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Application Of Bootstrap In Building Application Of Fertilizer Inventory System

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ABSTRACT

PT Perkebunan Nusantara II Kwala Madu plantation still uses the conventional system, especially for reports on fertilizer inputs and expenditures. So it is necessary to create a website-based application using the bootstrap framework and MySQL in order to help employees work more efficiently. The data collection technique used is by conducting observations and interviews. After doing the research, the writer implements the results of the research using a bootstrap framework and web-based MySQL which can help the work process. So that it can help employees work more accurately and efficiently.

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1. INTRODUCTION

The development of information technology at this time facilitates the dissemination of information to various regions, even information spreads quickly to all parts of the world [1]. It is no exaggeration to say that the development of computers has brought the world into a new era: the information age. Of the many sectors of human life that are influenced by the presence of information technology, organizations or educational institutions are the entities that benefit the most[2]. Information technology makes humans more dependent on the digital world.

PT Perkebunan Nusantara II Kwala Madu is one of the plantations of PT Perkebunan Nusantara II which is located in the Seasonal District and is included in the sugarcane cultivation business unit of PT Perkebunan Nusantara II, Kwala Madu plantation still uses the conventional system, especially for reports on fertilizer income and expenditure. The process of entering and exiting using a written report and then inputting it into Ms. Excel. Therefore, in order to avoid paper build-up and for work efficiency, an application is designed that can facilitate the work of entering and removing fertilizer inventory at PT Perkebunan Nusantara II Kwala Madu plantation.

The results of research conducted by Soepomo (2014) regarding "Design of PHP Web-Based Electronic Spare Part Inventory Information System (Study of CV. Human Global Service Yogyakarta). This research resulted in a website that has the ability to store data on sales and purchases of goods, manage incoming goods data very accurately [3].

Furthermore, Agusvianto (2017) conducted research on "Warehouse Inventory Information Systems to Control Goods Inventory in Warehouses Case Study: PT. Alaisys Sidoarjo" This research resulted in applications that could be used to take inventory of products that were in stock in warehouses [4].

Murwati (2020) also conducted research on "Designing a Fertilizer Inventory Information System at KUD Arum, Sawangan District." The results of this research application can be used to simplify the fertilizer inventory process, input fertilizer data to make it faster and more accurate [5].

2.   RESEARCH METHOD

The research method is a scientific way to obtain data for a specific purpose. The scientific method means that research activities are based on scientific characteristics, namely rational, empirical, and systematic . An interview is a meeting of two people to exchange information and ideas through question and answer, so that meaning can be constructed in a certain topic . The system design at this stage produces use case diagrams, activity diagrams, sequence diagrams and class diagrams

2.1   Use Case Diagram

Use case is a pattern or picture that shows the behavior or habits of the system. Use case diagram is a model for the behavior (behavior) of the information system to be made [6]. In the research conducted by the author, the use case diagram can be described as follows:
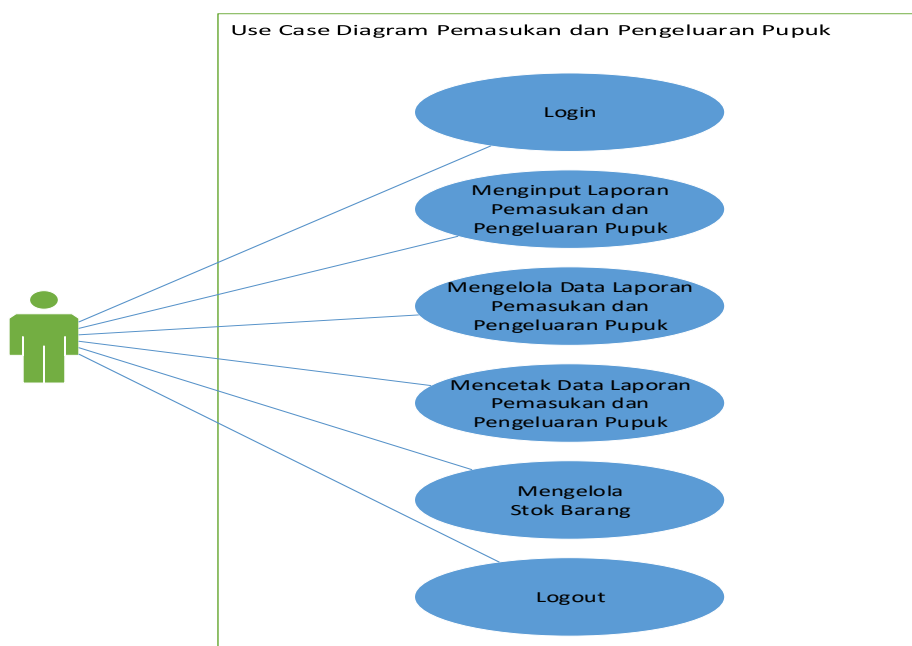

