

SQL WEBSITE-BASED LIBRARY INFORMATION SYSTEM DESIGN OF SMKN8 BANDUNG

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ABSTRACT

Data collection is generally done manually, but this manual method has Page 01-13 drawbacks, namely data collection becomes ineffective, not neatly arranged, and searching for data takes a lot of time. Likewise with library management at SMKN 8 Bandung, data collection is still manual so that there are often many errors for that it is necessary to have a web-based library information system where data management will be more organized and according to the wishes of the user. The research method used is research and development with the sql website development method. The data collection methods used were interviews and observations. The interview method is used to determine user needs, while the observation is for testing aspects of performance efficiency. The results of this study are (1) the system is proven that the level of feasibility of a web-based library information system using PHP and a MYSQL database server. (2) The test results prove that the level of feasibility of a web-based library information system in the usability aspect of the small group is 84.22% with very decent criteria and 91.2% large group with very feasible criteria, and the performance efficiency aspect is 98.64 with grade A.

Keywords: *PHP MYSQL, Web, Big Data, Digital Library, System Information*

ABSTRAK

Pengumpulan data umumnya dilakukan secara manual, namun cara manual ini memiliki kekurangan yaitu pengumpulan data menjadi tidak efektif, tidak tersusun dengan rapi, dan pencarian data memakan waktu yang lama. Begitu juga dengan pengelolaan perpustakaan di SMKN 8 Bandung, pendataan masih bersifat manual sehingga sering terjadi banyak kesalahan untuk itu perlu adanya sistem informasi perpustakaan berbasis web dimana pengelolaan data akan lebih tertata dan sesuai dengan keinginan pengguna. . Metode penelitian yang digunakan adalah penelitian dan pengembangan dengan metode pengembangan website sql. Metode pengumpulan data yang digunakan adalah wawancara dan observasi. Metode wawancara digunakan untuk mengetahui kebutuhan pengguna, sedangkan observasi untuk menguji aspek efisiensi kinerja. Hasil dari penelitian ini adalah (1) sistem terbukti tingkat kelayakan sistem informasi perpustakaan berbasis web menggunakan PHP dan database server MYSQL. (2) Hasil pengujian membuktikan bahwa tingkat kelayakan sistem informasi perpustakaan berbasis web pada aspek usability kelompok

kecil adalah 84,22% dengan kriteria sangat layak dan 91,2% kelompok besar dengan kriteria sangat layak, dan aspek efisiensi kinerja adalah 98,64 dengan nilai A.

Kata kunci: PHP MYSQL, Web, Big Data, Perpustakaan Digital, Sistem Informasi

1. INTRODUCTION

In this modern era technology has become part of human needs, even in the daily life of many people who cannot be separated from technology. With technology, information is very easy to access and obtain. There are various kinds of information systems made to make it easier for us to find information, one of them by using the web. Where we can operate it on a computer and be able to manipulate data easily. The web is not new, but there are still many agencies that have not implemented the web for administrative or other needs. A library is a public facility that contains books and is neatly arranged, usually found in schools and certain cities. It is a very quiet place and is often visited to look for references or just read books. For students who attend school, this place is very valuable because it is where students can borrow books to do assignments without paying. In the process of borrowing, the return and collection of books is usually recorded in a ledger by writing it down manually.

libraries must be managed well in order to provide excellent service both to members, librarian, and leader. Good service can be seen at easy for members to

get information fast and accurate. If data processing library is still done manually then there are some obstacles, namely the length of time looking for the book you are looking for, the officer's difficulty library in managing loan data and returns for having to always open records so prone to error, then as time goes by, officer also have trouble checking the books that are the more and the unnecessary used again.

Changes in the form of data processing manual library to data processing Changes in the form of data processing manual library to data processing.

SMKN 8 Bandung has a library which is still relatively new and there are not many books. The library of SMKN 8 Bandung is still doing data collection manually, both from borrowing books, returning books and collecting data. This is very inefficient, because apart from wasting paper, data is inaccurate, processing and filing are not neatly organized and messy. When officers want to find borrowed books they have to check and search manually. It was very draining of energy and time, because of this many books were lost because it was not known who borrowed the books. Therefore, it is

urgently needed a system that contains library information, can be overcome with a *website based library information system*, because with a *website -based information system*, library data collection can be easier and more effective so that borrowing books can be well documented and more accurate in terms of optimizing time. One of the advantages of the web is that it can be accessed anywhere. There are so many researchers who make web-based information systems. In previous research, the information system created was able to assist related parties in the service process. With the library information system, it is expected to improve and make work faster, make it easier for library employees and library users to manage and borrow books. There are two types of webbased information systems, namely online and offline where online must be connected to the internet network while offline does not use the internet network. Based on interviews that have been conducted, the development of a library information system that is expected by librarian is web-based offline.

