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Design of a Website-Based Thesis Management System Using The Rapid Application Development (RAD) Method

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Abstract

This research on a web-based thesis management system aims to simplify the process of collecting and documenting students' theses, allowing them to be used as references for those currently working on their final projects. The system is developed using the Rapid Application Development (RAD) method, as this approach enables the rapid and flexible creation of prototypes that adapt to user needs. The system design includes several features such as abstract submission, thesis document uploads, and DOI publication links. In addition, it provides document preview and download functionality. The outcome of this design is a user-friendly interface that assists students in accessing and retrieving documented digital theses as references. It is expected that this system will serve as an initial step toward the digital transformation of thesis data management and can be further enhanced in the future according to emerging needs.

Keywords: *Thesis Management System, Web-Based Application, Rapid Application Development (RAD)*

1. Introduction

Thesis management is a crucial process in higher education for managing the stages of a student's final project. However, many still perform this process manually, such as collecting physical documents and storing them. This often leads to theft of thesis data and difficulties in searching for thesis references.[1]

With the advancement of information technology, thesis management can be optimized through a web-based information system. This system allows users, such as students, to access thesis data anywhere, upload documents, and search for references at any time. This web-based thesis management system is designed using the Rapid Application Development (RAD) method, which is known for its flexibility and rapid processing.[2]

The purpose of this research is to design a thesis management system that facilitates the collection of thesis documents, supports reference searches, and provides a user-friendly and easy-to-use interface.

2. Theoretical background

2.1 Thesis Management

Thesis management is the process of planning and organizing the stages of a final project, including thesis document collection and digital archiving. These features ensure that data is structured and easily accessible.

2.2 Web-Based Information System

A web-based information system is a system that can be accessed directly via a browser without additional installation, increasing user flexibility and efficiency.

2.3 Rapid Application Development (RAD)

RAD is a software development method that emphasizes a very fast process, flexibility, and user involvement. Its stages include requirements planning, design, system construction, and testing.[3]

3. Research Methods

This research uses the Rapid Application Development method, which involves several stages:

3.1. Rapid Application Development

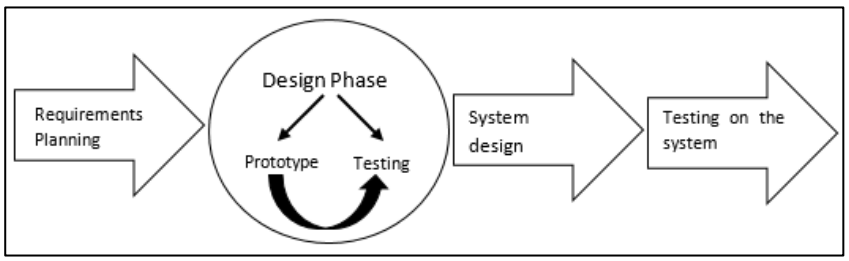

Fig. 1: Rapid Application Development

Stages that must be passed in designing a thesis management system:

1. Requirements Planning
   Identifying system requirements
2. Design Stages
   Create user-friendly and functional interface designs in the form of wireframes, layouts, and initial prototypes, such as visual menus, that illustrate the appearance of the website to be designed.
3. System design
   Developing a more detailed system after the basic design phase is complete is necessary to ensure the system runs smoothly and to ensure the steps involved in writing/building a website are executed correctly.
4. Testing on the system
   Once the prototype has been implemented into a ready-to-use system, it allows testing of the thesis management system design, allowing the system to identify errors during user testing.

4. Results And Discussion

This system focuses on student thesis documents, making it easier for students to access references and reducing the risk of losing printed documents.

