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Library Information System in PTIK UNIMA Manado

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***Abstract*—The Faculty of Engineering of the University of Manado has a large collection of books. The process of recording loans and book collections that are still done manually has caused several problems such as the loss of books, the difficulty of knowing the existence of a book. The result of this research is an application of library information system that will store all book data electronically and also the process of storing books borrowing so that the risk of losing a book will be smaller and also easier to find out the existence of a book and also increase the effectiveness and efficiency in the system. This study uses extreme methods to design and develop the application.**

Keywords—library information system; extreme methods

I. INTRODUCTION

A. Context of The Problem

Advances in information technology and science are so fast that most people easily know what is related to various information. With this, the community has more choice for information obtained in the era of globalization and communication, as shown by the many people who use computer technology to meet their needs.

This computer technology makes it possible to quickly and accurately do the work done by the operator to treat a problem that becomes an obstacle. In addition, it has many uses, such as reducing data entry errors and saving time and accuracy.

This information and communication technology program is one of the schools that still uses manual methods to present library data. To overcome this gap, the library information system will be the answer. Library information systems will improve the performance of library staff and to record books and book borrowing processes.

B. Problem Identification

Based on the context described, the problems in this study are:

- Unsuccessful library data management processes that are performed manually, resulting in less right, efficient and effective use time and energy.
- Registration library data always uses the form stored in the main book, so it takes a long time to present the information.
- Data not yet integrated will result in frequent registration of recurring data.

C. Problem limitation

On the basis of several problems that have been described in the identification of the problem, the author limits in this thesis the problem of the perimeter as follows:

- Data warehouse analysis and design uses the Pentaho Data Integration (PDA) kettle, MDX tools, and Pentaho Schema Workbench, and displays a dashboard with the Pentaho BI Sayku analytic server.
- The research data comes from student data and IP / GPA data of students benefiting from the mission of the University of Manado from 2012 to 2015.
- This research uses the Action Research method where multidimensional data development methods using the Larissa T. Moss Business Intelligence roadmap [1].

D. Purpose

The purpose of this research is to build an application of library information system that will store all book data electronically and also the process of storing books borrowing so that the risk of losing a book will be smaller and also easier to find out the existence of a book and also increase the effectiveness and efficiency in the system.

II. LITERATURE STUDY

A. Information System

The information system is a component of human beings, information technology and work rules that process, store, analyze and give information to do a goal [2]. An information system is a set of hardware and software designed to turn data into useful information.

An information system is a series of formal rules in which data is aggregated, processed into information and distributed to decision users. Information cannot be separated from an

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information system. The information system defined by Robert A. Leith [3] is as follows: "The information system is a system within an organization that groups together the daily needs of transaction processing, operations, managerial activities and strategic-report needed".

1) Steps to build an information system

a) Planning: At this point, all plans for information systems projects are developed. There are important planning points to consider when building an information system:

- Feasibility study
- Budget
- Resources
- Scope
- Time allocation

b) Analysis: Once the planning is complete, the next step is to do an analysis. The analysis consists of analysing the workflow of the current information system and determining whether the workflow has been efficient and meets certain standards.

c) Design: Once the scanning process is complete, the next is to create a drawing. Design is a very important step because this step determines the basis of the information system. Design errors can cause obstacles, even if the project fails.

d) Development: The work done at the development stage is programming. Programming is the work of writing computer program code with programming languages based on certain algorithms and logic.

e) Application and test: Implementation is a process of implementing an information system designed for users to use to replace the old information system. The implementation process is as follows:

- Notify the user (user)
- Train users (users)
- Install the system (install the system)
- Data entry / conversion
- Prepare the user ID

The test is a process designed to find the incompatibility of the results of an information system with the expected results. This discrepancy can take the form of divergences or errors of treatment (bugs).

f) Operation and maintenance: The last step is operation and maintenance. As long as the information system works, several routine tasks must be performed on the information system, including:

B. Concept of library information systems

1) Definition of the Library: The library is a space in which many books are organized by a particular system to be used as media in the search for knowledge and knowledge for everyone. With the development of activities and the inventory of a book in a library and the growing number of members, it is necessary to have an information system capable of handling all information on these data quickly.

