



Mobile-Based National University Online Library Application Design

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ABSTRACT

National university library services are still fairly manual because each process is still using paper book loan forms so there is no efficiency in the use of time and energy, besides the library extends the range of information provided to all national university students by building an application based on an Android-based library information system. In enhancing a process of development, an android-based library information system is built, using the system development life cycle (sdlc) method, which is an information system approach method used in making and developing applications. The goal is to achieve this research is to produce a library application that makes it easy for each book loan transaction to students can be done easily without any manipulation of making data that still uses forms. The desired result of this researcher is to make it easier for library members and their officers in making book loan transactions, making it easier for data processing.

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1. Introduction

With the advancement of current technology in information and communication data that can be obtained on smartphones, the impact of the increase in smartphones in this era is getting faster in finding information and jobs become easier. Smartphones provide many benefits in information, the internet and devices such as mobile are increasingly sophisticated, with this technology it is very easy to use and reach the applications needed. Because the library is a source of knowledge, libraries need a proper and agile system [1].

Library is one of the facilities that provides a source of information data in the educational process, especially with the large amount of information data and the development of a technology today. Especially in mobile mobile device technology. Access and retrieval of information in this digital era is getting easier and more nimble. This development can also affect the way a person processes transactions to enter a system. Because libraries are a source of knowledge, libraries need a proper and agile system in the transaction processing in the library.

The National University Library service, which is still manual, is still filling out the book borrowing form and signing the borrowed paper, of course this creates problems for members who want to borrow books that are less efficient because it takes longer, not to mention the manual loan transaction process. This opens the opportunity to manipulate data in filling out the book loan form.

Therefore encouraging the author to create a system to solve problems with an Android-based book lending system for library members. Through this application, it is hoped that it will help registered library members to facilitate the process of borrowing books from librarians and shorten the process of borrowing books from the library.

2. Method Research

In this research method, the author uses one of the information systems approach methods used in the development or creation of a System Development Life Cycle (SDLC) application [3].



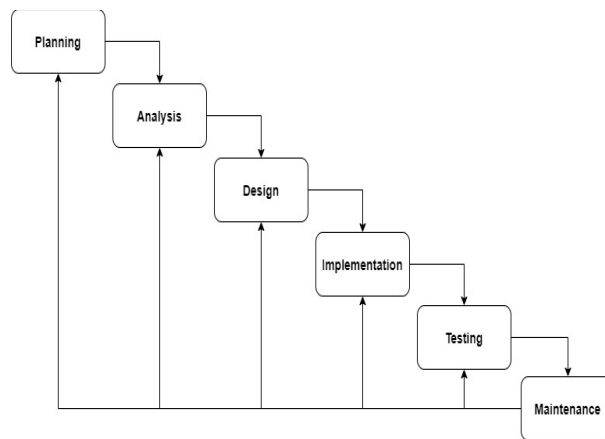


Fig 1. System Development Life Cycle (SDLC)

All activities in the actual SDLC method are closely related and interdependent [8]. Therefore in practice development can occur repetition and run at the same time, and before repeating the modification in the system, a system analysis is needed to improve the application system.

- a. Planning At this stage, a planning process is carried out that will design a study on an online library application and collect comparative data that has the same characteristics.
- b. Analysis or the analysis of this stage is the process of solving several comparative data so that small problems can be easily understood in the method that will be made.
- c. Design or The design of this stage will create an interface application display, create an application system flow and design an Android studio application. First, the flow will be made starting from the application display, the collection search features in the application, making a description of the library identity.
- d. The implementation will be made a java programming based on android studio, from the server and client side.
- e. Testing This stage requires an Android smartphone to install applications that have been made in the programming process in Android Studio.
- f. Maintenance This stage describes a maintenance program or application that will be developed later so that it is better and easier to understand.

The results of the research based on the analysis of kebutuhan, in the form of the implementation of the android-based library book lending system can be explained below:

A. System planning

The design system is carried out to describe a process that occurs in the system to be built. This stage is carried out in order to be more specific, design, design and document the types of a unified modeling language (UML) diagram application used, consisting of: use case diagrams and activity diagrams [10].

a. Use case diagram

Describe the interactions that occur between one or more users and the system to be built in detail.

