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DESIGN OF LIBRARY MANAGEMENT INFORMATION SYSTEM (SIMPUSTAKA) BASED ON LARAVEL FRAMEWORK

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ABSTRAK

Penelitian ini bertujuan untuk mendesain SimpusTaka sebagai perpustakaan berbasis website dengan menggunakan Laravel Framework sehingga dapat terciptanya sistem yang kondusif, sistematis dan terkomputerisasi di Yayasan perguruan Ksatrya Lima Satu. Desain SimPusTaka dikembangkan dari website yayasan, buku panduan Perpustakaan, dan penelitian sebelumnya. Fokus utama dari kajian ini adalah pada tiga tahapan dari pengembangan model Borg & Gall. Penelitian ini dimulai dengan melakukan pengumpulan informasi melalui proses wawancara dan studi pustaka, yang diikuti oleh tahap perencanaan dan pengembangan awal SimPusTaka. Temuan menunjukkan bahwa peneliti menggunakan tahapan pengembangan Borg & Gall untuk merancang SimPusTaka sebagai dasar dalam menciptakan sistem informasi manajemen perpustakaan berbasis web menggunakan kerangka kerja Laravel. Selama tahap pengumpulan data, peneliti melakukan tinjauan literatur menyeluruh dengan menggunakan penelitian sebelumnya, pedoman pelayanan perpustakaan, dan situs web Yayasan Perguruan Tinggi Ksatrya Lima Satu. Wawancara dilakukan dengan pustakawan sekolah YPKLS. Pada tahap perancangan SimPusTaka, peneliti membuat daftar fitur SimPusTaka sesuai dengan saran-saran yang diberikan dari tahap pengumpulan data yaitu fitur beranda, cari buku, tentang kami, pustakawan, survey kepuasan, kontak, form pendaftaran, login.

Kata-kata kunci: Sistem Informasi Perpustakaan, Framework, Laravel, Simpustaka.

ABSTRACT

The objective of this study is to develop a design for SimpusTaka as a website-based library using the Laravel Framework so that a conducive, systematic and computerized system can be created at the Ksatrya Lima Satu college foundation. SimPusTaka's design was developed from

the foundation's website, library guidebooks, and the existing studies. The primary emphasis of this research centers around the three phases of the Borg & Gall model's development. The study began with data collection through interviews and literature reviews, followed by the planning and initial development stages of SimPusTaka. The findings suggest that the researchers utilized the Borg & Gall development stages to design SimPusTaka as a foundation for creating a system for managing library information that is based on the web using the Laravel framework. During the data collection phase, the researchers conducted a thorough literature review using previous studies, guidelines for library services, and the Ksatrya Lima Satu Higher Education Foundation website. Interviews were conducted with the YPKLS school librarian. At the SimPusTaka design stage, the researcher made a list of SimPusTaka features according to the suggestions given from the data collection stage, namely homepage features, search for books, about us, librarian, survey satisfaction, contact, registration form, login.

Keywords: Library Information System, Framework, Laravel, Simpustaka.

INTRODUCTION

To win the global competition, educational institutions need to provide quality services by providing fast, accurate, and easily accessible information as one of the factors of excellence. With that, the development of management information systems is needed (competitive advantage) (Sonia, 2020). In this context, access to information and data generated through the stages of collection, storage, processing, and transmission is needed, in order to gain positive reception from decision makers (Yakub & Hisbanarto, n.d.).

Libraries in Indonesia must be able to improve the quality and quantity of their services to make library users happy. Therefore, the administrative activities of the library must be changed. One of the levers that can be used is the use of information technology in library operational management (Mustari et al., 2014). The exact solution is to realize the use of an information system that can improve service performance. There are several reasons when using information systems are (1) higher processing speed, (2) better accuracy and consistency, (3) faster data access, (4) lower costs, (5) better data security (Afyenni, 2014).

