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WEBSITE-BASED LIBRARY DATA PROCESSING DESIGN

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ABSTRACT- The main problem Indonesia faces, especially in education in the era of globalization, is the low quality of human resources. One of the efforts to improve the quality of human resources is to increase interest in reading and the habit of reading. From this fact, the library is expected to be the center of activities to develop interest in reading and reading habits. Libraries have a great responsibility to increase and generate interest in reading. Library data management is one of the essential activities in running a library. Librarians must be able to process and manage book data efficiently and effectively to avoid losing library property. This study uses PHP to create a website design to assist librarians in processing and storing data about existing books. This study designs a library data processing system that contains library book loans, such as recording books, transactions, and student data collection in the library. The results of this website design can facilitate library staff in organizing and tracking library management quickly and efficiently.

Keywords: *Digital Library, Library Website, Electronic Journal*

1. INTRODUCTION

In the current era of globalization, one of the problems Indonesia faces, especially in education, is the low quality of human resources. One of the efforts to improve the quality of human resources is to increase reading interest and reading habits. From these facts, the library is expected to be a center for developing interest in reading and reading habits. Libraries have a significant role in supporting a love of reading and increasing information literacy[1].

Libraries are information processing centers and information service providers for their users. Libraries are expected to be able to carry out their functions as information centers in general[2]. The library has meaning as a place where association activities process all printed and recorded information. Although it can be interpreted as an individual's private collection, a library is more commonly known as an extensive collection financed and operated by a city or institution and used by people who cannot afford to buy so many books at their own expense. Information and communication technology or ICT (Information and Communication Technology) has become an inseparable part of global life[3]. The need for information technology (IT) is closely related to the library's role as a force in the preservation and dissemination of scientific information that develops along with the activities of writing, printing, educating, and fulfilling the public's need for information.

Therefore, managing library data is one of the essential activities in running a library. Librarians must be able to process and manage book data efficiently and effectively to avoid losing library property. This study designed a library data processing system

containing library book lending, such as recording books, transactions, and student data collection. This study uses PHP to create a website design to assist librarians in processing and storing data about existing books.

2. LITERATURE REVIEW

2.1 Definition of Web Applications

A web application is a program sent over the internet, stored on a server, and accessed via a web browser interface. Web applications can also be interpreted as computer software coded in a programming language supported by software such as HTML, Javascript, Ruby, Python, Java, etc[4].

2.2 Information Systems

Information System is a formal, sociotechnical, and organizational system designed to collect, process, store, and distribute information[5].

2.3 Digital Library

A digital library is where most book collections are available in digital format and can be accessed via a computer or laptop. This library is undoubtedly different from conventional libraries, which provide an array of printed books, microfilms, a collection of cassettes, audio, video, and so on.

All collections from the digital library are on a server computer that can be placed locally or at a remote location. However, people can access this digital library server quickly, easily, and practically via a computer or laptop network. Digital libraries are economically more profitable than traditional libraries.

2.4 Database

A database is an organized collection of data generally stored and accessed electronically from a computer system. As databases become more complex, databases are developed using formal design and modeling techniques. The software used to manage and query a database is called a database management system (DBMS)[6]. Database systems are studied in information science.

2.5 Xampp

XAMPP is a developer application software for developing PHP-based websites and as a local server for creating databases with MySql. XAMPP is software that is easy to use and supports installation on Linux and Windows. XAMPP is the provision of software into a package. By installing XAMPP, there is no need to manually install and configure the Apache, PHP, and MySQL web server. XAMPP will install and configure automatically for you or auto-configuration. XAMPP was developed by Apache Friends, consisting of a Core Team, Development Team, and Support Team until Apache Friend was still developing XAMPP applications. Still, each letter from the word Xampp has its meaning. A web user must know what this Xampp word means[7].

