

Utilization of the Django Framework as a Dashboard Model Information System for Raw Material Inventory on PT Bimasakti Karyaprima



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Abstract

The aim of the research is to analyze the raw material inventory and design a dashboard system that can help achieve company goals. The research method used is the method of analysis of stath, software design methods, and methods of software testing. The design analysis method used is the SWOT analysis, the design method used is the design concept using UML diagrams, the soft test method uses the Black Box concept. The results achieved are a dashboard system used by the Warehouse Section and Production Section to monitor raw material inventories and production performance. The conclusion of this study is that the dashboard application that has been made can help the Warehouse and Production Section to monitor raw material inventory and production performance in real time. This web application provides information easily, quickly, concisely and interactively which includes raw materials for shoe components, office equipment, production tools and general equipment, inventory planning, recommendations and reports on transactions and raw material requests.

Keywords : Dashboard, Material

1. Introduction

Raw material is one of the scope of PT Bimasakti Karyaprima's which has a direct impact on the company's overall production performance. All raw material records and raw material reports are made using Microsoft Excel, the data of which comes from PT Bimasakti Karya Prima's data warehouse. Raw material reports are provided only once a week so monitoring of performance and efficiency of raw material supply cannot be done on a daily basis. Corrective action on the decline in efficiency and performance of the supply of raw materials is sometimes too slow to do, even though this information is important in improving the company's production performance.

Dashboard is a tool used to measure company performance in real-time. Dashboard systems can handle and process large amounts of data so that the values in the data can be represented in a number of concise tabs, which display trends and much information needed by SCM.

Dashboards give managers a faster view compared to reports in general where managers tend to compare a lot of information from many reports received over several days.

Dashboards make it easy to understand the reporting status of the company's progress throughout the year and can identify trends and true problems. The identification of trends

and problems earlier will get faster handling of the company right for the progress of the company and better service.

2. Research Method

2.1 Literature Review

The following is 7 (seven) scientific literature are used as references in this study:

1. Research conducted by Aris, A., Firdaus, T, & Nurseha N in 2018, with the title "APPLICATION OF GOOD QUALITY CONTROL PROGRAMS TO SUPPORT REPORTING ON THE PART OF HIGHER EDUCATION ENGINEERING". STORY Journal, 4 (2), 159-168. In this research carried out in the Engineering section, at Raharja College where in the processing of data the engineering section is still unable to provide the best services to meet the strategic information needs needed to support reporting on Raharja College management. It takes a long time to produce goods data information as needed, this happens because it has not been integrated with the management and processing of information can not be effective and efficient, With the design method using UML, and making application programs using the PHP-based programming language website. So that it can assist in reporting goods data online by the engineering department for management which can improve the performance of the engineering department for the Management of Higher Education Raharja so as to provide good and faster service [1].
2. Research conducted by Ahmad Budiman, Asri Mulyani in 2016, with the title "DESIGN AND DEVELOPMENT OF THE APPLICATION OF INFORMATION SYSTEMS IN TB. INDAH JAYA BASED ON DESKTOP ". Journal of Algorithm College of Garut Technology Vol 13, No. 1. In this study discusses the design of desktop-based inventory information system applications, the cashier can manage and search for data items quickly and can provide accurate information to the head of the shop owner. To overcome errors in counting the number of items. To know the inventory report of goods in the warehouse effectively. To find out the advantages in selling goods. The method used in the design of building a desktop-based inventory information system is object oriented methodology with the Unified Approach approach and using modeling from the Unified Approach. The design of a desktop-based inventory information system application produced during the research process can provide solutions to existing problems by referring to the design process from the beginning, so that with this application can assist in the process of finding data and reporting data and can improve effectiveness management of information on goods data in TB. Indah Jaya [2].
3. Research conducted by Adysta Rahadi, Mochammad Al Musadieg, Heru Susilo in 2014, with the title "ANALYSIS AND DESIGN OF COMPUTER-BASED GOODS INFORMATION SYSTEMS" (Case Study at the Arta Catering) VOL 8, NO 2 Journal of Business Administration (JAB). In this study the authors discuss the results of this study indicate that the Arta Food Shop in managing inventory of goods is still using the manual system. This can be seen from the making of reports and inventory management which runs slowly. Computer-based inventory information system is a new system offering that is expected to be a solution in solving problems. With the new information system it is expected to be able to process information on goods information, produce accurate information, facilitate reporting, and reduce operational costs of providing data file space [3].
4. Research conducted by Junaidi, Ridwan Arifin , Amanda Septiani in in 2015, with the title "DESIGN AND DESKTOP BASED INVENTORY SYSTEM APPLICATION

