Inventory Information System Design at PT. Instaprint Jaya Primatama

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Abstract

Information technology is rapidly developing all existing activities or activities become very important in determining the progress of the company, both in operational and non-operational activities, one of which is the procurement report which must produce accurate and accurate reports. PT Instaprint Jaya Primatama is a company engaged in the field of digital printing while those who do not yet have a system that uses stock of goods, the current system still has problems such as requiring a long time to find the amount needed Every day and making reports still using Ms. Excel so there is a delay in the company's performance. This study aims to create a system that can support the process of reporting needs that can be done effectively, the design process uses the PIECES method, system modeling using UML (Unified Modeling Language) to use visualization, which can be used by using the Hypertext Preprocessor programming language (PHP) with a MySQL-Server database as a database. And to collect data, the authors use the method of observation, interviews, and literature study. With the system of preparation of goods, it can make it easier for inventory administrators to produce accurate reports with a fast time and can be made in order to produce effective and efficient.

Keywords: Reports, Goods, System, Inventory

1.1 Introduction

Advances in technology enable humans to have a better quality of life. Various activities and activities that used to be done manually and require time, energy and thought, can now be done effectively and efficiently with the help of technology.

The development of information and communication technology is increasingly rapidly because humans have a tendency to always look for and get more than what already exists. Information and communication technology devices were created by humans for the benefit of humans as well. Until its peak at this time, the existence of information and communication technology turned out to be capable of driving the advancement of human life in various aspects, especially with the presence of internet technology that is able to become a bridge of communication between people on earth. More and more people are aware of the role played by information and communication technology products and try to follow their development as well as utilize them.

As the development of information and communication technology, business competition in the industrial world is getting tougher. The number of companies is increasing and continuing to do business and strategy in maintaining business. Therefore, each company will manage inventory as much as possible in order to meet customer needs.

PT. Instaprint Jaya Primatama is a company engaged in printing, so far the inventory system data collection that runs is still semi-computerized and requires a system to manage so that it runs an operational activity, because the system used is still using Microsoft Excel and really requires a long time to find out the amount of inventory because the stock admin must calculate directly the amount of physical stock every day, frequent calculation errors that cause the difference between incoming and outgoing goods, takes a long time to make a report on demand and expenditure of goods, causing the company's performance to be hampered, because it required an appropriate inventory information system and can process inventory data into information that is fast, precise and accurate.

Based on the background explanation above, therefore the authors analyze further by raising the research title, namely **"Inventory Information System Design at PT. Instaprint Jaya Primatama"**

2. Research Method

To get the data needed in making a thesis, the researchers used three methods, namely the data collection method, the analysis method, and the design method.

2.1 Data Collection Method

Data collection methods used by the authors, including:

1. **Observation**

The author conducted a direct review of PT. Instaprint Jaya Primatama to see the current inventory system, and make observations to find out any constraints and then draw conclusions about the problems in the system.

2. **Interview**

To get the data needed, the authors conducted an interview or question and answer session verbally to the parties concerned, especially the stock admin.

3. **Literature Study**

To get information related to this research, the writer got it by visiting the library to read and study books, journals and other relevant research results related to the title taken, so that the writer gets a picture for analyzing and making a design on this writing.

2.2 Design Method

In this study the system development method is used with the Iterative method SDLC (System Development Life Cycle) method which has 5 stages of processing, namely:

1. Planning

The planning stage is the initial stage of system development that defines the estimation of resource requirements, such as: physical devices, methods and budgets which are still general in nature. In this stage there are also several activities in system development, namely: Defining the objectives and scope of development, identifying system constraints, determining and evaluating strategies to be used in development.

2. Analysis

In this study the authors used the PIECES analysis method (Performance, Information, Economic, Control, Efficiency, Service). From this analysis can usually be seen several main problems because what often appears on the surface is not a main problem, but only a symptom of the main problem.

This stage of analysis is the stage of research of the current system with the aim of designing a new system by using Object Oriented Analysis (OOA) analysis with the UML (Unified Modeling Language) tool and using Visual Paradigm Software, a language based on graphics or images, visualizing, specifying, building and documenting an Object Orientied-based software development system through the stages of Use Case Diagrams, Sequence Diagrams, Activity Diagrams, etc.

