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School Data Filing Information System of SDN Pasayangan Selatan Martapura

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ABSTRACT

Archives are records of recorded activities or sources of information in various forms in the context of carrying out activities made by institutions. Archiving activity at SDN Pasayangan Selatan Martapura still uses manual method, namely with Microsoft Excel. This is not efficient because there is still a possibility of lost or damaged data and information stored. To prevent this, a School Data Filing Information System was created in order to manage various activities at the school. This Information Systems development methodology uses the waterfall method while the programming language used is PHP, the data used for the development of the system were obtained from observations and interviews of staff at SDN Pasayangan Selatan Martapura. The results of this study show that the developed School Data Filing Information System can manage a variety of activities in SDN Pasayangan Selatan

Key words: Data Filing, Web, Information System, Waterfall

INTRODUCTION

School is an institution or place to learn such as to read, write, and learn to have better behavior. School is an integral part of a society that faces the real condition within the present people. School can be also defined as the human development mode (*human development*) [1] where the school has a function to grow the academic, social, and religious value inside the students [2]. School is the second environment where the students can train and grow their personality [3]. In addition, schools are complex and unique institutions because there are various dimensions which are interrelated and determine one another and show that schools as an organization have certain characteristics that are not shared by other organizations. Schools have their own characteristics where the learning process takes place, where the civilizing life of humanity takes place [4]. Moreover, to carrying out teaching and learning activities, every school certainly has activities in the academic and non-academic fields. These activities can be internal or external. The SDN Pasayangan Selatan is one of the schools that quite often have participation in academic and non-academic activities. It makes the archiving record of these activities more and more likely to become unclassified. It is because the archived school activity data still uses the Microsoft Excel method which has also not been managed properly. As a result, the process of storing data becomes more complicated because the data stored becomes irregular and most likely will cause data loss, data errors, and even delays in processing data. This also causes an archive search can not be done quickly and accurately [5]. The school data is really having an influence on the growth and development of a school. It will be so unfortunate if it is not well-managed.

Nowadays, the implementation of information technology is spreading in almost the entire aspects, included the school or university [6]. Information technology has an important role in human civilization. It will make the complicated work is easier. The time spent doing a job also becomes less. One of them is by using cloud computing technology. Cloud computing is an information technology service that can be utilized using an internet network [7].Which resources such as processors, storage, networks, and software become abstract and are provided as services on the network / internet using remote access patterns. On-demand availability as needed, easy to control, dynamic and almost unlimited scalability are some important attributes of cloud computing [8]. By using the cloud, the workings of information technology systems in organizations will experience changes and can facilitate users in data storage. This method will be

used for archiving activity data at SDN Pasayangan Selatan Martapura so that data can be stored and managed properly. Therefore, to overcome these problems, a web-based school data archiving application was made which aims to facilitate the management of data archiving activities at SDN Pasayangan Selatan. Also in this current digital era, the use of information technology is a necessity so that everything will become more effective and efficient [9].

METHODS

In the making and planning of the web-based mail data filing system at SDN Pasayangan Selatan Martapura, the waterfall method is used. This waterfall method is the linear application development model which uses the fakes phase; when a phase ended, the next phase started [10]. This model is commonly used in the software development world [11]. It is one of the simplest ways to unite the live cycle activity in making the SE life cycle process [12]. The stages of waterfall method can be seen in the Figure 1. The main stage of waterfall method is reflecting the basic development activity [13]. The waterfall is a classic model that is systematic, sequential in building software. The name of this model is actually the "Linear Sequential Model". This model is often referred to as the "classic life cycle" or the waterfall method. This model is included in the generic model in software engineering and was first introduced by Winston Royce around 1970 so it is often considered obsolete, but it is the most widely used model in Software Engineering (SE). This model approaches systematically and sequentially. Called the waterfall because step by step through must wait for the completion of the previous stage and run sequentially [14]. Meanwhile, the stages of this waterfall method are as follows:

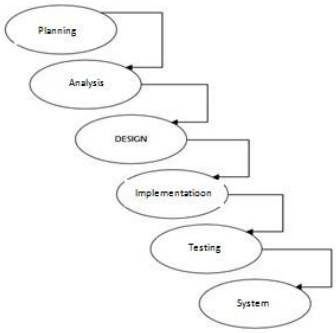

Fig. 1 Waterfall Metho

Planning

Planning is a satisfying way to make activities work well. This method is accompanied by a variety of anticipatory steps to minimize the gaps that occur so that the activity reaches its intended purpose [15]. The system development plan includes an overview of how the system engineering process is carried out and how downstream engineering activities will be carried out [16]. Setting goals is important in designing a system. Besides that, the way to describe the system design is also crucial [17].