- USING JSE". In this study the author discusses the monitoring of inventory systems is needed by companies engaged in the sale of goods and services, which prioritizes the quality of goods and services to consumers. Currently purchasing data processing activities are still operating using Microsoft Excel software, but the
5. process has not run optimally, the information obtained still impedes operational activities and management report information has become a confusion because of the frequent delay in reporting data to management. To be able to overcome all these obstacles, we need a system that is able to automatically record the number of stocks of each type of goods, this is possible by conducting several discussions including analysis, design, testing and implementation. The analysis is done by observing the running system and information and system requirements, the design is made using UML, and making the program using JSE and MySql DBMS. The results of this design are expected to assist management in monitoring stock as needed, and can minimize human error and be able to create reports quickly and accurately [4].
 6. Research conducted by Mousavi, S.M., Bahreininejad, A., Musa, S.N. et al. J Intell Manuf in 2017, 28: 191. Journal of Intelligent Manufacturing with the title "A MODIFIED PARTICLE SWARM OPTIMIZATION FOR SOLVING THE INTEGRATED LOCATION AND INVENTORY CONTROL PROBLEMS IN A TWO-ECHELON SUPPLY CHAIN NETWORK". In this study, the design of a two-echelon distribution supply chain network for the seasonal products with multiple vendors (manufacturers) and buyers (retailers), and a set of warehouses for each vendor are considered. The locations of the buyers are known and the capacity of the warehouses is restricted while the buyers purchase different products from the vendors under all unit discount policy. The main objective of this research is to find out the optimal locations of the potential vendors in addition to the quantity ordered (allocation) by the buyers so that the total inventory cost including ordering (transportation), holding and the purchasing costs is minimized. Besides, the distance from the buyers to the vendors is considered as the Euclidean distance. The total budget to buy the products is limited and the production capacity of each vendor is also restricted. To solve the problem, a modified particle swarm optimization (MPSO) algorithm is applied where the results are validated using a genetic algorithm (GA). Finally, some computational examples are generated to assess the algorithms' performance where MPSO shows a better efficiency in comparison with the GA [5].
 7. Research conducted by Chaudhari and Atul Wankhede in 2016, with the title "INVENTORY MANAGEMENT SYSTEM USING STURTS FRAMEWORK ARCHITECTURE". This research makes an inventory system to track and monitor sales and inventory available without problems from business systems using JAVA and MySQL programming languages as a place to store and update data in managing. Researchers adopted to use MySQL as a place to store and update data in managing inventory [6].
 8. Research International Journal conducted by Hemishkumar Patel, Jayeshkumar Pitroda Dan Prof. J. J. Bhavsar in 2015 Academic Research For Multidisciplinary :India. With the title "A REVIEW ON MATERIAL MANAGEMENT THROUGH INVENTORY MANAGEMENT". Building materials are usually the main part of 50-60% of the total costs in building construction projects. Material management is made problematic because of material shortages, supply delays, price fluctuations, damage and waste, and lack of storage space. To manage the efficient management of materials on an efficient and efficient site, it is very important. Inventory management systems involve methods of procurement, storage, identification, collection, transportation and construction. This study proposes to apply Material Management and Inventory Management techniques that include well-documented procedures to reduce costs and increase profits during the life cycle of a construction project [7].

2.2 Method

The method used in the study uses data collection methods and design methods. In this case the object of research is the Information System for Raw Material Inventory.

1. Method of Collecting Data

1.1. Design Analysis Method

Identify business processes and user needs and express with usecase. Required because it can explain what activities must be done by the system, and also explain the behavior of the system components.

1.2. Software Design Method

Is a framework used to structure, plan, and control the process of developing an information system. Many different frameworks have been developed so far, each of which has its own strengths and weaknesses.

1.3. Software Testing Method

An investigation is carried out to obtain information about the quality of the product or service being tested. Software testing also provides an objective and independent view of the software, which is useful in business operations to understand the level of risk in its implementation. Testing techniques include, but are not limited to the process of executing a part of the program or the entire application in order to find software bugs (errors or other defects).

