

WEB-BASED LIBRARY SYSTEM OF SMKN 8 BANDUNG

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ABSTRACT

Data collection is generally done manually, but this has drawbacks, namely that the archive becomes disorganized, and searching for data takes quite a lot of time. Likewise with library management at SMKN 8 Bandung, data collection is still manual so there are often many mistakes. For this reason, it is necessary to have a web-based library information system where data management will be more organized. The research method used is Research and Development (R&D) with the Extreme development method Programming . Methods of data collection using observation, interviews, and literature study. The interview method is used to determine user needs, a questionnaire questionnaire is used to test the feasibility of the usability aspect , while the observation is for testing the performance aspect. efficiency . The result of this research is a web - based library information system using PHP language and MySQL database server . The test results proved that the level of feasibility of a web-based library information system in the usability aspect of small groups with very feasible criteria.

Keywords : Extreme Programming , Information Systems, Web

ABSTRAK

Pengumpulan data umumnya dilakukan secara manual, namun hal ini memiliki kekurangan yaitu arsip menjadi tidak teratur, dan pencarian data memakan waktu yang cukup lama. Begitu juga dengan pengelolaan perpustakaan di SMKN 8 Bandung, pendataan masih dilakukan secara manual sehingga sering terjadi banyak kesalahan. Untuk itu perlu adanya sistem informasi perpustakaan berbasis web dimana pengelolaan data akan lebih tertata. Metode penelitian yang digunakan adalah Research and Development (R&D) dengan metode Extreme development Programming. Metode pengumpulan data menggunakan observasi, wawancara, dan studi kepustakaan. Metode wawancara digunakan untuk mengetahui kebutuhan pengguna, angket kuesioner digunakan untuk menguji kelayakan aspek usability, sedangkan observasi untuk pengujian aspek kinerja. efisiensi. Hasil dari penelitian ini adalah sistem informasi perpustakaan berbasis web dengan bahasa PHP dan database server MySQL. Hasil pengujian membuktikan bahwa tingkat kelayakan sistem informasi perpustakaan berbasis web pada aspek usability kelompok kecil dengan kriteria sangat layak.

Kata kunci : Extreme Programming, Sistem Informasi, Web

1. PRELIMINARY

Currently in the educational environment, the library is a learning facility to find information or knowledge for its users. The library has a meaning as a place in which there are management activities, dissemination of various information, both printed and recorded in various media such as books, newspapers, films, tape recorders, magazines, computers and others. Digital libraries are needed to support the implementation of education and teaching, as well as community service and service. In this global era, there are various libraries that apply information technology, so as for the term virtual library, electronic library, digital library and so on. However, it must be remembered that experience shows that most libraries in Indonesia, specifically in the world of education, especially in vocational schools, do not yet have the ability to apply IT, so there must be a special strategy to develop a library from conventional form to digital form. The obstacle that occurs is the need for a large amount of money because to digitize a document from print to digital it takes several stages, namely the scanning, editing, protection or security process, intranet network and also requires a computer that has a high enough performance or capacity.

The library of SMKN 8 Bandung as an agency that provides library materials as a source of information requires a computerized system to process data and to carry out library work activities. This is done because the library of SMKN 8 Bandung has not utilized the computer system effectively to carry out its work activities, while the number of visitors who want to get sources of information is increasing. The library of SMKN 8 Bandung still uses the concept of a library that is far older in facilities than the system that has been used in digital libraries. Users are still looking for books manually, that is, by looking for books one by one in the library or looking for them from one shelf to another. Not even once happened that the book you were looking for was not found, so this was very troublesome for library users. Not only library users who have difficulty, librarian also experience the same thing. Librarians have difficulty in processing data related to information on borrowing books, returning books, and book data. This is certainly very difficult for officers when they will provide book borrowing reports, book return reports and make it difficult for officers to find the title of the book that users want because the mapping of the book is still unclear.

The convenience of visitors to register, get information about library materials and to carry out transactions on borrowing library materials is something that needs to be considered. In addition to these things, computerization will also assist management in making decisions. Based on this problem, it is proposed to update the old system into a new information system with web-based computer technology. Therefore, the author focuses an idea on processing an information system to be published. Therefore, the author will take the title "WEB-BASED LIBRARY SYSTEM OF SMKN 8 BANDUNG" which is expected to make it easier for students to be able to do the process of borrowing books online .

