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E-Archive Academic Data at SMK Negeri 2 Sekayu

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Abstract: Effective management of archival documents is vital in the educational sector as it plays a crucial role in decision-making and preserving historical records. Archives are a valuable resource that contains a wealth of information for any organization. However, the traditional method of physical document management at Sekayu 2 Negeri Vocational School has led to a significant accumulation of documents, making the process both ineffective and inefficient. This situation has created an urgent need for faster access to information. To address this issue, the school has developed an Electronic Archive for Academic Data that aims to streamline the archiving process, making it more efficient and effective. The primary objectives of this initiative are to facilitate faster retrieval of information and to reduce the physical storage space required for documents. The E-Archive for Academic Data at Sekayu 2 Negeri Vocational School was developed using the PHP programming language and the MySQL database. The introduction of this digital filing system is expected to significantly reduce the time needed to access archives and decrease the physical storage space required, thereby enhancing efficiency and effectiveness at SMK Negeri 2 Sekayu.

Keywords: Archives; E-Archives; Information Systems; MySQL; PHP.

1. Introduction

An information system comprises organizational procedures designed for decision-making support or information control [1]. Archives are essentially records of activities or events in various formats and media, evolving with advancements in information and communication technology, and are created and maintained by entities or organizations [2]. The significance of archives lies in their role as vital information sources, facilitating the administrative and bureaucratic processes by serving as records for all organizational activities [3]. These archives act as a repository or data bank, available for information retrieval when necessary [4]. The term E-Archive, or digital archive, refers to archives transformed from physical paper forms to digital formats or files [5]. Widyanto (2018) defines electronic archives as those stored and transmitted digitally, manageable through computing devices capable of reading or organizing archives in digital form [6]. An E-Archive can also be seen as a digitally processed document representing transactions, activities, and functions of institutions, agencies, organizations, or individuals, aimed at usage and storage as evidence [7]. Essentially,

E-Archives facilitate digital transmission of information within systems, simplifying access for information seekers [8].

PHP, or Hypertext Preprocessor, is a web server programming language designed for server-side data processing [9]. It enhances HTML by adding server-side scripting capabilities, making web pages dynamic rather than static. This implies that the server executes scripts and sends the results to the browser [10][11]. MySQL is recognized as a database comprised of multiple tables, with each table holding rows and columns of data [12]. A database is a structured collection of interrelated data and data descriptions intended to meet an organization's information requirements [13]. UML stands for Unified Modeling Language, a visual modeling technique for designing object-oriented systems, and is recognized as a standard language for the visualization, design, and documentation of software systems [14]. At SMK Negeri 2 Sekayu, archival processes are still predominantly manual, leading to significant paper file accumulations and inefficiencies in managing urgent information needs. This situation underscores a broader issue where many organizations struggle to adopt electronic archive (E-Archive) management, resulting in files accumulation, archive damage, insufficient storage, maintenance costs, and other issues leading to archive deterioration. This study aims to evaluate the E-Archive of Academic Data at SMK Negeri 2 Sekayu to enhance document search efficiency and effectiveness.

2. Research Method

The steps in conducting research are as follows: needs analysis, system design, writing program code or implementation, testing, and finally, implementation. In analyzing this procedure, it is necessary to know what activities are carried out for future design, the user's needs, and the output that will be produced. The following are the results of the analysis of the ongoing procedures: Admin collects all teacher data, Admin collects all personnel data, Admin collects all graduate certificate data from SMK Negeri 2 Sekayu, and Creates data reports or archives data that has been collected. The following is a flowchart of the system currently running.
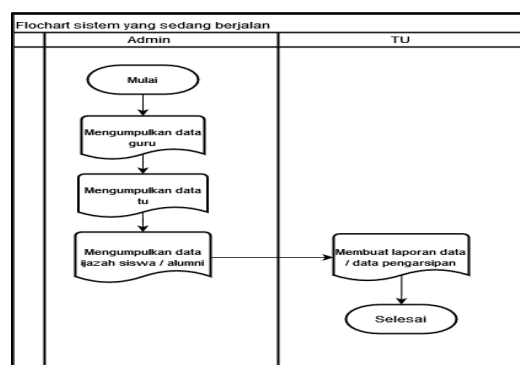

Figure 1. Flowchart of the Running System

From the flowchart above, it can be seen that the process of managing teacher data, personnel data, and student/alums diploma data is still carried out manually or conventionally, where archiving files accumulate and results in files piling up and also searching for data takes a long time so it is not practical. And inefficient. Based on the results of observations that have been made, researchers have analyzed what the needs are in the current system, and the user needs in carrying out this design include:

1) Develop a digital or electronic archiving application to help the school manage data on teachers, civil service staff, and student/alumni diplomas in the Administration section.
2) Avoid errors in archiving teacher data, personnel and student/alumni diplomas.
3) Make it easier and shorten the time to search for data so that it is more effective and efficient.
4) Avoid the accumulation of files which ultimately results in the files being neglected.