Figure 1. Use Case Diagram of Fertilizer Incoming and Expenditure System

Based on the Use Case Diagram made by the author, it can be concluded that, the Use Case Diagram has two actors, namely admin and manager. The admin logs in by filling in the username and password that is owned by the admin, then after the login process the admin inputs the fertilizer income and expenditure report. After inputting the input and output of fertilizer, the admin manages the data on the input and output of fertilizers and prints reports on the income and expenditure of fertilizers. Use Case The diagram above also describes the manager actor. The manager sees the results of the fertilizer income and expenditure reports made by the admin.

2.2   Activity Diagram

Activity Diagram is to describe the workflow (workflow) or activities of a system or business process [7]. Activity diagrams also describe several action processes at the same time. The activity diagram made by the author:
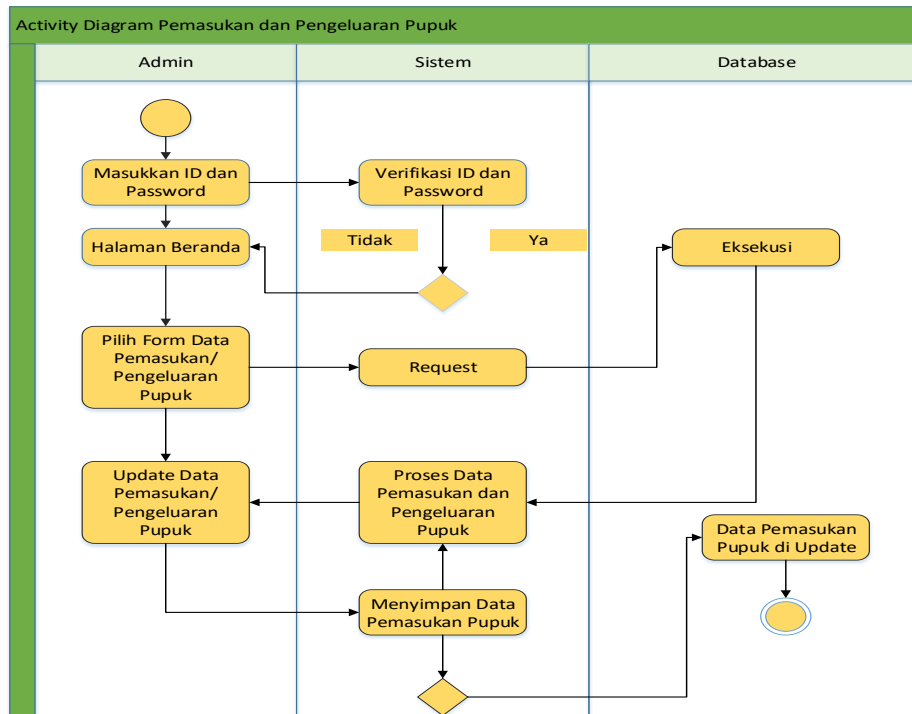
Figure 2. Activity Diagram of Fertilizer Income and Expenditure

In this Activity Diagram, it is explained how the flow of fertilizer input and output is, first the admin logs in by filling in the username and password then the admin fills out the fertilizer input and output form, after filling out the input and output form, the data will be entered in the MySQL database.