2.6 MySQL

In general, MySQL or My Structure Query Language is a database server that helps process databases very quickly using SQL Language. MySQL functions include managing and creating server-side databases containing various information using the SQL language and querying large datasets to facilitate users in accessing these datasets in the form of strings or text[7].

3. RESEARCH METHOD

This research uses the Waterfall development model, where the software development will be detailed sequentially.

3.1 System Procedure Design

3.1.1 UML

Unified Modeling Language (UML) is a method in visual modeling that is used visually which is used as a means of designing object-oriented systems[8].

3.1.2 Use Case Diagram

Use Case Diagrams graphically draw interactions between the system, the external systems, and the users[9]. Below is the Use Case Diagram for the book loaning transaction system:

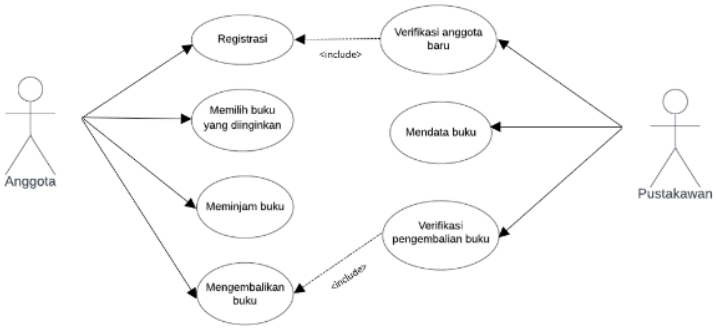

Figure 1. Use Case Diagram System

Based on Figure 1, the Use Case Diagram System currently running includes:
1) The system consists of all book lending transaction activities.
2) The actor conducting the transaction is a member, with the librarian on the right side the librarian, while the one on the left is a member.

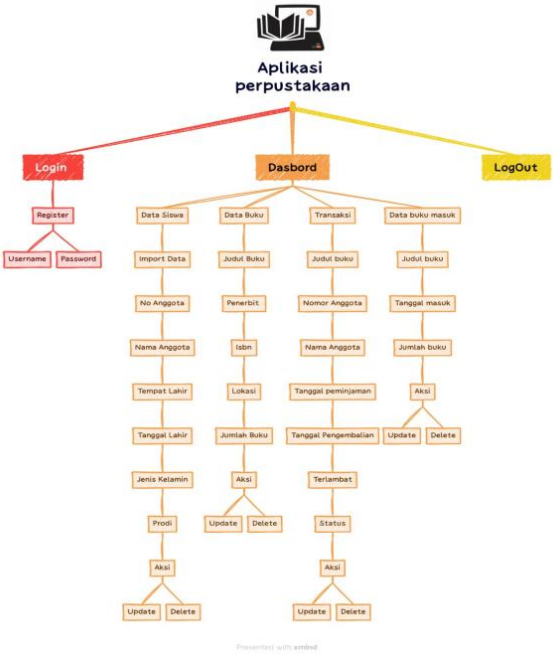

Figure 2. The general model of the system of the entire library system design.

Figure 2 shows the general system model of the overall library system design, which includes the types of data the system keeps and the actions users can do to interact with the data.
After pressing, a new page will appear in the form of:

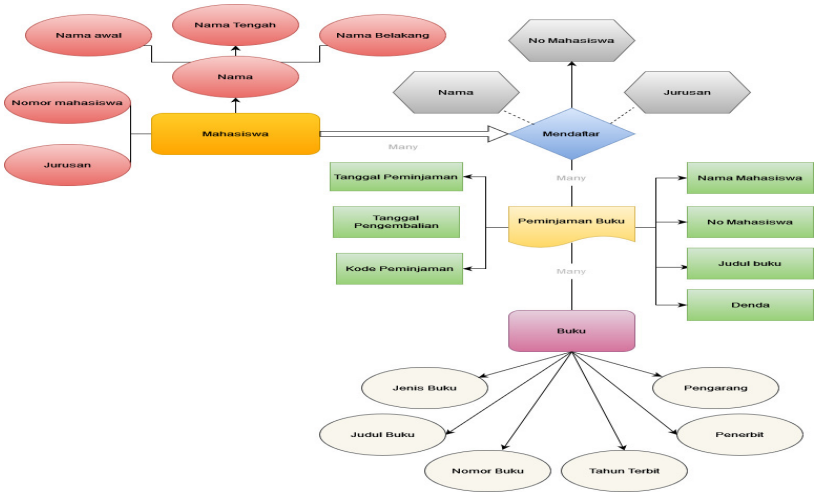

Figure 3. ERD (Entity-Relationship Diagram)

Figure 3 shows the system's ERD (Entity Relationship Diagram), which contains relationships between the data components in the design and how they affect each other.

4. RESULTS AND DISCUSSION

Display Design

a. Initial appearance on the web

The following is the initial web appearance that users see when entering the website for the first time.

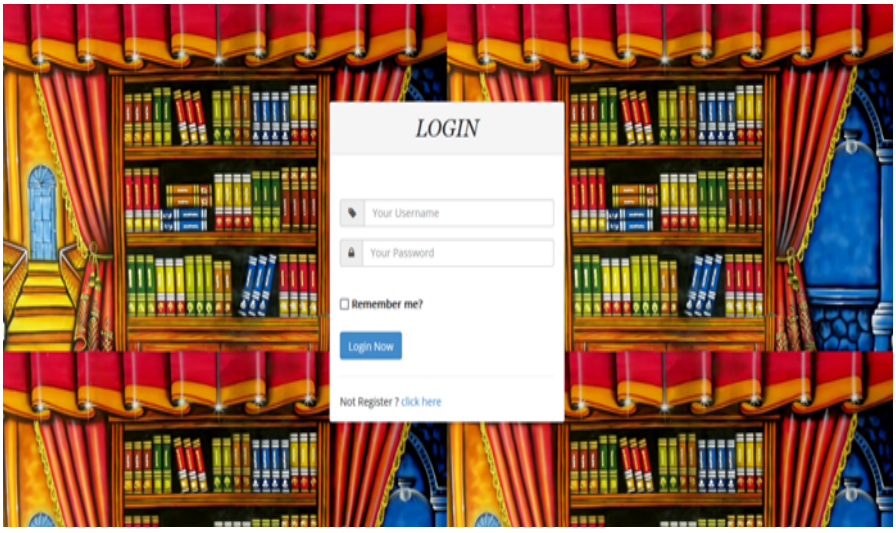

Figure 4. Initial display of the website Login page

Users can press the text 'click here' shown in Figure 5:

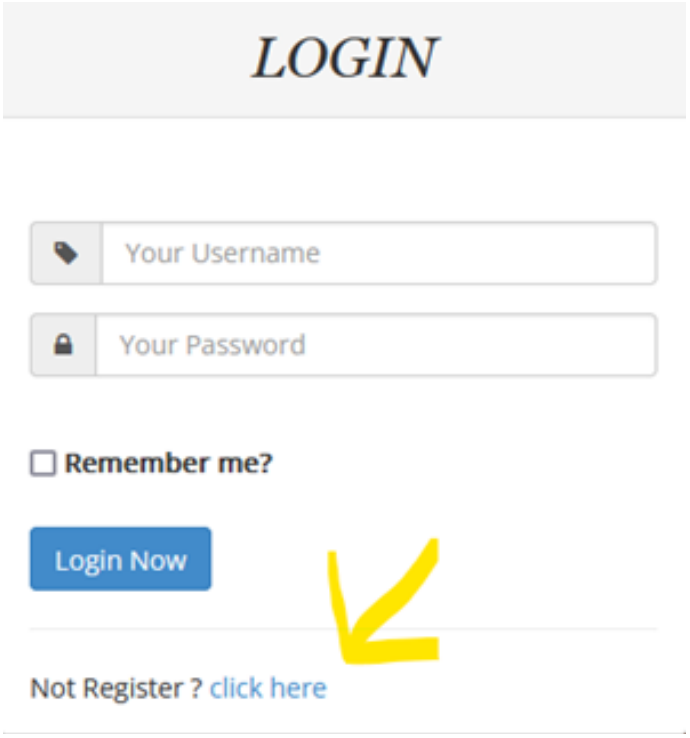

Figure 5. The text 'click here' is displayed, which can be pushed.

