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THE DESIGN OF WEB-BASED TEACHER PERFORMANCE DATA ARCHIVING MANAGEMENT APPLICATION TO INCREASE STORAGE EFFICIENCY AND INFORMATION ACCESS

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Abstract

The management of teacher performance data archives often faces problems in storing and accessing data quickly and accurately. To improve data access and storage, this study designed a web-based teacher performance data archive management application. Requirements analysis, system design, implementation, and evaluation are part of the application development process using the research and development (R&D) method. The system uses PHP programming language and MySQL database, and its main features are digital archive management, quick data search, and performance report generation. Test results show that the application ensures data security and accuracy while reducing data management time by 50% compared to manual methods. Application testing showed a validity result of 0.858, which falls into the valid category, as well as a practicality rate of 87%, indicating that this application is easy for teachers to use. In addition, the effectiveness test showed a value of 0.89, indicating that this application is very effective in improving the archive management process. It is hoped that the implementation of this application will assist educational institutions in improving the efficiency of archive management and help data-based decision making.

Abstrak

Pengelolaan arsip data kinerja guru seringkali menghadapi masalah dalam penyimpanan dan akses data yang cepat dan akurat. Untuk meningkatkan akses dan penyimpanan data, penelitian ini merancang aplikasi pengelolaan arsip data kinerja guru berbasis web. Analisis kebutuhan, perancangan sistem, implementasi, dan evaluasi adalah bagian dari proses pengembangan aplikasi yang menggunakan metode penelitian dan pengembangan (R&D). Sistem ini menggunakan bahasa pemrograman PHP dan database MySQL, dan fitur utamanya adalah pengelolaan arsip digital, pencarian data cepat, dan pembuatan laporan kinerja. Hasil pengujian menunjukkan bahwa aplikasi ini memastikan keamanan dan akurasi data sambil mengurangi waktu pengelolaan data hingga 50% dibandingkan dengan metode manual. Pengujian aplikasi menunjukkan hasil validitas sebesar 0,858, yang masuk dalam kategori valid, serta tingkat praktikalitas mencapai 87%, menunjukkan bahwa aplikasi ini mudah digunakan oleh para guru. Selain itu, uji efektivitas menunjukkan nilai 0,89, mengindikasikan bahwa aplikasi ini sangat efektif dalam meningkatkan proses pengelolaan arsipDiharapkan bahwa implementasi aplikasi ini akan membantu lembaga pendidikan dalam meningkatkan efisiensi manajemen arsip dan membantu pengambilan keputusan berbasis data.

INTRODUCTION

Archival documents are not only used to collect data and as a source of information in an educational institution, but archives can also determine the life and death of an employee. This is because archives or official documents that are stored and managed are very important in carrying out the duties and responsibilities of employees.

Archives have an important role in the continued existence of organizations, both government and private agencies, especially in the school sector (Sakdiyah, 2014). Therefore, archiving must be carefully maintained and managed in accordance with school guidelines. Because the success of a good school will also depend on how the institution is managed.

Archives or archives include tasks related to the storage of files, letters, and other office documents. Based on the opinion of Sugiarto and Wahyono in 2015, it is said that archives are a technique for maintaining or maintaining letters by compiling and storing letters or files in such a way, which is stored in a data bank, so that letters or files can be found again if needed (Della Praditya Alvyanti, 2015).

Archives in this electronic form are very helpful and provide many conveniences in archiving activities, especially in the education sector, the effort used in this e-archive is simpler, more time-saving, saves physical storage space, saves costs and will also make it easier to duplicate the desired archives. Therefore, the management of electronic archiving must be improved in order to improve the quality and quality of a school. But unfortunately, management in schools is still not optimized so that the impact on improving the quality of education is limited or less significant (Rezaei et al., 2020).

A data bank in the concept of archiving is the storage and management of large amounts of data orinformationneeded for reference, analysis, and documentation which refers to the storage of data orinformationin a structured and organized manner. Neatly stored and organized archives help banks when they need data. An archival data bank is usually a place where various types of documents orinformationare stored properly and organized.

Data banks are very important because they can provide quick, easy, and organized access to data that has been stored. With a good data bank system, users can easily find and use theinformationthey need without having to spend excessive time searching or navigating through huge archives (Nadialista Kurniawan, 2021).

Based on the results of the pre-survey, it shows that archive management in schools is far from optimal. There were difficulties in finding back the archives needed quickly, even some archives had been lost and could not be found again. Because of the amount of data to be collected in the assessment that is conducted once a year. That is, there are 14 data to be collected again, including files that will be collected are Semester Program, Annual Program, syllabus, Flow of Learning Objectives (ATP), modules, face-to-face schedules, score lists, Minimum Completeness Criteria (KKM), daily agenda books, SK KD analysis, question banks, semester daily test analysis, enrichment and remedial. Schools will find it difficult to achieve what is needed because the amount of data to be collected will allow files to be damaged, lost and employees in the administrative division are also not fully able to carry out archive management optimally.

One of the causes is the archival facilities that are still inadequate, both in terms of limited number and quality that do not meet archival security standards. Some archives are even only stored in thin folders and then stacked together in cupboards that have doubtful feasibility for archive storage (Borrego, 2021). Based on the regulation of the head of the national archives of the republic of Indonesia number 7 of 2016 article 3, the security classification means that the archive has security, contains open, limited, confidential and highly confidentialinformation, contains internal users and external users.