2.3 Sequence Diagram

Sequence diagram is a diagram that displays or describes a relationship between objects in the system arranged in a time sequence or time series. Sequence chart used to describe the interaction between objects inside and inaround the system in the form of pictured message against time [8]. The following is a sequence diagram in this study:
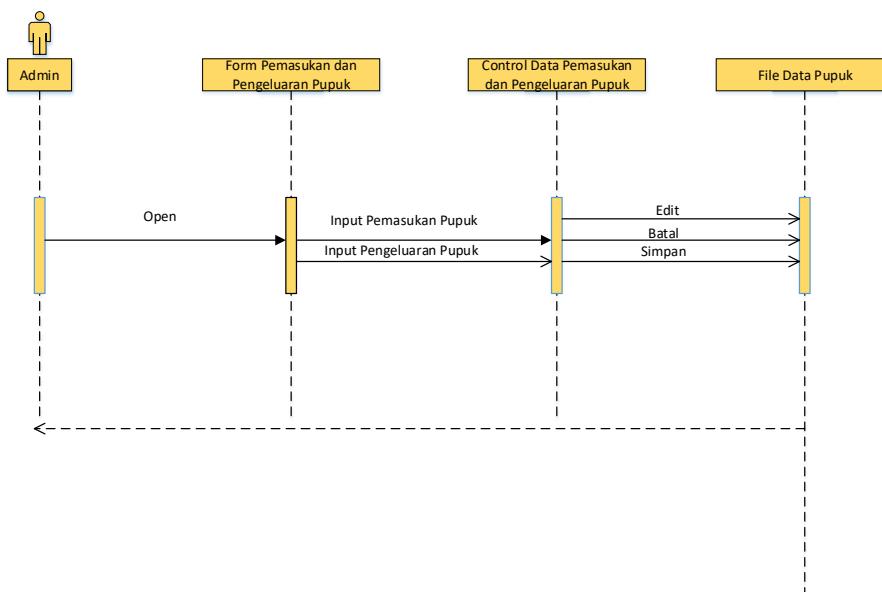

Figure 3. Sequential Fertilizer Income and Expenditure Diagram

2.4   Class Diagram

Class diagram is a type of measurement diagram in UML that describes the structure of the system with the class system, its attributes, methods, and the correlation between objects. Class diagrams describe the structure of the system in terms of defining the classes that will be made to build the system. Class has what called attributes and methods or operations [9]. As for in this study describes the class diagram as follows:
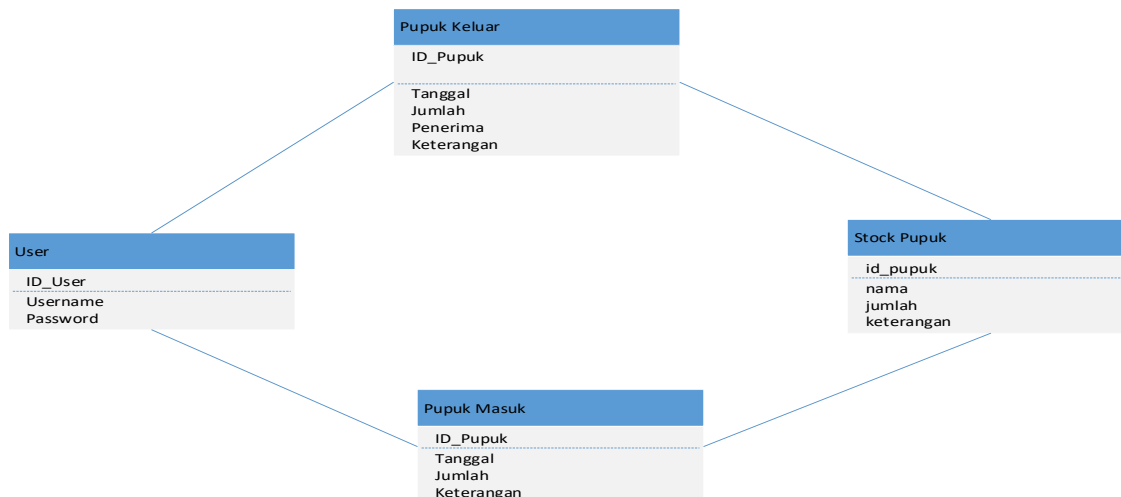