2. Analysis Phase

In this analysis phase a system needs analysis is done by analyzing the needs needed to build a new system. Described using UML, namely use case diagrams and activity diagrams.

3. The Design Stage

In this design phase is done by making a database design and design at this stage using the software method that is Waterfall.

4. Implementation Stage

At this stage all system designs created will be implemented into a web-based program that will be used by students and administrators. At this stage the system is designed using Python as a programming language and for the database the researcher uses MySQL.

3. Findings

PT Bimasakti Karyaprima having its address at Jl. Industri Raya I Blok D No. 8A Jatake Tangerang, Banten. When it was first established in 2001, Fans were known for their jogging shoes. Along with changing times, other models began to be made. In 2004, Fans made Taekwondo shoes called X-trial. These shoes are still popular with the public until now.

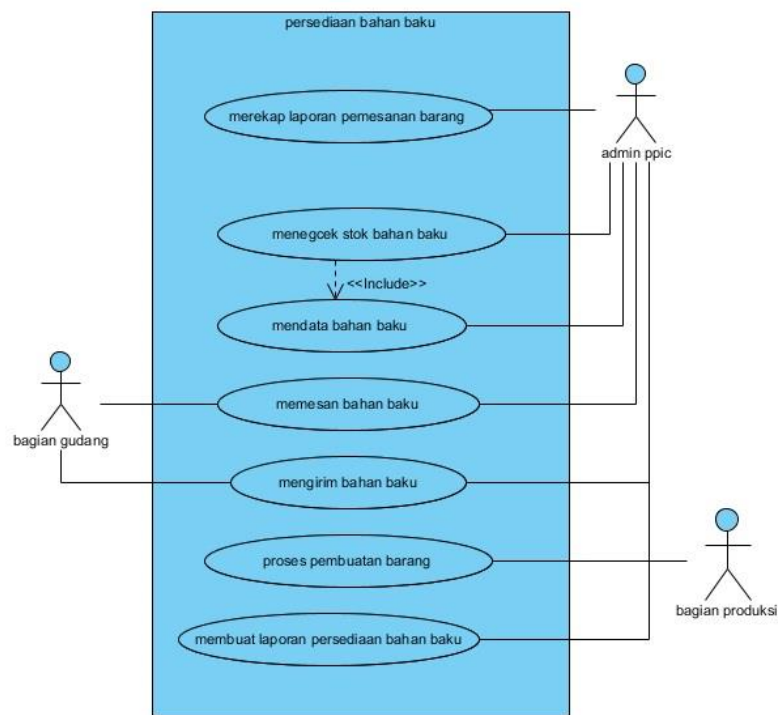
Starting his business as a sports shoes trader, over time and foresight to see opportunities to work on the lower middle market segment, was born fans of the shoe brand, with the aim of participating in developing the shoe industry in Indonesia. The name of Fans was chosen because it is easy to remember and has a positive meaning that is fans, synonymous with the vision of the company that wants to continue to triumph in providing comfort for its fans from Sabang to Merauke.

Fans were first produced by a CMT factory which also manufactures other brand shoes. When Fans' demand increased, it was decided to open their own production unit in the Jatake area - Tangerang. By having its own factory, Fans are committed to further developing footwear technology to provide added value to the production of shoes in the country.

1.1. System Requirement Analysis Stage

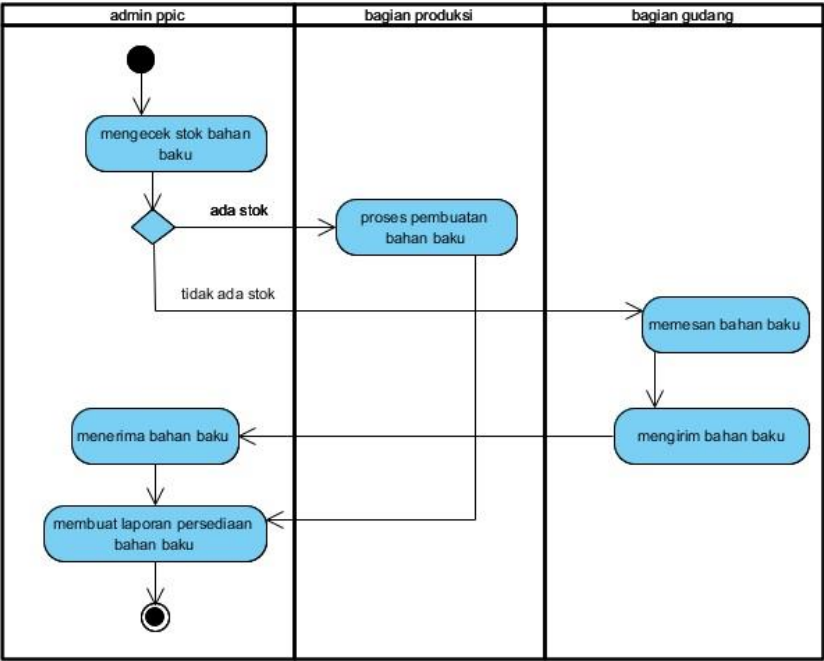
To analyze the current system, this research uses the Unified Modeling Language (UML) program to be able to describe the processes and procedures that are currently running.