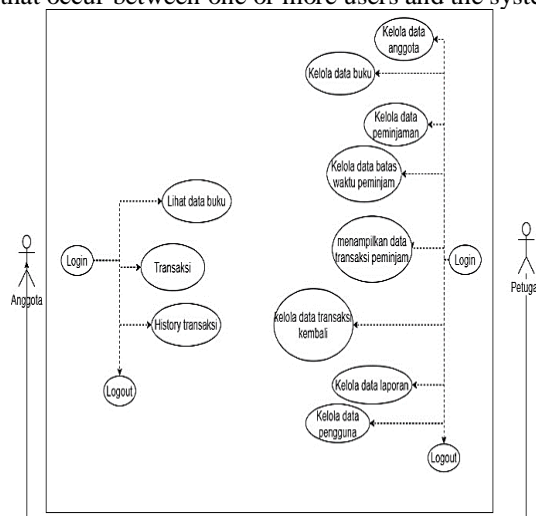


Fig 2. USE Case diagram

Figure 2 shows the design on the USE Case diagram of the library design system, based on the USE Case, it can be seen that there are two users, namely librarians and library members who through the existing application can see a list of books and carry out transaction processes.

b. Activity Diagram

Provides an overview of the activities that occur between the system and the user to be built. The activity of officers can be seen in the process of showing the activities carried out by librarians and library admins to the system used. In the diagram below, it is explained in detail that the stages of activities carried out by officers on the system used are starting from the process of entering into the system and managing the system and leaving the system.

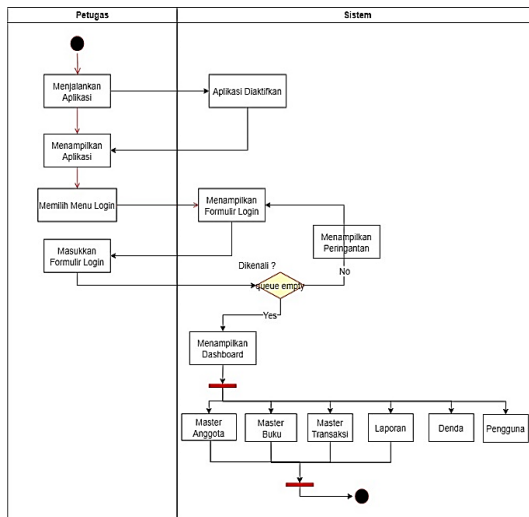


Fig 3. Admin diagram

In Figure 3. There is an activity diagram for the admin. The first step of the admin starts from logging in first to controlling a mobile application via the web to displaying the main page on the dashboard then the admin will input from the availability of book data collections, a loan transaction, fines for late returning the book to approving the borrower.

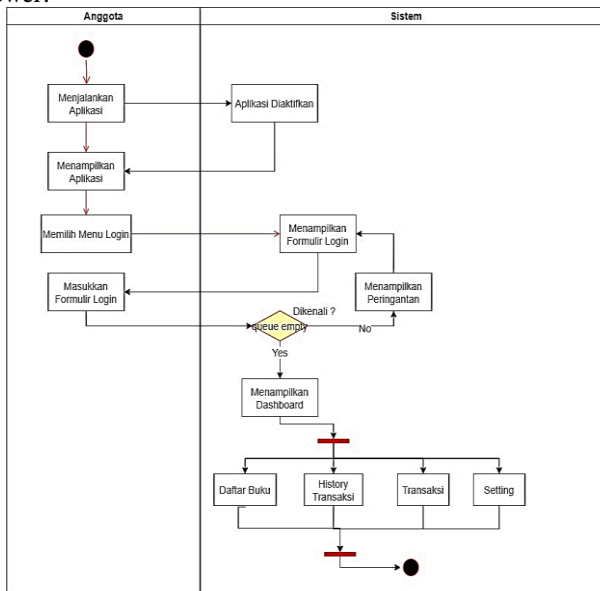


Fig 4. Member diagram

In Figure 4. there is a diagram on the library members showing the activities of members with the library system, starting from logging in to the application, viewing a list of book collections, making borrowing transactions to viewing borrowing history and logging out of the system.

3. Result And Discussion

A. Mobile Page Views

The mobile page display is designed for library member users as a transaction medium when members want to borrow books from the library.

1) Login page display

To create an account on the mobile application, the first thing that must be done is that we have to register with the library before accessing a library application. After registering, new members can log in to applications that are already available on the mobile application.