3. Result and Discussion

3.1 Results

After designing the proposed system, the next step is to implement the design into a programming language using Laravel as the main framework, supported by Visual Studio Code as the PHP editor and MySQL

as the database. This system is designed with various menu and submenu features, which include: Login Form, Principal Menu with sub-menus Manage Principals, Employee Archives, and Student Archives, as well as Admin Menu with sub-menus Manage Admin, Manage Principals, Teachers, Management Business, and Logout. Apart from that, there is a Teacher Menu with sub-menus Manage Your Account, Manage Your Files, and Logout, as well as an Administration Menu (TU) with sub-menus Manage Your Account, Manage Your Files, Manage Alumni Diplomas, and Logout. Each menu and submenu is designed to provide specific functionality according to the respective user role. With careful and structured implementation, it is hoped that this system can provide good user experience and increase efficiency in managing data and archives in the school environment.

3.2 Discussion

In this discussion section, we will discuss in more detail the page layout created according to the design that was previously created. The image below shows the program's login page, which has been developed as a user validation page. Where admins, school principals, teachers, and administrators can log in to the program by inputting their email and password; then if they have entered their email and password, they just click the login button to go to their respective login dashboard pages.

Figure 2. Login page

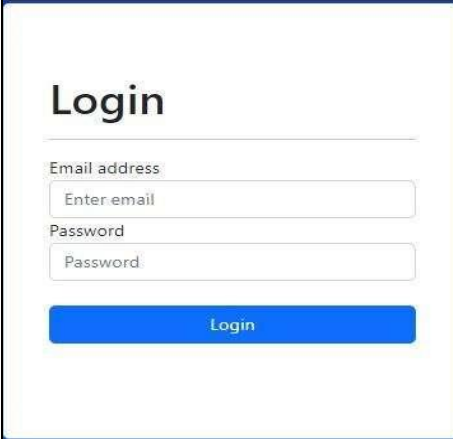The image below shows the principal's dashboard page which is accessed by the principal, where on the principal's dashboard there are several menus, namely, officer menu, employee menu, archive data and logout button.

Figure 3. Principal Dashboard Page

The image below shows the principal table page accessed by the principal. In this table, school principals can see, change and delete emails and passwords.

Figure 4. Principal Table Page

Teacher and TU Archive Table Page At the Principal's Login, the image below displays the employee table archive page for both teachers and administrators where the principal can see reports or results from data input that has been uploaded by teachers and administrators by clicking the button. detailed reports that have been provided.
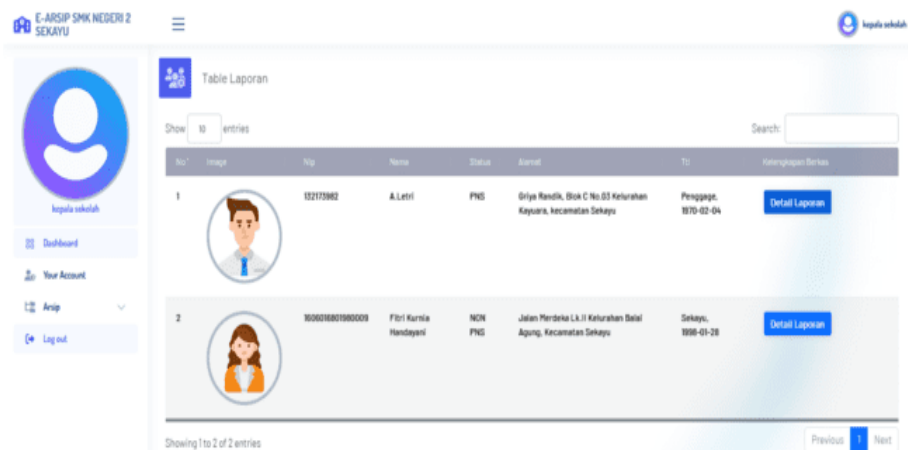

