that the form can be tucked away with other files in the unit which results in the length of the bureaucracy for procuring goods (Wahyudin & Bela, 2021).

Based on the above background, some of the problems identified by the author in this study are the absence of reminder notifications, having to ask for approval directly. Lack of description of the requested item. Therefore, the author creates a web-based

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inventory system to make it easier for the infrastructure section to procure goods based on the most frequently requested items, clarify the description of the items requested by each unit / section at Universitas Pembangunan Panca Budi to reduce errors when purchasing goods, provide information about reports on the number of stock items available in the warehouse, provide information about frequently requested items, development is carried out using the Scrum method where this method is one of the methods used in the development of information systems. The goal is that the inventory warehouse system in the infrastructure unit of Universitas Pembangunan Panca Budi has an information system that can be accessed and provides information about the units / sections that most frequently request goods, Create notifications for the head of the unit / section or procurement section to immediately process requests for requested items (Dioni & Andah, 2019).

THEORETICAL STUDIES

Scrum is an agile development methodology used in Software development based on an iterative and phased process. Scrum is an adaptable, fast, flexible and effective agile framework designed to deliver value to customers during project development. The main goal of Scrum is to meet customer needs through an environment of transparent communication, shared responsibility, and continuous progress. Development starts from an overview of what needs to be built, outlining a list of characteristics sorted by priority (product backlog) that the product owner wants to obtain. Scrum is precisely the evolution of Agile Management. The scrum methodology is based on a very clear set of practices and roles that must be involved during the software development process. It is a flexible methodology that values the application of 12 agile principles in a context agreed upon by all members of the product team (Ruseno, 2019).

Scrum is executed in short, periodic temporary blocks, called Sprints, which typically range from 2 to 4 weeks, which is the term for feedback and reflection. Each Sprint is an entity in itself, i.e. it provides a complete deliverable, a variation of the final product that must be deliverable to the client with the least possible effort when requested. The process has as a starting point, a list of goals/requirements that form the project plan. It is the project client who prioritizes these objectives taking into account the balance of value and cost, that is how iterations and consequent deliveries are determined. On the one hand the market demands quality, fast delivery at a lower cost, for which companies

have to be very agile and flexible in product development, in order to achieve short development cycles that can meet customer demands without damaging the quality of the results.

RESEARCH METHODS

1. Inventory System Design

The design of the inventory system serves to provide a clear flow diagram that can be read and understood, so that the author hopes that by looking at the flow diagram designed, it can be understood how the Warehouse inventory system is designed in the form of a Unified Modeling Language (UML).

a. Usecase Diagram

The design of the inventory system serves to provide a clear flow diagram that can be read and understood, so that the author hopes that by looking at the flow diagram designed, it can be understood how the Warehouse inventory system is designed in the form of a Unified Modeling Language (UML).

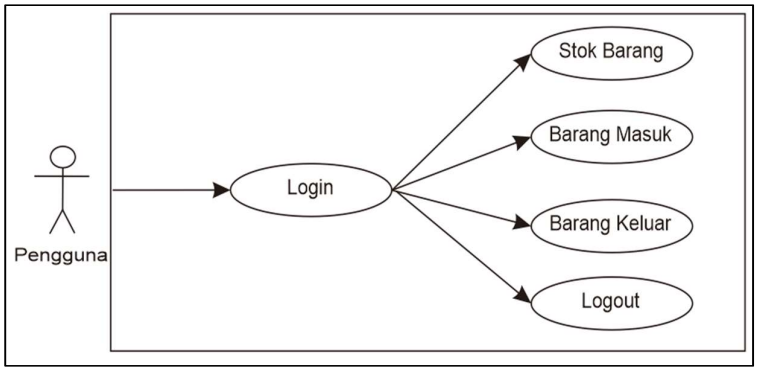

Figure 1. Usecase Diagram of Warehouse Inventory System

b. Sequence Diagram

A sequence diagram is a diagram used to explain and show in detail the interactions between objects in a system. In addition, the sequence diagram will also show the messages or commands sent and when they are executed. Objects related to operating procedures are usually arranged from left to right.

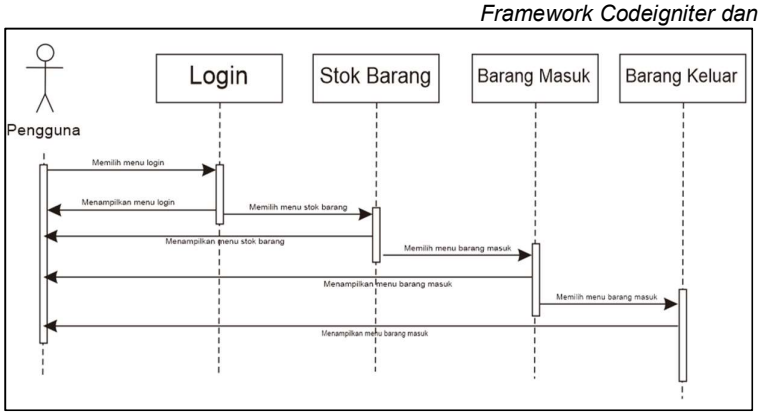

Figure 2. Sequence Diagram of Warehouse Inventory System

c. Class Diagram

Class diagrams are structural diagrams in the UML model. The diagram describes the structure, properties, classes, relationships, and methods of each object very clearly. In addition, class diagrams can help visualize the structure of each class in the system. This part of UML will also show the collection of classes, collaboration, interfaces and relationships that exist in the system.