To design a school data archiving system at SDN Pasayangan Selatan, it is necessary to plan by understanding the business context of the application to be made, then determining the time and cost of development and application development flow. In this case it is very necessary to have communication with the admin concerned in planning the system to be created through collecting data and information related to the problem and direct observation and discussion to get the data needed.

Analysis

From the planning stage, the analysis phase will begin. The system requirements analysis activity is the second largest major development phase of the entire system [18]. An analysis is the elaboration of a subject for the various parts and a review of the part itself, as well as the relationships between the parts to obtain an appropriate understanding and understanding of the overall meaning [19], that is done by analyzing user needs, analysis of software and hardware needed in system development and other needs in making databases. Analysis of hardware requirements on this system is a laptop with the following specifications Acer Aspire A314-41-9556, AMD A9-9420e RADEON R5 processor, and 4 GB DDR4 RAM. Software requirements analysis translates the needs of stakeholders and their expectations into a set of appropriate software requirements. This activity involves a series of analyzes and assessments to examine the needs of stakeholders and software requirements to understand the implications of each requirement in the scope of the system development effort [20]. Analysis of software requirements that help make this system are Windows 10, XAMPP, Sublime Text, PHP Programming Language, Mozilla Firefox, and MySQL.

Design

The next step is designing the system. Design is a big idea, which includes product design, service design, graphic design, and environmental design [21]. System design is a product that consists of a combination of devices and components [22]. System design can also be defined as the act of designing a product as a whole so that all of its parts

work together, achieve desired goals, and function for users to help them achieve desired goals [23]. The purpose of the system design is to allocate large system requirements for hardware and software components, as well as provide an overview of what will be done and how it will look. The system design activities begin after the system requirements analysis has been completed and before the coding phase [18]. This stage fulfills all user needs in accordance with the results analyzed such as display design, and helps define the overall system architecture. Documentation produced from this system design stage includes the design of Use Case Diagrams, Activity Diagrams, Entity Relationship Diagrams (ERD), and interface design.

Implementation

Next is the implementation. Implementation is an action done by an individu, officer, organization, government institution, or private which is directed to reach the created aims in a certain decision [24]. The implementation of the program refers to how good a program proposed or practiced intervention and it is a basic to set the conclusion validity, internal, external; construction, and statistic of the result evaluation [25]. In this stage, the whole system designs which were arranged before will be changed into several program codes and modules which are later will be integrated into a complete system based on a job contract.

System

The system is a collection of interconnected components that interact with each other to perform a task to achieve a goal [26]. Information systems (computers) have become the most powerful tools for recording, research and development, transfer of funds, electronic mail, and management in most companies today [27]. Information systems are very complex - consisting of hardware, software, and other parts, some of which have their own communication language [28]. At this stage the data obtained from the previous stage and studied in order to test the features in the system to check whether it has worked in accordance with what was previously designed.

RESULT AND DISCUSSION

From the result of functional testing, finally, the proper final result of a system was in line with what is expected. Below is the explanation of the result and discussion of the school data filing information system at SDN Pasayangan Selatan Martapura.

Login Page

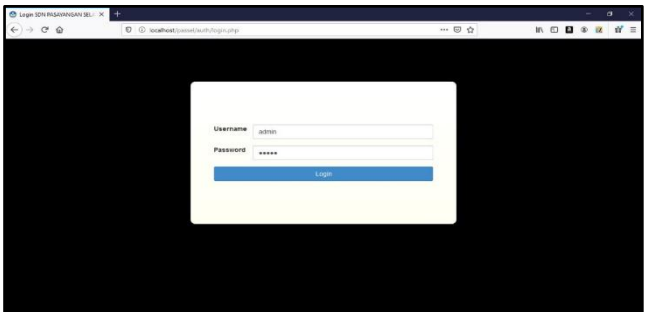

Fig. 2 The appearance of login page

Figure 2 shows the login page when the user first opens the system. The login system is something that is definitely found in the internet world. When someone logs in, they will, of course, enter a password where the password is private and confidential [29]. Passwords are used to prevent unauthorized access to important information, to guarantee personal information security, and to prevent unauthorized persons from accessing various services [31]. Passwords can give us strong protection if we apply a few simple rules, except if the password encoding algorithm of the operating system is too weak [31].