Figure 4 Class Diagram of Fertilizer Income and Expenditure

2.5   Database MySQL

In this study the author uses a MySQL database, MySQL is a software that functions for database management. MySQL is an RDBMS (relational database management system). An RDBMS is a program that allows database users to create, manage, and use data in a relational model [10]. The following is a list of database columns that were successfully created by the author:
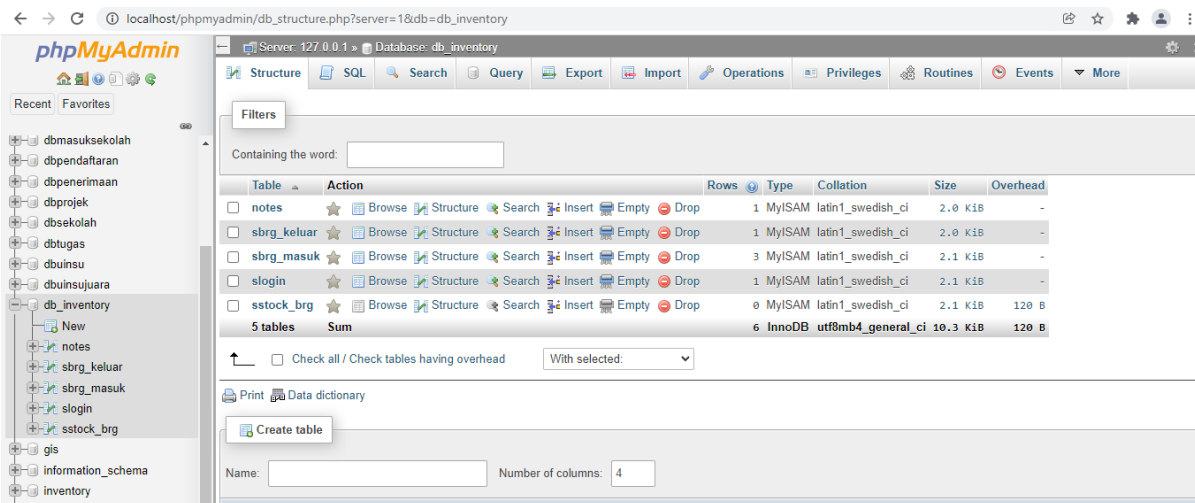

Figure 5 Website Project Database

2.6   Framework Bootstrap

Bootstrap is a framework for building responsive web designs [11]. Bootstrap is a framework to build responsive web designs. That is, the webview created by bootstrap will adjust the screen size of the browser we are using either in desktop, tablet or mobile device [12]. The author uses a bootstrap framework in developing a fertilizer inventory input and output system at PT Perkebunan Nusantara II Kwala Madu, Here are the steps to convert a Bootstrap Theme as follows:

   a. First, first download the bootstrap css framework then extract it to the destination file, I made the project name, namely
     inventory

b. Second, to connect bootstrap create a PHP file that we will connect to the bootstrap framework and add the jquery file to the bootstrap js folder, as follows:

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>System Login</title>
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.3/umd/popper.min.js"></script>
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/js/bootstrap.min.js"></script>
<!-- Global site tag (gtag.js) - Google Analytics -->
    <script async src="https://www.googletagmanager.com/gtag/js?id=UA-144808195-1"></script>
    <script>
      window.dataLayer = window.dataLayer || [];
      function gtag(){dataLayer.push(arguments);}
      gtag('js', new Date());

      gtag('config', 'UA-144808195-1');
    </script>
   <script src="jquery.min.js"></script>
    <style>body{background-image:url("");}
    @media screen and (max-width: 600px) {
h4{font-size:85%;}
}
    </style>
    <link rel="icon"
    type="image/png"
    href="favicon.png">
  </head>
  <body>

  <div align="center">



  <img src="ptpn2.png" width="50%" style="margin-top:100%" \>

    <br \><br \>
              <div class="container">

        <form method="post">
          <div class="form-group">
            <input type="text" class="form-control" placeholder="Username" name="username" autofocus>
          </div>
          <div class="form-group">
            <input type="password" class="form-control" placeholder="Password" name="password">
          </div>
          <button type="submit" class="btn btn-primary" name="btn-login">Masuk</button>