1. Use Case Diagram That Runs



Picture 1. Use Case Diagram That Runs

2. Activity Diagram that Runs

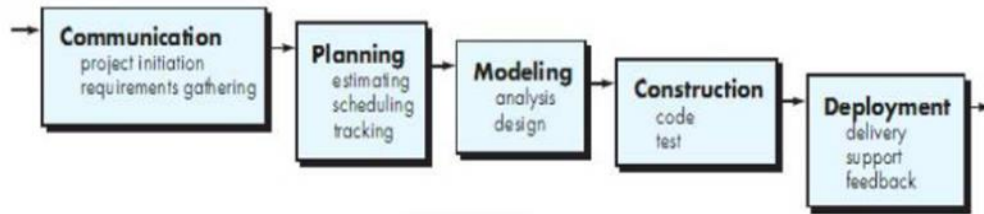


Picture 2. Activity diagram Registration

1.2. Software Planning Stage

In this software analysis stage, researchers use the waterfall method, which is a classic model that is systematic, sequential in building software. The name of this model

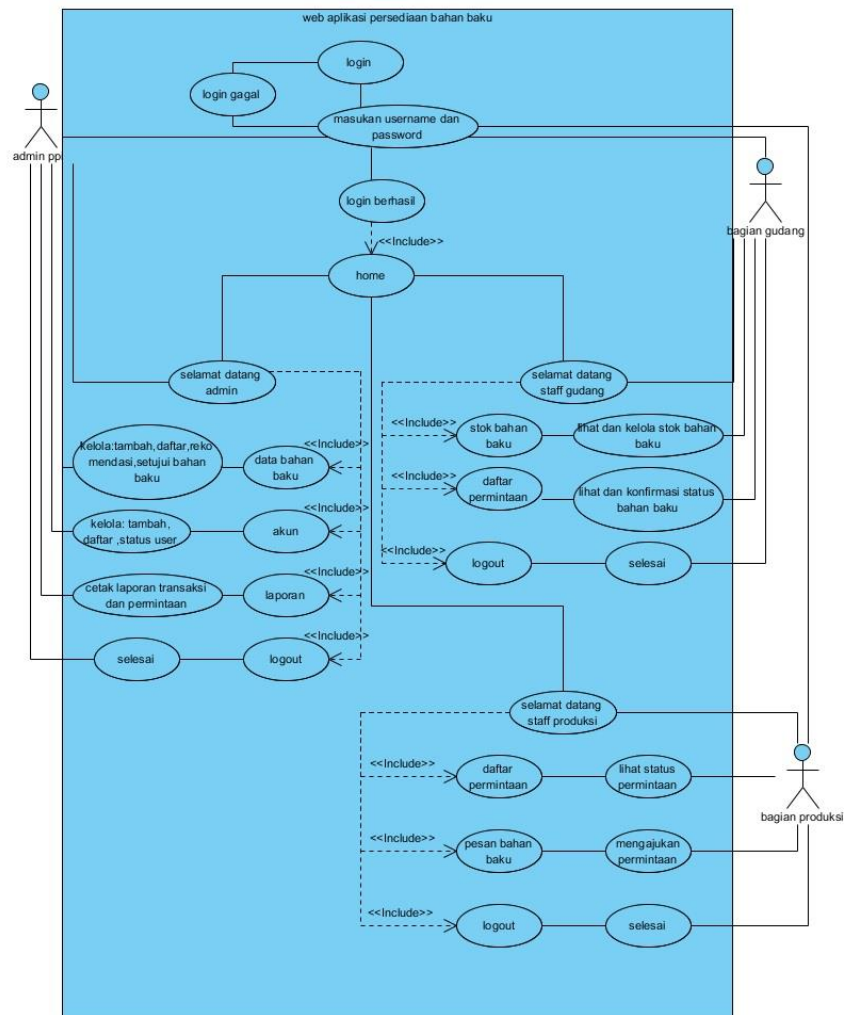
is actually the "Linear Sequential Model". This model is also often called the "classic life cycle" or the waterfall method. This model can approach sequentially and systematically. It is called a waterfall because every step by stage must wait for the completion of the previous stage and must proceed sequentially.