After pressing, a new page will appear in the form of:

Figure 6. Register Box

Users can fill in the fields with the requested information and press the 'Register Now' button to register into the system and access the website.

b. The main view on the web

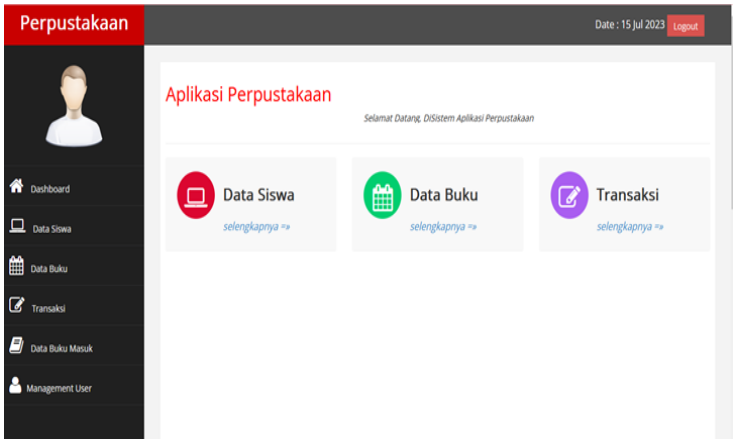

Figure 7. The main view of the website Dashboard

Figure 7 shows the Dashboard page, the website's main page, which contains links to other parts of the page, such as Student Data, Book Data, and Transaction Data. A tab on the left side of the page contains the user's profile photo and links for the three pages, plus Entry Book Data and User Management.

c. Student Data Display

The following is the Student Data display that the user will see after pressing the Student Data Button on the Dashboard:

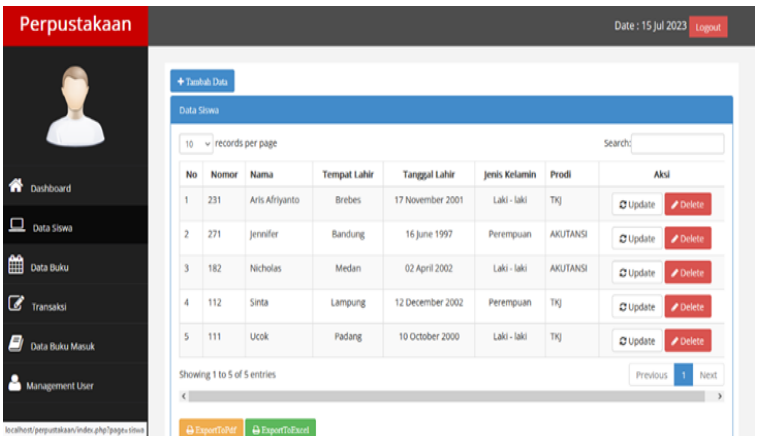

Figure 8. Student Data Page

Figure 8 shows a section of the 'Student Data,' which consists of the names of students registered in the library information system database and their personal data. After that, press the 'Add Data' button to add new student data to the library database.