2. RESEARCH METHODS

2.1 Method Development Device Soft

Study this use approach research and development or Research and Development

(R&D) is method purposeful research _ produce product certain as well as test effectiveness product that . The main goal is that the company can launch an original product or service optimally. In the app development something product requires a model for the development process , while stages in development device soft often called with the Software Development Life Cycle.

The development model in research using Extreme Programming . Extreme Programming is a model that is included in the agile approach introduced by Kent Back . This model tends to use an Object-Oriented approach . The stages that must be passed include: Planning , Design, Coding , and Testing.

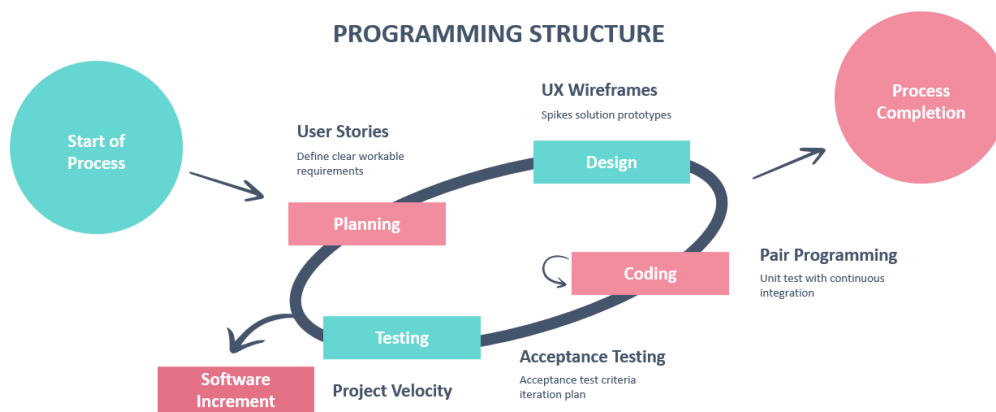


Figure 1. Illustration of Extreme Model Programming

Our approach _ in build n something system information library this use method Extreme Programming where stages development started from :

1. Planning (Planning)

Stages start on method Extreme Programming is stages Planning . Writer To do planning together with librarians at SMKN 8 Bandung about what is needed in this library web before going to the next stage.

2. Design

The next stage is the design where at this stage modeling activities are carried out starting from system modeling, architectural modeling to database modeling according to what features are requested by the librarians of SMKN 8 Bandung.

3. Coding (Coding)

Stages this is activity application modeling already _ made into the user interface form with use language programming .

4. Testing

After the coding stage is complete, then the system testing stage is carried out to find out what errors arise when the application is running and find out whether the system built is in accordance with user needs so that

later the system that has been created can operate as expected.

2.2 Data collection technique

Data collection techniques used by the author in collecting data for the manufacture of this research are:

1. Observation (Observation)

The author made direct observations of the activities carried out in the library of SMK Negeri 8 Bandung both when students borrow books, search for books, and return books. As well as observing the transaction process carried out by librarians such as data collection on book lending transactions, book return transactions, summing fines, collecting data on books in the library, collecting data on new users (students and teachers), and making reports both daily and monthly. The results of these observations are recorded by the author and from the observation activities it can be seen how the library information system will be made

2. Interview (Interview)

At this stage the authors get information by conducting questions and answers to students and students who are in the library regarding

several things such as the process of searching for books, borrowing books, and returning books. Then do a question and answer to Mrs. Vina as a librarian about how the administrative processes that occur in the library of SMKN 8 Bandung such as data collection on book lending transactions, book return transactions, summing fines, data collection of books in the library, data collection of new users (students and teachers) , as well as the preparation of reports both daily and monthly.

3. Literature review

The author uses this method with the aim of fulfilling library data collection information to find references on how a web-based library information system and IT concept will be created, so that it seeks information by viewing, reading, and developing information related to the problems discussed to support this research.

3. RESULTS AND DISCUSSION

3.1. Design Process (Design workshop)

a. *Unified Modeling Language (UML)*

UML (Unified Modeling Language) is a method in visual modeling that is used as a means of designing object-oriented systems. Unified Modeling Language can also be defined as a standard language for visualization, design, system documentation, or also known as a standard language for writing blueprints for software .

1) Use Case Diagrams

Use Case is an interaction Among system with actors , Use Case can describe the type of interaction between system users and the system. The first step to modeling requires a diagram that is able to describe the actor's actions with the actions that exist in the system itself.