On the other hand, it can be seen that in the era of the industrial revolution 4.0, it is undeniable that technological developments are very fast in providing changes and facilitating people in their activities. Based on Newzoo data, Indonesia is ranked fourth with the most smartphone users in the world in 2022 (Pusparisa, 2020). In fact, the Ministry of Communication and Information said the use of smartphones reached 167 million people from the entire population of Indonesia. One of the factors is the cheapness of internet tariffs. (Haryanto, 2021). It can be seen that Indonesian people have the opportunity to grow very fast so that it will be easy to use smartphones that are connected to the internet and can access SimPusTaka at the Ksatrya Lima Satu College Foundation.

Yayasan Perguruan Ksatrya Lima Satu is an educational institution that has been established since 2001 until now with a total of 1571 students from 3 levels of education, namely junior high, high school and vocational school. Based on direct interviews conducted by researchers with YPKLS librarians related to library management. He said that this is needed as an accreditation assessment standard. In addition, the library must make reports as evaluation material in subsequent years.

Researchers also made direct observations at YPKLS there is a set of hardware such as computers (PCs) that can be used as needed and connected directly to the internet, namely with supporting facilities to develop library management information systems. Thus, the hope of researchers to develop a library SIM can be solved. Based on this, it can be concluded that when you want to maximize service activities and library data management in a structured,

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systematic and professional manner, the information system as a solution that can help YPKLS. Regardless of the time or type, this technology accelerates the exchange of information between the integrated observation systems of educational institutions, ensuring effective and efficient data transfer.

RESEARCH METHODS

Researchers use research and development (RnD) with the Borg & Gall development model. Designing SimPusTaka as the basis for developing a library information management system that uses the Laravel framework and is web-based is the purpose of this research by conducting direct interviews with librarians of the Ksatrya Lima Satu College Foundation related to library management where all library policies still use conventional methods so that there are still many obstacles experienced, such as the process of lending transactions and transactions Return of books by library members who were previously still at the stage of recording them into inventory books and so on. All because the library management information system has not been implemented. The interview was conducted with librarians at Yayasan Perguruan Ksatrya Lima Satu who have practiced library ministry at the school. According to Borg & Gall, the development model consists of 10 stages (2007) as follows:

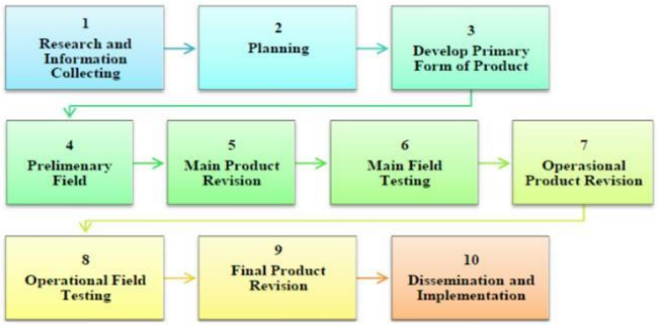

Figure 1. Stages of the Borg &; Gall Development Model

Researchers only carry out steps one to three, namely research and data collection, design and development of the original form of the product. Researchers then modified the three steps for data collection, SimPusTaka design, and SimPusTaka product development. At the data collection stage, researchers collected it by interviewing librarians at Yayasan Perguruan Ksatrya Lima Satu. In addition to interviews, researchers also conducted literature reviews on the foundation's website and previous research. Then at the design stage, researchers designed SimPusTaka with the initial step, which is to make the list needed and adjusted when conducting the data collection stage.

RESULTS AND DISCUSSION

Researchers obtain information through two methods, namely literature study and interviews, here are the results:

Table 1. Results of Data Collection

Collection Methods	Source	Result
Literature study	Organizer's handbook School Library (Sularsih, Sri, 2018)	There is a library maintenance guidebook that can be used as a reference for SimPusTaka product development.
	http://yayasanksatrya.or.id/	There is already *a website* incorporated in the Ksatrya Lima Satu College Foundation as an umbrella school.