Admin Homepage

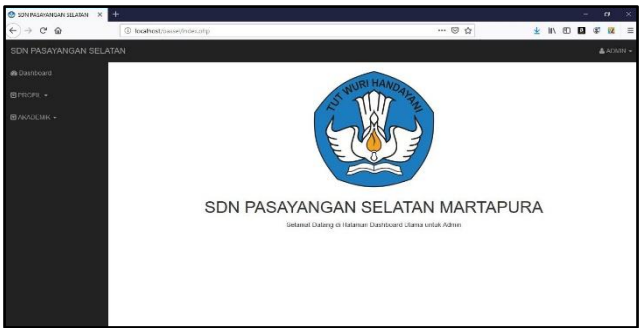

Fig. 3 Admin Hompage Display

After logging in, the user will be directed to the main page (dashboard). The dashboard is a type of display that communicates with the viewer important information in an easy-to-read format. The dashboards visualize the consolidated data sets for specific purposes that allow users to see what is happening and to start actions. Dashboard can be interpreted as a computer interface that usually displays charts, reports, indicators, visuals, and alert mechanisms, which are consolidated into a dynamic and relevant information platform [32].
In this system, the dashboard displays two main menus, namely profile and academic.

The Profile Menu Display

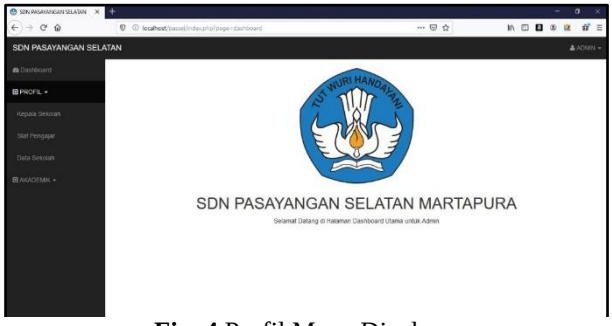

Fig. 4 Profil Menu Display

In the profile menu display, there are several sub-menus. Among them are the Principal, Teaching Staff, and School Data. The sub-menu itself is a slave page where when one of the supporting pages is selected or activated, the display will be named Master Page (second main page) and so on [33].

The School Principal Page Display

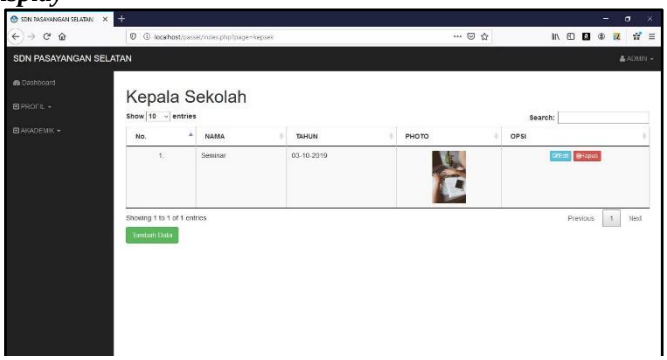

Fig. 5 The School Principal Page Display

This page is a support page that is included in the main menu section (Profile). On this page, the user (admin) can enter various kinds of data related to the Principal. Users can also search for activity data that has been input through the search feature.

Teaching Staff Page

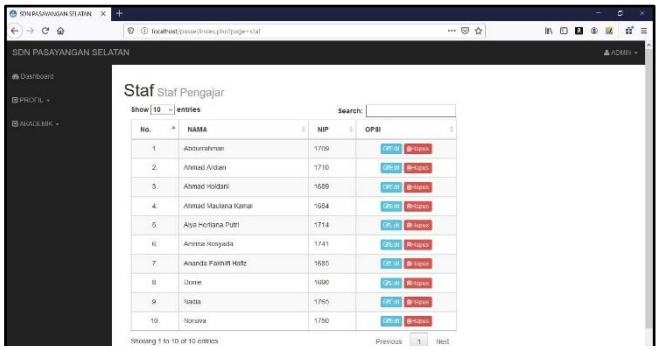

Fig. 6 The Teaching Staff Page Display

On the Teaching Staff page, users can view the data of Teaching Staff (Teachers). In displaying the data used datatables. Datatables is a jQuery plugin that provides extensive support for interactive HTML tables; by using various features such as pagination, filtering, sorting and internationalization (among many others) [34].