3. Design

This method is the design stage, which is to determine the data process required by the new system in order to meet user needs with the UML (Unified Modeling Language) tool. A design process will translate requirements for a software design that can be estimated before coding is made. This process focuses on a data structure using MySQL, software architecture, interface presentation using Sublime Text 3 and a detailed procedural algorithm by making a database used is XAMPP which includes Apache, PHP and MySQL. As a browsing application that I use using Mozilla Firefox. This stage will produce a document called software requirements. This document is used to carry out an activity in making the system, configuring the system and delivering proposed implementation.

4. Implementation

The implementation phase is the stage where the design of the finished system is then formed into a code (program) that is ready to operate. The steps are preparing physical facilities and doing simulations. Testing used at the implementation stage is Blackbox Testing. Blackbox Testing is a trial method that focuses on software requirements.

5. Maintenance

The next stage is the need for program maintenance, audit systems, safeguards, improvement and system development. So that the application program that has been made can be improved and developed according to the needs of the company in accordance with technological advancements.

2.3 Testing Method

In this research the testing method used is Black Box Testing, which is a trial method that focuses on the needs of the software. Therefore, the Black Box trial enables the development of software to create a set of input conditions that will train all of the program's functional requirements. Black box testing methods attempt to find errors in several categories, including: functions that are wrong or missing, errors in the data structure of external database access, performance errors, initialization errors, and termination.

2.4 Literature Review

No	Nama Pengarang	Judul	Pembahasan dan Hasil
1.	Edy Tekat Bronto Waluyo, Hanafri dan Sulaeman, S. (2019)	Design of Inventory Information System in the Spare Parts Warehouse.	This research produces inventory information system to help overcome and reduce problems, with a stock inventory information system in this spare part warehouse can make it easier to know the amount of inventory available in a warehouse and facilitate the warehouse admin in presenting inventory reports in and out of goods needed leaders with high data accuracy.
2.	Hong Shen, Qiang Deng, Rebecca Lao, dan Simon Wu (2017)	A Case Study of Inventory Management In A Manufacturing Company In China	Identify the main factors that influence inventory management practices, investigate efficient and effective inventory

			management approaches, and examine the impact of supplier cooperation on improving supply chains. The case study approach is used to identify the factors that influence inventory management in a factory. Efficient and effective inventory comes from case studies and can provide practical guidance for foreign producers in China. This study provides a valuable tool for identifying factors in inventory management that can be applied to similar problems encountered in actual factories.
3.	Peipei Ran, Yang, W., Cao,	Design of Inventory Management Module in	Discusses inventory management that is designed

	S., dan Huo, Y. (2018)	Printing Enterprise Based on Web	and implemented to achieve materials in the warehouse, inventory, and monthly report functions. Aimed at reducing staff workload, increasing the level of company information management and making inventory management more orderly, efficient, and accurate.
4.	Erna Astriyani, Rahmadi, dan Ahmad Ricky Alfariz (2017)	Design of Goods Stock Procurement System at PT. PT. Laju Karunia Jaya	Discussing the running system there are still shortcomings and constraints namely its application still using semi-computerized where the goods entering the warehouse are inputted from a purchase memorandum into Microsoft Excel and the goods going out of the warehouse are still applying

			manual recording by memo on paper, this causes weak control of the stock goods in warehouses that have an impact on the shortage of goods and excess stock of goods as well as frequent discrepancies in reporting the goods, which makes it difficult in the process of holding goods back to the warehouse. The results of this study are intended to develop a website-based inventory system, which is used as a data control for incoming and outgoing goods quickly and accurately so that in managing the procurement of existing stock in the warehouse can be done

			efficiently but still maintained the accuracy of the data.
5.	Sugeng Santoso, Ilamsyah, Winda Novita. (2019)	Application of Inventory Monitoring Information System for Stock-Based Web Based on PT Makmur Berkat Solusi Logistic	Discussing the system that was made aims to design an inventory system application that can help in checking stock reports on PT Makmur Berkat Solusi Logistik because it has several obstacles in using the existing system that is not updating information and delays in reports so that the owner of the goods cannot check stock report if there is an incoming and outgoing item updated so it requires a system that can help in making a report of the stock of goods so that it can be monitored by the owner of the goods and in order to

			prevent overload or excess inventory in the warehouse.