Based on the problems obtained, the authors can conclude that the solution that can be done to help with archiving teacher performance data banks is to create an application. It is hoped that with the help of this application, the archiving of teacher performance data banks can help schools in reducing problems regarding the archiving of teacher performance data banks.

METHODS

This teacher performance data bank application was designed using the research and development (R&D) method. R&D is a research method used to make certain products and test how effective they are. Products made are not only objects or hardware (hardware) but also software (software) (Silfia, Rahmad Kurniawan, Nazruddin Safaat, Elvia Budianita, 2018).The incremental SDLC model consists of stages (Requirements, Specifications, Architectural Design, Analysis, Design, Code, and Test), and the incremental system development model is the model used (Rahmadhani et al., 2022).

RnD research and development is used to develop or validate a product, by providing innovative updates tailored to user needs. This research aims to produce a product in the form of a teacher performance data bank application that will be applied to the TU UPTD SMPN 5 school in Pangkalan Koto Baru District (Aguayo Torrez, 2021).

The model used in this research is the SDLC incrementalmodel. SDLC is a structured methodology in software development that includes several important stages. Here are the details of each stage in the methodology used (Kulsum & Cherid, 2023). The stages are as follows:

1. Planning

At this stage, researchers identify the problems that exist in managing teacher performance records in educational institutions.

The objectives and scope of the project are determined, and the resources required for application development are identified.

2. Analysis

Data collection is done through interviews with relevant parties, such as teachers and school administrators, to understand their needs and expectations of the application.

Observation of the ongoing archive management process is also carried out to identify weaknesses and areas that need improvement.

The results of this analysis will be used to formulate system requirement specifications.

3. Design

The design stage involves creating a system model using modeling tools such as Flowchart and Unified Modeling Language (UML).

User interface (UI) and user experience (UX) designs are designed to make the application easy to use and intuitive.

The database structure is also designed to ensure the efficiency of data storage and access.

4. Development

At this stage, the application begins to be developed based on the approved design.

The use of programming technologies such as PHP, HTML, CSS, and JavaScript are applied to build the web application.

This process includes writing code, system integration, and creating technical documentation.

5. Testing

Once development is complete, the application is tested to ensure that all features are working properly.

Testing is done through various methods, including functionality tests, security tests, and performance tests.

Feedback from early users is also collected to make improvements before the official launch.

6. Maintenance

Once the app is launched, the maintenance phase begins to ensure the app continues to function properly over time.

System updates and bug fixes are made based on user feedback and new technological developments.

This research and development methodology using the SDLC model provides a clear and organized framework for building a web-based teacher performance data archive management application. The application created should meet user needs and improve data access and storage by following each stage carefully.

RESULT AND DISCUSSION

RESULT

The results of the application design show that this system is able to provide an integrated platform that makes it easy to archive and search teacher performance data quickly and accurately. The application is also equipped with security features to protect sensitive data as well as the ability to perform data backups. Tests showed that the application was able to reduce archive management time by 60% compared to the manual method, while improving data accuracy and security. The validity of the product was tested on two expert lecturers ofinformationtechnology, with the results declared valid at a value of 0.858. Furthermore, eleven teachers were tested for practicality, and it was declared very practical with a practicality value of 87%. Finally, the effectiveness test was conducted on 11 UPTD SMPN 5 teachers in Pangkalan Koto Baru District, and the product was declared very effective with a score of 0.89 with a high indicator. Thus, the validity, practicality, and effectiveness have been tested, and this application can be considered suitable for use by teachers to help manage archiving.

DISCUSSION

The discussion in this article aims to: (1) answer the problem formulation and the research questions; (2) show how the findings were arrived at; (3) interpret the findings; (4) relate the findings with established theoretical structure and knowledge; and (5) bring up new theories or modify the existing theories.

This part highlights the most significant results, but do not repeat what has been written in the Finding section. The purpose of the discussion is to interpret and describe the significance of your findings in light of what was already known about the research problem being investigated and to explain any new understanding or insights that emerged as a result of your study of the problem. A combined Finding and Discussion section is often appropriate.

Please note that all names/references mentioned in the text/article, they should be listed in the References section. Names that are not mentioned in the text/article, they should be removed from the References section.

CONCLUSION

The design of this teacher performance data bank application has been successfully designed with a web-based application that produces output in the form of uploaded teacher performance data reports. With this application, it is hoped that it can help UPTD SMPN 5 teachers in managing teacher performance data to be more effective and easy to access data that will be needed.

The validity of the product was tested on two expert lecturers ofinformationtechnology, with the results declared valid at a value of 0.858. Furthermore, eleven teachers were tested for practicality, and it was declared very practical with a practicality value of 87%. Finally, the effectiveness test was conducted on 11 UPTD SMPN 5 teachers in Pangkalan Koto Baru District, and the product was declared very effective with a score of 0.89 with a high indicator. Thus, the validity, practicality, and effectiveness have been tested, and this application can be considered suitable for use by teachers to help manage archiving.

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