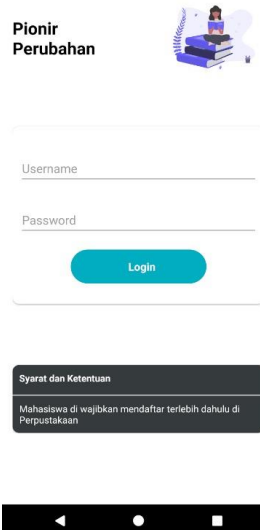


Fig 6. Login application

2) Good looking main menu

The main menu display is provided directly by books that are registered on the web admin or web officer, transaction history pages, basket pages, and settings.

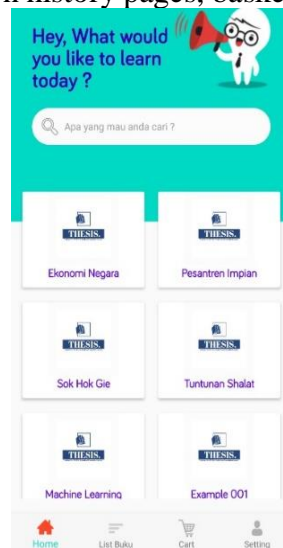


Fig 7. The main menu of the application

3) Detail page view

On the book detail page display, which contains information about the collection of books that exist in the application.

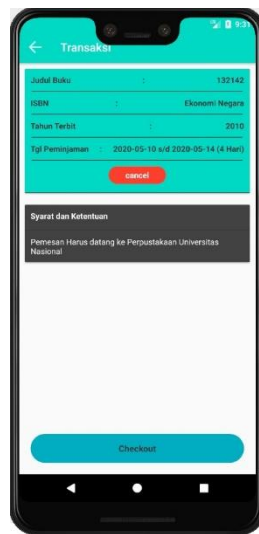


Fig 8. Detail

4) Empty Stock Detail Page Views

The blank stock detail page has the same design, but if the stock of the book you want to borrow runs out, input the borrow date, return date, and the add to cart button cannot input data and the button section changes color with information that uses empty stock.

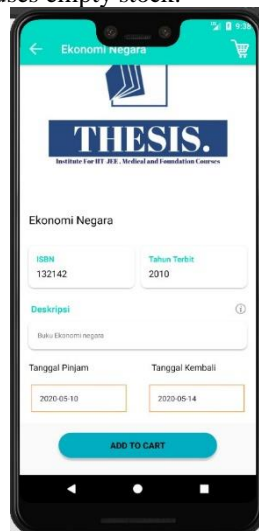


Fig 9. Deatai empty stock

5) Display of loan transactions

At this stage the user will get information about the book ordered by the user to place an order or cancellation of a book loan order.

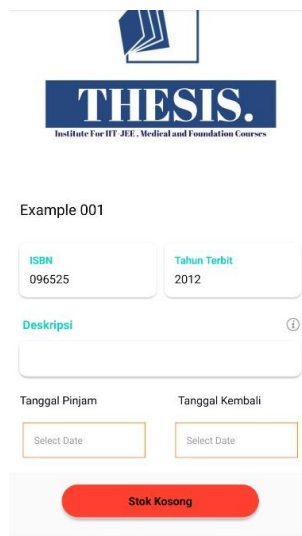


Fig 10. Borrowing transactions

6) Transaction history display

On this page, if the user has made a book loan transaction and the book has been returned, the information display will turn green and if the loan book has not been returned, the color is still red.

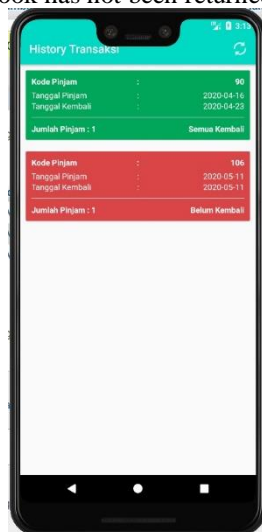


Fig 11. Loan history

4. Conclusion

From the results, from this research on the Android-based mobile library system, it can make it easier for library members and librarian. In carrying out a transaction process for borrowing books, provided that National University students can access the application. All activities of the borrowing process will be recorded on the admin and library staff web pages, which will then be processed by library officers and admins. The system can process loan transactions to be more effective and there is no fraud in the process of borrowing books. For further research, there will be a book reading mode so that students can read books from anywhere so they don't have to come to the library to read books.

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