

# Design of Information Systems Web-Based Inventory Using The FAST (*The Framework Of Application System Thinking*) Method at PT. Whoto Indonesia Sejahtera in Bandung

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## ABSTRACT

The application of information system technology is now essential for companies to run a fast, accurate, reliable, and detailed information flow. PT. Whoto Indonesia Sejahtera Bandung branch is a company engaged in the marketing and distribution of skincare products. Inventory information system in PT. Whoto Indonesia Sejahtera Bandung has not been fully computerized and still uses Microsoft Excel, starting from recording incoming goods, requesting goods from the sales department, processing goods out by the warehouse to making reports, so there will be a possibility when an error occurs in the process search for data needed. The best solution to solve existing problems is to design a web-based inventory application because it is better than recording the previous system so that it can find out and make it easier to provide fast, accurate, and accurate information. Website-based inventory information system design uses a system development method that is FAST (Framework for Application System Thinking) consisting of phases of Scope Definition, Problem Analysis, Requirements Analysis, Logical Design, and Physical Design. The programming languages used in the design of this information system are HTML and PHP and MYSQL as the database.

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## I. Introduction

Technological developments that are relatively rapid over time make work done by humans, in general, can be completed efficiently and quickly to save time, space, and costs. One of them is the company's inventory system.

The inventory system at PT. Whoto Indonesia Sejahtera Bandung Branch is carried out with supervision and recording of inventory. It's just that the company is currently still using a semi-computerized system using Microsoft Excel for managing data items. The system used today is felt to be still quite slow in the process of managing and controlling inventory because it cannot be done in real-time and is perceived to be able to increase human error further because the process of recording incoming and outgoing goods is not registered at that time. There is no notification of availability status information. Assets, this is seen by the absence of the "Early Warning" feature so that the warehouse admin does not know the minimum stock of products available. One of the positive values is the early warning, one of which is that the admin does not need to bother to record incoming and outgoing items (stock) because the system will automatically provide a list of things that need to be farmed. Based on the problems in the process of inventory at PT. Whoto Indonesia Sejahtera in Bandung, one of the alternative solutions offered is to design a website-based inventory information system that can be accessed anywhere and anytime so that it is expected to be able to improve the performance of the inventory business process. The purpose of this research is to design a web-based inventory information system at PT. Whoto Indonesia Sejahtera Bandung.

## II. Literature Review

### A. *Relevant Research Theory*

Some previous research results are relevant and in previous research has similarities and differences with research conducted by researchers, namely as follows:

The first research was Agus Heryanto, et al. in 2014 with the title "Design of a Web-Based Goods Inventory Information System Case Study at PT. Infinetworks Global Jakarta ", researchers will design a web-based inventory system to be able to help the company's inventory activities become more efficient. Therefore, the software development process is based on correct software engineering. In analyzing and designing inventory information systems, research methods are used with library studies, documentation studies, interviews, observations, and analysis and design using diagrams contained in UML (Unified Modeling Language). Based on the development of object-oriented methods, researchers will describe and activities and use of goods at each stage.[1]

The second study entitled "Inventory Information Systems Using the First In First Out (FIFO) Method" by Faisal Rahman, et al. Faculty of Computer Science, Narotama University, Surabaya. In his research, discussing inventory is not a strange thing for every company. But inventory problems are sometimes still one of the obstacles to achieving company goals, due to an extensive inventory system and the lack of proper supervision and methods that can be run properly. This matter after being investigated turned out to be caused by difficulties in determining the cost of products starting from the determination of the value of raw materials used so that the company's profits continue to decrease even though the percentage reduction is not much, but if this problem is left it is expected to continue to decline and the losses experienced will be even more significant. To overcome the challenges that occur, then a system design is made using the perpetual First in First out (FIFO) method, where goods that first enter the warehouse will be applied early in production. The cycle of goods entry and exit can be known.[2]

The third study was conducted by Samsinar and Putrianti (2015) with the title "Analysis and Design of Drug Information System Case Study: Aini Farma Pharmacy" In this research, it explains the negligence in the process of ordering goods that resulted in over-stock as the background of his research. The results of this research is a computer-based information system that functions to oversee the amount of inventory and find out the comparison between the number of goods ordered and the number of items received to avoid losses on the pharmacy.[3]

