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Design Of a Web-Based Library Book Borrowing and Return Information System

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Abstract. *The SMP N 1 Pantai Cermin library has a manual book loan and return system by recording in a ledger so that researchers build a website-based book loan and return application. The purpose of this research is to facilitate data collection and monitoring of borrowing and returning books at the SMP N 1 Pantai Cermin library. The results of the research are applications that help the SMP N 1 Pantai Cermin library admin in recording book loans and returns and having a digital loan report.*

Keywords: *Library; Website; SMP N 1 Pantai*

BACKGROUND

The development of information technology has undergone rapid progress where many innovations and technological applications are born with appropriate value for all circles to be able to utilize them optimally, one of which is in the field of education, namely libraries. A library is an institution that manages scientific works, written works, printed works, and recorded works, professionally with a standardized system to meet the intellectual needs of its users for the purposes of education, research, preservation, information to educate the nation. The library is expected to maximize the learning ability of someone coming to the library by reading the books available, so as to increase one's thinking power. According to (Adawiyah, 2021).

Library is an educational institution at school. The school library functions as a reading place which is now less and less attractive to students to read books. This is due to being defeated by information media such as the internet which is easier to use in searching for various kinds of knowledge and reading sources (Putera and Ibrahim, 2018). The impact of information media is also experienced by the SMP Negeri 1 Pantai Cermin library, which has a large collection of books that should be used by students to support learning activities, but students are less interested in reading and borrowing books from the library other than there are certain assignments from teachers that require students to borrow books from the library.

The existence of this problem, a solution is needed on how to design a website-based information system that can assist in processing the library data of SMP N 1 Pantai Cermin. The problem limitation in this research is conducting research at SMP N 1 Pantai Cermin. The information system built regarding the borrowing system, returns, member data, book status data, book codes, late fines and book collection information. The

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purpose of this research is to design and build a website-based information system that can assist in processing SMP N 1 Pantai Cermin library data. The benefits of a computer information system in the SMP Negeri 1 Pantai Cermin library can help officers in managing library data administration. The existence of a library information system can help students in finding and viewing book collections.

THEORETICAL STUDIES

1. Information System

Simply put, a system is an organized collection of parts (or subsystems) that are highly integrated to achieve an overall goal (Kusrini, 2018). The system has various inputs, which go through certain processes to produce certain outputs, which together, achieve an overall desired goal for the system. So a system usually consists of many smaller systems, or subsystems. For example, an organization consists of many administrative and management functions, products, services, groups, and individuals. If one part of the system is changed, the nature of the system as a whole also changes (Jogiyanto, 2019).

Systems range from simple to complex. There are many types of systems. For example, there are biological systems (e.g., heart), mechanical systems (e.g., thermostat), human/mechanical systems (e.g., riding a bicycle), ecological systems (e.g., predator/prey) and social systems (e.g., groups, supply and demand and also friendship) (Hutahaean, 2019). Complex systems, such as social systems, are also made up of many subsystems. These subsystems are organized in a hierarchy, and are integrated to achieve the overall goal of the system as a whole. Each subsystem has its own boundaries, and includes various inputs, processes, outputs, and outcomes geared towards achieving the overall goal for the subsystem (Mulyani, 2017).

Complex systems typically interact with their environment and are, thus, open systems. A high-functioning system continuously exchanges feedback among its various parts to ensure that they remain aligned and focused on achieving the system's goals. If any of the parts or activities in the system appear weakened or misaligned, the system makes the necessary adjustments to achieve its goals more effectively. Therefore, a system is systematic. A pile of sand is not a system.

2. Web

The Web is the common name for the World Wide Web, a subset of the Internet that consists of pages accessible by a Web browser. Many people assume that the Web is the same as the Internet, and use these terms interchangeably. However, the term Internet actually refers to the global network of servers that enable the sharing of information that occurs through the Web. So, although the Web makes up a large part of the Internet, they are not one and the same (Syahputra, 2020).

Web pages are formatted in a language called Hypertext Markup Language (HTML). It's a language that allows users to click on pages on the Web through links. The Web uses the HTTP protocol to transmit data and share information. Browsers such as Internet Explorer, Google Chrome or Mozilla Firefox are used to access Web documents, or Web pages, that are connected through links. The Web is just one way of sharing information over the Internet; others include email, instant messaging and File Transfer Protocol (FTP) (Kustiyaningsih & Devie, 2017).

RESEARCH METHODS

1. System Design

System design is used to clearly describe how the system flow is designed to produce a good system. The following is a usecase diagram of a website-based library book borrowing and return information system.