3. Findings
Based on the introduction and research method described above, the authors formulated the following problem

3.1 Problem
1. How is the inventory system in and out of goods currently running at PT Instaprint Jaya Primatama?

2. How to administer the stock so that the inventory of goods is protected from under- or over-stock in the warehouse?

3. How to design a system that can help the inventory in managing the inventory data report at PT Instaprint Jaya Primatama?

3.2 Research Implementation
After analyzing and researching the system that is running on the inventory information system, then the next will be discussed regarding the design of the proposed system to be built. There are a number of proposed procedures that aim to optimize the function of the inventory information system that is currently running, namely changing the inventory processing system that was originally done semi-computerized into a computerized inventory system and web-based. Then the next steps are the design or design of a proposed system that aims to perfect the old system by giving a clear picture or view according to the system design process from the beginning to the end of the study. In analyzing the proposed new procedures in this study the Visual Paradigm for UML Enterprise Edition Ver program was used. 8.0 Personal Edition to illustrate use case diagrams, activity diagrams, sequence diagrams, and class diagrams.

3.2.1 Proposed System Procedure
There are several proposed new procedures, procedures aimed at improving and perfecting the existing system. The proposed procedure are:
1. Operator
   a. Login to the system
   b. Displays the dashboard menu
   c. Enter data items out
   d. Logout the system
2. Admin Stock
   a. Login to the system
   b. Displays the dashboard menu
   c. Display the stock menu
   d. Make input request orders
   e. Displays the purchase order menu
   f. Input incoming goods
   g. Approve goods out

      h. Perform data division master input
      i. Enter supplier data master
      j. Perform input master data items
      k. Perform detailed data master input categories
      l. Logout the system

3. 3. Purchasing
      a. Login to the system
      b. Displays the dashboard menu
      c. Display the stock menu
      d. Approval request orders
      e. Make an input purchase order
      f. Displays the item entry menu
      g. Displays the item menu out
      h. Logout the system

4. Finance
      a. Login to the system
      b. Showing dashboard
      c. Display the stock menu
      d. Approval purchase orders
      e. Logout the system

5. Administrator
      a. Log in to the system
      b. Display the dashboard menu
      c. Display the stock menu
      d. Display a request order menu
      e. Display the purchase order menu
      f. Display the menu of incoming goods
      g. Displays the item menu out
      h. Enter the master data division input
      i. Entering supplier data master
      j. Do input master data items
      k. Enter the master data in detail category
      l. Entering the master data user
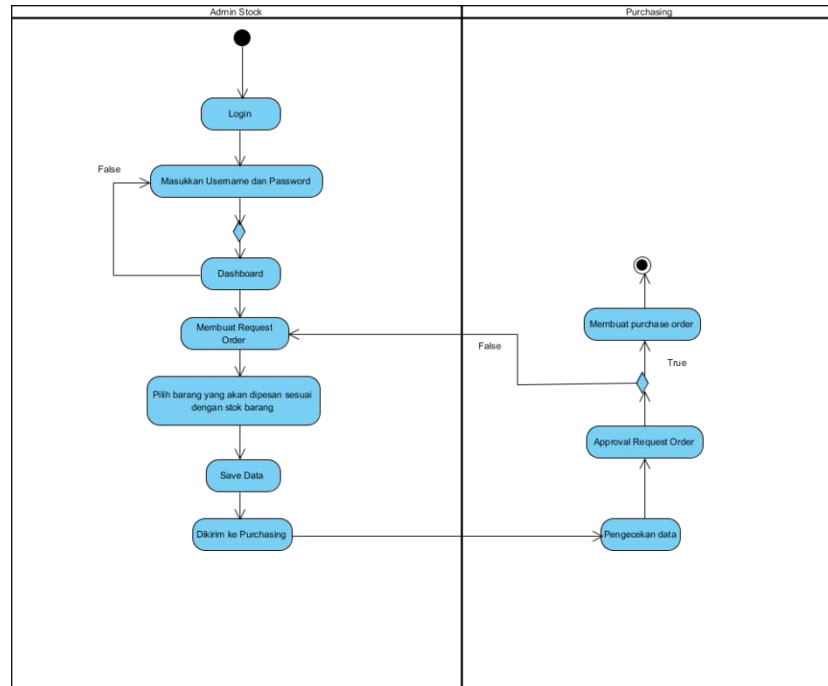   m. Logout the system