The Fourth Research is Hendra Agusvianto (2017) also researched "Warehouse Inventory Information System to Control Goods Inventory in Warehouse Case Study: PT.Alaisys Sidoarjo" The results of this study are web-based warehouse inventory information systems. This information system can be used in inventorying existing products in the warehouse stock, which includes recording, processing, and reporting data on the warehouse inventory. The existence of this web-based inventory information system, the Head Office can see reports from the warehouse with the right target, accurate, and efficient.[4]

The latest research is Yulianti & Yupianti (2012) concerning "Inventory Information System Information at PT. Surya Nusa Bhaktindo Bengkulu ". This study aims to create a system of inventory information at PT. Surya Nusa Bhaktindo Bengkulu so that it can be used as a supporting tool in making information reports to the leadership. In this information, the system will display information on income and expenditure of goods stock based on a predetermined budget plan. All this information will be displayed in the form of material reports and input data material, which starts from the request until the material entry becomes fast and can control the content in the field.[5]

### B. *Literature Review*

#### 1) *Information System*

An information system is a collection or arrangement that consists of hardware and software and its implementation personnel who work in a sequential process and jointly support each other to produce a product (Dengen, 2009:48). [6]

## 2) UML

Unified Modeling Language (UML) is a language based on graphics or images for visualizing, specifying, constructing, and documenting an OO (Object-Oriented) software development system. UML itself also provides a standard for writing a blueprint system, which includes the concept of business processes, writing classes in a specific program language, database schema, and components needed in the system.[7]

## 3) Use Case Diagram

Use Case diagram is a diagram that illustrates the needs of the system from the user's perspective, which shows the relationships that occur between actors with use cases in the system.[8]

## 4) Activity Diagram

The activity diagram illustrates the workflow (workflow) or the activity of a system or business process. Noteworthy here is that the activity diagram illustrates system activity, not what the actor does so that activity can be carried out by the system.[9]

## 5) Sequence Diagram

Sequence Diagram is a diagram that illustrates the dynamic collaboration between objects with one another. This collaboration is shown by the interaction between objects in and around the system in the form of sequential messages or instructions.[10]

## 6) Supplies Of Goods

According to the Indonesian Institute of Accountants (2014: SFAS No. 14), the definition of inventory is current assets in the form of goods or equipment intended to support government operational activities, and products designed to be sold and/or delivered in the context of service to the community.[11]

Goods are everything, both tangible and intangible. Moving or not moving, which has many purposes such as traded, used, or utilized by consumers.[12]

## 7) FAST Method

According to (Whitten & Bentley, 2007: 166): Like most sales methodologies, our hypothesis FAST methodology does not use a single approach to system analysis. Instead, it integrates all the popular approaches introduced in the previous paragraphs into a set of agile methods. From the above statement, it is concluded that the FAST method uses many approaches in system analysis so that the expected results of the analysis will be sharper and accurate.[13]

### III. Research Methodology

The system development method used in this study is the FAST Method (*Framework for the Application System Thinking*) consists of phases *Scope Definition, Problem Analysis, Requirements Analysis, Logical Design, and Physical Design*. By collecting the problems that occur, then identify after that analyze the problem.

#### A. Scope Definition

This stage is the first step in the process of designing information systems. In the arena of information gathering, the level of feasibility and scope of the inventory information system of PT. Whoto Indonesia Sejahtera Bandung.

#### B. Problem Analysis

Problem analysis is carried out to define the scope and problems in the development of information systems.

#### C. Requirement Analysis

At this stage, the priority of the current business needs will be sorted out. The purpose of this stage is to identify the data, processes, and interfaces that the user wants from the new system.

*D. Logical Design*

Design methods that use object-oriented design methods using UML (Unified Modeling Language) as a design tool.

*E. Physical Design*

The purpose of this stage is to transform the business needs represented as logical designs into physical designs which will later be used as a reference in making the system to be developed. If the logical design depends on various technical solutions, the physical design represents a more specific technical solution.

**IV. Discussion**

*A. Scope Definition*

In the stock inventory website, there is a website page, namely warehouse Admin, Sales, Managers. In the warehouse Admin menu, there is a menu of add users, delete users, update users, incoming input goods, view item inventory, report incoming products, report goods out, and confirm demand for products. On the warehouse page also limits access rights for the input of incoming goods, approval of requests for products from sales, monitoring inventory, and withdrawal of inventory reports. In the sales menu, there is a menu of goods requests, a history of requests for goods, and see stock items. On the sales page, also access rights are limited to requests for products, see confirmation of requests, and see the stock of goods in the guarding. On the manager menu, there is a menu to view information related to stock items and see reports of products in and out.