4.1. Website Interface

1. The **Dashboard** page displays the number of documents uploaded by the user.

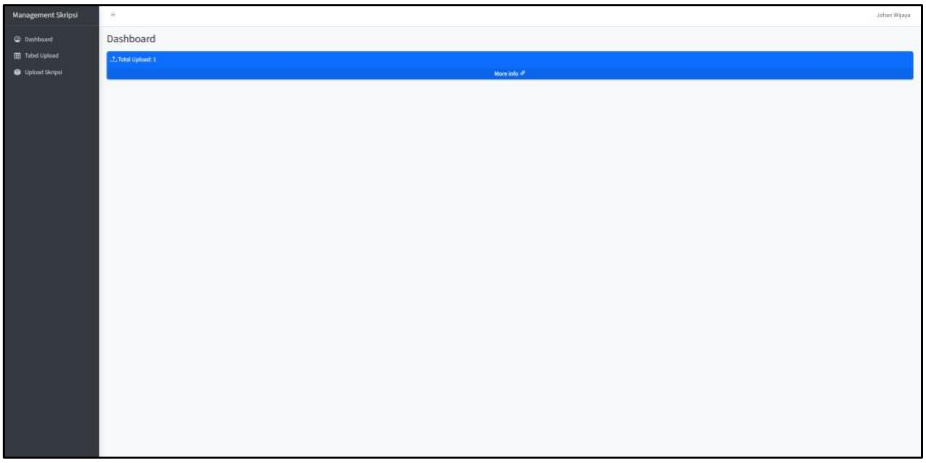

Fig. 2: Dashboard Page

2. This **Upload Table** page allows users to view the uploaded thesis document data.

Fig. 3: Upload Table Page

3. This **upload form** page is used to collect thesis data documents.

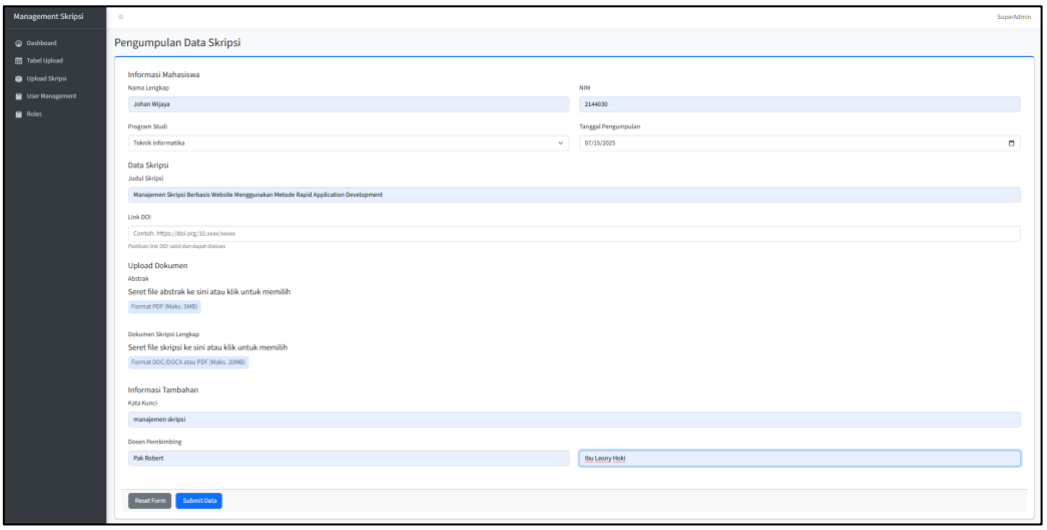

Fig. 4: Upload Form Page

4. The **Edit Thesis Data** page allows you to edit the documents you have collected.

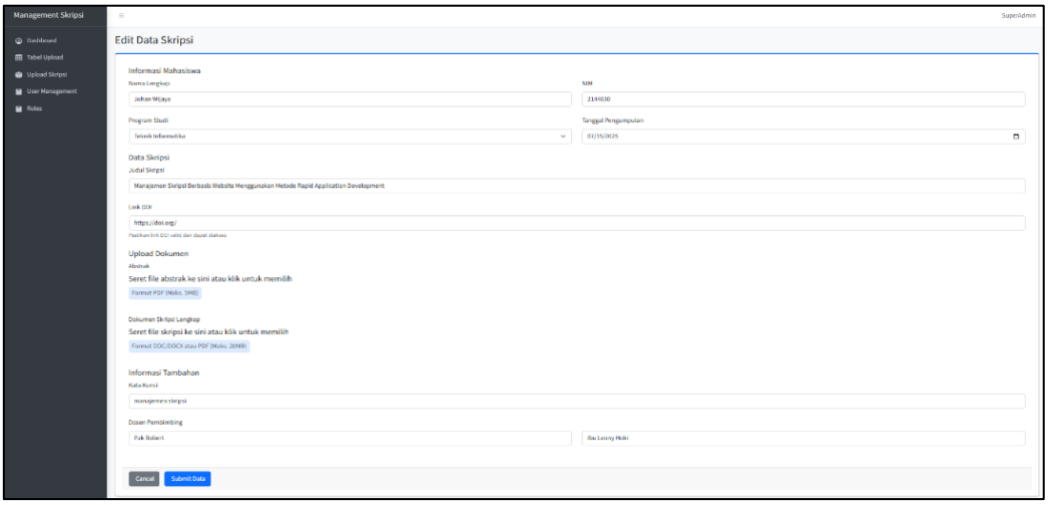

Fig. 5: Edit Thesis Data Page

5. The **User Management** page displays all registered users and their assigned roles.

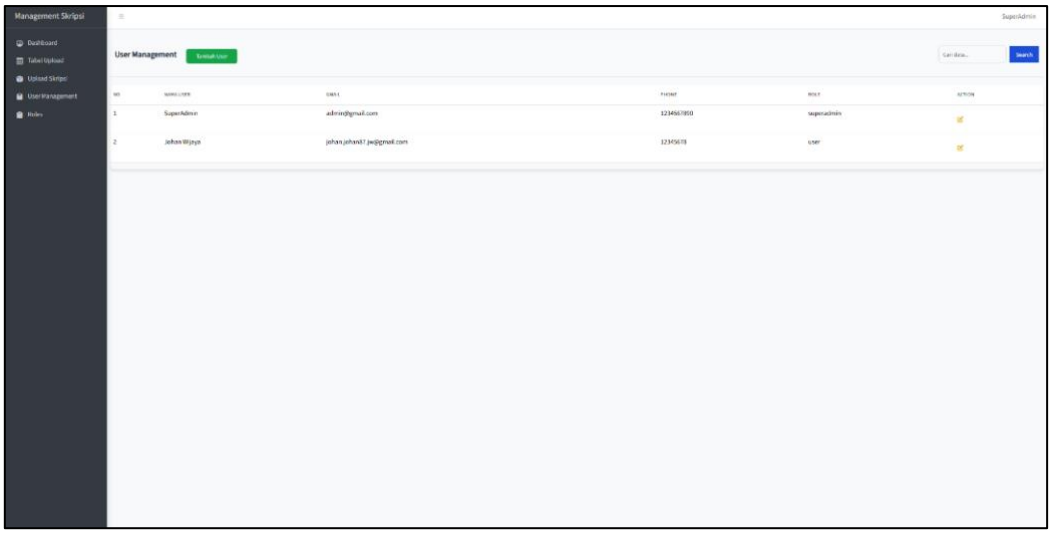

Fig. 6: User Management Page

6. **Add User** On the user management page, the admin can add users by pressing the green button to add new users and gain access to the system.

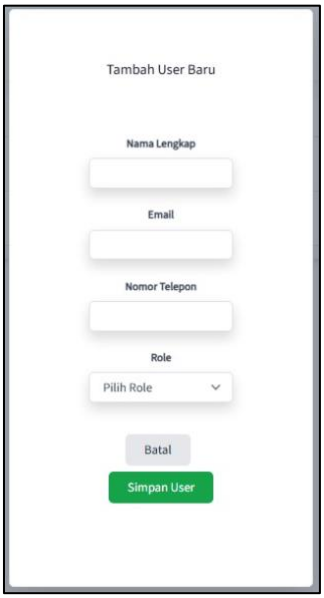

Fig. 7: Add User Form

7. **This roles** page can display two types of roles that are available.