2. LITERATURE REVIEW

1. Data definition

According to Connolly and Begg (Coronel, 2015) Data is the most important

component as a liaison between machines (hardware) and humans. Data is the main component in a Database Management System (DBMS). Data is a liaison component between hardware and humans, data is the most important component in a Database Management System (DBMS). Meanwhile, according to Carlos Coronel and Steven Morris (Connolly, 2015) the data contains raw facts. So from the opinion above, it can be concluded that the data is a fact, a raw fact that has not been processed. data are raw facts or observations, usually about physical phenomena or business transactions according to O'brie Marakas (Brien, 2011).

2. System

Information

According to Mcleod (Mcleod, 2001) Information Systems is a system capable of to collect information from all sources and use a variety of media to display information. Information Systems is a system within a organization that brings together various daily transaction processing needs, help & support all activities operations, managerial nature of an organization & help expedite the provision of reports required.

3. Library

Information System

Library Information System by Gordon B. Davis (2003), Information systems are a system within an organization that meet data processing needs daily, supporting activities in storage data, and provide certain outside parties with the required reports. System Library Information is specially designed software for facilitate the collection of library collections, catalogs, member/borrower data, transactions and library collection circulation.

4. Programming

Language

A. PHP Hypertext Preprocessor (PHP) According to Sibero (2012), "PHP is programming (interpreter) is a process source line translation into machine code that the computer understands directly on the when the line of code is executed". PHP or something stands for PHP Hypertext Preprocessor, is a language programming that is used for build a dynamic website. PHP integrated with HTML code, HTML is used as the builder or foundation of the framework web layout, while PHP is used as a the process,

so that with PHP that, a website will be very easy to access maintenance.

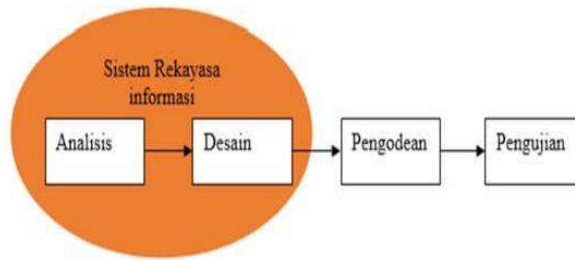
B. HyperText Markup Language (HTML) HyperText Markup Language is a method to implement the concept of hypertext in a manuscript or document. HTML itself does not belong to a programming language because of its only mark up on a text script and not as a program. C. Cascading Style Sheets (CSS).

Cascading Style Sheet (CSS) is a style sheet language used for set the appearance of a written document in markup language. Most use general of CSS is to format web pages written with HTML and XHTML. Even so, the language itself can be used for all types of documents XML includes SVG and XUL. CSS Specifications regulated by the World Wide Web Consortium (W3C).

3. METHODS

Method Development Device Soft

Approach which we do in build something system information library this using the *Waterfall method* where the development stage begins from:



Picture 1. Illustration Model Waterfall

Source: Sukamto (2014)

1.. Analysis needs device soft

At this stage the author collects needs intensively by reviewing direct with see share reference – reference system information library which has there is for specify needs device soft which in need by officer or student in say other user so that could used with good.

2. Design

At the design stage the author focuses on four attributes, namely data structure, representation interfaces, software architecture, and coding procedures. So at this stage the author provides several responsive web designs with the aim of being able to be opened from various device good which have screen big or small. As well as make design which make it easy user moment use system information the.

3. Making

code program

After passing through the next design stage, Programming creates program code with reference to the design so that

a match between the design and the program code is created. Which is where the results will be in accordance with the design stages that have been made.

4. Test

Furthermore, in this testing stage, the author ensures that all parts of the system are by detailed for minimize all form error (error) on system as well as ensure results end in the form of output from system in accordance with which expected by the examiner.

5. Supporter (support) or maintenance (maintenance)

With this stage the author can find out all errors that are not detected during the testing stage, so that at this support or maintenance stage it is allowed to repeat the process from the previous stages but do not make the system which new.

Data collection

techniques

Technique collection data which used by writer in To do collection data for making study this is:

1. Observation

(Observation)

The author makes direct observations of activities in the library SMKN 8 Bandung is good when students borrow books, look for books, and return them book. As well as observing the transaction process carried out by librarian during the process loan book, return book and various maintenance data which there is in library. Results from observation the direct noted by writer and from activity observation could is known how system information library will made.

2. Interview

(Interview)

In this method the authors obtain information by conducting questions and answers to students who was in the library regarding things such as finding the desired book, process of borrowing

and returning books. Then do a question and answer to Mrs. Vina as officer library about how process administrations which occur in the library such as data on the number of books, data on books in the library, data on borrower and return book.

3. Studies

References

This author To do information system methods for Fulfill information how system information The library works with an IT concept, so it tries to get data in a different way view, read, and develop information related to the problem discussed as a reference for various printed books, ebooks, and e-library websites that has made for support study this.

4. RESULTS AND DISCUSSION

1. Interface

Design

In this stage the author will explain about the design of the web-based library information system application page interface at SMKN 8 Bandung.