The School Data Page

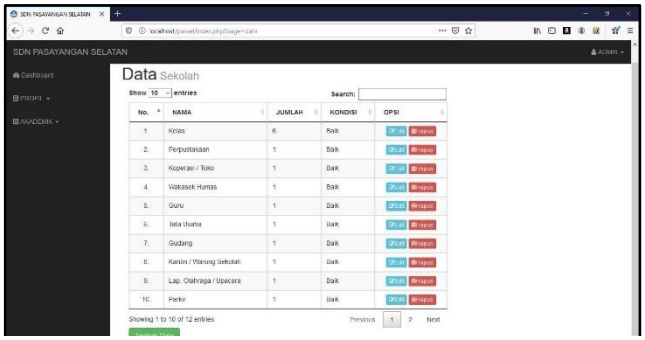

Fig. 7 The school data page dislpay

The school data page is basically similar to that on the Teaching Staff page. This page shows various facilities at the school. Users can add data, edit and delete. Then the user can also use the livelihood feature if there is enough data.

The Academic Menu Page Display

Fig. 8 The Academic Menu Display

The academic menu is the main menu which has some supporting pages such as the Achievements and Galleries. This menu serves to classify matters related to academics.

Achievement Display

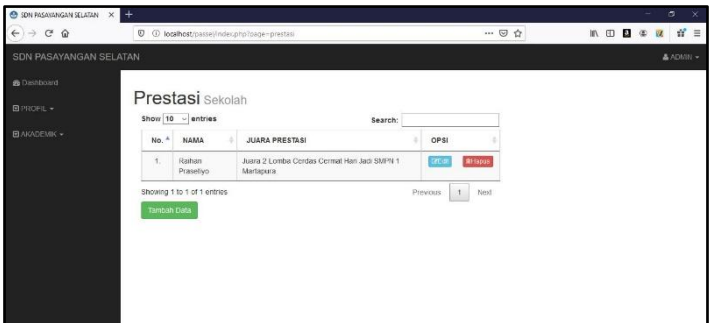

Fig. 9 Achievement Display

On the Achievement Display page, users can enter various kinds of achievement data that have been achieved by students. In addition, users can also edit data and delete data if an error occurs.

Gallery Display

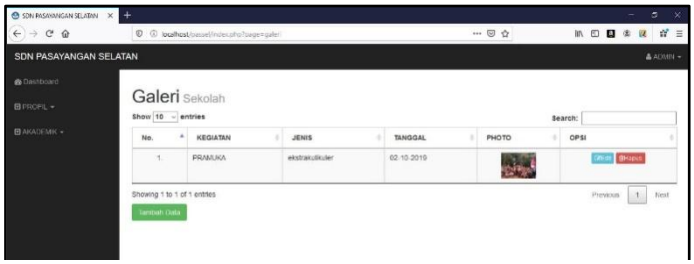

Fig. 10 Gallery Display

In the Gallery view, users can add various kinds of photo galleries of activities that exist in the school. Users can also edit and delete data. In addition, there is also a search feature if the data stored is quite a lot.

Add the Data

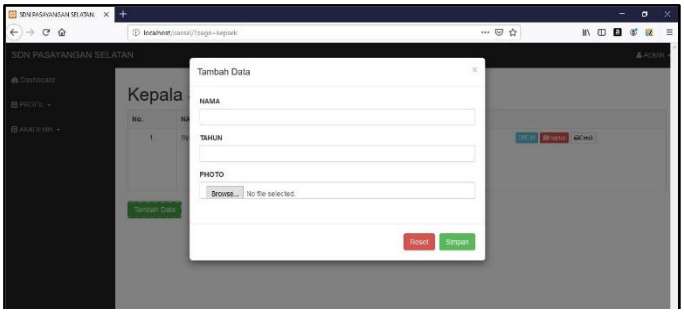

Fig. 11 Add Data Display

It is a display where users add or input the data. Data input is each of data which is entered to a system.

Data Editing

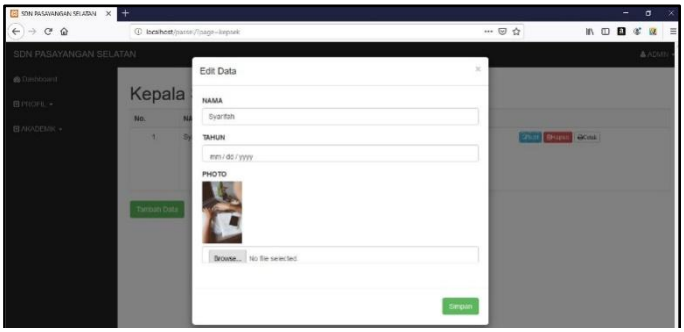

Fig. 12 Edit Data Display

In this Edi Data oage, user can change name and change the date. Meanwhile, users can also add the activity photos.