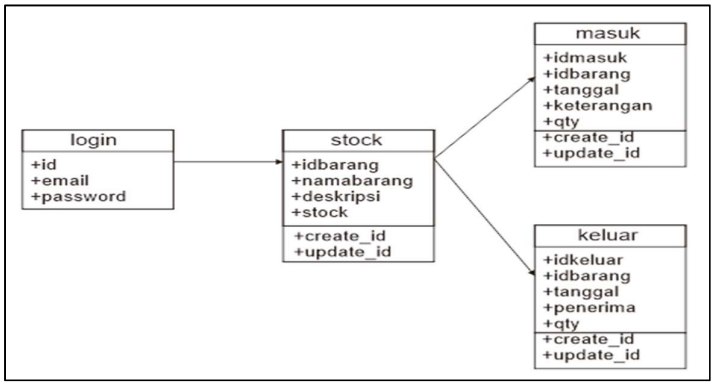

Figure 3. Class Diagram of Warehouse Inventory System

RESULTS AND DISCUSSION

The result of the research is a website that was successfully built to collect data on stock items in the warehouse at Universitas Pembangunan Panca Budi, by producing an inventory warehouse system. Here are some parts that are the results and implementation of this test.

1. Research Results and Discussion

a) Admin Menu Display

On the admin menu display on the Pancabudi Development University inventory warehouse system displays a logo, username form, password form and login button.

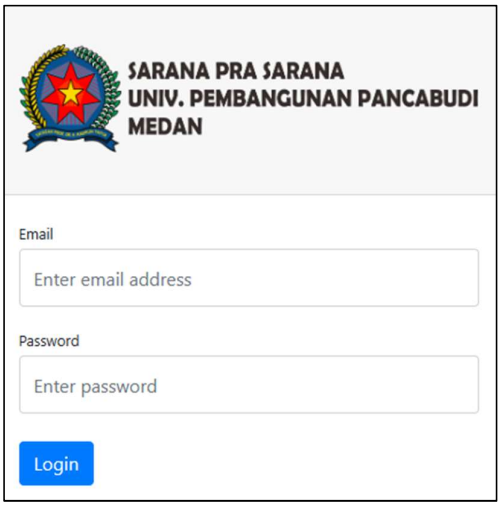

Figure 4. Inventory Warehouse System Admin Menu

b) Stock Menu Display

After successfully logging in, it is directed to the stock menu which displays a table containing all the items contained in the Pancabudi Development University warehouse.

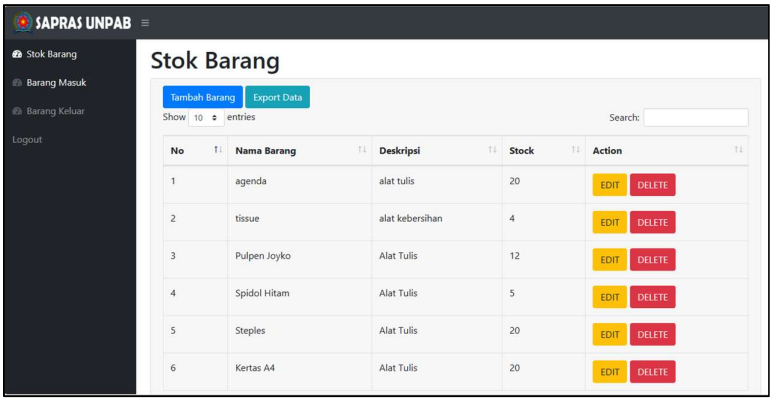

Figure 5. Inventory Warehouse System Stock Menu

c) Display of Incoming Goods Menu

In the display of the incoming goods menu in the inventory warehouse system functions to record all incoming goods at the Pancabudi Development University warehouse, the incoming goods menu contains a detailed incoming goods table, add button and print button.