Figure 5. Teacher and TU Archive Data Page on the school Principal Login

Diploma Archive Data Page at the Principal's Login. Below is the display on the student data table page. This table is an archive of student/alumni diplomas. To view student/alumni diplomas that have been uploaded by administration, the school principal only needs to click the view diploma button.
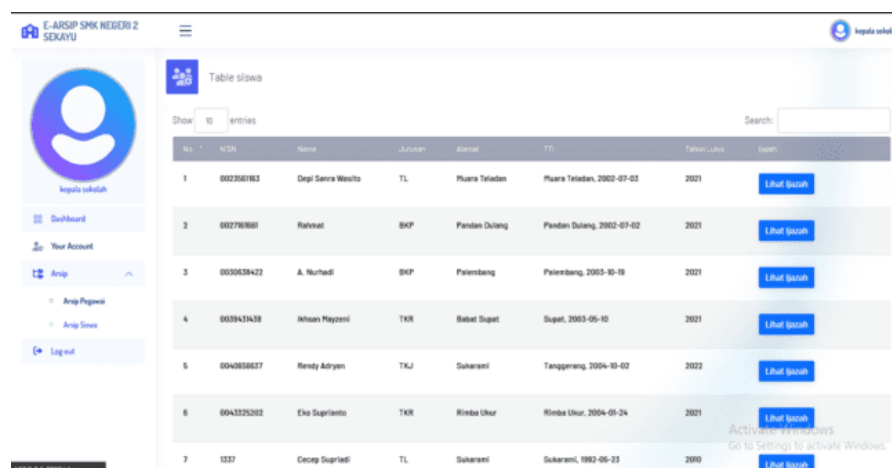

Figure 6. Diploma Archive Data Page on Principal Login

The image below shows the admin dashboard page that is accessed by the admin, where on the admin dashboard itself there are several menus, namely, the officer menu, employee menu, and the logout button..

Figure 7. Admin Dashboard Page

The image below shows a design plan for the admin table page. In this table the admin can see, change and delete emails and passwords.

Figure 8. Admin Table Page

The image below shows the teacher table page, where in this table the admin can add a teacher account, by clicking the add teacher button.

Figure 9. Teacher Login Table Page in Admin Login

The image below shows the administration table page, where in this table you can add administration accounts carried out by the admin, by clicking the add TU button.

Figure 10. TU Login Table Page in Admin Login

Teacher Dashboard Page, The image below shows the teacher dashboard page that is accessed by teachers, where on the teacher dashboard itself there are several menus, namely, account, your files and the logout button.

Figure 11. Teacher Dashboard page

On this page the teacher can see the data that has been input and can also add archive data, edit and delete data that has been input by the teacher. If you want to see the archive that has been entered, click the archive detail button, then the display for archive details can be seen in the image below.

Figure 12. Teacher Archive Data Page

In the add archive display, there is an archive select menu where there are several sub menus to select which files will be input to the program. Then in the other options we can add files that are outside the sub menu options, select archive, then on the choose file button we are told to look for the file or archive data that we have selected and then upload it..

Figure 13. Menu display for adding teacher archives

On this page the teacher can see the teacher data that has been entered and can also delete and edit the teacher data.

Figure 14. Teacher Account Page

The image below shows the TU dashboard page that is accessed by TU, where on the admin dashboard itself there are several menus, namely, account, my files, student data and a logout button.

Figure 15. TU Dashboard Page

On this page, TU can see the data that has been input and can also add archive data, edit and delete data that has been input by TU. If you want to see the archive that has been entered, click the archive detail button, then the display for archive details can be seen in the image below.
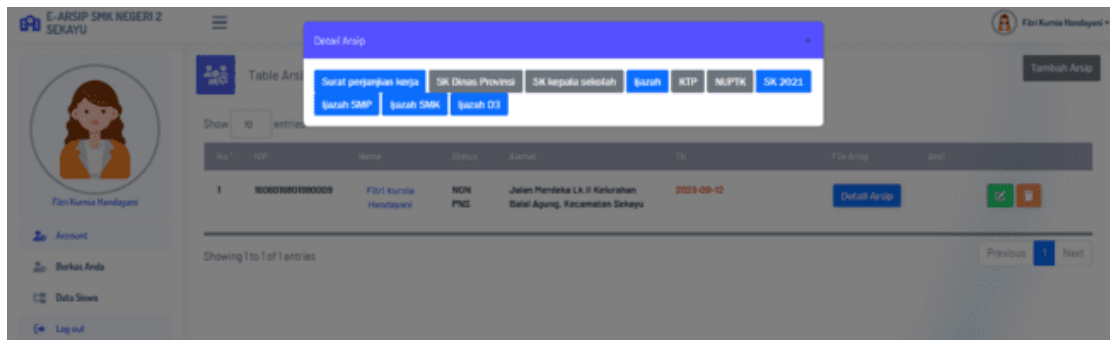
Figure 16. TU Archives Data Page