As for *the use case* from system that will be developed on the system , can seen in Figure 2 and Figure 3.

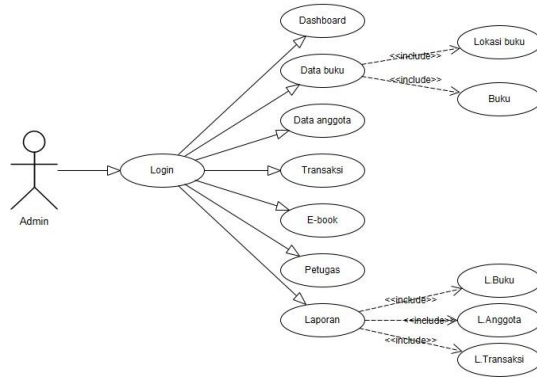
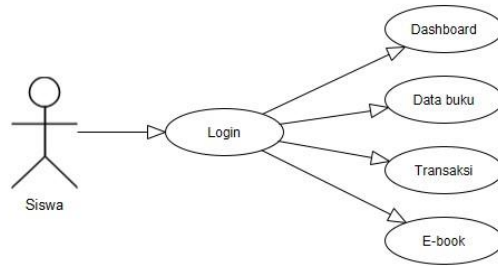


Figure 2. Use Case Admin



Student Use Case

2) Context Diagram

Context diagrams or commonly referred to as “level 0” flow diagrams are diagrams with the notation for describe connection data flow into or go out system located _ outside system (output) or receive data from in the system it (input). One of the must pay

attention to the context diagram i.e. , context diagram only use one process circle that represents all processes on the system . Next _ this is a current context diagram running at the Library of SMK Negeri 8 Bandung.

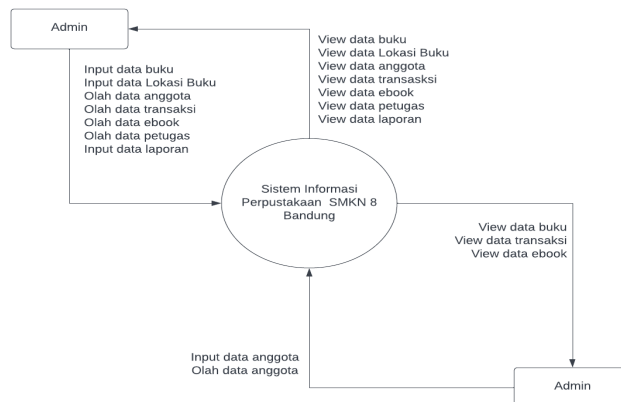


Figure 4. Data Flow Diagram Context

3) Data Flow Diagrams (DFD)

DFD is illustration of the flow of a program that is widely used to facilitate application development. DFD is a

representation chart in describe system data flow by structured and clear so that could Becomes means good documentation . _

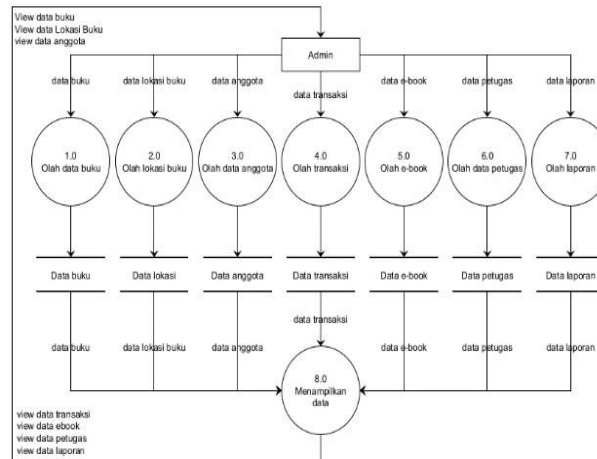


Figure 5. Data Flow Diagram level 1 admin

In the picture DFD level 1 system displaying data, it looks like the data collection process in it includes the process of recording member data with book data , location data books , member data , transactions , ebooks , officers , and reports students / i and member data updates carried out by officers library .

Flowchart (Program Flowchart) is something program flow chart that illustrates current logic of the data to be processed in a program of beginning until end . Flowcharts play an important role in deciding a step or functionality of a programming project that involves many people at once. The *flowchart* system made for the library of SMK Negeri 8 Bandung is as following :

4) Flowchart System



Figure 8. Main Page

Picture above is appearance from the website of the SMKN 8 Bandung library which is equipped with a number of features, such as loan book return _ books, and some reports that have customized with needs party library of SMKN 8 Bandung.