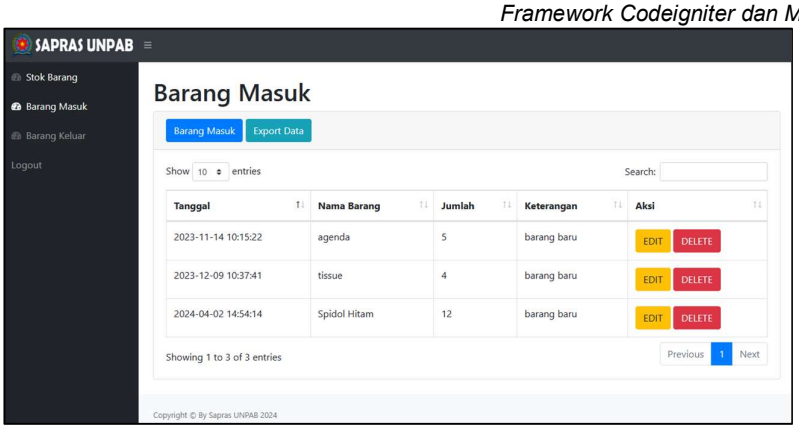

Figure 6. Incoming Goods Menu Inventory Warehouse System

When the export data button is clicked, the incoming goods menu will display a report on incoming goods or goods contained in the Pancabudi Development University warehouse.

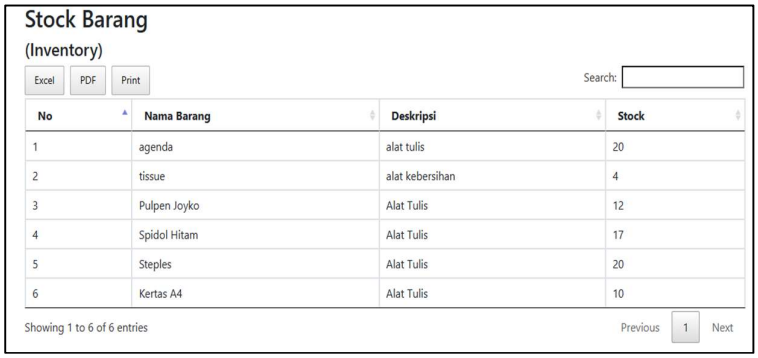

Figure 7. Export of Goods In Inventory Warehouse System

d) Outgoing Goods Menu Display

In the display of the outgoing goods menu in the inventory warehouse system functions to record all outgoing goods in the Pancabudi Development University warehouse, the incoming goods menu contains a detailed table of outgoing goods, add buttons and print buttons.

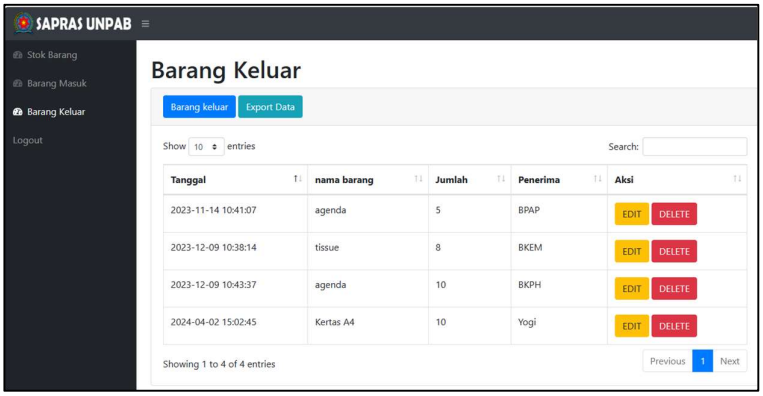

Figure 8. Outgoing Goods Menu Inventory Warehouse System

When the export data button is clicked on the outgoing goods menu, it will display a report on outgoing goods or goods that come out of the Pancabudi Development University warehouse.

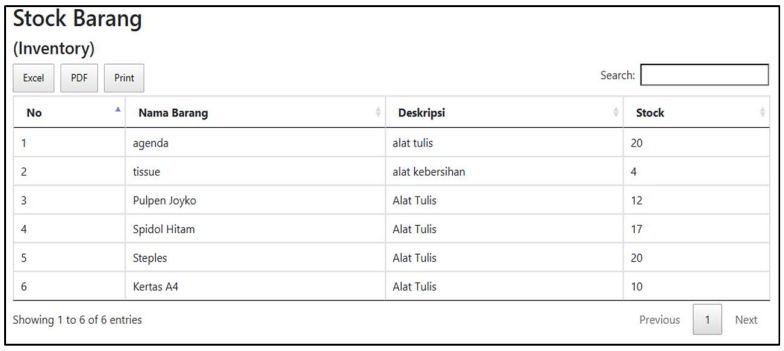

Figure 9. Exporting Goods Out of Inventory Warehouse System

CONCLUSIONS AND SUGGESTIONS

The Inventory Warehouse system that was built is very well used at Pancabudi Development University in the Sarana Pra Sarana section in warehouse data collection. This system makes it easier for Sapras UNPAB to monitor data on incoming goods and outgoing goods and can record all types of conditions of goods carried out. The application of the Inventory Warehouse System is carried out using data on goods in the UNPAB warehouse. So as to produce orderly and neat data collection in a digitized manner.

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