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# DESIGN AND IMPLEMENTATION OF A WEB-BASED STUDENT SAVINGS MANAGEMENT SYSTEM USING THE AGILE METHOD

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***Abstract***

The implementation of a web-based student savings information system created with the Agile methodology is covered in this study. This approach is intended to assist schools in more effectively and transparently managing student savings. The purpose of this method is to assist schools in more effectively and openly managing student savings. The Agile approach method is used in the information system design; the development process is broken up into iterative sprints that enable ongoing improvement based on input from stakeholders. for kids, parents, and school officials, this system offers features like savings contributions, withdrawals, transaction history, and user account management. Agile makes it possible to build useful, user-friendly apps in a comparatively short development cycle by improving communication between the development team and users. The final findings demonstrate how well the Agile methodology supports the development of an educational financial system that calls for adaptability, reactivity, and ongoing user involvement. A website-based student savings information system that may enhance the efficacy and efficiency of finding, generating, and storing student saving data is the result of this study.

**Keywords:** Student Savings; Agile Methods; Information System; Data Management; Web Application;

## INTRODUCTION

The rapid development of informationtechnology has encouraged various sectors, including the world of education, to utilize digital-based systems to support their operational activities. One aspect that has begun to experience digital transformation is the management of student savings. The manual management that is still used has a number of weaknesses, such as the risk of recording errors, limited access to information, and low work efficiency [1].

The current conventional system at PAUD ABYAZ re-recording is still done by hand using physical books. This system necessitates a longer recording and reporting process and is vulnerable to human error, such as miscalculation or data loss. Additionally, parents cannot directly monitor their children's savings through this manual technique, which may lower the degree of trust and openness. As of right now, it is still done by hand and recorded in actual books. This system takes longer to record and report, and it is vulnerable to human error, such as incorrect calculation or data loss. Furthermore, parents cannot directly monitor their children's savings using this manual technique, which can lower the degree of confidence and openness. At the moment, it is still done by hand and records are kept in actual books. This system takes longer to record and report, and it is vulnerable to human error, such as miscalculation or data loss. Additionally, parents cannot directly monitor their children's saving through this manual technique, which can lower the degree of openness and trust [2].

One of the early childhood education institutions in Serang Region that has trouble effectively handling student savings data is PAUD ABYAZ. A more effective and transparent method is becoming more and more necessary as the number of students keeps rising. It is anticipated that this schools adoption of a web-based savings information system will solve current issues and improve services for parents and kids [3].

This study was carried out to address the need for a more effective information system, particularly with regard to student savings management. Implementing a web-based student savings information system is an efficient way to address the current issues. This system makes it possible to automatically, precisely, and instantly record, monitor, and report savings transactions. This system not only increases efficiency and openness but also facilitates quick and safe


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access to student financial information for schools, students, and parents [4]. In many educational institutions, web-based information systems have been successful in increasing operational effectiveness and openness [5]

The goal of this project is to create and deploy e web-based student savings information system that is sutable for school requirements and user friendly for all stakeholders. The goal of the student savings program is to assist children develop the habit of saving money from a young age by helping them save money on a regular basis while they are in school. Usually, schools and financial institutions like banks work together to implement this initiative. According to [6], student savings serve as both a financial management tool and an educational tool for developing frugal and responsible personalities. Additionally, student savings programs are thought to be successful in lowering the likelihood that posket money will be spent on less beneficial items [7]. Additionally, this program gives kids the chance to learn how to handle money on their own [8].

## METHOD

Research stages are a set of procedures that aid in the methodical planning, execution, and analysis of research. These phases offer researchers a helpful framework for methodically and successfully controlling the research process [9].

Additionally, this study phase is an ongoing, iterative process. This study develops a web-based system using an Agile methodology. Because it can adapt to shifting user needs during the development process, the Agile methodology was selected [10]. Figure 1 depicts the Agile model phase.

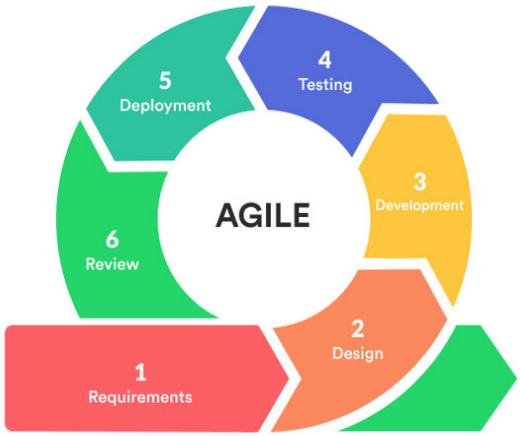



Figure 1. Agile Model-Based Research Stages

When conducting research on website modeling in a website-based saving system, researchers can adapt to changing demands and requirements by by using Agile methodologies. The Agile approach is used to list the research phases as follows:

1. Identification of Needs
   Conducted by gathering system needs through observation and interviews with administrators, instructors, and students at schools
2. Planning for Sprints
   The product shortage is addressed by developers, who continue for roughly a month. Between product development phases, the sprint time remains constant. Completing the sprint deficit tasks is the sprint's objective.
3. System and Design
   The primary features of savings transactions, balance reporting, and user account management were developed by the Design Team Interface and System Flow using design tools like UML (Unified Modelling Language).
4. Testing Each Sprint (Testing)
   System tests, including functional and validation test, are conducted following each sprint to make sure the system satisfies user requirements.
5. Assessment and Comments
   To make sure the system keeps getting better, each sprints outcome is assessed with users and recorded in the following sprint.
6. Documentation and Implementation
   The system is completely implemented in the school setting with user training and technical documentation after it is deemed stable and satisfies the criteria.

This ongoing process emphasizes collaboration, responsibility, and flexibility. Agile techniques enable researchers to develop web-based system models that satisfy consumers, business goals, and responsiveness.

## RESULT AND DISCUSSION

### Implementation Stages

The system's implementation and testing outcomes can be explained as follows based on the research design method:

### Interface for Login

The login page facilitates users access to the savings information system. Figure 2 on this page. Users are required to input their password and username.




Figure 2. Login Interface

This interface is designed with security and user convenience in mind, along with role-based access control, so


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that each user can access features only according to their rights.

**Dashboard Interface (Admin)**

Users utilise Dashboard Figure 3 to view data regarding student savings activity. A page that presents a summary of important information and provides quick access to various system management features, such as student data, saving transactions, and financial reports.

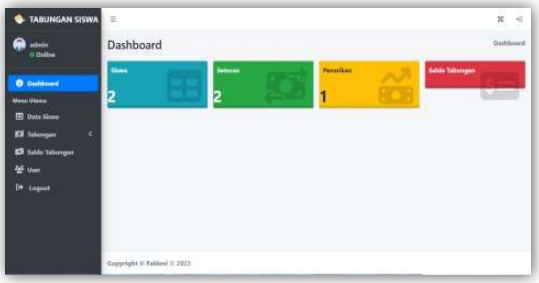



Figure 3. Admin Dashboard Interface

**Interface for Student Data**

Administrators who record student data are the only ones who access the Figure 4 data page. This page allows administrators to view, add data, edit and delete data.

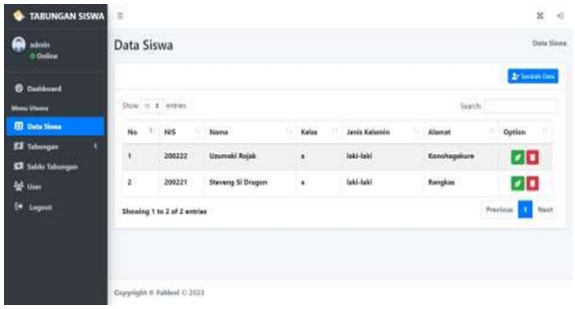



Figure 4. Interface for Student Data

**Interface for Saving Deposits**

Only administrators can receive student savings deposits using Figure 5. This page allows users (admins or officers) to record transactions for depositing funds into student savings accounts in a systematic, integrated manner.

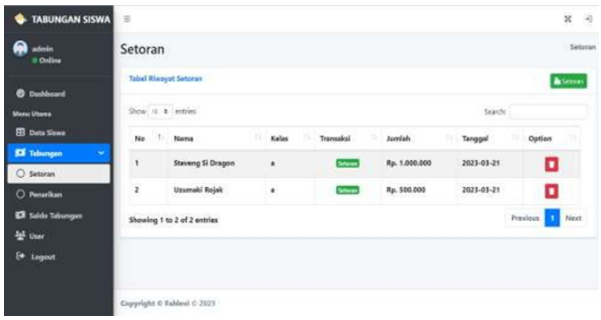



Figure 5. Interface for Savings Deposits

**Interface for Withdrawal Savings**

Figure 6: Only administrators can enter student savings payments on the payment savings page. This page is for admins or officers to record student withdrawals in a structured, safe and documented manner.