        </form>

            <br \>
      </div></div>

  </body>
```

</html>

3. RESULTS AND DISCUSSION (

3.1 Login Page

Figure 6. Login Page Display

This page displays the display of the login page, entering the username and password then clicking the login button then the login process is successful.

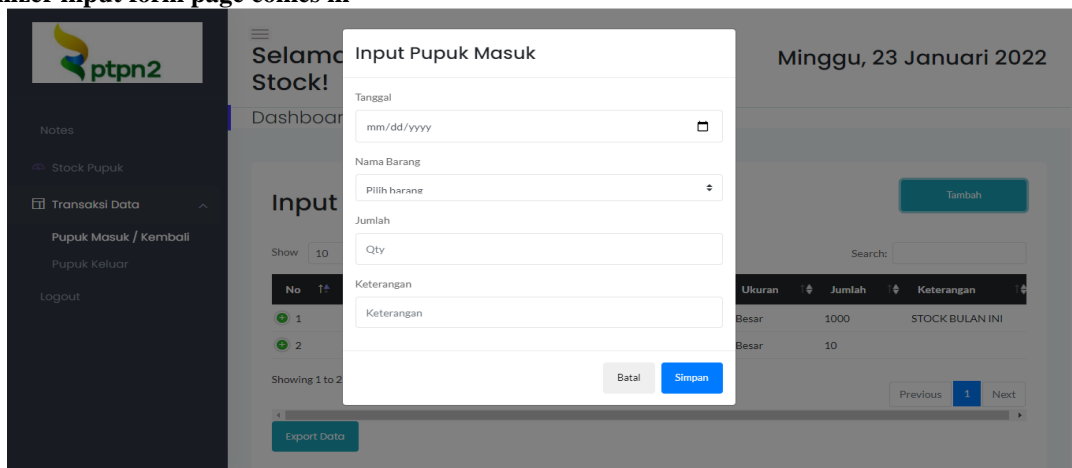## 3.2 Fertilizer input form page comes in

Figure 7 Fertilizer Input Page Enter

This page displays several input forms that are used to add incoming fertilizer data such as date, item name, quantity, and description. Then click the save button to save the input fertilizer input results.

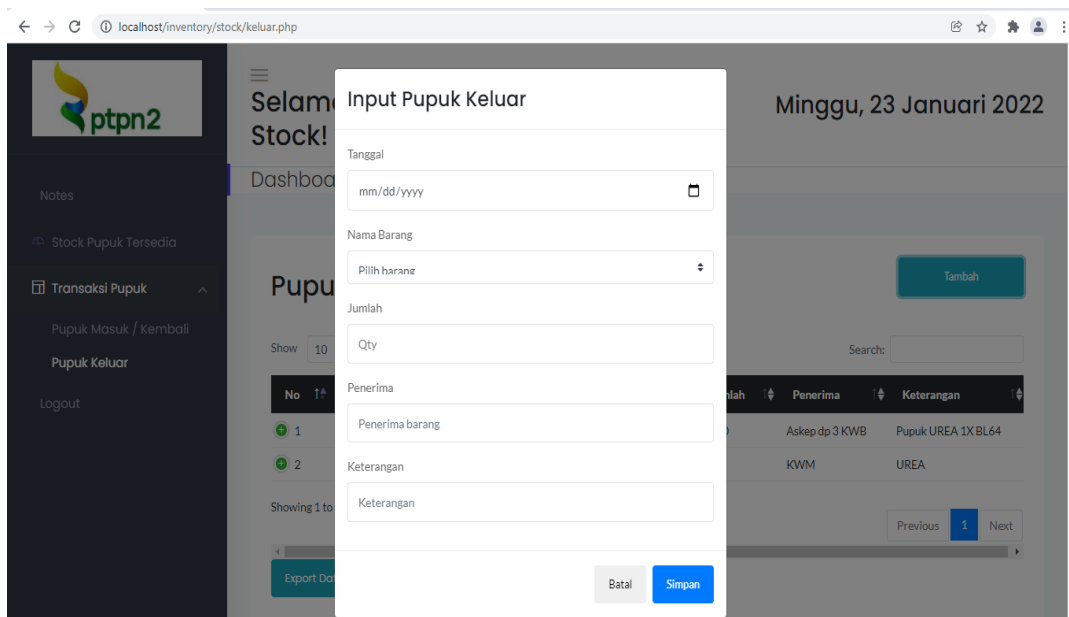## 3.3 Fertilizer input form page out

Figure 8. Fertilizer Input Out page

This page displays several input forms that are used to add outgoing fertilizer data such as date, item name, quantity, recipient and description. Then click the save button to save the output of the fertilizer input.
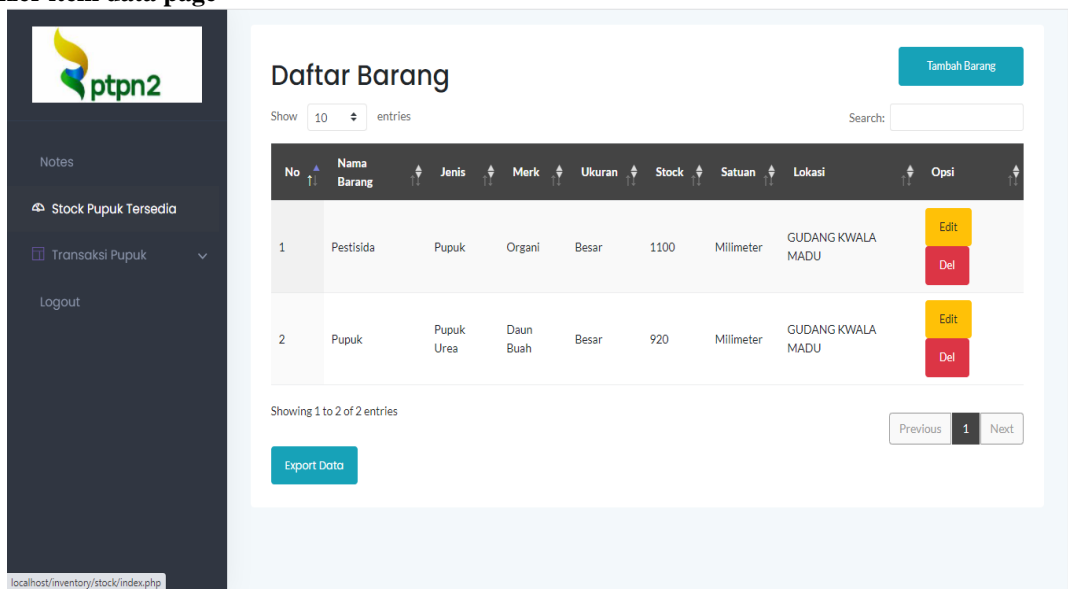
3.4   Fertilizer item data page

Figure 9. Fertilizer Stock Page

This page displays data on goods that have been inputted from the entry or exit form, on this page displays the item number, name, type, brand, size, stock, unit and location.

3.5   Enter fertilizer transaction data page

Figure 10. Fertilizer Import Transaction Data

This page displays the incoming fertilizer transaction data which was previously inputted on the fertilizer entry input form page. On this page displays the number, name of the item, type, brand, size, quantity, unit and description and on this page you can export data into CSV, Excel, PDF files

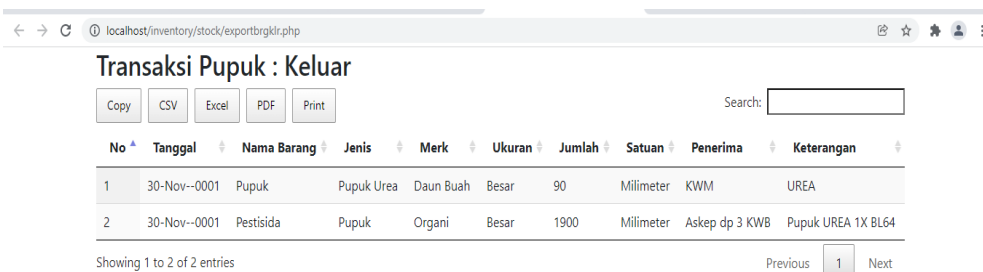### 3.6   Fertilizer transaction data page is out

Figure 11. Fertilizer Expenditure Transaction Data