Fig. 8: Roles Page

8. **The edit profile** page is where users can change their username and password to their liking.

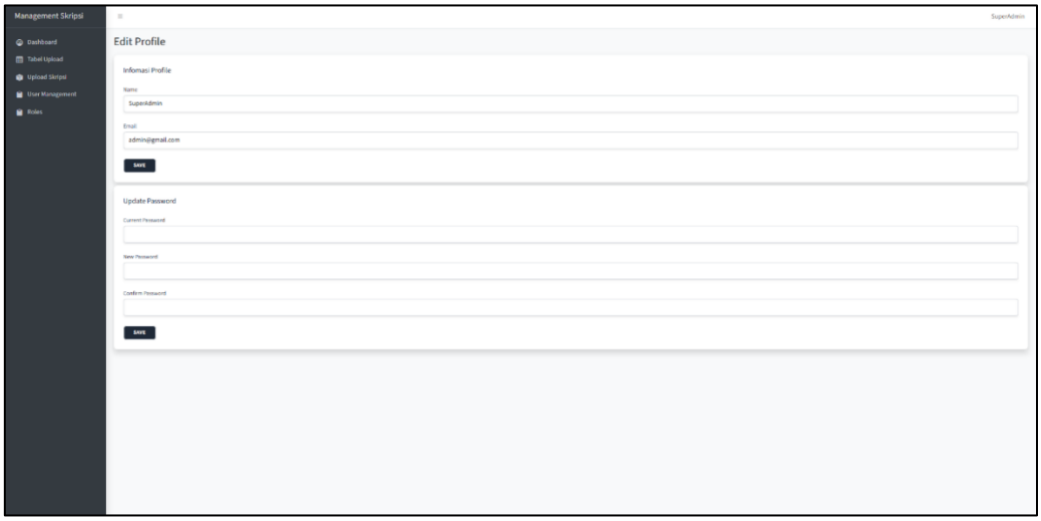

Fig. 9: Edit Profile Page

4.2. Discussions

This thesis management system focuses solely on thesis documentation, making it easier to find references and reducing the risk of losing printed documents. It also offers advantages such as a user-friendly interface. Its limitations include the lack of document validation and statistical features for popular theses.

5. Conclusion

The thesis management system is designed to simplify the collection of thesis documents for digital reference. The RAD method helps accelerate the design process according to user needs. Suggestions for further development include adding filters and statistics for popular theses, document validation, developing a dashboard within the system, and providing training for users on how to use the system.

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