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		However, the website of Yayasan Perguruan Ksatrya Lima Satu only informs about schools in general, not focusing on information related to libraries. This site offers general information from various fields, such as learning survey results, adjustments to teaching and learning activities or the development of YPKLS school construction. So it is necessary to create *a website* specifically related to library services that can be used as a library management information system for the Ksatrya Lima Satu College Foundation.
	Research Articles : (Nur & Lailasari, 2014)	The application of a school driver's license has the most effect compared to the application of student satisfaction and school culture.
	(Martins et al., 2019)	With the quality of information and services available in schools, the implementation of school driver's licenses is good and sustainable.
	(Kock et al., 2020)	Information submitted must be related to one another so that it becomes a complete unity.
	(Migliore et al., 2021)	Platforms or websites can maximize the use of educational data to accelerate the development and progress of education in the era of big data. spreadsheets or other more sophisticated software can be set up on management information systems that can collect and report data.
	(González-Sancho & Vincent-Lancrin, 2016)	The 30 OECD CERI member countries have moved from the habit of delivering statistical reports to models of using educational data.
	(Bravo et al., 2021)	SIM in education can help stakeholders use this information to make decisions related to management, researchers, personnel, resource inventory, and financial systems.
Interview	Librarian of Yayasan Perguruan Ksatrya Lima Satu	All information management in school libraries still uses manual methods so there are still many obstacles, for example the process of borrowing and returning books is usually still written in the inventory book, the process of finding book information by opening each inventory book, so it takes a lot of time. In addition, to create reports such as summary report books and loan list reports, it takes quite a long time to compile reports because it has to check every page of the inventory book and copy them.

Jurnal iMProvement Vol. 10 No. 1, Juni 2023
DOI : 10.21009/improvement.v10i1.34320

When the researcher has collected data, the researcher makes an initial product development plan based on the results of data collection from the SimPusTaka design. Start by searching for domain names and servers, frameworks to use and features available in SimPusTaka. More specifically, the information system of this research library is displayed in the flowchart as follows:

a. Book Lending

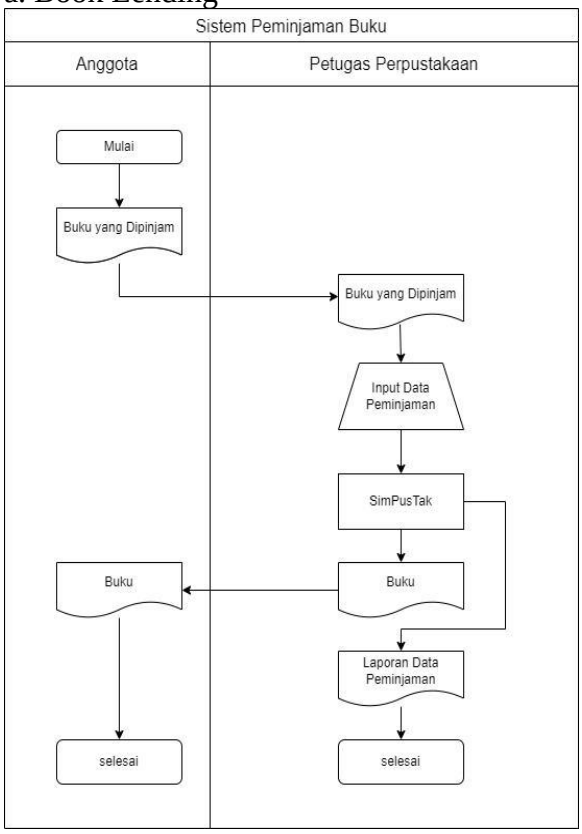

Figure 2. Book Lending Diagram

b. Book Returns

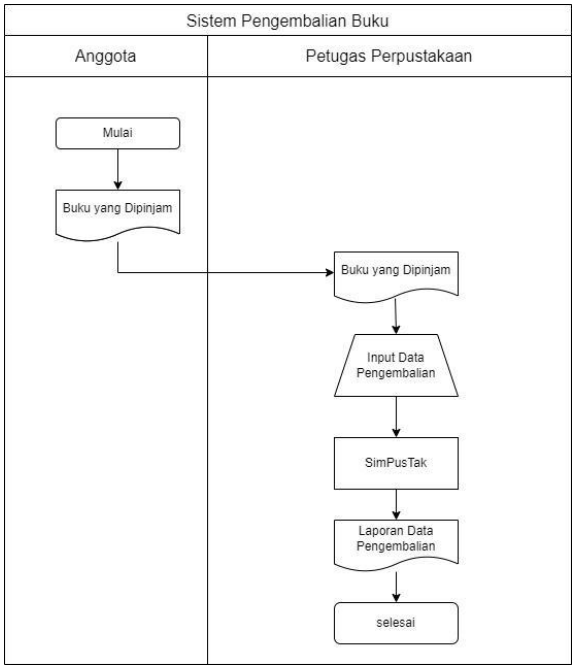

Figure 3. Book Return Diagram

Next, the SimPusTaka design display with available features:

Jurnal iMProvement Vol. 10 No. 1, Juni 2023
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Table 2. Initial Design of SimPusTaka Features

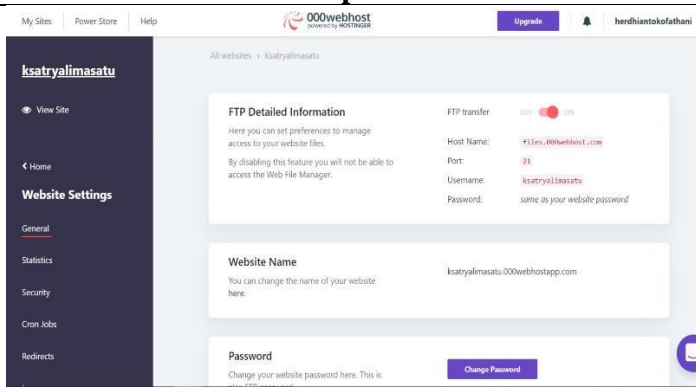
Home	Search Books	About us	Librarian	Satisfac-tion Survey	Contact	Registra-tion Form	Login
Platform information	Data Buku	Informasi perihal *plat-form*	Data Pustaka-wan	Form Survey Kepua-san	Alamat	Form Pendafta-ran	Masuk sebagai admin/ anggota
Greeting from the Head of the Foundation		Data Fasili-tas Sekolah			Telepon		
Contact us		Data Guru			Email		
		Data Siswa			*Maps*		

All inputs from the data collection stage are used as suggestions when performing SimPusTaka design stages. Features of SimPusTaka include:

The main page feature is used as the main page to describe the SimPusTaka website. The book search feature allows members to view and search books on website SimPusTaka. Fitur About Us provides information about the SimPusTaka website that is under development. Librarian feature that displays school librarian details. The satisfaction survey feature provides Google with a critique and feedback form to evaluate the performance of Five One Knights Foundation library service users. Our contact function is used as a data center to provide criticism and input through mobile numbers, emails, addresses, and maps. The registration form feature provides a Google form to become a member of the Five One Knights Foundation Library. Login serves as an administrator login or as a member of the Lima Satu Ksatrya College Foundation Library.

After completing the design phase, researchers begin the initial stages of product development. SimPusTaka is developed using a laptop that is connected to the internet and uses several other materials such as domains, servers, frameworks.

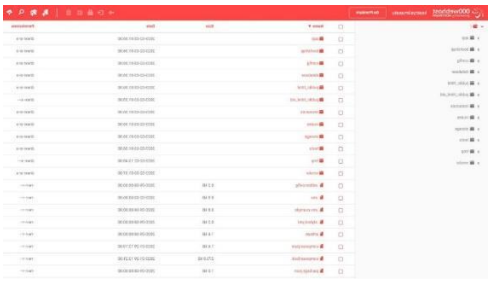
Table 3. Initial Design of SimPusTaka Features

Komponen	Produk	Tampilan
Nama Domain https://ksatryalimasatu.000webhostapp.com/	000webhostapp	
Server	000webhostapp	

Jurnal iMProvement Vol. 10 No. 1, Juni 2023
DOI : 10.21009/improvement.v10i1.34320

Researchers chose the domain and server of 000webhostapp as the beginning of development. After that also choose some additional components. Below are some of the additional components used, including:

Table 4. Preliminary Design of SimPusTaka Features

Komponen	Produk	Tampilan
Framework Struktur *Website*	PHP	
Template Web	CSS, *Bootstrap, Font Bootstrap Icon*	

