Development of Digital Library E-Lib in Library of State Polytechnic Of Creative Media, Indonesia

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Abstract. With the passage of time and the abundance of information available, the available data cannot be contained in a single library or documentation and information center. The development of technology in general in informatics and telecommunications has rapidly grown. A new type of library, the digital library, was created due to technology. This research seeks to address the challenges of the current conditions where the Polimedia Library does not yet have access to digital library applications. This research aims to address the challenges of the times by developing a digital library page for Polimedia. This research is development research, also known as research and development (R&D). The primary method of development commonly used is the development model proposed by Borg and Gall. The instruments used in this study are documentation, assessment formats, and FGDs to see the ease of use of digital library products. The development of Elib Polimedia is carried out through several stages, including the basic installation scheme to form a digital library system using SLimS. The testing process uses a black box testing scheme by several users of the Elib Polimedia Library system.

Keywords: Library, Digital, Slims, Elib

1 Introduction

Globally, the era of advancement of information and communication technology has developed rapidly. The ease of obtaining information from different parts of the world can be achieved in fingertips and seconds. Even the benefits of using technology and multimedia also increase interest and interest in learning [1]. The tremendous advances in various fields of science have led to an abundance of information in this world, so that with the information available today it is impossible to accommodate a single library or any documentation and information center in one place only.

At this time, the application of information technology has spread to almost all fields, including libraries. The library as an information management institution is one of the rapidly growing fields of information technology applications. Information and Communication Technology has become an integral part of global life. Therefore, all institutions, including libraries, are competing to integrate ICT to build and empower their academic community to compete in the global era.

A campus has a great responsibility to the functioning of libraries in the higher education environment by paying attention to the academic community and adapting to the growth of science and technology. Therefore, it requires updating and modernizing the library system that

is adapted to the growth of technology, so that it can share maximum services for users. Libraries are still depicted with images of bookshelves arranged long with desk books even though with this internet era, libraries must also advance themselves in digitization because now the character of someone who wants to find information has switched to digital media and libraries should take on this role as a leading of literation sources [2]. Basically, digital libraries are the same as using libraries in conventional concepts, it's just that they use a work mechanism based on personal computers & digital power origins [3].

In the current era, there are many methods of developing an information system based on a Content Management System (CMS). One of them is CMS in the field of libraries that is better known in Indonesia, namely SliMS (Senayan library management system). Senayan library management system (SLIMS) has succeeded in becoming the most widely used software by libraries in Indonesia, even already used by libraries abroad. According to information from the official website, http:slims.web.id/goslims/, until now for the latest application, portable SLIMS 8 64 bit (x64) alone has been downloaded 695,838 times [4]. SLIMS is a free and open source library management software or FOSS. The SLiMS license is a General Public Lisence (GPL) version 3 that guarantees the freedom to obtain, use, study, modify and distribute to other parties on the condition that it does not eliminate authorship information and changes it with other licenses [5]. This software can not only be used to develop library automation, but can also be used to manage digital collections (build digital libraries) and manage audio and audio-visual collections that can be enjoyed directly through the web streaming facility provided by Senayan. This SLiMS application is one of the library automation systems that can carry out library processing activities such as Online Public Access Catalog or OPAC searches, circulation services, bibliography, membership management, reporting and control of serial publications automatically [6].

This digital library system certainly brings positive changes in the library world which is very helpful for librarians and library users because it has a service system that is more instant, accurate, and lightning. This is realized by changing the system of library management methods that use data technology.

Polimedia Library Services are still considered less efficient and effective with conventional service methods today both in the search for sources of information and the process of borrowing and returning loans. This conventional service makes access to information or references only accessible during working hours and must also come directly to the library. This is considered less practical because it takes longer when compared to using SLiMS. Based on this presentation, the writing team intends to carry out Development Research with the title "Development of SLiMS-Based Digital Library E-Lib in Polimedia Library".

2   Research Methods

The data collection technique in this study started from Focus Group Discussion (FGD) by conducting a visit for a comparative study to 4 libraries that became a source of ideas because the digitization of the library has been running very well, namely: the National Library, the DKI Jakarta Provincial Library Office, the Library of the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia, and the Library of the Ministry of Education, Culture, Research, and Technology. The development model is the foundation in developing the product to be produced in this research process.