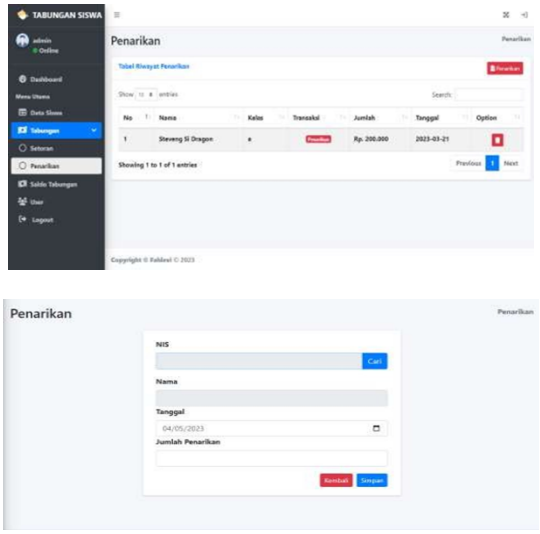



Figure 6. Interface for Savings Withdrawals

**Interface for Saving Balance**

Every savings transactions involving student deposits and withdrawals is examined in Figure 7's record. Displays student savings balance information accurately and in real-time.

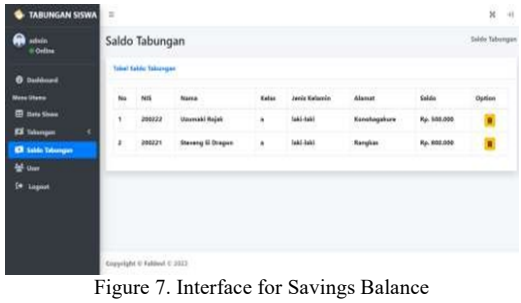



Figure 7. Interface for Savings Balance

**InterfaceeUser**

**Figure 8**. Only administrators use this. Administrators have the ability to see and remove student savings administrators. Add, modify, and remove.


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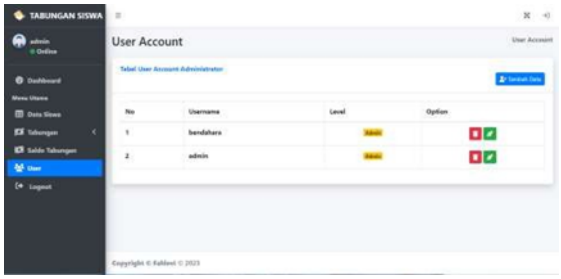



Figure 8. User Interface

**Interface for Student Savings Report Output Results**

The printout or output of student transactions, including deposits, withdrawals, and savings credits, is shown on this page, Figure 9. The interface serves as a means of providing financial data in an organized, precise, and comprehensible way.




Figure 9. Interface for Report Output

**Testing Stage**

The last stage of system design and development is testing. The goal of this step is to determine whether the system is operating as anticipated. This phase also seeks to ascertain whether user needs are satisfied [11]. At this point, Black Box Testing is used for testing.

Table 1. Testing Using Black Box

| Test Case | Test Procedure | Expected Output | Result | Conclusion |
|---|---|---|---|---|
| Open System | Open the website using a web browser | System view | √ | Accepted |
| Login Menu | Input your username and password, then click login | Dashboard Page | √ | Accepted |
| Admin Menu | Click on student savings information | Admin Menu | √ | Accepted |
| Student Data Menu | Click Student Data | Student data menu | √ | Accepted |
| Deposit Savings Menu | Click on student savings deposit | Deposit savings menu | √ | Accepted |
| Savings Withdrawal Menu | Click on student savings withdrawal | Savings withdrawal menu | √ | Accepted |
| Savings Balance Menu | Click on savings deposit and withdrawal transactions | Savings balance menu | √ | Accepted |
| User Menu | Click add user, data edit, and delete | User menu | √ | Accepted |
| Print Student Savings Report Menu | Click print report | Print the student savings report menu | √ | Accepted |
| Logout Menu | Click logout | Exit the system | √ | Accepted |

## CONCLUSION

Using the Agile technique to implement the web-based student saving information system has been successful in producing a useful and user-focused application. The development team was able to continuously collect input, adjust to evolving requirements, and guarantee that the finished product fulfilled customer expectations by utilizing Agile's iterative and incremental methodology. The system makes digital savings transactions easier, increases transparency, and makes financial information more accessible to parents, administrators, and students. Agile techniques like frequent sprint reviews, teamwork, and user story prioritization also helped to enhance software quality and ensure timely delivery. All things considered, the project shows that Agile is an appropriate and effective method for creating dynamic and user-focused online applications in the educational field.


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