

Journal of Information System and Technology Research

journal homepage: https://journal.aira.or.id/index.php/jistr/

Application Of Bootstrap In Building Application Of Fertilizer Inventory System Muhammad Zarwin Syahputra^{*}, Muhammad Dedi Irawan^{*}

Information System Study Program, North Sumatra State Islamic University, Medan

ARTICLE INFO

Received Feb 9, 2022

Revised Feb 27, 2022

Accepted Mar 1, 2022 Available online Jan 31, 2022

Article history:

Keywords: Bootstrap MySQL Framework 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.

© 2022 The Author(s). Published by AIRA. This is an open access article under the CC BY-SA license (http://creativecommons.org/licenses/by-sa/4.0/).



Corresponding Author:

Muhammad Zarwin Syahputra Department Information System,North Sumatra State Islamic University, Medan

Email: zarwins@gmail.com

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:

Sequensial Diagram Pemasukan dan Pengeluaran Pupuk



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:

\leftrightarrow \rightarrow C (i) localhost/phpm	nyadmin/db_structure.php?server=1&db=db_inventory		🖻 🌣 🌲 😫 🗄
phpMyAdmin	← 🗊 Server: 127.0.0.1 » 🗑 Database: db_inventory		∲ ⊼
<u>A 50</u> 0 0 0 0 0	📝 Structure 🔄 SQL 🔍 Search 🗊 Query 🚍 Export 🔜 Import 🧳	🖗 Operations 🔳 Privileges 🖓 Routines 😒 E	Events 🔻 More
Recent Favorites	Filters		
dbmasuksekolah dbpendaftaran	Containing the word:		
+ dbpenerimaan	Table 🔺 Action	Rows 🕢 Type Collation Size Overh	head
H- dbprojek	🗌 notes 🔹 🚔 🖩 Browse 🖌 Structure 👒 Search 👫 Insert 🚍 Empty 🥥 Drop	1 MyISAM latin1_swedish_ci 2.0 KiB	-
H- dbsekolah	📄 sbrg_keluar 🚖 📑 Browse 🥻 Structure 🤹 Search 👫 Insert 🚍 Empty 🥥 Drop	1 MyISAM latin1_swedish_ci 2.0 KiB	
+	📄 sbrg_masuk 🚖 🗐 Browse 🎉 Structure 👒 Search 👫 Insert 🚍 Empty 🥥 Drop	з MyISAM latin1_swedish_ci 2.1 ків	-
E- dbuinsujuara	📄 slogin 🛛 🚖 📑 Browse 🎉 Structure 🤹 Search 👫 Insert 🚍 Empty 🥥 Drop	1 MyISAM latin1_swedish_ci 2.1 ків	
- db_inventory	📄 sstock_brg 🖕 🗐 Browse 🛃 Structure 👒 Search 👫 Insert 🚍 Empty 🥥 Drop	0 MyISAM latin1_swedish_ci 2.1 ків 1:	120 B
	5 tables Sum	6 InnoDB utf8mb4_general_ci 10.3 KiB 12	120 B
+ v notes + v sbrg_keluar	← Check all / Check tables having overhead With selected: ▼		
+ k sbrg_masuk	🚔 Print 👼 Data dictionary		
+ M slogin			
sstock_brg gis	Create table		
G gib G	Name: Number of columns: 4		