3.2.2 Use Case Proposed Diagram
The following is a proposed use case diagram to illustrate the process of inventory in PT Instaparint Jaya Primatama.
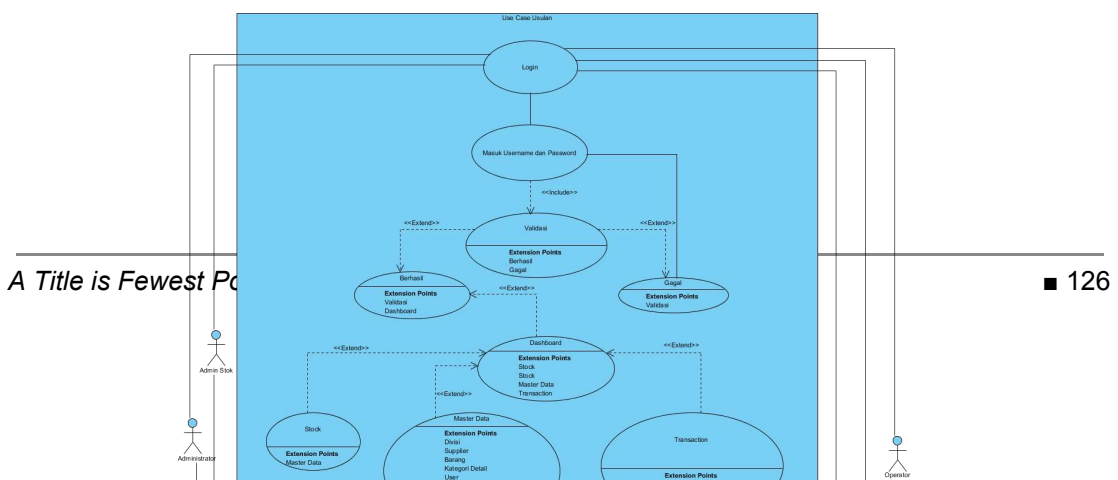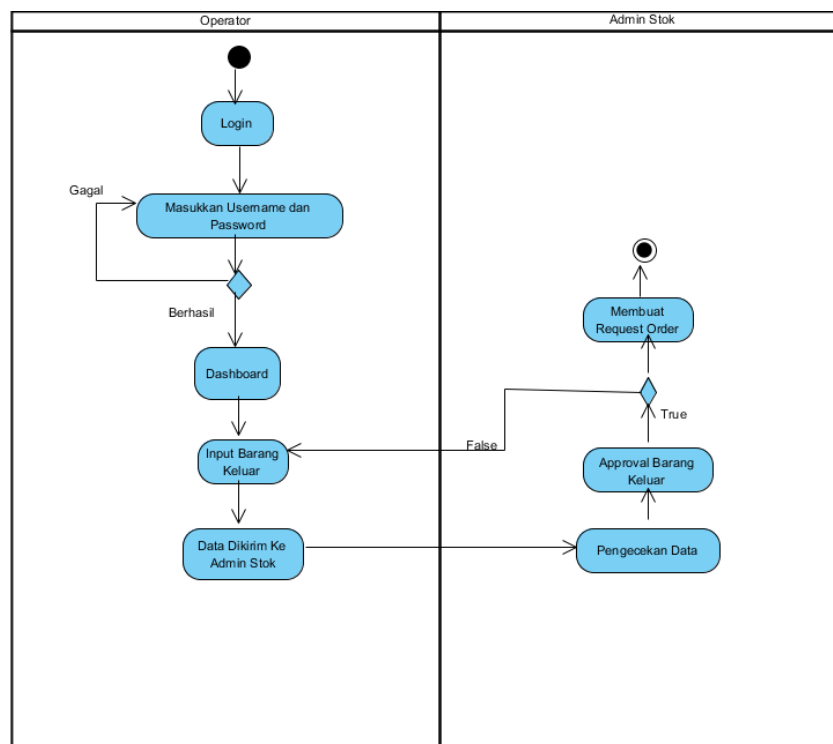
Picture 1. Use Case Inventory Diagram
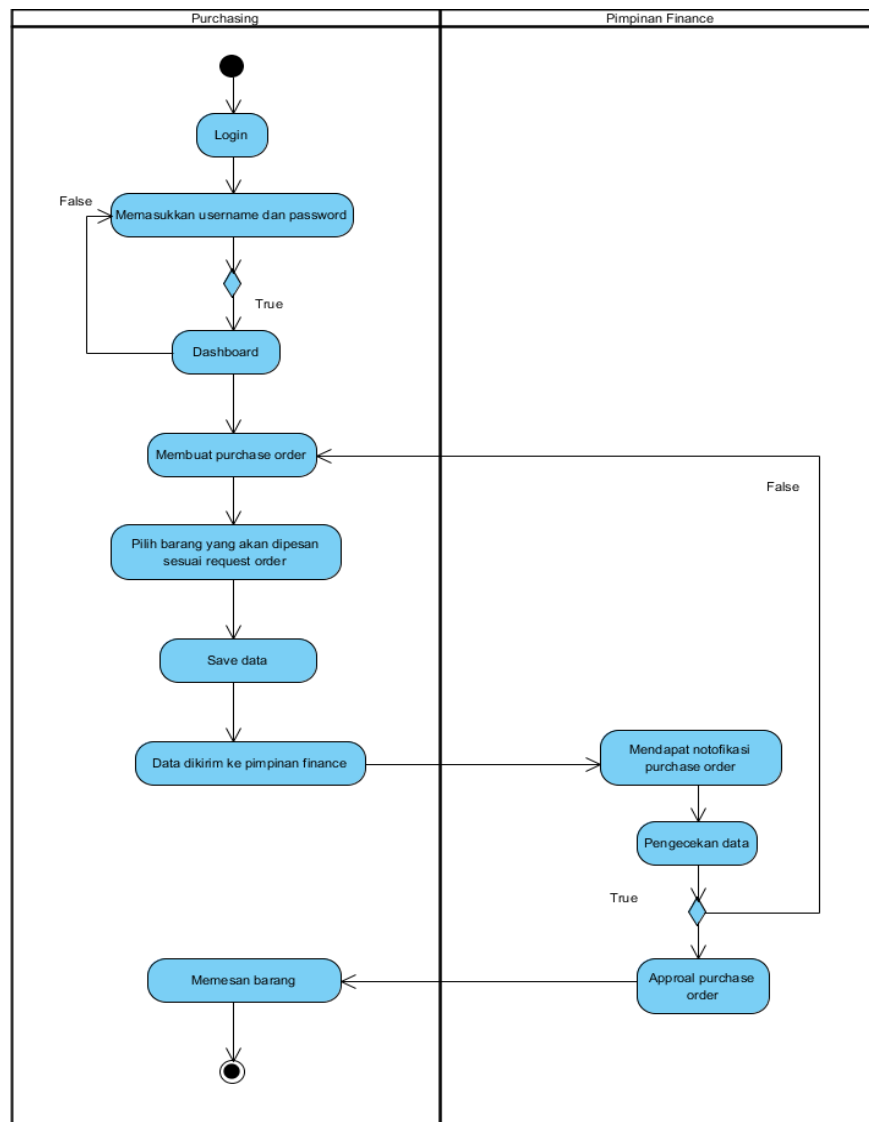
3.2.3 Diagram of Exit Goods Activity