Flowmap plot loan books in the library of SMK Negeri 8 Bandung which is currently walk :

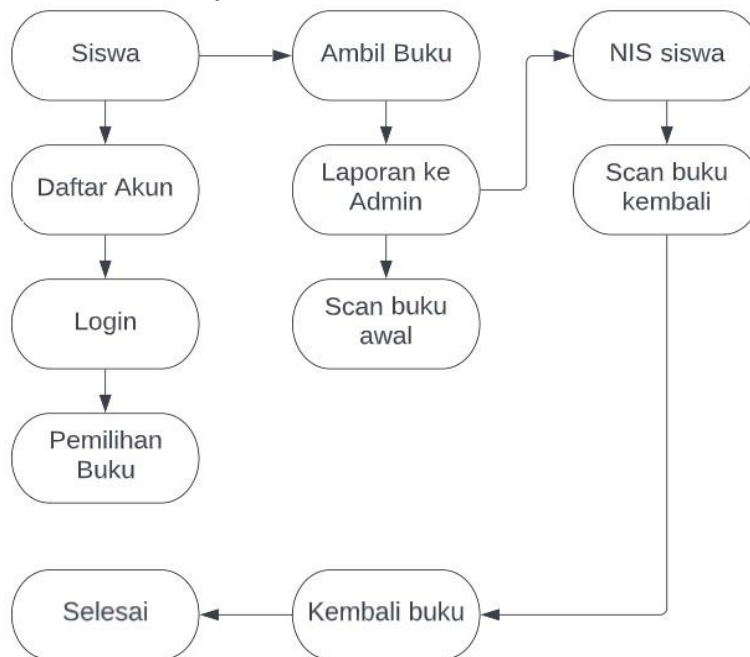


Figure 1. Flowmap plot loan book

After To do loan , member must return book the to library . Besides there is provision in procedure loan books , there are also some provision in the process of returning book , following conditions in return book :

- a) Student bring the book that will returned to library .
- b) Officer will see the data of students who have borrow books on the website admin library SMKN 8 Bandung. Then will re -scan books and returns books , and students / i keep book back to place again .
- c) However if occur lateness time in return book , then officer library will wearing fine to student the in

accordance with provision applicable regulations . _

- d) Based on of return data book so officer library will make report about return book , report the processed Becomes two duplicate each for library and one again handed over to head library .
- e) The officer will also make report fine if there is data about lateness return book , report the processed Becomes two duplicate that will handed over to each head library .

Flowmap will give description about current system _ this currently walk . From the old system then will found some data and facts that will made ingredient for development and implementation a system

proposed information . _ Flowmap in general _ will give description to our about something plot information as well as the entities involved _ direct in plot information that , so that by invisible eye our will knowing sutau plot procedure from something information .

Context diagram

Context diagram describe connection data flow into or go out system or entities located _ _ _ outside system (output) or receive data from system it (input). One of the must note , context diagram only use one process circle that represents the process of all system . Context diagram give description like what connection interaction Among entity outside with system , relationship the depicted with flowing data streams and environment outside system (entity outside) inside system or instead , following this is a

current context diagram running at the Library of SMK Negeri 8 Bandung. **Data Flow Diagram**

DFD usually used for make a system model information in form interconnected process network relate one same another by the data stream . This picture explain system level 1 Data Flow Diagrams information the library of SMK Negeri 8 Bandung which is currently walk . Function of DFD or Data Flow Diagram is for clarify description about the system especially data flow in system that .

At the stage of DFD level 1 describes system globally however _ accompanied an overview of the database to be accommodate from data flow . At DFD level 1 above describe the registration process Becomes member , loan process and return process the current book running , every process that occurs accompanied with data flow .

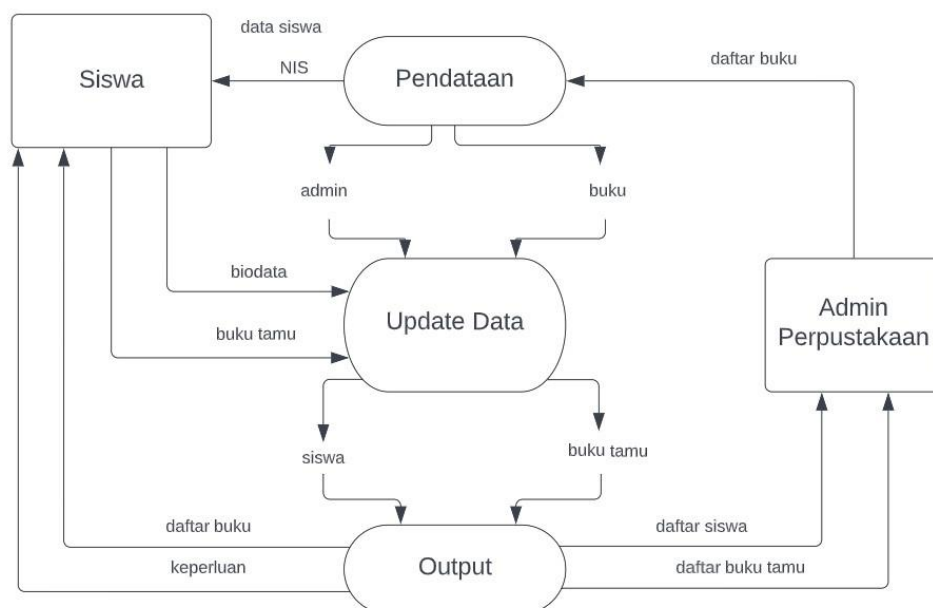


Figure 2. DFD lvl 0 System Information Library

DFD level 0 process describes a system process information library for student in loan book , in the process be equipped with data flow showing something stages in the process started from student introduce self to admin for