In the add archive display, there is an archive select menu where there are several sub menus to select which files will be input to the program. Then in the other options we can add files that are outside the sub menu options, select archive, then on the choose file button we are told to look for the file or archive data that we have selected and then upload it.
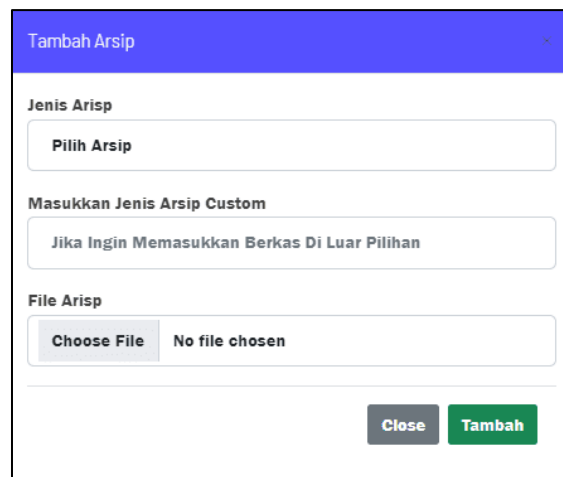
Figure 17. Add TU Archives Menu Display

On this page, TU can view student or alumni diploma archive data that has been input and can also add student or alumni diploma archive data, edit and delete data that has been input by TU.
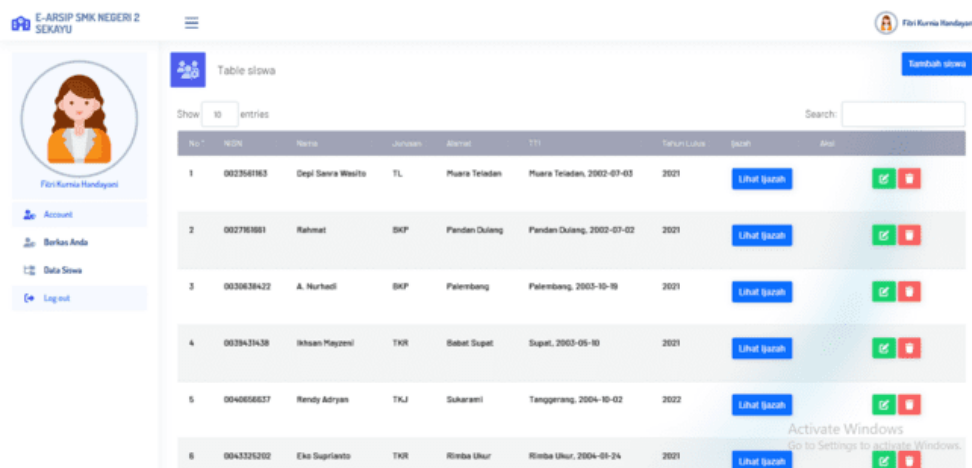
Figure 18. Student or Alumni Diploma Archive Data Page

In this add student display, where TU is in charge of inputting student data from input of nisn, name, major and uploading files or diploma data of students who have become alumni at that school. In the select major menu, there are sub menus for TKJ, TKR, TL, TITL and BKP majors. If TU has input all student data, then

there is an add button which functions to add student data according to the input that has been entered while the close button itself functions to close the add student menu again.

Figure 19. Menu display for adding student or alumni diploma archives

On this page, TU can see the TU data that has been entered and can also delete and edit the TU data.


Figure 20. TU Account Page

3.3 Test Result

After building the system, the next stage is testing its function and performance. Testing is carried out using the black box testing method. This test focuses on the display results and basic functions or functionalities of the system, with the aim of seeing whether any errors are found so that they can be repaired immediately.

Table 1. Admin Menu Test Results

Scenario	Test cases	Expected results	Information
Login	Validate email and password	You can go directly to the main page	As expected
	Warning if you enter your email and password incorrectly	A warning appears "incorrect email and password"	As expected
Manage Users	Enter user data	Adding new user data	As expected
	Edit user data	Edit existing user data	As expected
	Delete user data	Delete old user data	As expected
Logout	Press the logout button	Exit the menu	As expected

Table 2. Teacher Menu Test Results

Scenario	Test cases	Expected results	Information
Login	Table 2. Teacher Menu Test Results	You can go directly to the main page	As expected
	Warning if you enter your email and password incorrectly	A warning appears "incorrect email and password"	As expected
File	File input	Adding teacher archive data	As expected
Account	Edit teacher data	Edit teacher data	As expected
	Delete teacher data	Delete old teacher data	As expected
Logout	Press the logout button	Exit the menu	As expected