Picture 3. Waterfall

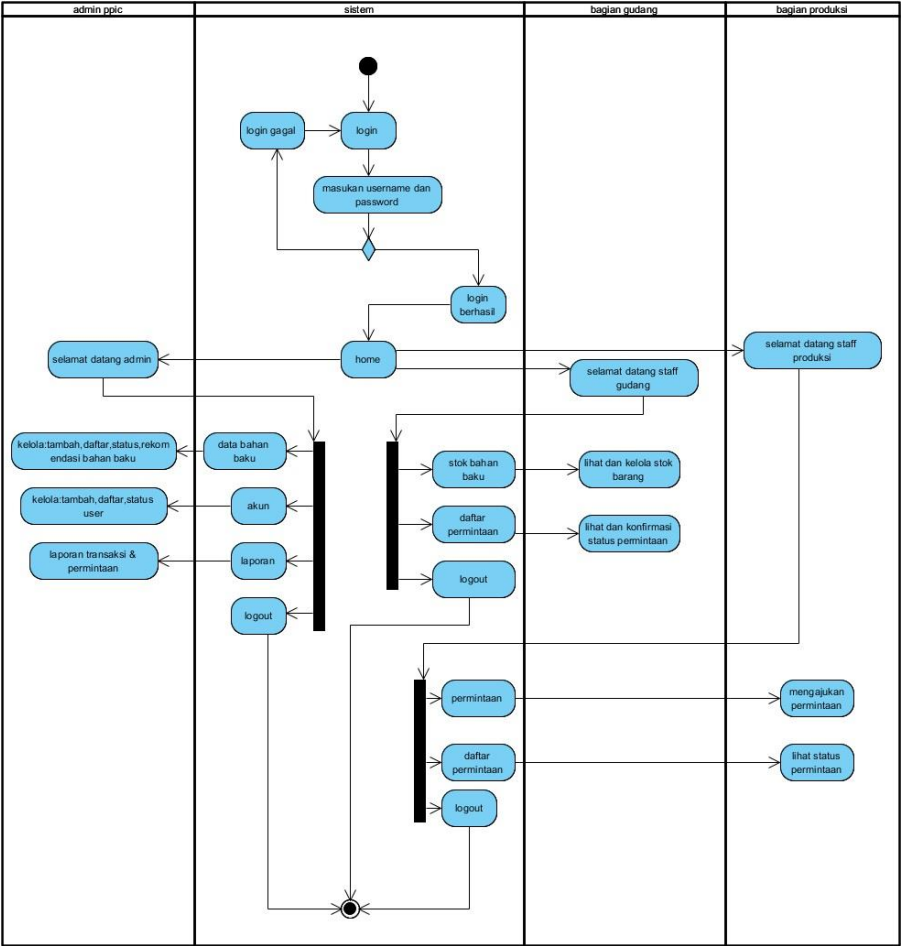
1.3. Implementation

1. Proposed Use Case Diagram



Picture 4. Proposed Use Case Diagram

1. Proposed Activity Diagram



Picture 5. Proposed Activity Diagram

2. Interface Design

At this implementation stage is the application of the new Information System for Raw Material Inventory. The prototype was created using the Adobe XD. Prototype is the initial form as part of the model for demonstration purposes and as part of every process of making or developing a software.