*B. Problem Analysis*

- 1) Recording of incoming goods transactions and requests for goods leaving still done manually.
- 2) Inaccurate inventory data.
- 3) Searching stock data is not very efficient in terms of time and energy because it still uses Microsoft Excel.
- 4) Delay in reporting the supply of goods.
- 5) User analysis (*Actor*).

Table 1. Actor Description

<i>No</i>	<i>Term</i>	<i>Description</i>
1	Warehouse Admin	Is a user with limited warehouse access authority
2	Sales	Is a user with limited sales access authority
3	Manager	Is a user with manager limited access authority

### C. Requirement Analysis

#### 1) Functional Needs

##### a) User Needs.

###### a. Warehouse Admin

Can be able to update, delete, and add to the stock of goods, manage the master of products, view reports of incoming and outgoing products, and confirm the demand for goods from sales.

###### b. Sales

Can request goods to the warehouse according to needs, see the availability of products, see the history of the demand for products.

###### c. Manager

Can see important information related to inventory data available through reports on incoming and outgoing goods.

##### b) System Requirements.

###### a. System requirements for warehouse admin

Make it easy to input incoming goods, make it easier to make reports of incoming and outgoing products, and view inventory easily.

###### b. System requirement for sales

Provide goods request forms in accordance with the needs of prospective customers, display inventory data in the warehouse.

###### c. System requirement for managers

Providing information related to the inventory of goods in the warehouse through inventory reports.

#### 2) Non Functional Needs

##### a) Computer System Specifications

The specifications of the device or device used are:

###### a. Hardware Specifications

1. CPU Processor Intel® Dual Core 2.10 GHz, RAM DDR2 3 GB, Hard Disk 250GB
2. USB Optical Mouse
3. USB keyboard
4. Monitor with a screen resolution of 1366 x 768
5. Internet connection with a speed of 10 Mbps

###### b. Software Specifications

1. Operating system: Microsoft Windows 8
2. Program Design: Adobe Dreamweaver CS4
3. Script Language: PHP dan HTML
4. Web Server: Apache
5. Web Browser: Google Chrome
6. Database: MySQL