data collection as well as fill in form registration until officer make report , following Image DFD Level 1 Data Collection

**Data collection
Student**



Figure 3. DFD lvl 1 system data collection member

DFD Level 1 System Data collection Members , where in the process inside it includes the process of recording Member data , updating Member data carried out by officers library ,

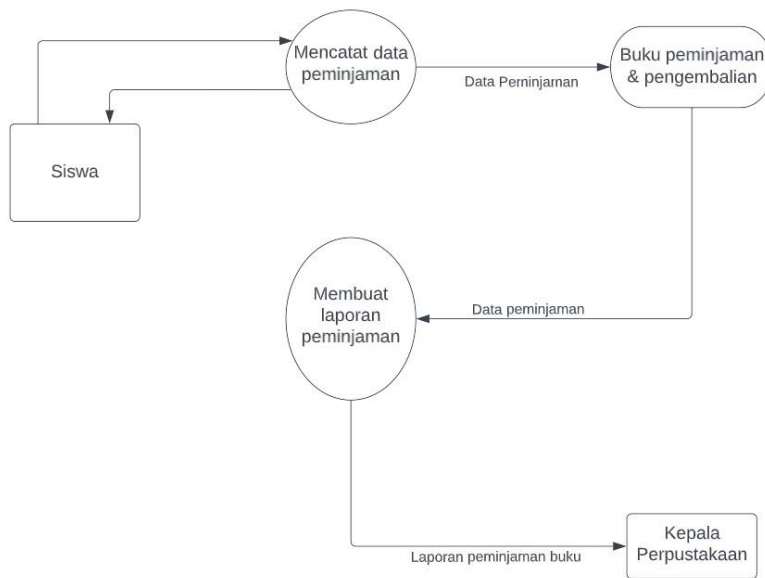


Figure 4. DFD level 2 process 2 is being walk

DFD level 2 process 3 is the return process book and in the process including It includes the process of searching for borrowing data , storing borrowing data as well as making report loans made by officers _ library . Details from process 3 that is return book illustrated in the figure DFD level 2 process 3 below :

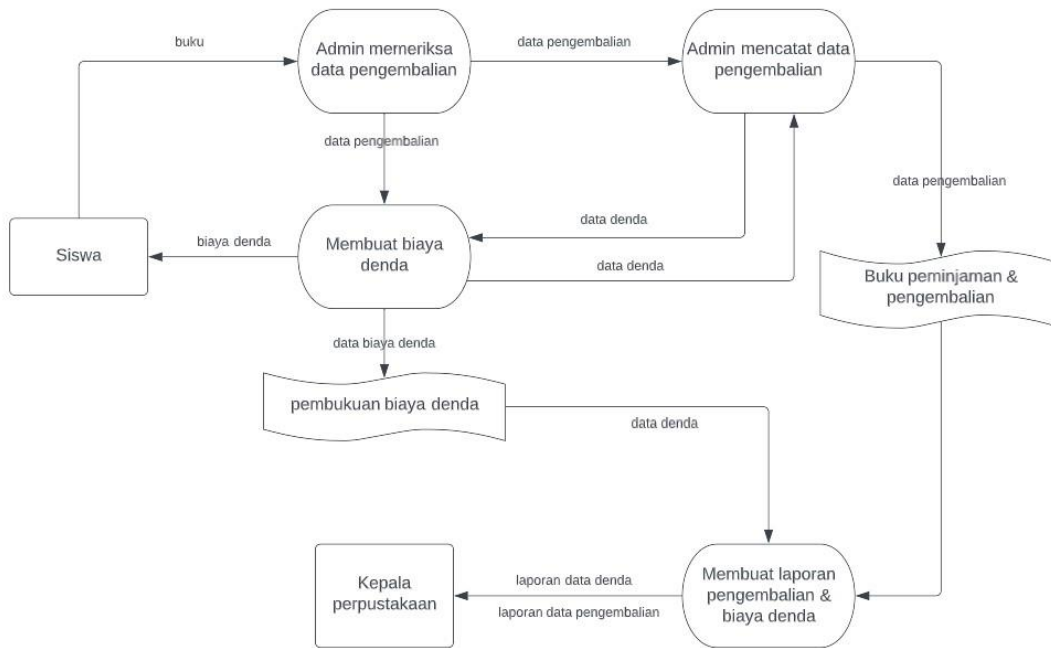


Figure 5. DFD level 2 process 3 is being walk

Proposed Context Diagram _

Following this is the form of a context diagram that from system information proposed library _ accompanied with incoming and outgoing data streams from system information library that .