2) Definition of library information systems: The library information system is a set of information integrated into a library. The goal is to make it easier to find library documents for users, which requires a good library information system to help the service. In creating this system, two service systems are used for the users of the library, namely an open service system and a closed service system.

III. METHOD

The method used by researchers to design this library information system is to use a software development process model, namely prototyping [4], with the following flow:

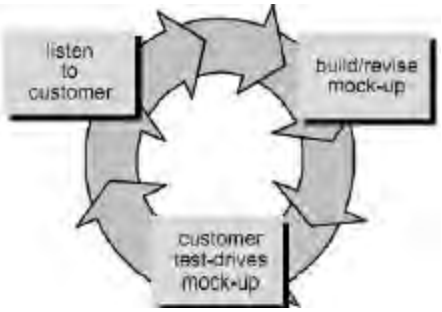

Fig. 1. Paradigm of prototyping.

A. System Development Steps

The steps of the prototyping method can be described as follows:

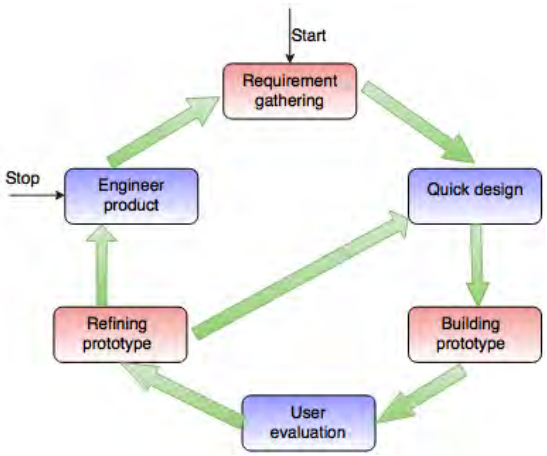

Fig. 2. Steps of the prototyping method.

1) Collection of needs: Customers and researchers jointly define the format of the entire software, show all the needs and define the system to create. The collection of needs is done by organizing meetings between clients / clients and researchers.

2) Prototype design: Once the system requirements are collected, the prototype design of the system begins. The design was done quickly and the design represented all known aspects of the system and this design became the basis for prototype manufacturing.

3) Evaluation of the prototype: The customer evaluates the prototypes created and used to clarify the software requirements.

4) Creating software by coding the system: At this stage, the agreed prototyping is translated into the right programming language.

5) System test: This test can be done with White Box, Black Box, Base Path, architecture test, etc.

6) Implementation: Once the tests are completed and the results are positive, the software is ready to be applied.

IV. Results

A. Collection of Needs

Customers and researchers jointly define the format of the entire software, show all the needs and define the system to create. The collection of needs is done by organizing meetings between clients / clients and researchers.

B. Prototype Design

Once the system requirements are collected, the prototype design of the system begins. The design was done quickly and the design represented all known aspects of the system and this design became the basis for prototype manufacturing.

C. Evaluation of the Prototype

The customer evaluates the prototypes created and used to clarify the software requirements. The above three processes (collection needs, prototype design and prototype evaluation) is done repeatedly until the customer feels satisfied the prototype is built, he needs that the system has been fully portrayed and the system is ready to be developed.

D. Software Construction by Coding the System

Fig. 3. Login page.

E. System test

Once the system has become a ready-to-use software, it must be tested before use. This test can be done with White Box, Black Box, Base Path, architecture test, etc.

F. Implementation

Once the tests are completed and the results are positive, the software is ready to be applied. Software tested and accepted by customers is ready for use.

V. Conclusions And Suggestions

A. Conclusion

- Using the library information system, you can optimize the library's data management process and streamline the use of time and energy.
- The data in the recording library will be easily implemented.
- The data will integrate to cut the recording of recurrent data.

B. Suggestions

- Can be developed with the use of bar codes to cut borrowing time.
- Can be juxtaposed with the SMS gateway system to remind borrowers of the problem of maturity.

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