This page displays fertilizer transaction data that was previously inputted on the fertilizer expenditure input form page. On this page displays the number, name of the item, type, brand, size, quantity, unit and description and on this page you can export data into CSV, Excel, PDF files.

3.7   Testing

The test method used in this practical work report uses black box testing.

Table 1. Black Box Test Table

Input	Process	Output	Test results
Click menu>Login	Show login menu	Displays the main menu	Succeed
Click menu > Fertilizer entry form	Show fertilizer entry form	Show date, item name, quantity, recipient, information	Succeed
Click menu > Fertilizer production form	Show fertilizer production form	Show date, item name, quantity, recipient, information	Succeed
Click menu>Fertilizer Import Transaction	Show fertilizer import transactions	Show the results of the fertilizer import transaction	Succeed

Data			
Click menu > Fertilizer Expenditure Transaction Data	Show fertilizer spending transactions	Show results of fertilizer expenditure transactions	Succeed
Click menu>Stock fertilizer available	Fertilizer data display in warehouse	Show fertilizer data results in the warehouse	Succeed
Click menu>Logout		Exit the App	Succeed

4.   CONCLUSION

Based on the observations made at PT Perkebunan Nusantara II Kwala Madu, it can be concluded that PT Perkebunan Nusantara II Kwala Madu is one of the plantation units of PT Perkebunan Nusantara II which is tasked with assisting PT Perkebunan Nusantara II which is engaged in the plantation sector, the process of entering and releasing fertilizer inventory is still manual so it is necessary to make a digital system. So a website-based fertilizer inventory system was made using a bootstrap framework and it is hoped that the design of the fertilizer inventory input and output system that has been made will be developed into mobile information media services or other information media.

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