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:

```
<!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>
       k rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css">>></a>
   <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></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></scrept></script></script></script></script></scrept></scrept></scre
   <!-- 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>
       k 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>
                               \langle br \rangle
           </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

ptpn2	Selama Stock!	Input Pupuk Masuk		Mir	nggu, 2	3 Januari 2022
	Dashboar	mm/dd/yyyy				
		Nama Barang				
	Input	Pilih barang	÷			Tambah
	Show 10	Jumlah			Search	u
	No ↑ ↑	Keterangan		Ukuran î	Jumlah	î ♦ Keterangan î ♦
	9 1	Keterangan		Besar	1000	STOCK BULAN INI
	2			Besar	10	
	Showing 1 to 2		Batal Simpan			Previous 1 Next
	<	I				•

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

← → C ③ localhost/inventory/sto	ck/keluar.php					ⓒ☆ 🛊 😩 :
Ptpn2	≡ Selam Stock!	Input Pupuk Keluar		1	Minggu, 2	3 Januari 2022
Notes	Dashboa	mm/dd/yyyy				
🐵 Stock Pupuk Tersedia		Nama Barang				_
🗇 Transaksi Pupuk 🛛 🔿	Pupu	Pilih harang Jumlah	\$			Tambah
Pupuk Masuk / Kembali Pupuk Keluar	Show 10	Qty			Search:	
Logout	No †≜	Penerima		nlah î ∳	Penerima î	Keterangan î ¢
	• 1	Penerima barang)	Askep dp 3 KWB	Pupuk UREA 1X BL64
	2	Keterangan			KWM	UREA
	Showing 1 to	Keterangan				Previous 1 Next
	Export Da		Batal Simpan			*

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

2ptpn2	-	Daftar Barang							Tambah Barang		
	No †	Nama Barang	t ∳ Jenis †	∳ Merk	Ukuran 🕇	Stock	Satuan _	Lokasi	, ≜	Opsi 🛔	
 Stock Pupuk Tersedia Transaksi Pupuk ~ 	1	Pestisida	Pupuk	Organi	Besar	1100	Milimeter	GUDANG KWALA MADU		Edit Del	
	2	Pupuk	Pupuk Urea	Daun Buah	Besar	920	Milimeter	GUDANG KWALA MADU		Edit Del	
	Showing	1 to 2 of 2 entries t Data							Previo	us 1 Next	
alhost/inventory/stock/index.php											

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

 $\leftarrow \rightarrow$

Transaksi Pupuk : Masuk / Kembali	
Copy CSV Excel PDF Print Search:	
No 📩 Tanggal 🕴 Nama Barang 🕴 Jenis 🔅 Merk 🔅 Ukuran 🔅 Jumlah 🔅 Satuan	🔷 Keterangan 🔶
1 30-Nov0001 Pupuk Pupuk Urea Daun Buah Besar 10 Milimeter	
2 30-Nov0001 Pestisida Pupuk Organi Besar 1000 Milimeter	STOCK BULAN INI

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

 localhos 	ost/inventory/stock/e	exportbrgklr.php								Ċ
Tran	ısaksi Pu	puk : Kelu	ar							
Сору	CSV Excel	PDF Print]					Search:		
No *	Tanggal 🕴	Nama Barang 🗄	Jenis 🕴	Merk 🕴	Ukuran 🗄	Jumlah 🕴	Satuan 🕴	Penerima 🕴	Keterangan	
1	30-Nov0001	Pupuk	Pupuk Urea	Daun Buah	Besar	90	Milimeter	KWM	UREA	
2						4000	Milimeter	Askep dp 3 KWB	Pupuk UREA 1X	DIGA
	30-Nov0001	Pestisida	Pupuk	Organi	Besar	1900	wiiimeter	Askep up 5 KWB	PUPUK OKEA IX	DL04

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	Succeed
		menu	
Click menu >	Show fertilizer entry	Show date, item name,	Succeed
Fertilizer entry form	form	quantity, recipient,	