The main framework used by researchers to design SimPusTaka *websites* is Laravel. Laravel is a PHP framework that is simple and has flexibility in its design because it has features that are tailored to the needs of information system users. *The Laravel framework* has two main tools, *Composer* and *Craftsman*, which can be used as a comparison with other *frameworks*. In the development of the SimPusTaka site, researchers use *a personal home page* (PHP) to build the structure of the site. To improve the appearance of the website, researchers utilize *Cascading Style Sheets* (CSS), *Bootstrap Framework*, dan *Bootstrap Icon Tips* from several website template options available. The stages of SimPusTaka site development are carried out in accordance with the previous steps, namely in the data networking and planning phases.

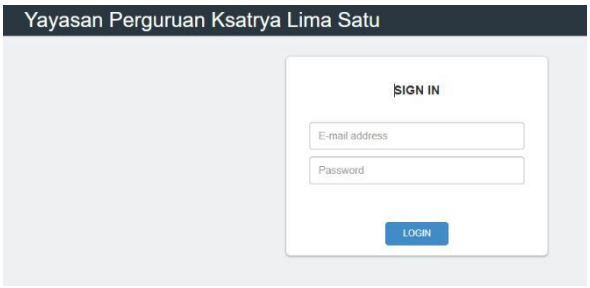


Figure 4. Login feature

When designing the SimPusTaka *website*, the login function created by the researcher can be used by administrators to manage SimPusTaka. To use this login function, the administrator must enter an already registered email address and password. If the *username* and *password* entered are correct, then the login will be successful.

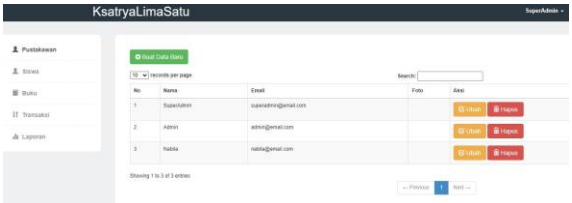


Figure 5. Librarian Features

DOI : 10.21009/improvement.v10i1.34320

Furthermore, researchers create Librarian features on the admin page on the admin page which contains account names, *emails*, photos. The Librarian feature on the admin page is useful for entering, changing, and deleting information about the librarian needed.

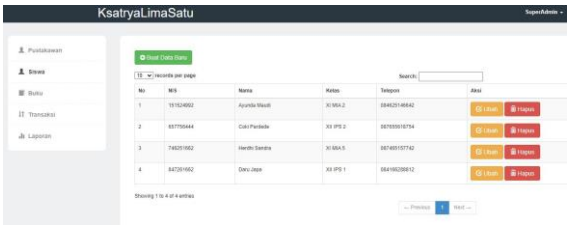


Figure 6. Student Features

Furthermore, researchers made a Student feature on the admin page which contained no, NIS (School Parent Number), Class, Mobile No. The Student feature of the admin is used to enter, edit, and delete required student information.

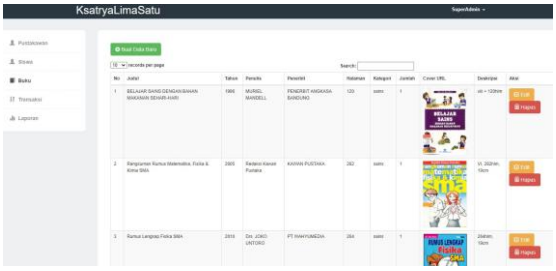


Figure 7. Book Features

After that the researcher made a Book feature on the admin page which contained no, Book Title, Year, Author, Publisher, Page, Category, Number, Cover, Description. The book feature on the admin is used to enter information, edit and delete necessary book information.

Figure 8. Transaction Features

The display of transaction data features contains ID, Student Name, loan date, return date, Book, member status. Then in the table the admin can enter information, edit and delete the required transaction information. This feature is used when there is a book loan transaction and the admin can enter the loan date

Figure 9. Home Features

Jurnal iMProvement Vol. 10 No. 1, Juni 2023
DOI : 10.21009/improvement.v10i1.34320

After creating a page for admins, the researcher created a Home Feature that is useful for providing information related to SimPusTaka profiles, remarks from the head of the foundation, and contact information that can be contacted by users.