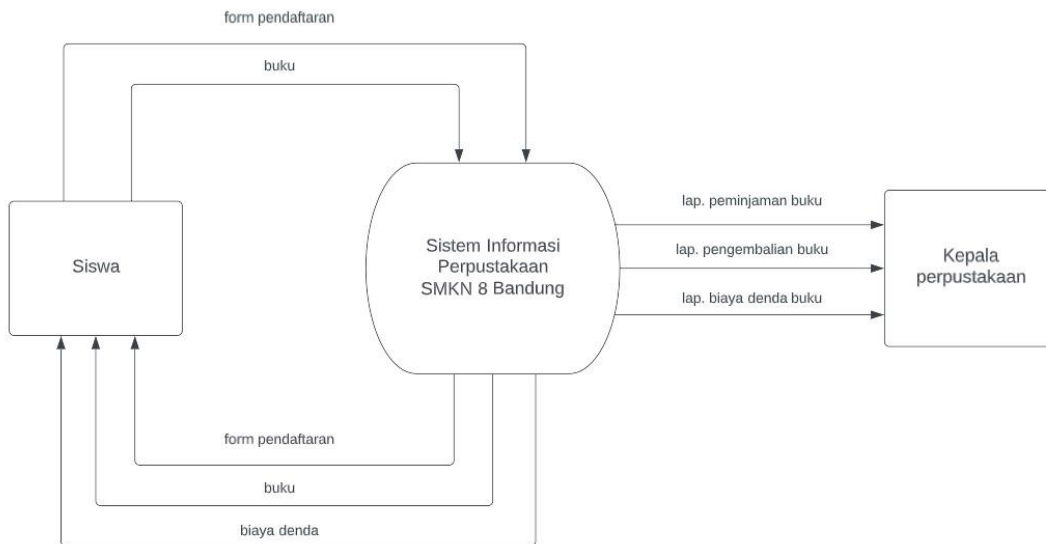


Figure 6. Context diagram

2. User Interface

A. Initial View Design

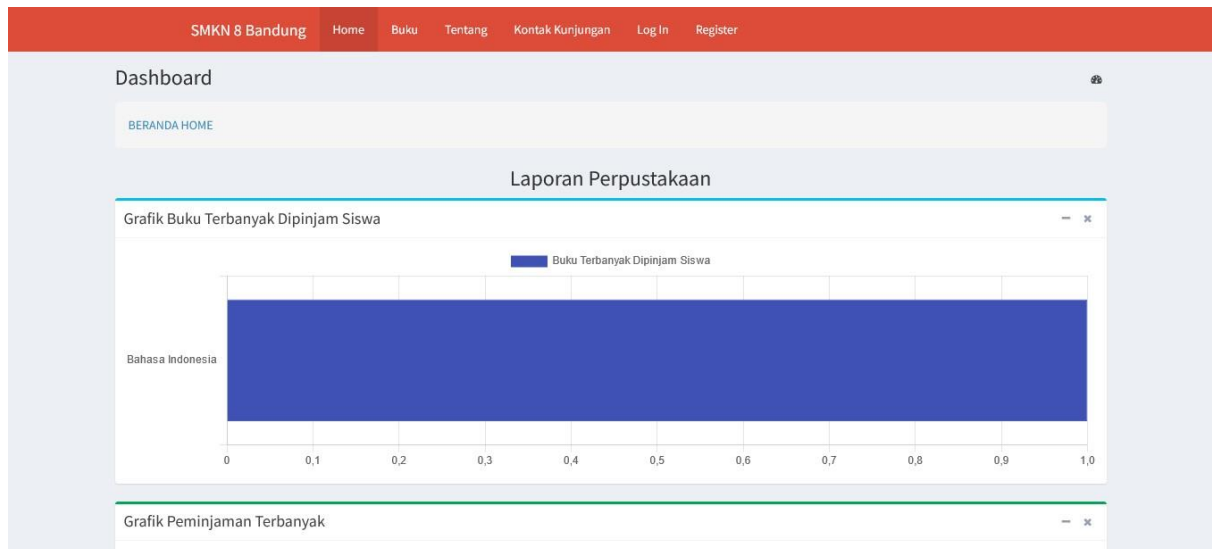


Figure 2. Main Page

In this page displays the initial view of the menu, equipped with the placement of the book. In addition, there is a Profile, Visitors, Books, Student Login menu which has been adjusted to the needs of the head of the library.