Delete Data

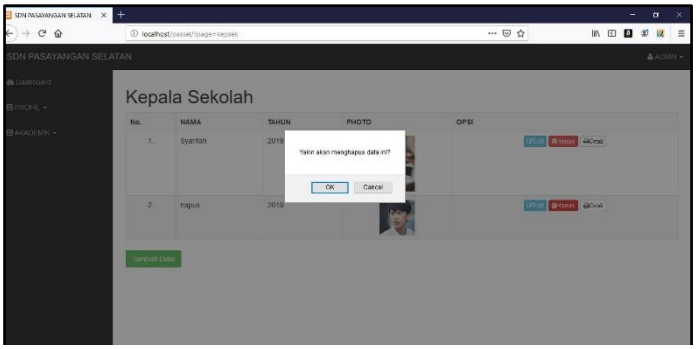

Fig. 13 Delete Data Display

This display will appear when the user presses the delete button. This display serves to convince and remind the user whether to really delete data or not. Display that appears will make it easier for users because it is in the form of the pop-up [35].

Previously, many had conducted research on the use of information technology in schools or other educational institutions. The use of information technology in education or school management has greatly developed for reasons of effectiveness and efficiency [36]. School management information systems have an important contribution to school management [37]. One proof of the use of information systems in the management of educational institutions is the use of information technology in tertiary institutions in Bandung, Indonesia that has been running well and effectively, especially in terms of planning and organizing academic information systems [38]. The support of information systems makes school leaders have managerial instruments to control and develop all important aspects of a comprehensive school, not only as a substitute for typewriters or displays [39]. A school needs an information system to manage some of their work such as managing student data, attendance, assessment, timetabling, finance to asset management, and facilities [40]. The information system is also able to provide a coordination mechanism so that the central education authority can track what the school is doing, and also allows a coalition of human and non-human actors to be formed in school administration and management [41].

In wider applications such as e-schools, this information system helps administrators, teachers, and policymakers make accurate and fast analyzes and decisions. An example is the urgent needs and development of the education system by enabling them to carry out their tasks easily, efficiently, and on time so that they can focus more on the educational

aspects, such as the learning needs of students [42]. Although the use of information systems is very helpful for school management, there are three things that must be a concern in running this system such as the alignments of school management to invest in good computer software, acceptance from administrators to use the system and the availability of IT staff to support the system [43]. Information system development in schools had previously been carried out in elementary schools in Bandar Lampung City. The result of this information system can help school data archiving more effectively and efficiently [44]. A web-based academic information system as student value processing has been developed at SMK Negeri 1 Kudus and has proven to be very feasible to use and helps teachers in making electronic report cards so students and parents can easily access the marks [45].

The development of web-based information systems has also been developed to improve the performance of the Special Work Exchange Unit at SMK Negeri 1 Tanjung Raya, where this system can be accessed online so that data processing, storage and search or distribution of graduates runs more effectively [46]. Furthermore, in 2019, a website-based academic information system was also developed at SMK Bina Medika, Jakarta so that the delivery of information was faster and easier to access for all school residents [47]. In addition, the student information system integrated into the K-12 school system has also been successfully developed and its implementation is able to improve school performance in providing services to students [48]. Looking at the results of research on the development of the information system it can be said that the information system has an important role in school management. However, given the constantly changing technological developments, the school information system should also be continuously updated so that it can meet the needs of schools and the demands of the times. Like the current digital era all systems must be able to be made online and automatically [49].

CONCLUSION AND RECOMMENDATIONS

The school data filing process which is still done manually can bring several losses such as the broken or missing letter; it also comes with the safety problem for sure [50]. Traditional filing management is not only having problems with checking and security aspect but also it is unable to fulfill the present era's needs [51]. The less maximum management of school filing can also cause low documentation skill and it has an effect on the accountability of related school [52]. That is why; it needs an information system that can file the letters manually and computerized so that it can simplify the needs of filing, managing various kinds of activities at school.

The school data filing information system which was made for SDN Pasayangan Selatan Martapura had a user level which is called admin. Admin can do several managements such as deleting, editing, and data adding. This information system can give the ease of data filing and management in SDN Pasayangan Selatan.

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