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Development Of An Integrated Educational Guidance Donation Payment Application (A Study At A Vocational High School In Cimahi)

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Abstract

The Educational Development Contribution is a levy imposed on students to assist educational institutions in enhancing the teaching and learning process within schools. This contribution is a monthly school charge mandated for every active student. The inadequate payment recording method may result in data loss and accountability challenges in report generation. For example, at a vocational institution in Cimahi, the SPP payment system continues to depend on a manual method, wherein administrative personnel and the treasurer document payments utilising a ledger. This scenario results in numerous errors and significantly prolongs the payment recording process. The author utilises an Object-Oriented Analysis and Design (OOAD) methodology for this project. The system will be designed as a web-based application coupled with the institution's website. The author used PHP, CSS, the CodeIgniter framework, a MySQL database, and Visual Studio Code as the code editor to resolve challenges throughout system installation. The employed system testing methodology is Black Box testing. The method devised by the author facilitates the input of student data and the administration of Educational Development Contribution payments.

Keywords : *System, Tuition Payment, Web*

INTRODUCTION

The rapid advancement of technology has led to the emergence of several methods for acquiring information quickly and easily. Technological advancements persistently achieve substantial growth, rendering contemporary technology a vital support in executing daily tasks. The accessibility of diverse, rapid, and precise information has rendered technology increasingly prevalent across all societal strata. (Paryanto & Galuh Saputri, 2025)

The utilisation of technology is essential as it enhances the educational process in schools. Information systems substantially enhance operational processes within educational institutions. An example is tuition payments, which continue to utilise ledgers for recording payment data. Consequently, an SPP application will be incorporated when necessary. (Siti Nida Saripah et al., 2024)

The creation of a web-based application for the payment of Educational Development Contributions is essential to enhance administrative efficiency at a vocational high school in Cimahi City, as the current management of payment data relies on conventional, non-computerized methods. For instance, information technology has progressed swiftly, enabling us to employ or implement it in our professional endeavours. The school's financial administration system, including the payment of Educational Development Contributions, continues to employ traditional methods and is not yet adequately computerised. (Susanto et al., 2023)

Nonetheless, the manual administration of Educational Development Contributions

continues to encounter numerous challenges. Errors in documenting Educational Development Contribution payment transactions can lead to misunderstandings and reduce job efficiency. Moreover, inaccuracies in incorporating transaction data into the funds received can be detrimental.

Information Systems

Tabrani & Suhardi (2022) defines information systems as the process of collecting, processing, analysing, and disseminating information for a given objective.

School

The term "school" is derived from Latin, specifically skhole, scola, scolae, or skhola, which signifies free or leisure time. Historically, school was an activity undertaken by children during their leisure, amidst their primary pursuits of play and the enjoyment of childhood and adolescence.

Payment

Sugiyatno (2022) define payment as "the process, method, or act of paying."

Educational Development Contribution

As stated by (Niska Ramadani et al., 2025), Educational development payments, are regular fees imposed on students, payable monthly, to assist educational institutions in facilitating student learning activities.

Website

As stated by BAKAR & BAKAR (2020) "A web application is a system constructed solely with the HTML (HyperText Markup Language) programming language." Web applications are categorized into two types: static web applications, which are solely constructed using HTML, and dynamic web applications, which enhance HTML's functionality through the incorporation of supplementary software.

OOAD (Object-Oriented Analysis and Design) Method

As stated by AISYAH et al., (2024), the Software Development Model, which employs the OOAD idea, is a system development approach that prioritizes objects over data or processes.

According to another source (Setiawansyah et al., 2021), Object-Oriented Analysis and Design (OOAD) is a novel methodology for problem-solving, emphasising the utilisation of models that represent real-world concepts.

Black Box Testing System Testing Method

As stated (Corso et al., 2021), black box testing, also known as functional testing, is a software testing methodology conducted based on application attributes such as appearance, functionality, and the alignment of functional flow with the user's desired business activities.

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METHOD

This study employs a systematic methodology to tackle the issues related to the Educational Development Contribution (SPP) payment system at a vocational institution in Cimahi. The research commences with problem identification, focusing on the inefficiencies inherent in the existing manual payment recording procedure, which result in data loss and accountability challenges. Qualitative data

on current practices is obtained through observations and interviews with administrative personnel and stakeholders. A thorough literature analysis on payment systems and Object-Oriented Analysis and Design (OOAD) methodology guides the design process, emphasising best practices for designing web-based applications in educational settings. The author employs the OOAD technique to organise the development, generating use case and class diagrams to illustrate system functionality and linkages.

The system is subsequently constructed as a web-based application integrated with the institution's website, employing PHP, CSS, and the CodeIgniter framework for optimal coding efficiency. A MySQL database oversees data storage, guaranteeing secure access to payment records. Following deployment, administrative personnel and the treasurer receive training on the new platform, with feedback gathered to identify any urgent concerns. The Black Box testing methodology assesses the system's performance and functionality, emphasising usability, data integrity, and error management. The study evaluates the system's effect on the payment recording process by assessing variables such as time efficiency, accuracy, and user satisfaction, thereby illustrating substantial enhancements in data administration and record-keeping within the institution.