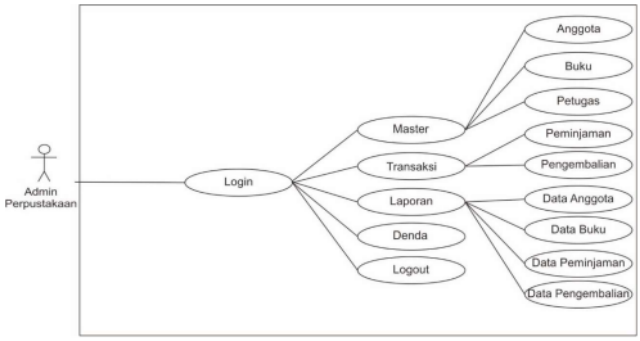

Figure 1. Usecase Diagram

2. Database Design

In this study, there is a database design that aims to store data on a website-based library book borrowing and return information system. The database display in this study uses a class diagram. The class diagram on the website-based library book borrowing and repatriation information system.

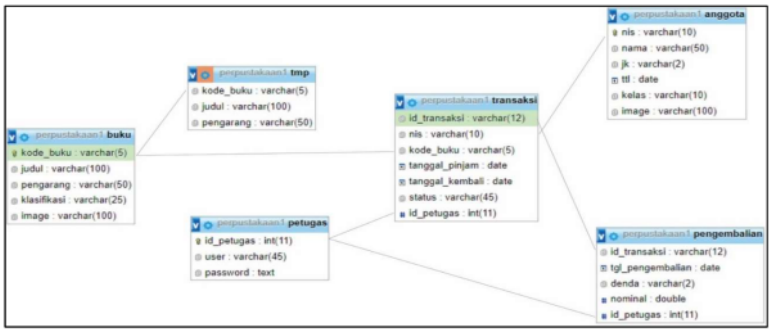

Figure 2. Class Diagram

RESULTS AND DISCUSSION

The results and discussion of the research are a website that was successfully built to borrow and return library books at SMP N 1 Pantai Cermin. Here are some parts that are the results and implementation of this test.

1. Research Results and Discussion

a) Admin Menu Display

The Main Display is the initial menu when the application is run, which displays about the SMP N 1 Pantai Cermin library.

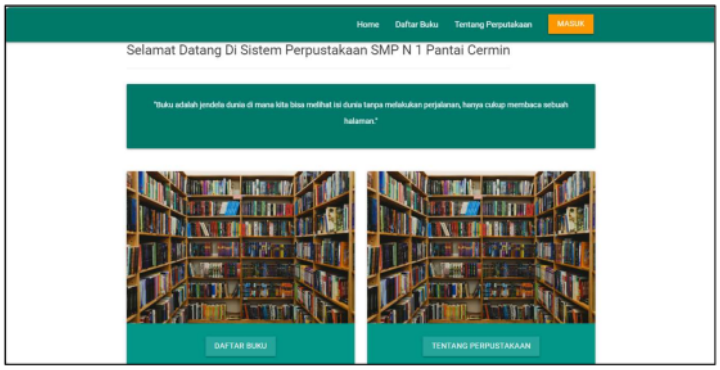

Figure 3. Main Menu Display

b) Login View

Login display is a menu display to enter the SMP N 1 Pantai Cermin library application.

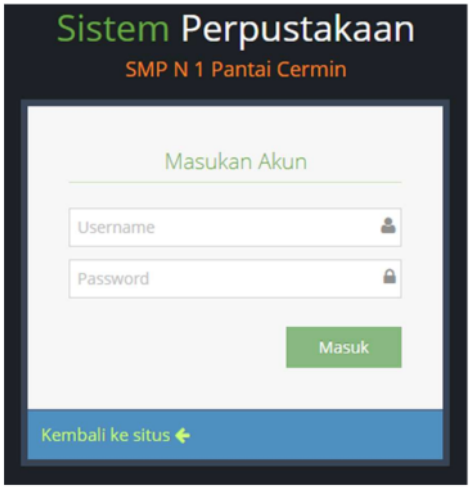

Figure 4. Login Menu Display

c) Member Data Master Display

Member data master display is a complete data maste menu display related to membership in the SMP N 1 Pantai Cermin library application.