B. Book Data Page

NO	Kode Buku	Judul Buku	Penerbit	Pengarang	Tahun Terbit	Tempat Terbit	Nomor Rak	Jumlah	ISBN	Aksi
1	BK072	Bahasa Sunda	Asep Mahmudih	2017	Band	10	20	1	111-222-33	Lihat Detail
2	BK071	Bahasa Inggris	Asep Mahmudih	2017	Band	10	20	1	111-222-33	Lihat Detail
3	BK070	Bahasa Indo	Asep Mahmudih	2017	Band	10	20	1	111-222-33	Lihat Detail
4	BK069	Bahasa Indo	Asep Mahmudih	2017	Band	10	20	1	111-222-33	Lihat Detail
5	BK056	Panggelar Basa Sunda X smt 1	Erlangga	Yayat Sudaryat dan Deni Hadiansah	2017	Jakarta	400	158	9786024343675	Lihat Detail
6	BK055	Panggelar Basa Sunda XI smt 2	Erlangga	Yayat Sudaryat dan	2017	Jakarta	400	162	9786024343682	Lihat Detail

Figure 3. Book Pages

This page displays all the book data in the database and if you want to find a book, enter the code or title of the book and then click search, the results of the search will appear. In addition to the search, there is a borrowing of books that have been inputted by the student.

C. Student Data Page

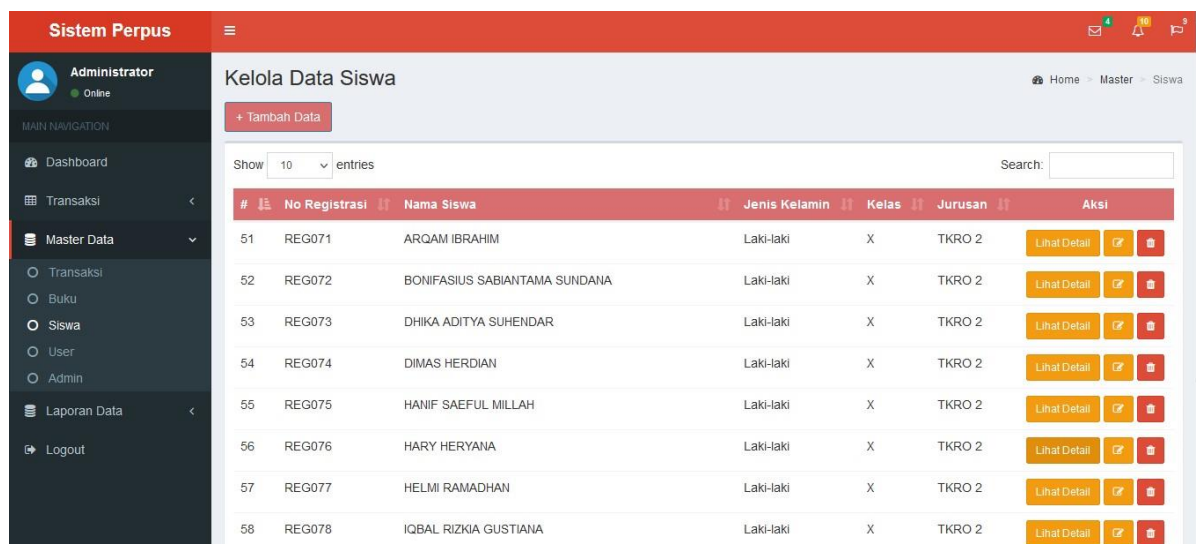


Figure 4. Student Page

This page displays all student data in the database and if you want to find students, enter the student code or member name and then click search, the student data you are looking for will appear. In addition to searching there are add, edit, delete, and student details to manipulate student data.