The development model applied to this research is a development model by Borg and Gall as cited in Emzir (2013). The use of this model is because it includes systematic guidance regarding the steps that the researcher will go through until the product he makes is said to be feasible based on applicable eligibility standards. The researcher will make these steps simpler according to what is needed by the researcher, the steps in this study are:

1. Initial Stage: System Planning Stage
2. Second Stage: SLiMS Method Installation
3. Third Stage: Product validity
4. Fourth Stage: Elib Testing of Polymedia Digital Library

In this research method, it is divided into 2 flowchart sections to support the application of e-libraries using slims, namely the research flowchart, and the admin / member flowchart

In this research flowchat, several stages of research are outlined starting from the design stage based on needs analysis data in the Polimedia Library, as well as several references to literature studies from several government institutions in the use of CMS SliMS.
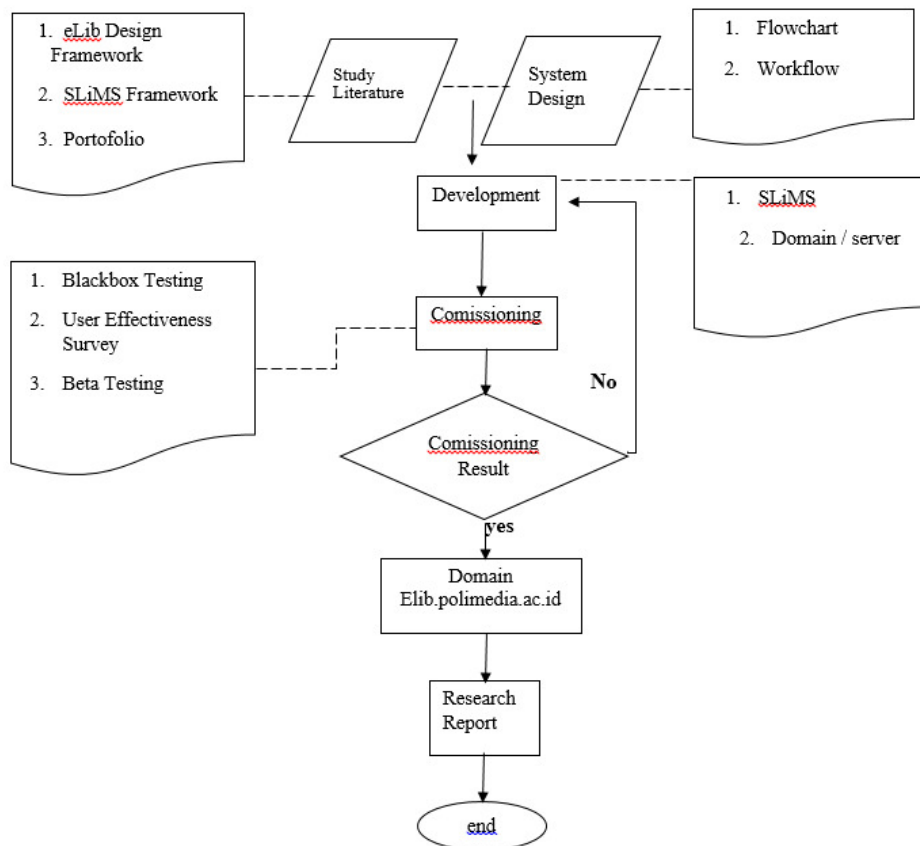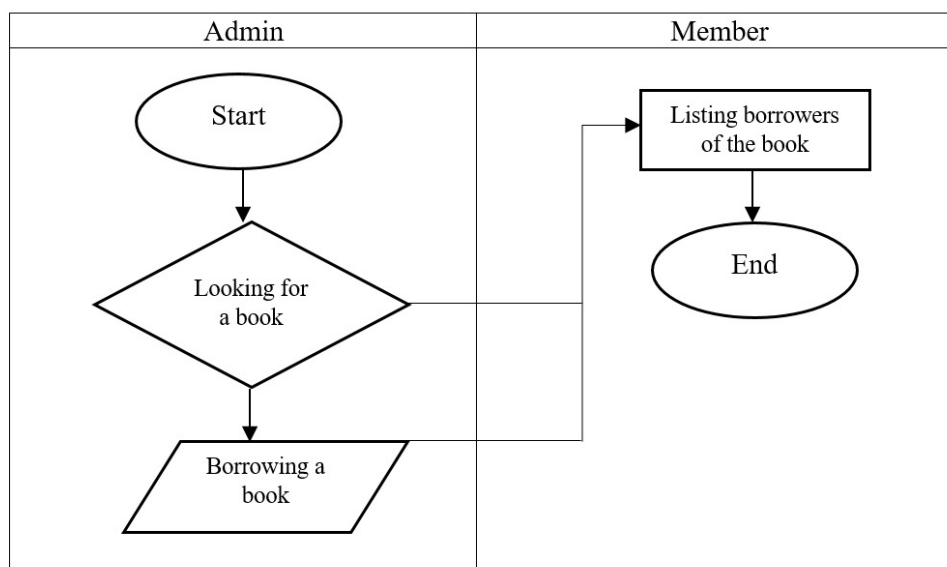

Fig. 1. Flowchart Research

Another one is admin flowchart. Members of the Polimedia Digital Library In this flowchart section, the basic book lending scheme can be used as a reference for creating a system, where the needs of the role (user) will be adjusted at the time of the development needs of the Polimedia library e-library system.