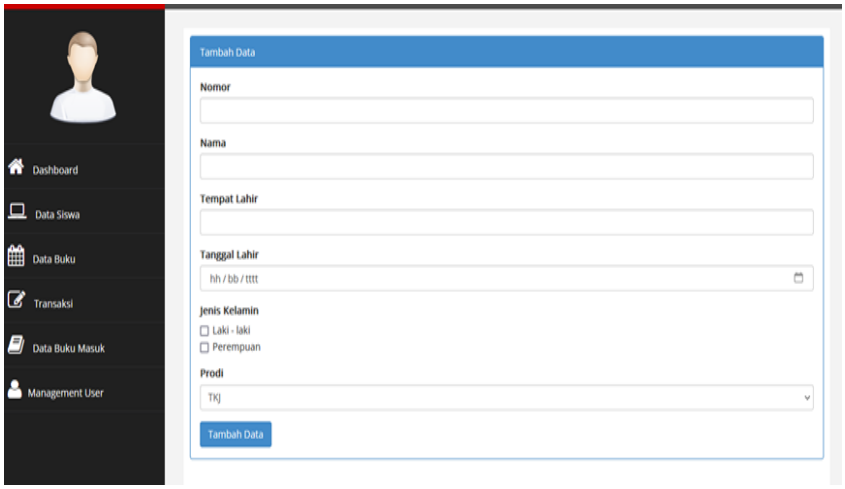

Figure 9. Add Student Data Display

Enter the student's name, student number, place of birth, date of birth, etc., according to the data requested, then press the 'Add Data' button to enter the data written in the column into the library information system database.

d. Book Data Display

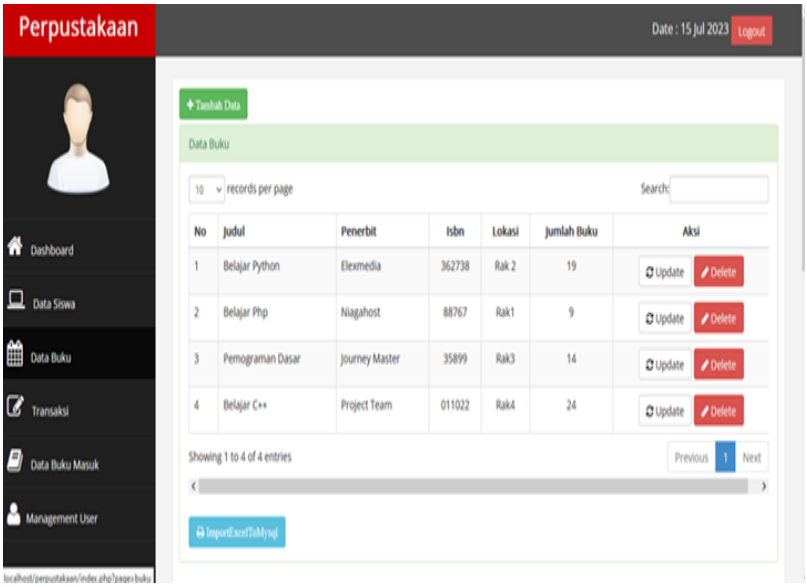

Figure 10. Book Data Page

Figure 10 shows the part of the 'Book Data' where the librarian can view data related to the various types of books in the library stock. Please press the 'Add Data' button to bring up the following display:

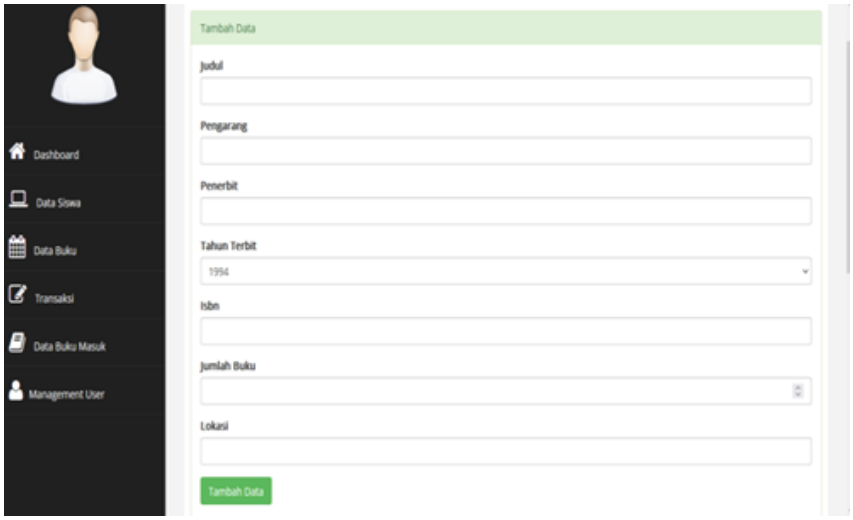

Figure 11. Add Book Data Display

Enter the corresponding data according to what is asked in Figure 11 and press the Add Data button to insert the written Book Data into the system.

e. Transactions Display

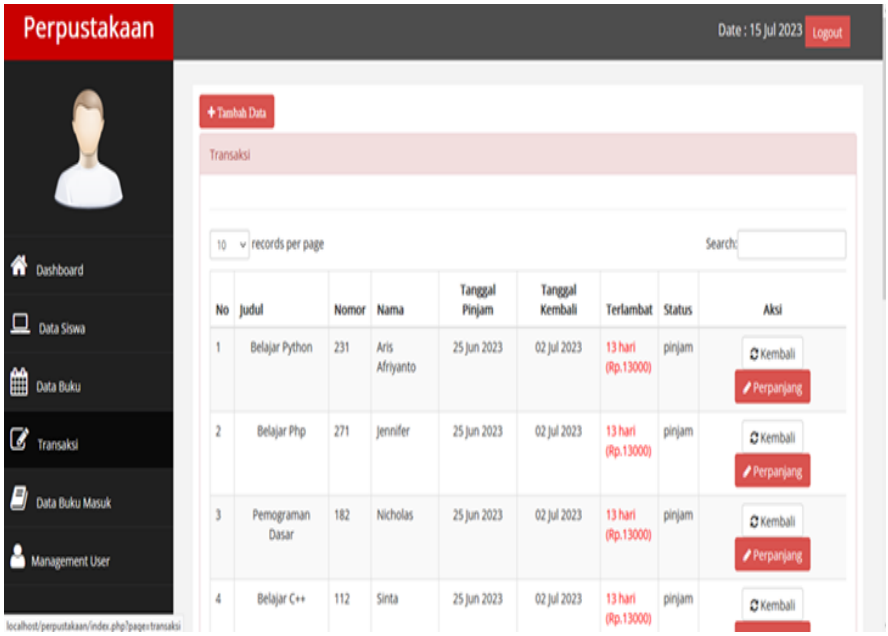

Figure 12. Transactions Display

Figure 12 shows the display of the 'Transaction' page, which consists of the name of the student who has borrowed the book and the name of the book borrowed, along with the date of borrowing and returning and the amount of the late fee. Pressing the 'Add Data' button will bring up the following page:

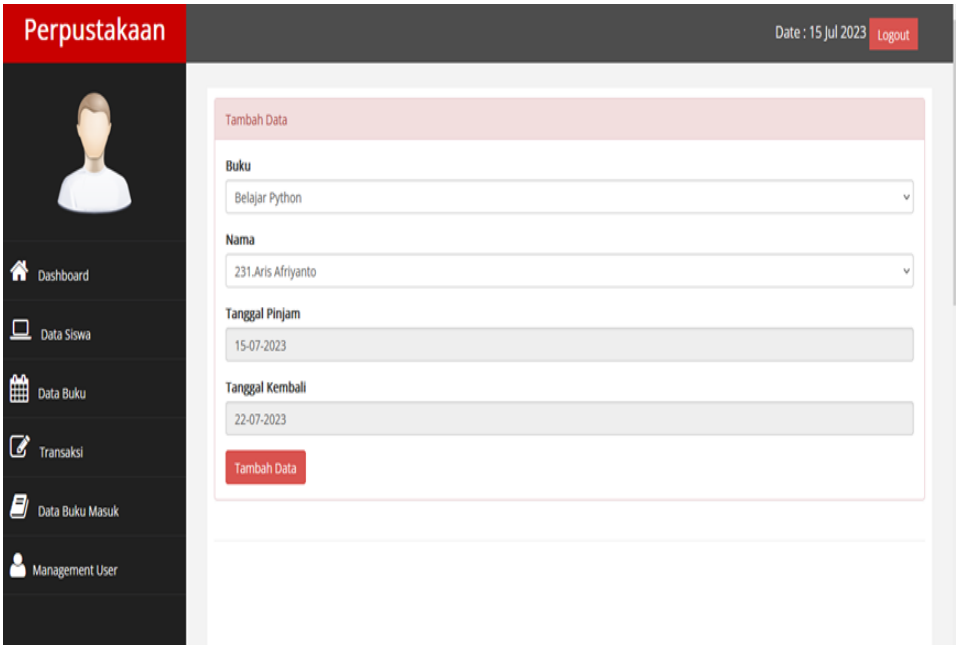

Figure 13. Add Transactions Display

Figure 13 shows the 'Transaction' data addition page. Some fields must be filled in the form of 'Book' and 'Name,' both of which will bring up a dropdown menu containing data from 'Book Data' and 'Student Data' that can be selected. In contrast, the 'Borrow Date' and 'Return Date' will be automatically filled by the system according to the date when the data was entered. After all the columns are filled in, press the 'Add Data' button to enter the data listed in the columns into the system.

f. Book Entry Data Display

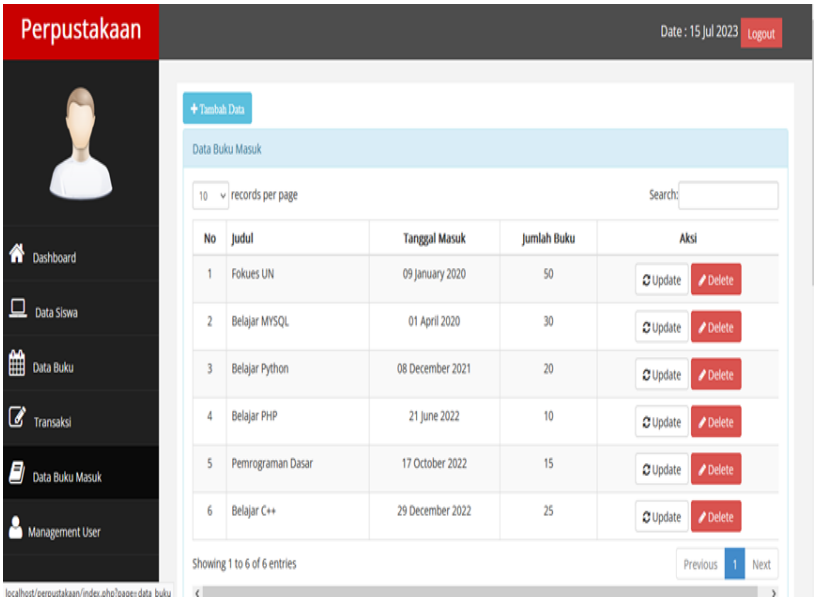

Figure 14. Entry book data page

Figure 14 shows the 'Incoming Book Data' page which lists data related to the acquisition of books in the library. Please press the 'Add Data' button to bring up the following page:

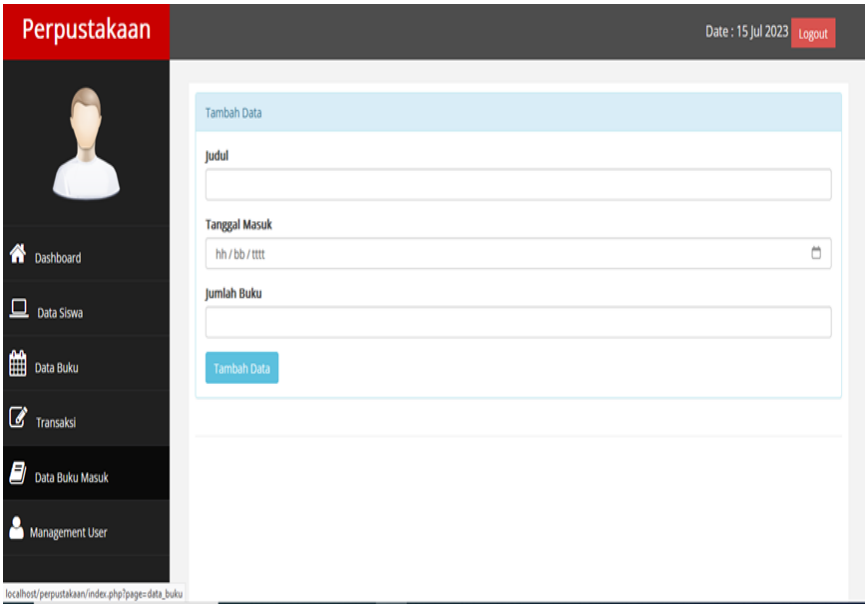

Figure 15. A page for adding book entry data

Figure 15 shows the 'Add Data' page containing the 'Title,' 'Entry Date,' and 'Number of Books' columns.

g. User Management Display

In 'Management User', users can view other user data in the form of names and passwords that have been hashed by the system, to prevent leakage of passwords to other users. The display on the Management User page is as follows:

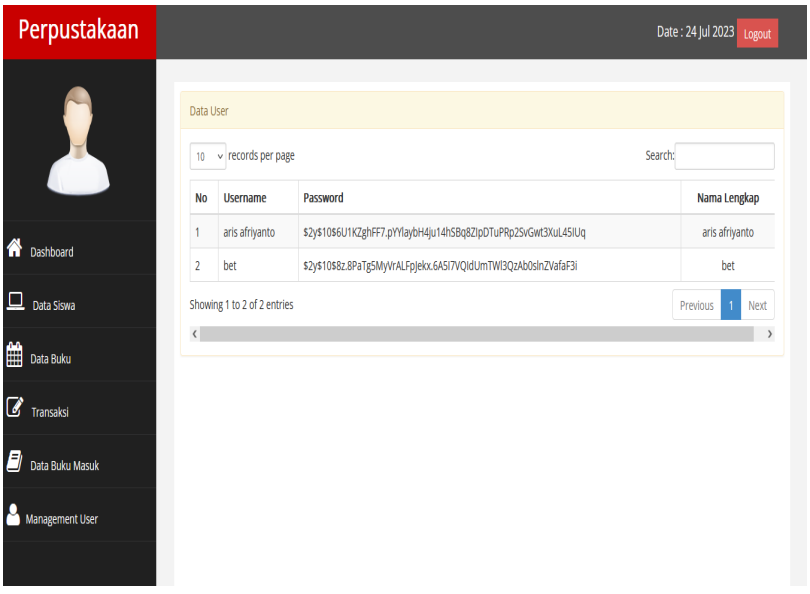

Figure 16. User Management Display

5. CONCLUSION

The web-based data processing library application was built using the PHP programming language and the phpMyAdmin database. The design of this website can facilitate library staff in collecting information related to the library, such as information on library users, which in this prototype application are students,

information on books available in the library, and information about lending transactions carried out by library users. This website can also assist library staff in organizing and tracking library management quickly and efficiently.

6. ADVICE

Based on the conclusions of this library application, can be suggested the following things:

1. The Web-Based Data Processing Library Application can be further developed and improved according to individual needs.
2. We recommend that you add an access level to this application so that not all users can access the 'Management User' which contains all application user data in the form of hashed usernames and passwords.

According to information about the acquisition of existing books, select the date from the calendar that will appear after pressing the calendar icon in the 'Entry Date' column and press the 'Add Data' button to enter the information written into the system.

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