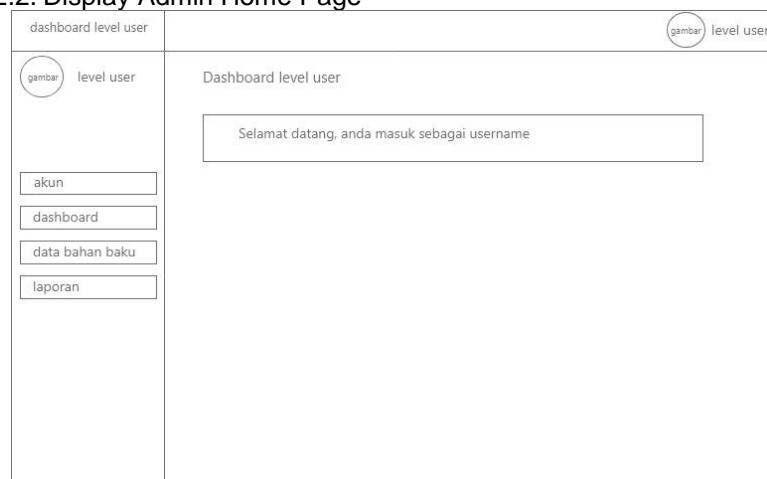
1.1.2.1. Display Login Page



A diagram of a login page. It features a central box containing a placeholder for a logo labeled 'gambar logo sepatu fans'. Below the logo are two input fields: 'username' and 'password'. At the bottom of the box is a 'login' button.

Picture 6. Display Login Page

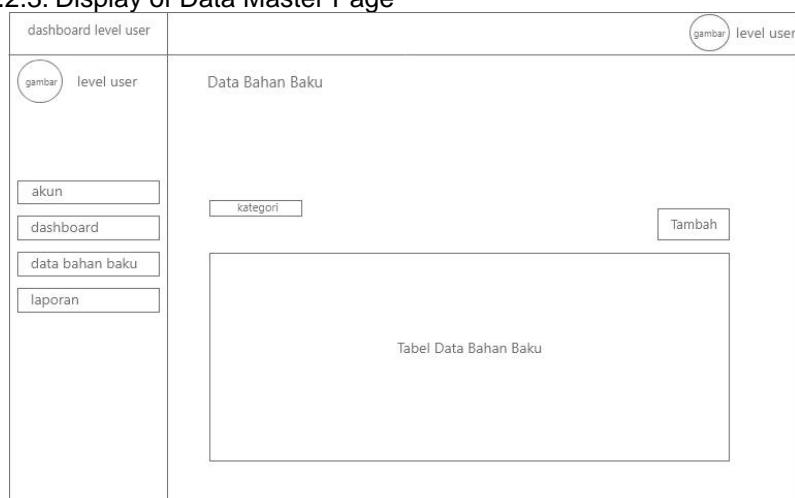
1.1.2.2. Display Admin Home Page



A diagram of an admin home page. It has a header bar with 'dashboard level user' on the left and a user profile icon labeled 'gambar level user' on the right. A left sidebar contains a 'gambar level user' icon and four buttons: 'akun', 'dashboard', 'data bahan baku', and 'laporan'. The main content area is titled 'Dashboard level user' and displays a message: 'Selamat datang, anda masuk sebagai username'.

Picture 7. Display Admin Home Page

1.1.2.3. Display of Data Master Page



A diagram of a data master page. It features a header bar with 'dashboard level user' on the left and a user profile icon labeled 'gambar level user' on the right. A left sidebar contains a 'gambar level user' icon and four buttons: 'akun', 'dashboard', 'data bahan baku', and 'laporan'. The main content area is titled 'Data Bahan Baku' and includes a 'kategori' input field, a 'Tambah' button, and a large box labeled 'Tabel Data Bahan Baku'.