**Fig. 2.** Flowchart Admin/Members of Library

Data collection techniques in this study are documentation, assessment sheets and FGD results. The validity applied to this study is a type of logical validity. Data collection was carried out by means of FGDs with expert speakers. After the data is obtained, the next is the data analysis technique carried out in the form of quantitative descriptive analysis to determine its validity and practicality. 4.3 Outputs of Each Stage To achieve the expected results, an output of each stage carried out during the research process is made which can be described as follows:

1. Planning of FGD mechanisms for data collection
2. Initial products that have been developed
3. The product has been validated
4. Products that have been tested
5. Final product validation and trial results.

3. Result and Discussion

The development of polymedia elibs is carried out through several stages, including a basic installation scheme to form a digital library system using SLimS.

First stage is Installation using Directory Method. The preparations and stages carried out in developing a digital library at Polimedia are divided into several stages. Researchers used the directory method installation scheme, namely the SLiMS installation file bulian 9.42 placed directly on the Kernel Based Virtual Machine (KVM) server owned by Polimedia. In directory management, researchers use a non-licensed panel, namely Cyberpanel, so that it can be easier to operate than using the command line.
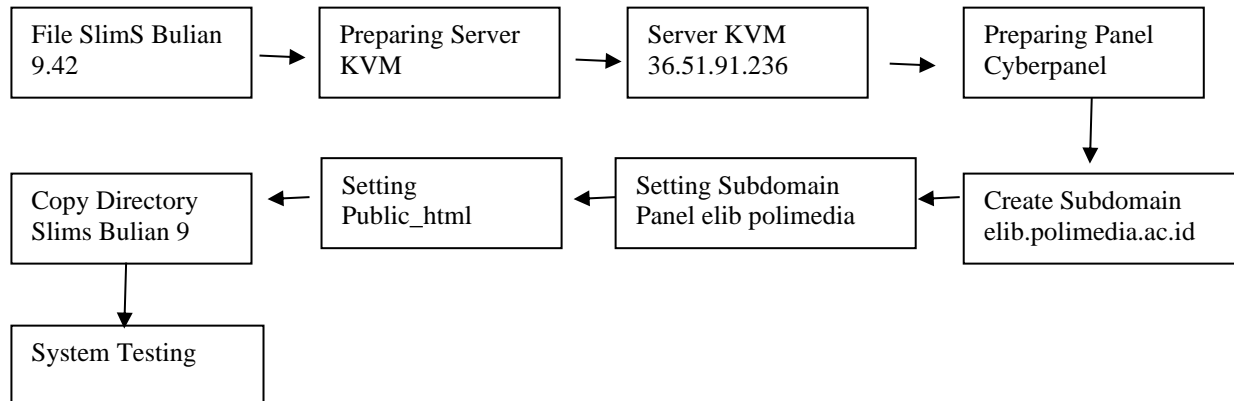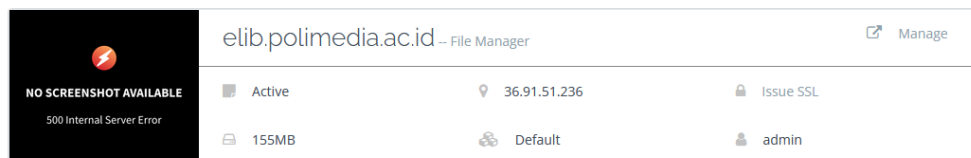
Fig. 3. Installation Process Flow of Elib Polimedia Directory Method
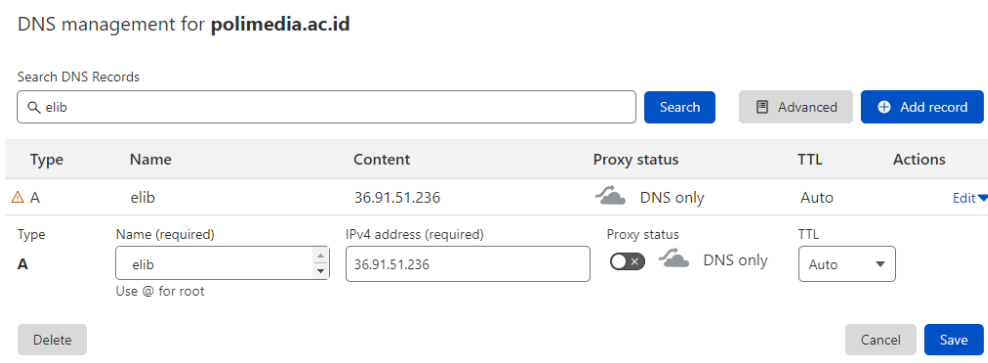
Fig. 4. Elib subdomain creation on cloudflare cdn

The next stage during the digital library SLiMS installation process is the mapping of elib.polimedia.ac.id subdomains in the Polymedia's Domain Name System (DNS) Management and internet protocol (IP) address-based 36.91.51.236.