Picture 2. Diagram of Exit Goods Activity

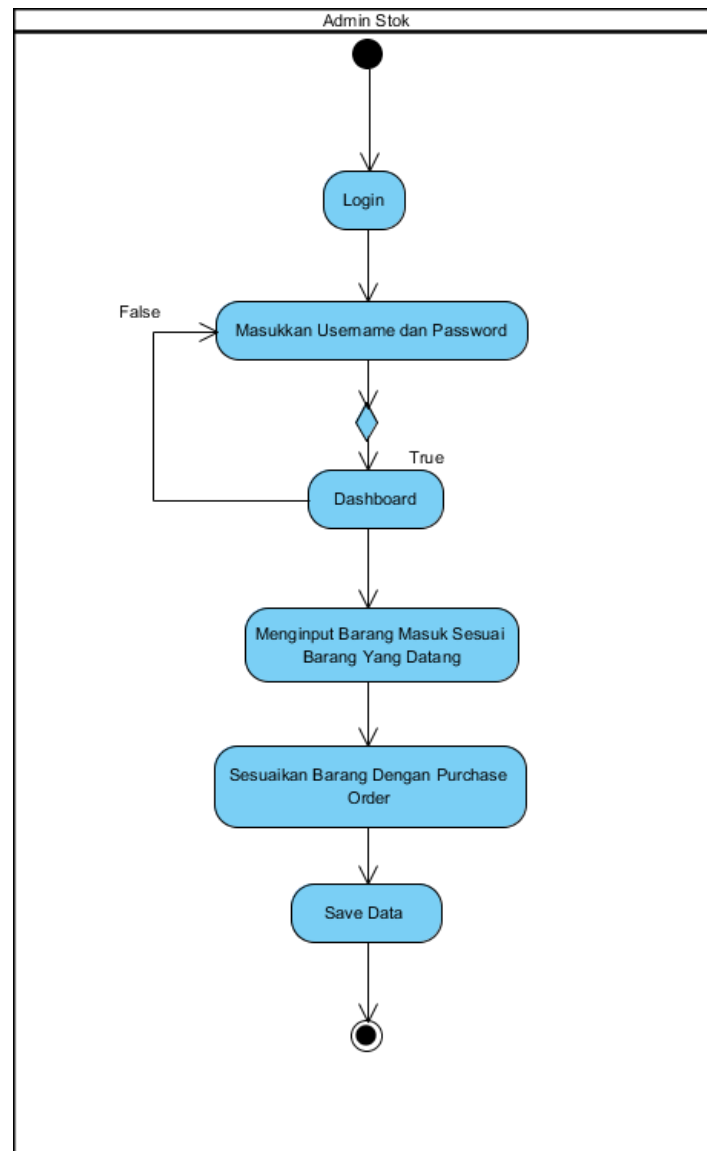### 3.2.4 Activity Diagram Request Order

Picture 3. Activity Diagram Request Order

3.2.5 Activity Diagram Purchase Order

Picture 4. Activity Diagram Purchase Order

3.2.6 Activity Diagram of Goods Entered

Picture 4. Activity Diagram of Goods Entered

4. Conclusion

Based on the results of research conducted at PT. Instaprint Jaya Primatama regarding the design of inventory systems can be concluded that:

1. The current inventory system at PT. Instaprint Jaya Primatama still uses Microsoft Excel for processing its data so the current system is not yet running efficiently.
2. Constraints - obstacles that occur in the current inventory system there are shortages including requiring quite a long time to find out the amount of inventory because the stock admin must calculate directly the amount of physical stock every day and often the

difference between the inventory report with physical goods .

3. Data storage techniques that run on PT. Jaya Primatama Instaprint still uses file archiving, which results in a buildup of files, and the possibility of missing or damaged files is quite large.

4. The author uses the PIECES analysis method to analyze the running system, using the Unified Modeling Language (UML) to describe the running system and the proposed system with Visual Paradigm for UML 12.1 Enterprise Edition tools. In designing the system, researchers used a Sublime Text text editor with the PHP programming language and the My SQL database.

5. In testing, researchers use the Blackbox Testing method. The Blackbox Testing method focuses on testing the functional requirements of the software (software), to get a set of input conditions that are in accordance with the functional requirements of a program.

References

[1] Waluyo, E. T. B., Hanafri, M. I., & Sulaeman, S. (2019). Perancangan Sistem Informasi Persediaan Barang Pada Gudang Sparepart. *JURNAL SISFOTEK GLOBAL*, *9*(1).

[2] Shen, H., Deng, Q., Lao, R., & Wu, S. (2016). A case study of inventory management in a manufacturing company in China. Nang Yan Business Journal, 5(1), 20-40.

[3] Ran, P., Yang, W., Cao, S., & Huo, Y. (2018). Design of Inventory Management Module in Printing Enterprise Based on Web. In *MATEC Web of Conferences* (Vol. 232, p. 02019). EDP Sciences

[4] Astriyani, E., Rahmadi & Alfariz, A. R. (2017). RANCANGAN SISTEM PENGADAAN STOK BARANG PADA PT. LAJU KARUNIA JAYA. *CERITA Journal*, *3*(1), 85-90.

[5] Santoso, S., Ilamsyah, I., & Novita, W. (2019). APLIKASI SISTEM INFORMASI PEMANTAUAN INVENTORY STOCK OPNAME BERBASIS WEB PADA PT MAKMUR BERKAT SOLUSI LOGISTIC. SENSI Journal, *5*(2), 165-174.