RESULT AND DISCUSSION

Analysis of Current System Work Procedures

A business process is an organised set of interconnected actions or tasks aimed at addressing a particular issue or generating a product or service. The current tuition payment business procedure:

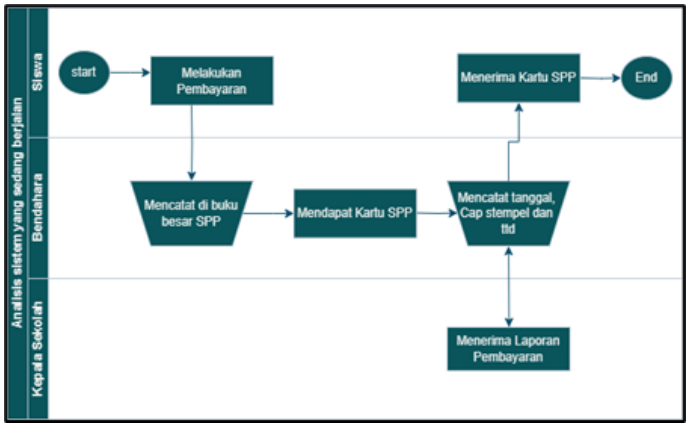


Figure 1. Analysis of Current System Work Procedures

System Design

System design aims to identify and delineate the technical components that comprise the solution within the design. At this juncture, the design will be meticulously delineated to tackle technical concerns pertinent to implementation tasks, including Use Case Diagrams, Activity Diagrams, Sequence Diagrams, Class Diagrams, and Interface Design.