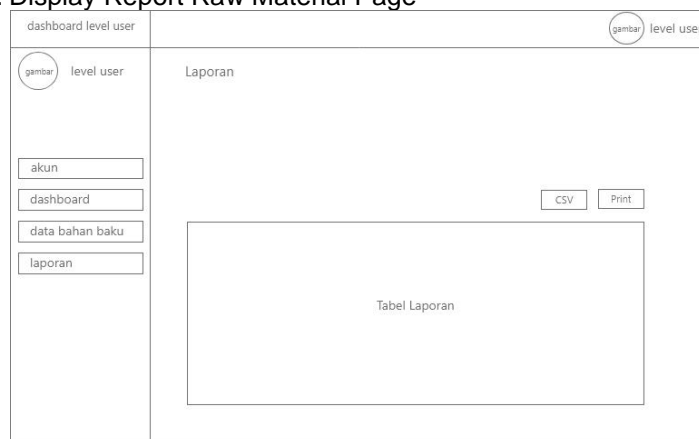
Picture 8. Display of Data Master Page

1.1.2.4. Display Account Details Page



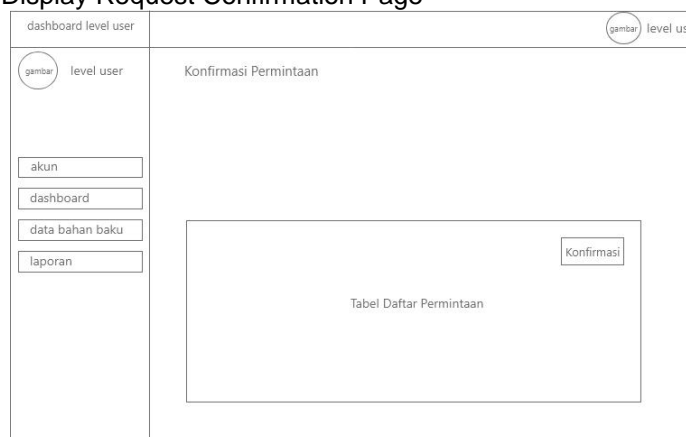
Picture 9. Display Account Details Admin Page

1.1.2.5. Display Report Raw Material Page



Picture 10. Display Report Raw Material Page

1.1.2.6. Display Request Confirmation Page



Picture 11. Display Request Confirmation Page

1.1.2.7. Display Raw Material Stock Page



Picture 12. Display Raw Material Stock Page

1.1.2.8. Display Requesting Raw Material Page



Picture 13. Display Requesting Raw Material Page

4. Conclusion

Based on the results of research and observations made by the author on the dashboard application web system inventory of raw materials At PT Bimasakti Karyaprima, the authors draw conclusions as follows:

1. The Current system is still ineffective and inefficient, which is still done manually by writing data on paper so it consumes quite a lot of archives and will be difficult to find if needed again and most likely the data will be damaged or lost.
2. There is a hoarding of raw materials due to uncertainty originating from lower production demand compared to initial demand. Raw materials are sometimes empty when there is demand for production, resulting in production delays which result in reduced productivity. Slow access to report data because it is

- still in the form of archives which means that documents are difficult to find when needed again.
3. Building a raw material inventory system that can provide recommendations for adding raw material stock, information on raw materials that are already or almost out of stock, and reports ready to print based on the date provided by the search feature so that it is easily accessed when needed.

References

- [1] A, Aris., T, Firdaus., & N, Nurseha., (2018), APLIKASI PROGRAM QUALITY CONTROL BARANG UNTUK MENUNJANG PELAPORAN PADA BAGIAN TEKNIK PERGURUAN TINGGI RAHARJA. CERITA Journal, 4 (2), 159-168.
- [2] Budiman, Ahmad., Mulyani, Asri., (2016), RANCANG BANGUN APLIKASI SISTEM INFORMASI PERSEDIAAN BARANG DI TB. INDAH JAYA BERBASIS DESKTOP. Jurnal Algoritma Sekolah Tinggi Teknologi Garut Vol 13, No 1.
- [3] Rahadi, Adysta., Al Musadieq, Mochammad., Susilo, Heru., (2014), ANALISIS DAN DESAIN SISTEM INFORMASI PERSEDIAAN BARANG BERBASIS KOMPUTER (Studi Kasus pada Toko Arta Boga).). VOL 8, NO 2 Jurnal Administrasi Bisnis (JAB).
- [4] Junaidi, Arifin, Ridwan., Septiani, Amanda., (2015), RANCANG BANGUN APLIKASI SISTEM INVENTORY BERBASIS DESKTOP MENGGUNAKAN JSE.
- [5] Mousavi, S.M., Bahreininejad, A., Musa, S.N., (2017), A MODIFIED PARTICLE SWARM OPTIMIZATION FOR SOLVING THE INTEGRATED LOCATION AND INVENTORY CONTROL PROBLEMS IN A TWO-ECHELON SUPPLY CHAIN NETWORK. Journal of Intelligent Manufacturing 28: 191.
- [6] Chaudhari, Mohit., dan Wankhede, Atul., (2016), INVENTORY MANAGEMENT SYSTEM USING STURTS FRAMEWORK ARCHITECTURE.
- [7] Patel, Hemishkumar., Pitroda, Jayeshkumar., dan Prof. J. J. Bhavsar., (2015), A REVIEW ON MATERIAL MANAGEMENT THROUGH INVENTORY MANAGEMENT.