D. Book Borrowing Page

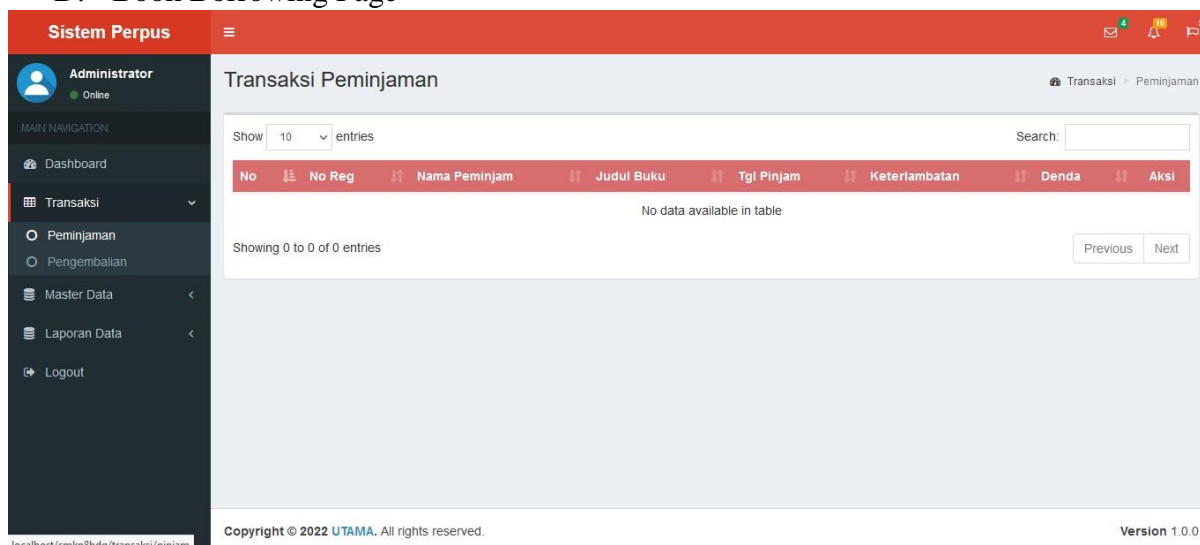


Figure 5. Book Borrowing Page

This page displays all the loan data in the database and if you want to find a loan, enter the student code, student name, or status and then click search. In addition to search there are add, print, cancel, rollback and delete.

E. Book Return Page

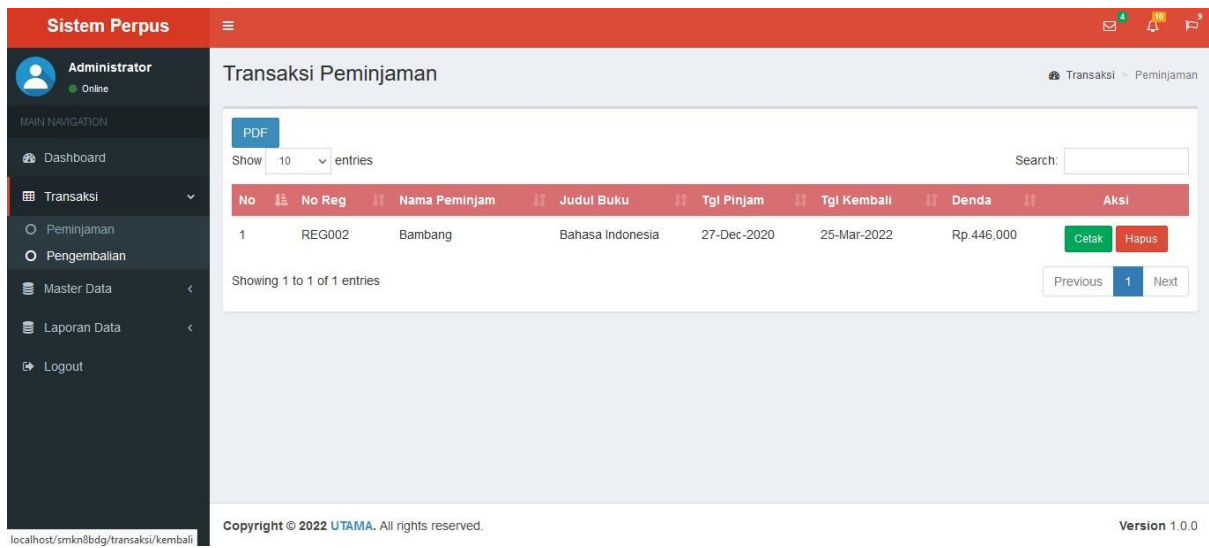


Figure 6. Book Return Page

This page displays all the return data in the database and if you want to find a loan, enter the student code, student name, or status then click search. In addition to search there are add, print, cancel, rollback and delete.

F. Dashboard Page

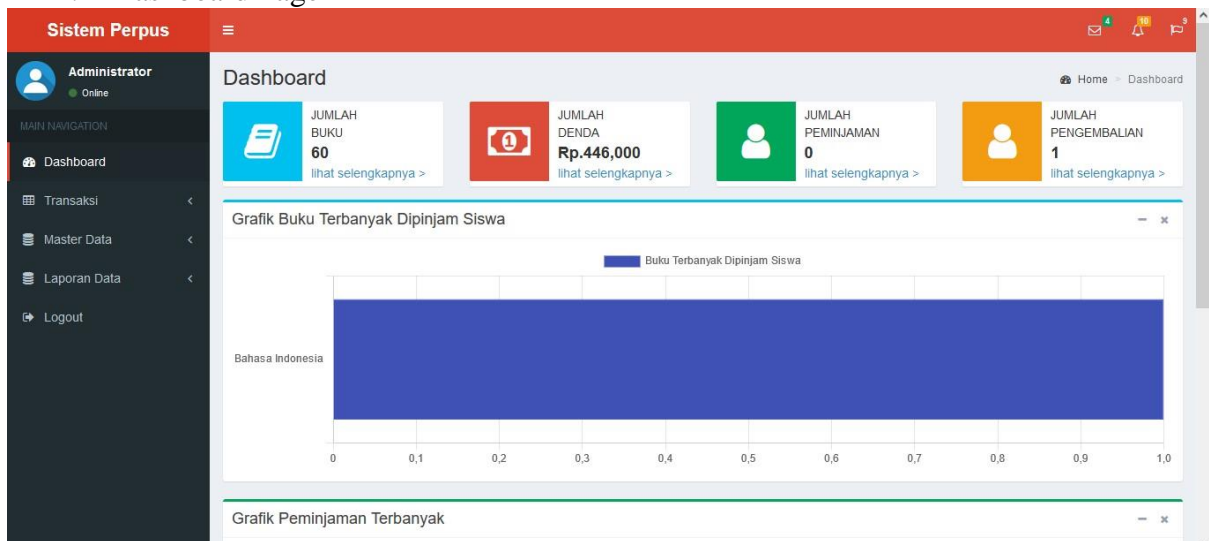


Figure 7. Dashboard page

This page displays the main page after admin login where the display is the number of books, the number of fines, the number of returns, the number of loans and the graph of the most borrowing books. It also provides several features, namely the Transaction menu, Master data, and Data Reports.