Figure 10. Book Search feature

Researchers have set up a book search facility to provide users with information on the subject. Users can search for books based on keywords from the title or author of the book. In addition, there is a description of which books are available or not available on the *website*.

Figure 11. Features About Us

Researchers have set up a book search facility to provide users with information on the subject. Users can search for books based on keywords from the title or author of the book. In addition, there is a description of which books are available or not available on the *website*..

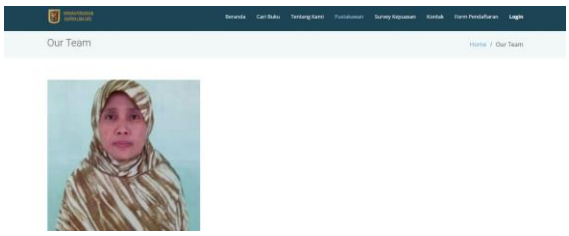


Figure 12. Librarian Features

The Librarian Data feature will contain the data of the librarian of the Ksatrya Lima Satu College Foundation needed by users. Librarian data consists of photos, full names, nicknames that can help *users* to get to know librarians at school.

DOI : 10.21009/improvement.v10i1.34320

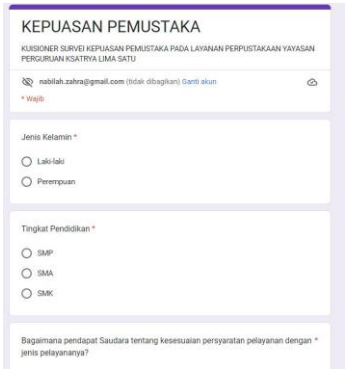


Figure 13. Satisfaction Survey Features

After that, researchers created a User Satisfaction Survey Feature. In this feature, all users can fill out through a link connected to a google form to provide an assessment on the library services of Yayasan Perguruan Ksatrya Lima Satu.

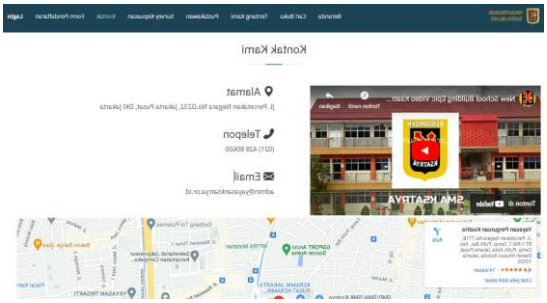


Figure 14. Contacts feature

The next feature developed in conjunction with the SimPusTaka theme is the contact feature. If users want to give feedback or ask questions about SimPusTaka. Can use our contact features which include address, phone number, email and map. User contributions are an improvement for researchers in the development of SimPusTaka.

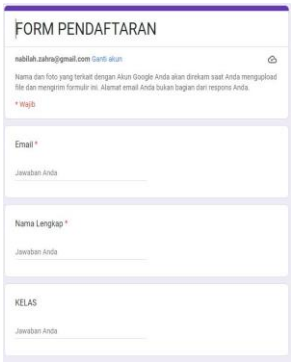


Figure 15. List Form Features

The Registration Form feature can make it easier for users who want to borrow books then they must create an account first by filling in *the google form* link. Furthermore, the librarian will give a new account to the *user.*

CLOSING

SimPusTaka, a Library Management Information System developed at Yayasan Peguruan

Jurnal iMProvement Vol. 10 No. 1, Juni 2023
DOI : 10.21009/improvement.v10i1.34320

Ksatrya Lima Satu, is designed to facilitate library services and management by officers. With this system, officers can monitor the availability and list of the latest books, as well as the process of borrowing and returning books efficiently. Users, both when borrowing and returning books, do not need to wait for a long time because of the SimPusTaka facility. This information system can increase the effectiveness of library management because it makes it easier for users when searching for books will be faster, freer and more comfortable.

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