D. Logical Design

1) Use case

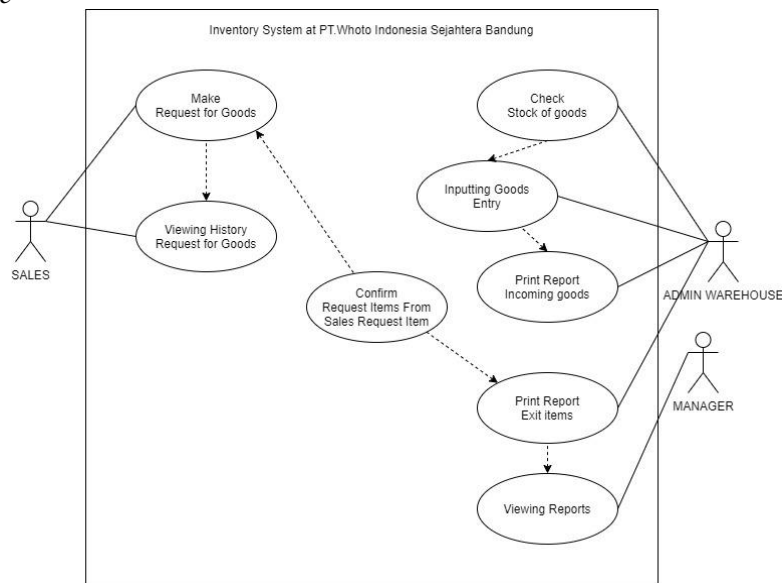


Fig. 1. Use Case Diagram

2) Activity Diagram

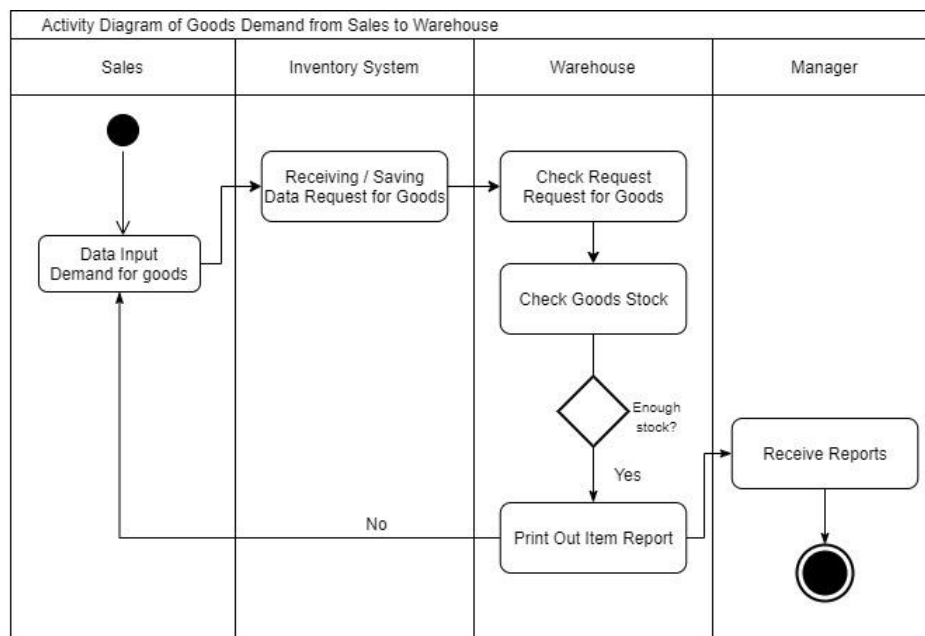


Fig. 2. Activity Diagram

3) Sequence Diagram

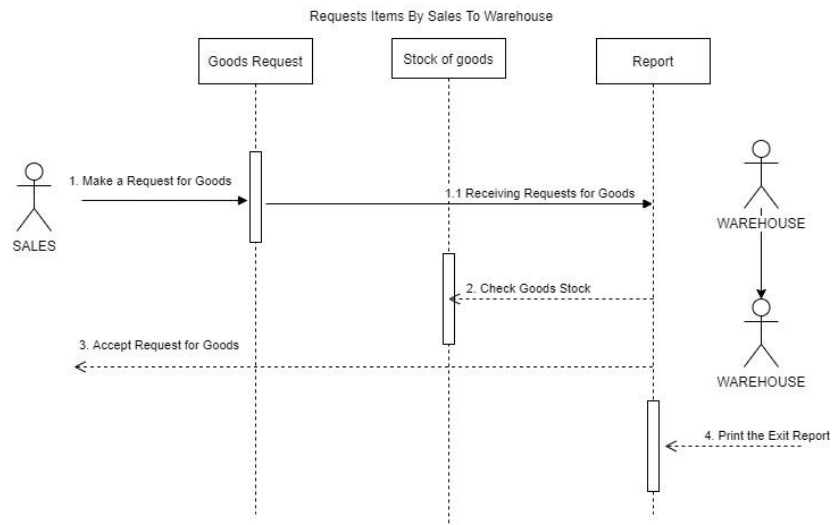


Fig. 3. Sequence Diagram

E. Physical Design

1) Class diagram

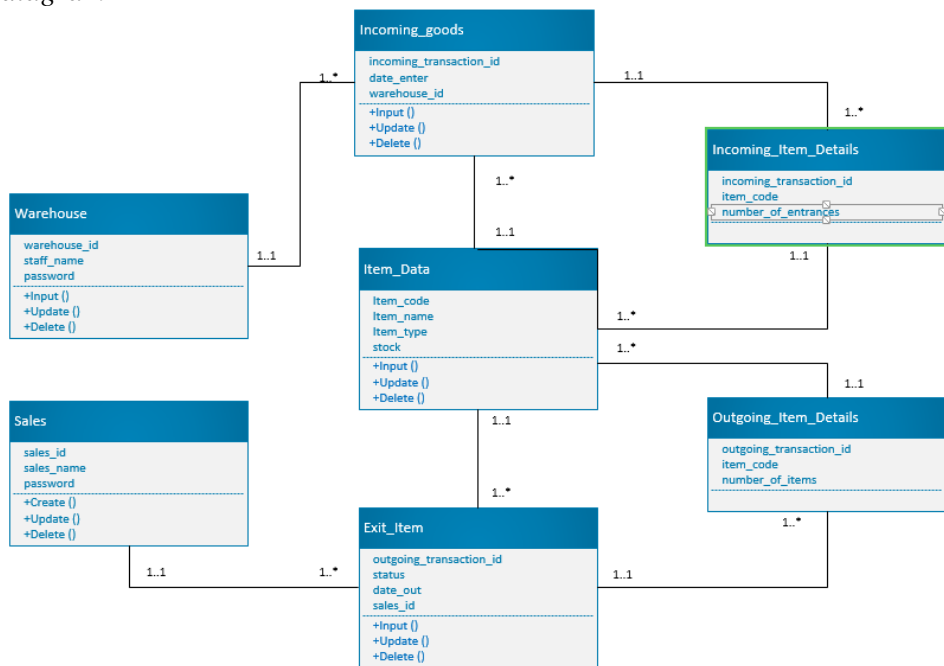


Fig. 4. Class Diagram

2) User Interface

The following are some pictures of the user interface display on the application.

a) *Input Item Entry Page.*

This page shows the input of incoming goods. Data on incoming goods will be input by the warehouse to add new goods stock.