1. Use Case Diagram

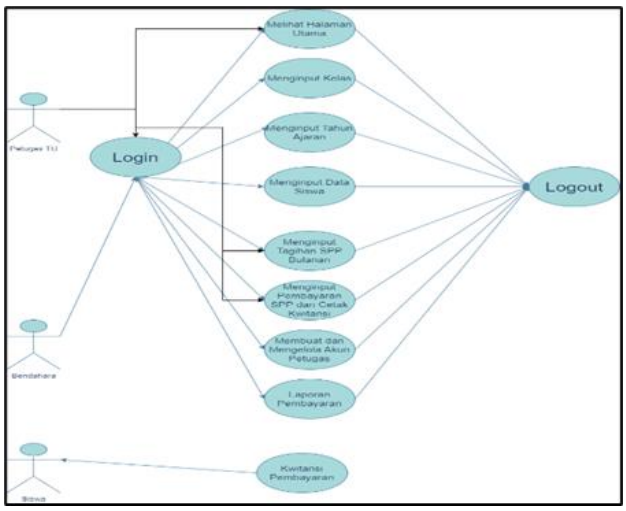


Figure 2. Use Case Diagram

2. Activity Diagram

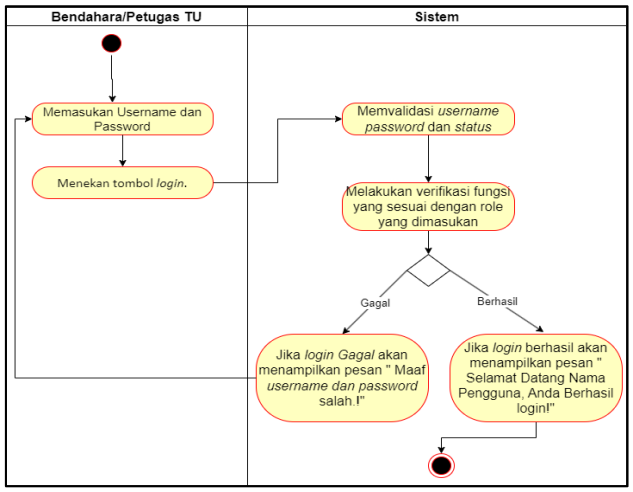


Figure 3. Activity Diagram

3. Sequence Diagram

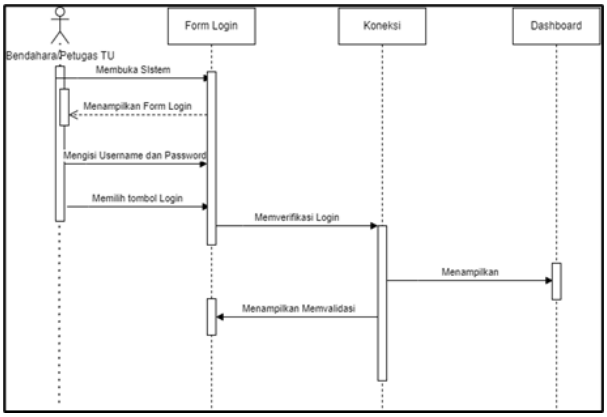


Figure 4. Sequence Diagram

4. Class Diagram

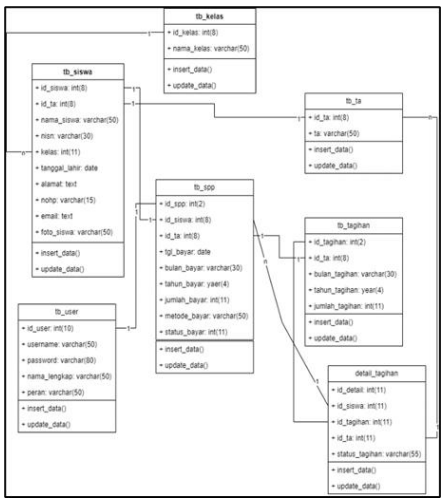


Figure 5. Class Diagram

5. Interface Design

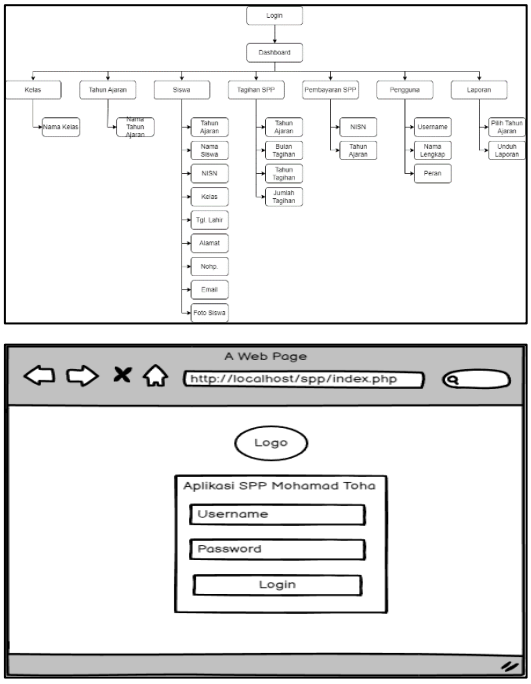
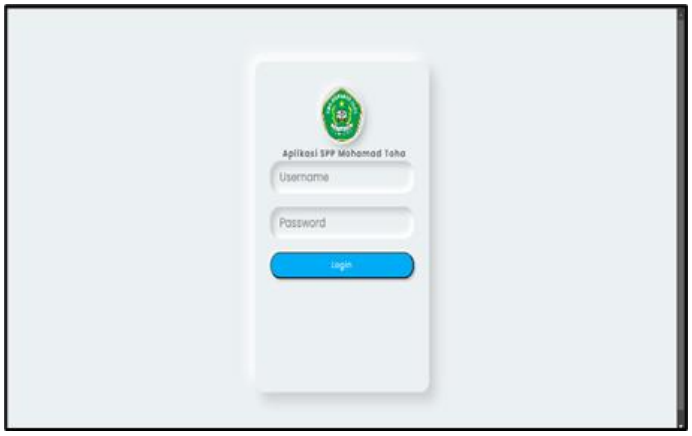
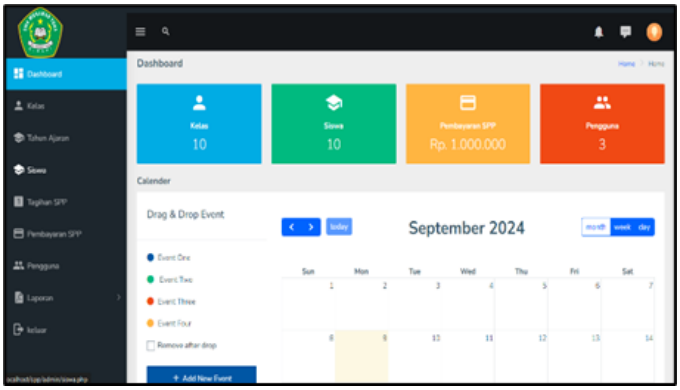


Figure 6. Interface Design

System Implementation

Implementation refers to the process of converting the design into an application programme.





CONCLUSION

The author examines and investigates a vocational school in Cimahi, revealing its continued dependence on a manual system, especially on the treasurer's payment records, which utilise handwritten documents. This system presents multiple issues, including recurring data entry errors and inefficiencies in payment processing. Administrative personnel have challenges due to the labor-intensive process of manual record-keeping, which may impede the overall efficiency of financial management in the school. The reliance on conventional procedures compromises accuracy and hinders the timely generation of reports essential for informed decision-making.

A computerized system offers a substantial opportunity to augment production and optimize processes. Implementing a digital solution for data input and payment reporting of the Educational Development Contribution would enhance the accuracy and efficiency of information processing at the school. The shift to a computerised system will facilitate real-time updates, minimising errors and enhancing the efficiency of financial record maintenance. Ultimately, the integration of technology will enable the institution to disseminate information more rapidly and precisely, enhancing financial monitoring and bolstering the school's pedagogical objectives.

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