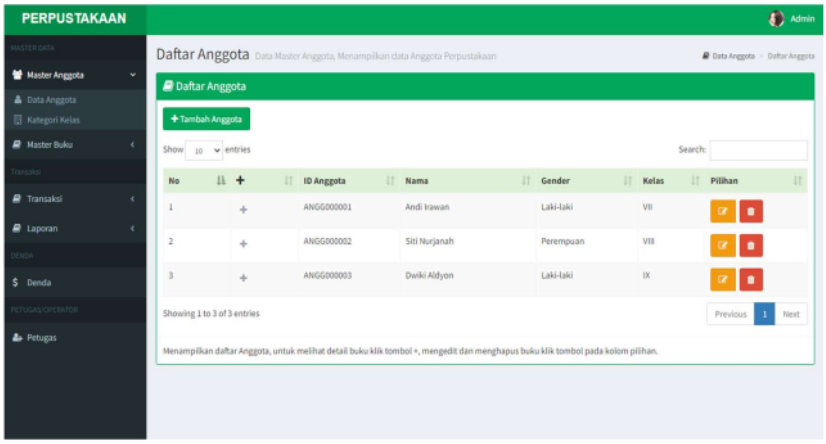

Figure 5. Member Master View

d) The Book Master Data Display

The book master data display is a complete data maste menu display related to books in the SMP N 1 Pantai Cermin library application.

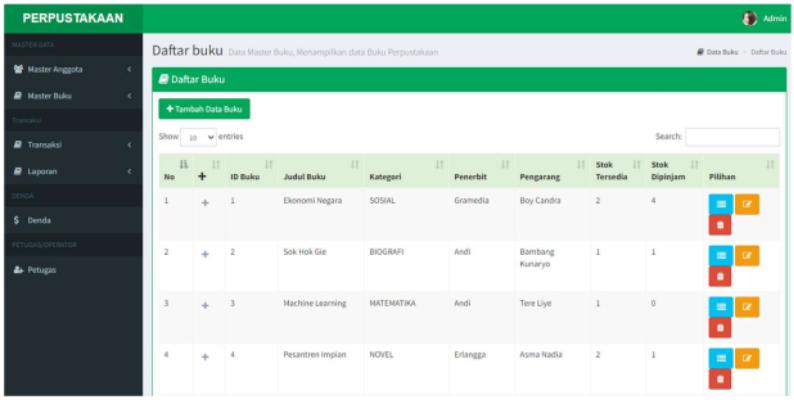

Figure 6. The Book Master Data Display

e) Display Of The Transaction Menu

Display of the transaction menu including borrowing and returning books in the SMP N 1 Pantai Cermin library application.

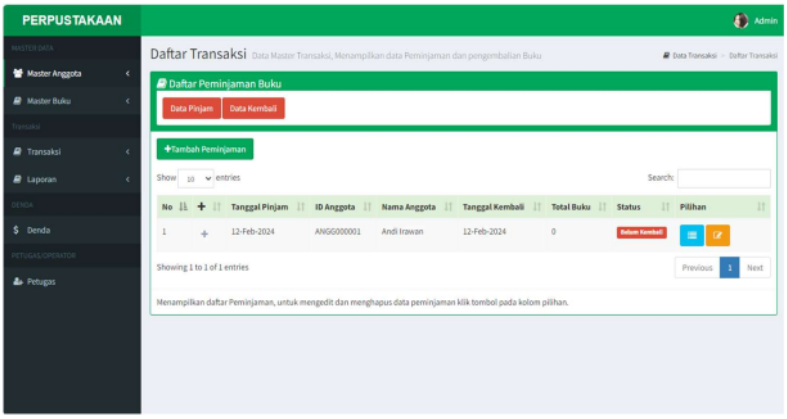

Figure 7. Book Purchase and Return Transaction Display

f) Report View

Display of the book loan and return transaction report menu on the SMP N 1 Pantai Cermin library application.

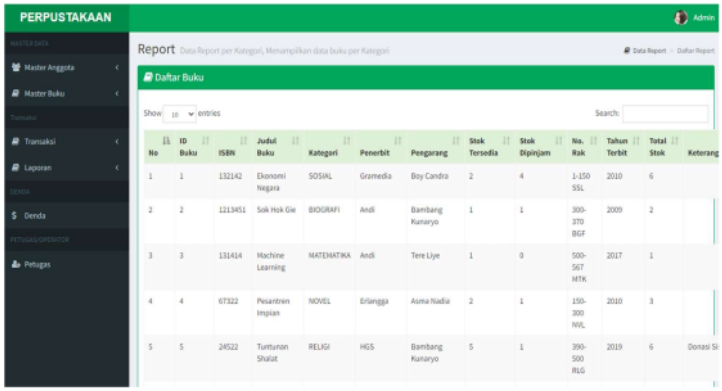

Figure 8. Report View

CONCLUSIONS AND SUGGESTIONS

Research on the design of a web-based library book borrowing and return information system produces an application for borrowing and returning library books at SMP N 1 Pantai Cermin which functions in recording borrowing and returning library books so that the SMP N 1 Pantai Cermin library book data is neatly recorded digitally.

1. With the application of borrowing and returning books in the SMP N 1 Pantai Cermin library, it makes it easier for library admins to monitor book conditions.
2. The library application makes it easy to record reports on borrowing and returning books at the SMP N 1 Pantai Cermin library.

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