B. Book Stock Report

No	Lokasi	Kode Buku	ISBN	Judul	Pengarang	Penerbit	Sisa Buku	Ket	Aksi
1	1 Bag A	B-001	1180126030572	Melihat Kembang Keluarga	Ibnu	Wahya	00	tersedia	ik Print
2	1 Bag B	B-002	11112012059	Aplikasi Belajar	Nesli	Bunga	100	tersedia	ik Print
3	1 Bag C	B-003	11827887281782	Cinta Ayah	Said	Dinada	100	tersedia	ik Print
4	1 Bag D	B-004	66798988899	Titani	Muhammad Ali	Sujan Ahmad	00	tersedia	ik Print
5	1 Bag A	B-005	12345	Cintaku Anugerahku	Muhammad Ibnu	Pang Niborun	100	tersedia	ik Print

Figure 9. Book Stock Report

Picture above is report all book data in the database, and if officer wants print report the book, librarian can I enter code book or title the book you want searched.

C. Add Book Data Page

Figure 10. Add Book Data

Picture on is appearance for add title data _ new book _ into the library shelf and want entered to the library website , just with enter code book , ISBN , title , author , publisher , number books and locations shelf .

D. Report Borrowing Book

No	No Peminjaman	Nama Anggota	Kode Buku	Judul Buku	Jumlah Pinjam	Tanggal Pinjam	Tanggal Kembali	Batas Kembali	Opsi
1	P-001	Ahmad Satri	B-004	Titanic	2	26 Juli 2018	29 Juli 2018	-	Cetak Data
2	P-003	Ibrahim	B-001	Melati Kembang Keluarga	1	26 Juli 2018	29 Juli 2018	-	Cetak Data
3	P-004	Ibrahim	B-004	Titanic	2	28 Juli 2018	30 Juli 2018	-	Cetak Data
4	P-005	Ahmad Satri	B-004	Titanic	1	28 Juli 2018	30 Juli 2018	-	Cetak Data
5	P-006	Ahmad Satri	B-004	Titanic	2	30 Juli 2018	02 Agustus 2018	-	Cetak Data
6	P-007	Ahmad Satri	B-001	Melati Kembang Keluarga	1	03 Maret 2019	07 Maret 2019	3 Hari lagi	Cetak Data

Figure 11. Report Borrowing Book

This page showing all current book data _ borrowed by students and the amount books that are being borrowed . And when want to look for the book that has been borrowed can enter name student , code book , or title borrowed books , there are also features for print report loan book by selecting the print option.

E. Report Return Book

No	No Pengembalian	No Peminjaman	Siswa Peminjam	Judul	Batas Kembali	Tanggal Pengembalian	Jml Buku yang dikembalikan	Ket	Denda	Opsi
1	PM-004	P-005	Ahmad Sabti	Titanic	30 Juli 2018	01 Agustus 2018	1	Denda	Rp. 5.000	Cetak Data
2	PM-005	P-005	Ahmad Sabti	Titanic	02 Agustus 2018	01 Agustus 2018	2	Pengembalian Tepat Waktu	-	Cetak Data

Figure 12. Report Return Book

The picture above showing all return data the book that has been borrowed including amount cost the fine that must be paid by students if it happens delay in return book . And when want to look for the book that has been returned enough officers enter name student or title book and there option print if want to print report return book .

F. INPUT RETURN

Return Input Book

This page is appearance for register students who want to return what has been student borrow with enter NIS, name , code book , title book , quantity return , date loan , date return , description , and name officer .