Table 3. TU Menu Test Results

Scenario	Test cases	Expected results	Information
Login	Validate email and password	You can go directly to the main page	As expected
	Warning if you enter your email and password incorrectly	A warning appears "incorrect email and password"	As expected
File	File input	Added TU archive data	As expected
	Student Input	Adding student diploma archive data	As expected
Account	Edit TU data	Editing TU data	As expected
	Delete TU data	Delete old TU data	As expected
Logout	Press the logout button	Exit the menu	As expected

Table 4. Principal Menu Test Results

Scenario	Test cases	Expected results	Information
Login	Validate email and password	You can go directly to the main page	As expected
	Warning if you enter your email and password incorrectly	A warning appears "incorrect email and password"	As expected
Files	Report Details	View Employee Archives (Teachers and TU)	As expected
	Report Details	View Student Archives (Alumni Certificates)	As expected
Account	Edit Principal data	Editing Principal data	As expected
	Delete Principal data	Deleting old Principal data	As expected
Logout	Press the logout button	Exit the menu	As expected

4. Related Work

Previous research has delved into the intricacies of web-based applications and electronic archives to enhance data management efficiency, particularly within educational institutions and organizational settings. Abdur and Tri (2021) engineered a web-centric information system tailored to supervise student internship reports, focusing on fortifying the repository system's functionality within the vocational school landscape [1]. Similarly, Salsabila and Sobiruddin (2022) scrutinized the orchestration of report card archives via SIMAK (School Information Management System) within high school milieus, accentuating the indispensability of a streamlined recording apparatus [2]. In a parallel vein, Sjofjan and Aldisa (2023) advocated for a fusion of sequential search algorithms and autocomplete functionalities within web-based archive applications targeting libraries, aiming to simplify data retrieval mechanisms [3]. Suratman *et al.* (2021) debuted an electronic document filing system grounded in the First in First Out (FIFO) methodology, circumventing the challenge of managing document flow efficaciously [4].

Furthermore, the scholarship by Wijaya *et al.* (2017) and Widyanto (2018) gravitated towards crafting academic information systems bespoke to educational institutions, underscoring the paramountcy of user-centric interfaces and adept data management paradigms [5][6]. Moreover, Sudiarsa and Anom (2020) explored the linear sequential method in developing an electronic archive framework tailored for traditional village settings, underscoring the significance of technological adaptation to local contexts [7]. Further research, such as that by Oktaviani *et al.* (2022) and Trimarsiah and Arafat (2017), meticulously dissected the design and implementation intricacies of web-based systems for academic and linguistic institutions, accentuating the necessity for robust data management solutions [8][9]. Complementarily, Hadi, and Rokhman

(2020) scrutinized the utility of websites as conduits for information dissemination and promotional endeavors within Islamic educational establishments [10].

In a related strand, Sopiah and Agustina (2019) and Arif (2020) elucidated the application of web engineering methodologies in crafting sales and green space information systems, illuminating the adaptability of web-based solutions across diverse domains [11]. Rayan (2021) unveiled an electronic archive application tailored for final reports and assignments in the computer engineering department, contributing to the progressive evolution of archival practices within educational milieus [14]. Incorporating findings from Fitriyah & Puspasari (2021), Wahyono *et al*. (2021), Muna *et al*. (2022), and Widia & Emidar (2020) underscores the imperative of strategies fostering autonomous learning, bolstering teacher efficiency through effective leadership, optimizing distance learning modalities, and accentuating vocabulary mastery within relevant subjects [15][16][17][18]. By integrating these insights into the archival framework at SMK Negeri 2 Sekayu, the institution stands poised to amplify support for student learning outcomes and overall academic triumph.

5. Conclusion and Recomendation

Based on the research results that have been presented, it can be concluded that the proposed application has great potential to provide convenience in managing archives for SMK Negeri 2 Sekayu. With this application, it is hoped that the process of archiving data on teachers, administrative staff (TU), and alumni diplomas can be carried out more effectively and efficiently, which in turn will improve overall performance in managing school archives. However, to maximize the benefits of this system, several suggestions can be taken into account.

1) Development of this system may include adding additional features that are relevant to user needs, such as a menu for wider archiving. By adding these features, the system can become more comprehensive and can accommodate various records management needs that may occur in schools.
2) Apart from web development, considering developing Android and iOS based versions of the application is also a step that can be considered. With the mobile application, access to the system will become easier for users such as teachers and administrative staff, especially when they are outside the school environment. This will increase the flexibility and affordability of the system, which in turn can increase overall adoption and usage.

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