		information	
Click menu >	Show fertilizer	Show date, item name,	Succeed
Fertilizer production	production form	quantity, recipient,	
form		information	
Click	Show fertilizer	Show the results of the	Succeed
menu>Fertilizer	import transactions	fertilizer import	
Import Transaction		transaction	

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

REFERENCES

- O.: Erlisa and D. Ananda, "" PEMANFAATAN TEKNOLOGI INFORMASI " (Studi Deskriptif Mengenai Pemanfaatan Teknologi Informasi Pada SMK Negeri 1 dan SMK Negeri 4 Surabaya)," vol. 5, no. 20, 2003.
- [2] E. Mulyana and A. Saepudin, "Perkembangan Dan Pemanfaatan Teknologi Informasi Dalam Penyelenggaraan Pendidikan Jarak Jauh," *J. Teknodik*, no. 18, pp. 119–134, 2019, doi: 10.32550/teknodik.v0i0.550.
- [3] P. Soepomo, "Perancangan Sistem Informasi Inventory Spare Part Elektronik Berbasis Web Php (Studi CV. Human Global Service YOGYAKARTA)," *JSTIE (Jurnal Sarj. Tek. Inform.*, vol. 2, no. 2, pp. 256–265, 2014, doi: 10.12928/jstie.v2i2.2847.
- [4] H. Agusvianto, "Sistem Informasi Inventori Gudang Untuk Mengontrol Persediaan Barang Pada Gudang Studi Kasus : PT.Alaisys Sidoarjo," *J. Inf. Eng. Educ. Technol.*, vol. 1, no. 1, p. 40, 2017, doi: 10.26740/jieet.v1n1.p40-46.
- [5] W. Murwati, P. T. Rapiyanta, A. M. Pengembangan, and P. Lunak, "Perancangan Sistem Informasi Inventory Pupuk pada KUD Arum Kecamatan Sawangan," J. Ilm. Teknol. Inf. dan Robot., vol. 2, no. 1, pp. 6–11, 2020, [Online]. Available: http://jifti.upnjatim.ac.id/index.php/jifti/article/view/24
- [6] Y. P. . Simaremare, A. P. S, and R. P. Wibowo, "Perancangan dan Pembuatan Aplikasi Manajemen Publikasi Ilmiah Berbasis Online pada Jurnal SISFO," Tek. Pomits, vol. 470-475. 2013, [Online]. Available: J. 2. no. 3, pp. http://ejurnal.its.ac.id/index.php/teknik/article/view/5163/1552
- [7] M. D. Irawan and S. A. Simargolang, "Implementasi E-Arsip Pada Program Studi Teknik Informatika," *J. Teknol. Inf.*, vol. 2, no. 1, p. 67, 2018, doi: 10.36294/jurti.v2i1.411.
- [8] S. Kurniawan, T. Bayu, "Perancangan Sistem Aplikasi Pemesanan Makanan dan Minuman Pada Cafetaria NO Caffe di TAnjung Balai Karimun Menggunakan Bahasa Pemrograman PHP dan My.SQL," J. Chem. Inf. Model., vol. 53, no. 9, pp. 1689–1699, 2020.
- [9] W. Aprianti and U. Maliha, "Sistem Informasi Kepadatan Penduduk Kelurahan Atau Desa Studi Kasus Pada Kecamatan Bati-Bati," vol. 2, no. 2013, pp. 21–28, 2016.
- [10] R. Hermiati, A. Asnawati, and I. Kanedi, "Pembuatan E-Commerce Pada Raja Komputer Menggunakan Bahasa Pemrograman Php Dan Database Mysql," J. Media Infotama, vol. 17, no. 1, pp. 54–66, 2021, doi: 10.37676/jmi.v17i1.1317.
- [11] H. Irsyad, "Penerapan Metode Waterfall Pada Aplikasi Perumahan Di Kota Palembang Berbasis Web Mobile (Studi Kasus Pt. Sandaran Sukses Abadi)," *J. Tek. Inform. Musirawas*, vol. 3, no. 1, p. 9, 2018, doi: 10.32767/jutim.v3i1.310.
- [12] B. Suprayogi and A. Rahmanesa, "Penerapan Framework Bootstrap Dalam Sistem Informasi Pendidikan Sma Negeri 1 Pacet Cianjur Jawa Barat," *Tematik*, vol. 6, no. 2, pp. 23–30, 2019, doi: 10.38204/tematik.v6i2.244.