G. Login Page

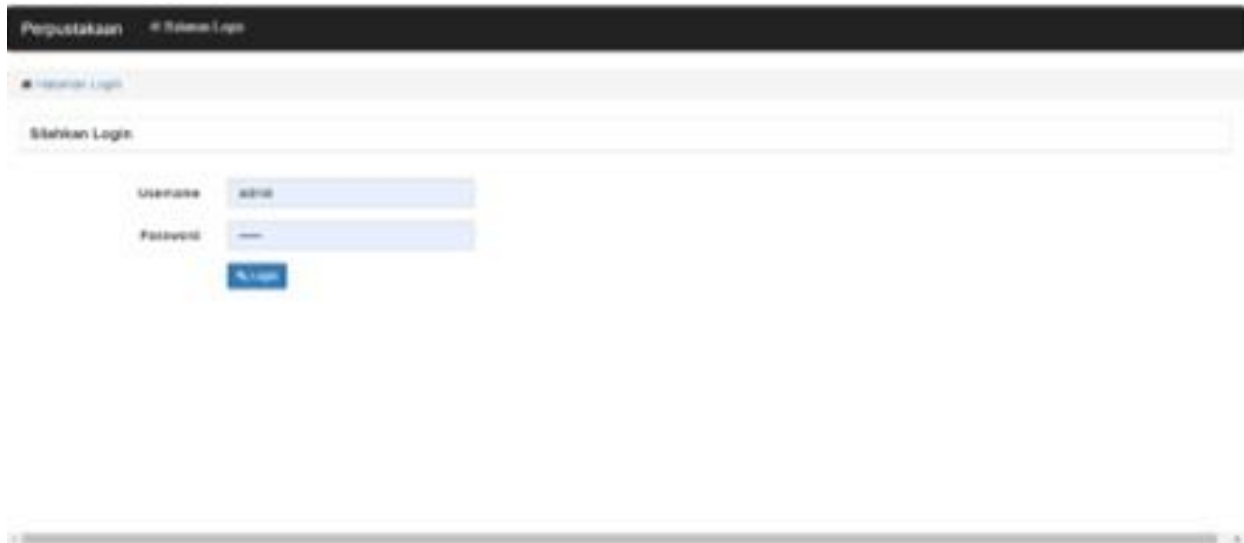


Figure 14. Login Page

This page is admin login view with Enter the admin username and password. After logging in, the admin can manage and view all These web activities include book lending transactions, book return transactions, and also making daily and monthly reports.

H. Add Member Data Page

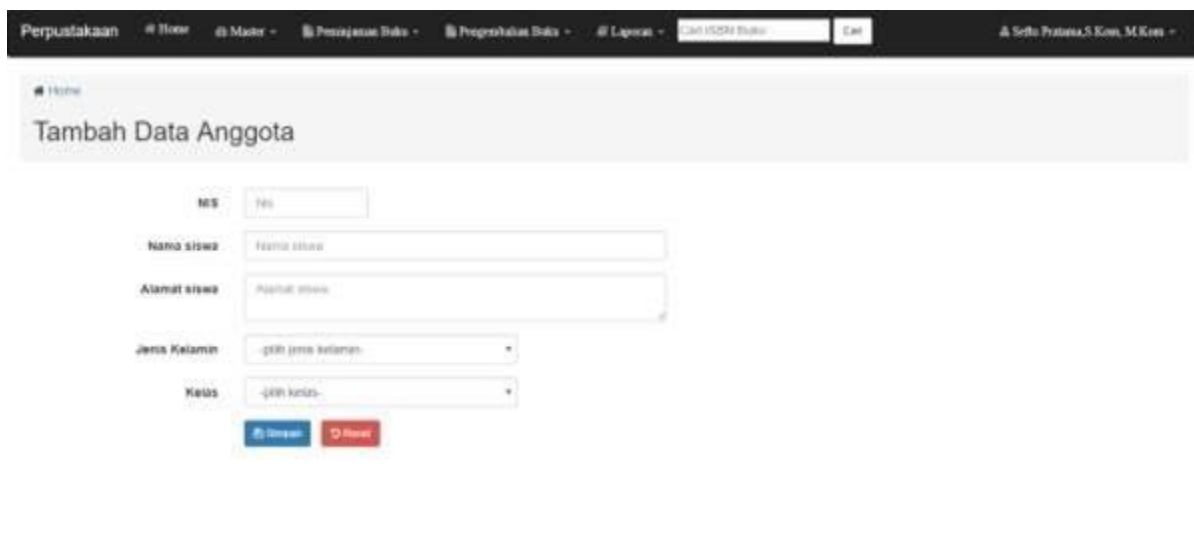


Figure 15. Add Member Data

Page above is appearance for add the member data you want entered in library killed this with how to enter NIS, name student , address , type gender , and class .

4. CONCLUSION

Based on discussion and research results that has been outlined about planning making system information library conducted at SMK Negeri 8 Bandung, can taken conclusion that with existence system information library web -based is very easy student for To do search books , borrowing books , and returns book . Not only that , officer the library is also very helpful with existence system information library in carry out the data collection process start from registration member , transaction borrowing and returning , calculation fines , data collection books , as well making report .

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