Fig. 5. Input Item Entry Page

b) *Goods Request Page.*

The sales department will input the demand for goods needed. Then the data will enter the warehouse as a sales request that will be acc or not.

Fig. 6. Goods Request Page



c) *Item Out / Request From Sales.*

The warehouse will receive a request from the sales and check with the available stock of goods. If fulfilled, the request will be acc.

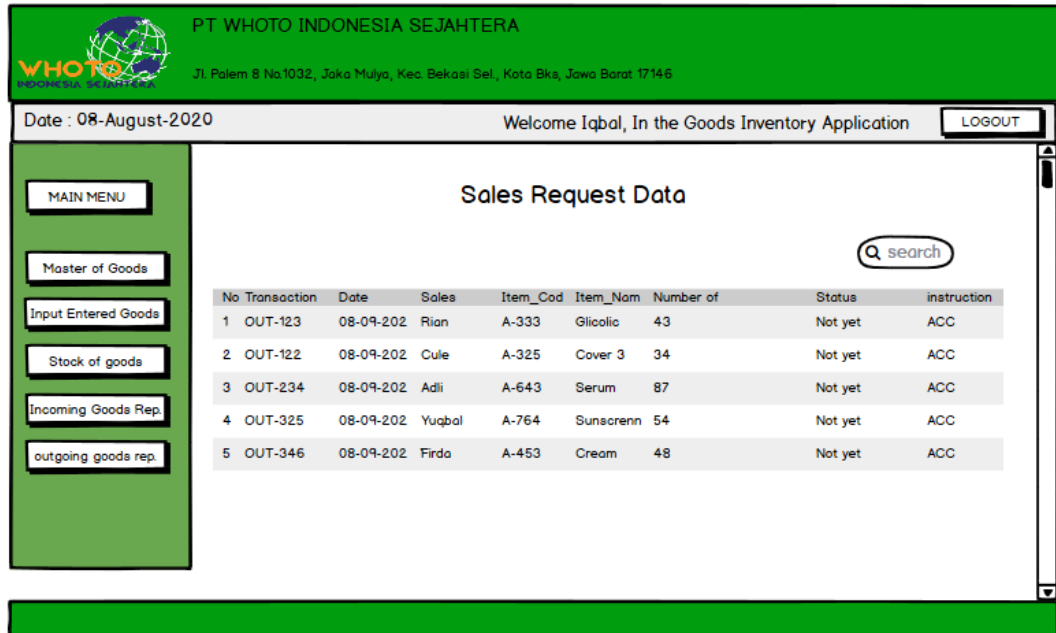


Fig. 7. Request From Sales Page

d) *Print Report on Incoming Goods.*

This page provides printing of incoming goods reports which can be accessed by the admin and the warehouse section.