G. Admin Login Page



Figure 8. Log in Admin page

On this page displays the login for admin and operator, to enter into the admin log in required admin username and admin password,

H. Student Login Page

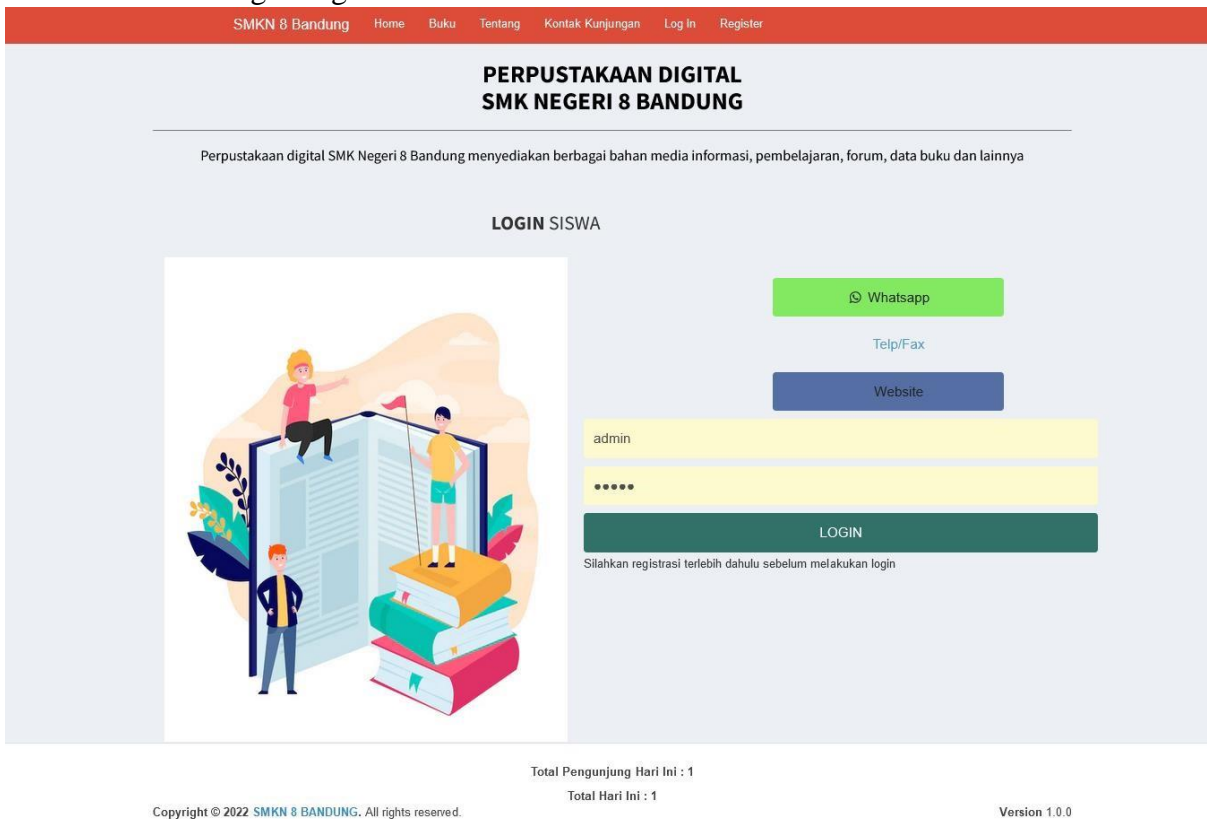


Figure 9. Student/Teacher Login Page

On this page displays logins for students where before borrowing books students must login first to make transactions for borrowing books and returning books.

Coding

The making of this web-based library information system uses the PHP (Hypertext Preprocessor) programming language and CSS (Cascading Style Sheet). As for the database using MySQL which is accessed using XAMPP

Testing

The testing phase is carried out after the system programming process is completed. System testing is done by comparing the conventional library information system with computerized information systems .

5. CONCLUSION

Based on the results of the research and discussion described in the previous chapter, it can be concluded that the web-based library information system developed in this study is feasible to use, supported by the results of usability testing with results of 84.22% (very feasible criteria) in small groups and 91.2% (very feasible criteria) in the large group, and performance efficiency with a result of 98.64 (grade A).

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