Fig. 5. Elib Polimedia File Management Management

In the panel, the next process is to migrate directory data to activate digital library services by copying the SLiMS 9.42 Bulian directory file, and setting Issued SSL, so that elib.polimedia.ac.id security features have a good level of SSL security.

Fig. 6. Data Manager Public Html Elib polimedia

Customization of the design and management of the SLiMS system of the Digital polymedia library can be done in the order of the public html directory. On Server 36.91.51.236, the digital library installation directory is performed separately with the digital library storage database. This is done to avoid the risk of complex data loss when used [7].
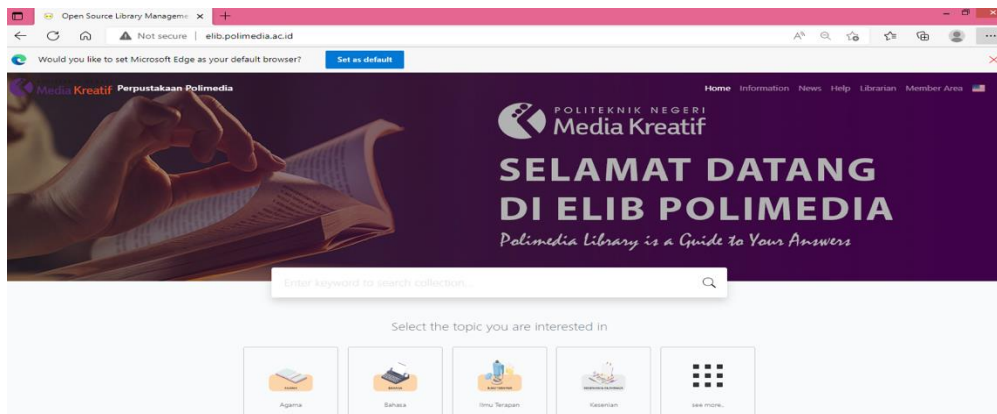
Fig. 7. Elib Polimedia Homepage

The results of the installation of the digital library elib development can be accessed through the elib.polimedia.ac.id website, Customizations made by researchers change various displays to make it easier for visitors to the polymedia digital library to find the desired book. Some of the categories provided include:

- Religion
- Language
- Applied Sciences
- Social Sciences
- History
- Art
- Literature
- Science
- Philosophy
- General

The final step is testing. The testing process uses a blackbox testing scheme carried out by several users of the Polymedia Library Elib system.

Table 1. Testing. Testing is carried out by some testing scenarion.

No	Scenario Testing	Test Case	Expected Results	Testing Results	Conclusion
1	Librarian Registration Process	Input: Form data	The system data form accepts and will display the registration data field	As Expected	Valid
2	Login Process	Input User Code and Password	System Password will accept and will display the login interface	As Expected	Valid
3	Form: Select Book Category Library	Input: User performs a search query.	The system will receive and display a page of book search results category.	As Expected	Valid
4	Form: Book Borrowing	Input: Admin checks Book Availability data	The system will display the available book data.	As Expected	Valid
5	Digital Book Display	Input: User can select Digital Book	System will receive and display Digital Book display data	As Expected	Valid

4. Conclusion

The development of Elib polymedia was carried out through several stages, including a basic installation scheme to form a digital library system using SLimS. The preparations and stages carried out in developing a digital library at Polimedia are divided into several stages. Researchers used the directory method installation scheme, namely the SLiMS installation file bulian 9.42 we placed directly on the Kernel Based Virtual Machine (KVM) server owned by polymedia. In directory management, researchers use a non-licensed panel, namely Cyberpanel, so that it can be easier to operate than using the command line. The results of the installation of the digital library elib development can be accessed through the elib.polimedia.ac.id website. The customization made by the researchers changed various displays to make it easier for visitors to the polymedia digital library to find the desired book. The testing process uses a blackbox testing scheme carried out by several users of the Polymedia Library Elib system. The development of ELib Polimedia has gone well, hopefully Developer Slims can develop more features.

Acknowledgements

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References. All references must be in the same format as the ones at the end of this document and the reference list must include all cited literature.

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