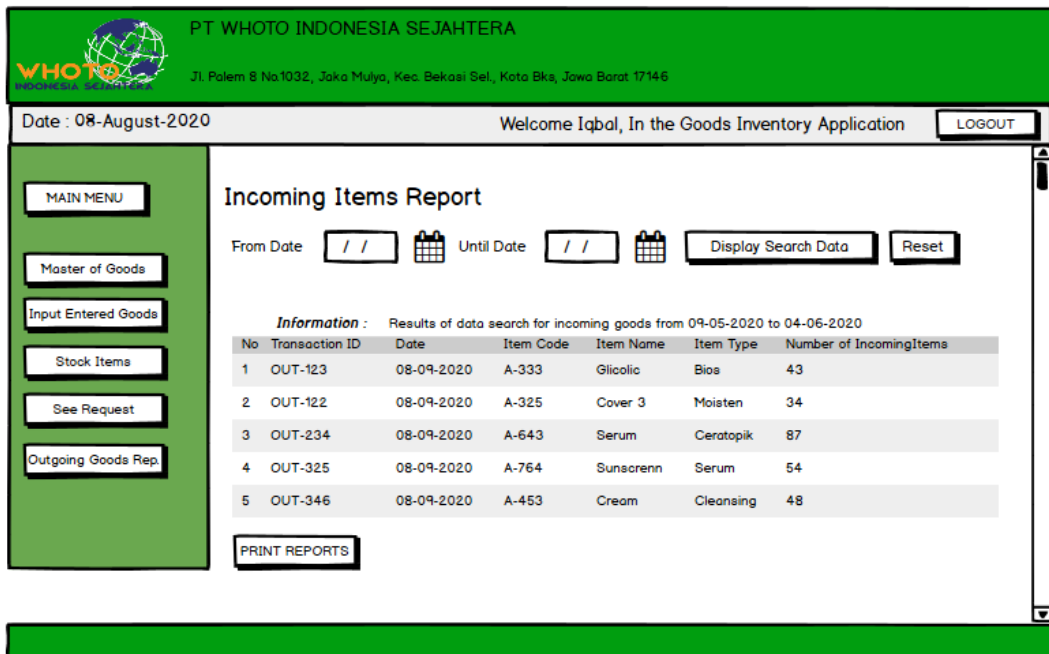


Fig. 8. Print Report On Incoming Goods Page

e) *Print Out Item Report.*

This page provides printing outgoing item reports that can be accessed by the admin and the warehouse section.

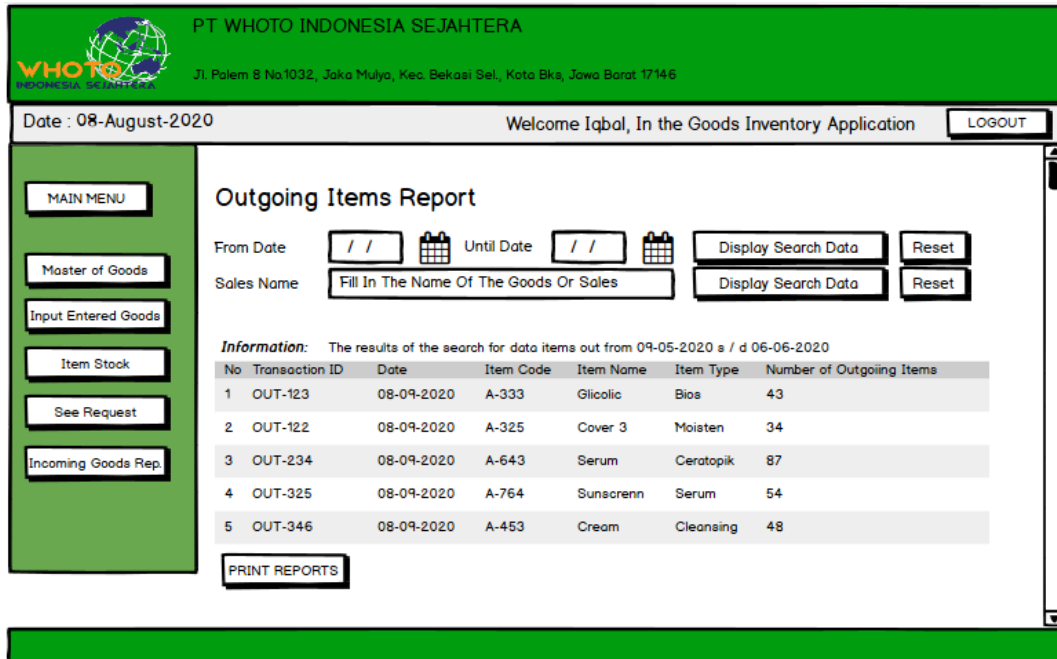


Fig. 9. Print Out Item Report Page

V. Conclusion

The author can conclude that the design of the inventory system at PT.Whoto Indonesia Sejahtera Bandung can facilitate the data collection process in and out of goods so that it will be easier to make goods reports. And transactions on a system that is built have been computerized so they can find out and make it easier to provide information that is fast, precise, and accurate.

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