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RESEARCH ARTICLE

Letter Archivement Information System in Department Earth Engineering Faculty of Engineering Universitas Syiah Kuala Based on Paperless Office

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Abstract

Incoming and outgoing mail information systems have an important role as a source of information and documentation media. As a source of information, archives are material/data for making the right decisions, so that archives can be said as a system that is interrelated with each other in a unified bond, because archives can support a program of organizational activities, both in terms of planning, implementation and controlling the tasks of the organization concerned, from leading activities to decision-making activities. Archives as documentation media, archives are official evidence that can be accounted for for government activities, therefore it is an obligation for every employee who works in the archives unit in this organization to carry out their duties properly, so that correspondence services can be more effective. and efficient, while the purpose of this study is to analyze the Archives Management System at the Department of Earth Sciences, Faculty of Engineering, Syiah Kuala University. In this study, researchers used descriptive research methods with a qualitative approach. This study aims to develop concepts and facts in depth to answer how the Archives Management System in the Department of Earth Sciences, Faculty of Engineering, Syiah Kuala University. The archive management system at the Department of Earth Sciences, Faculty of Engineering, Syiah Kuala University uses a number system and a dating system that is still less effective but has been running well, because it uses a combined procedure of centralization and decentralization. The Prototyping method is used as a software development model and evaluation activities are also carried out as an assessment of the results of the prototype built. Based on the evaluation of the appearance of the current desktop application. With the prototype design, it is known that each category has increased usability values. Content, Organization and Readability previously had a value of 0.64 and increased to 0.72. The Navigation category was previously 0.69 to 0.71. The previous User Interface Design category was 0.58 to 0.74 and the previous Performance and Effectiveness category was 0.62 to 0.72.

Keywords

System; Management; Files; Visual BASIC.NET; Prototyping Models.

1 | INTRODUCTION

Every office work, both government and private, requires the creation, storage, recording, maintenance, depreciation, deletion, and management of letters [1], both incoming and outgoing letters to the deletion of letters [2]-[3] with a certain archive management system and can be justified legally [4]. Archives as one of the office activities have a very important role [5][6]. The archives owned by the organization must be managed properly, it will help the leadership task and assist the work mechanism of all employees of the agency concerned in achieving goals [7]. Information needed through archives can avoid miscommunication, prevent duplication of work and help achieve work efficiency [8]. Records Management System has an important role as a source of information and documentation media [9]. As a source of information, the archive is material / data for making an appropriate decision [10], so that the archive can be said to be a system where each other is related to one another in a unified bond, because archives can support a program of organizational activities, both from in terms of planning, implementing and controlling the tasks of the organization concerned, starting from leading activities to decision-making activities. Archives as documentation media at the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University as official evidence that can be accounted for for activities, therefore it is an obligation for every employee who works in the archives unit in this organization to carry out their duties properly, so that correspondence services can be better. effective and efficient. Although archives have an important role in administration, in office activities there are still many offices (government and private) that have not managed archives properly. This is also experienced by Syiah Kuala University. Based on the observations, the researchers found several phenomena, the first phenomenon that occurred was that the document file storage space was not wide enough or the arrangement of the arrangement was not good, which made it difficult for archives to be found when needed and could cause the process of the archive management system to be hampered. The second phenomenon is that archives are still piled up, making the archive management process take a long time to handle and can result in lost or damaged archives. The third phenomenon is the employee forgets to return the borrowed archive to the archive storage area. This phenomenon clearly slows down the records management system in terms of time efficiency and archive maintenance. The existence of a good, organized and directed archive management system can make it easier for employees to find back archives in a fast time and good archive management can minimize the occurrence of archive damage. Thus the archive management system can run more smoothly. Based on the description above, the author wants to use desktop-based technology to build a paperless office-based information system for incoming and outgoing mail in the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University. The purpose of this study is to determine and design a Archiving Information System at the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University.

2 | BACKGROUND THEORY

The definition of the system in various fields is different, the system is defined as a collection or set of elements, components / variables that are organized, interact with each other, depend on each other and are integrated [11]. The system is interrelated parts that operate together to achieve some goal or purpose [12]. The system is any unit, conceptually or physically, which consists of parts in a state of interdependence with one another [13]. Meanwhile, Wali (2017) revealed that the system is a collection of interrelated elements that form a single unit in an effort to achieve a goal [14][15]. From the three definitions, it is known that the system is a set of elements (elements) that interact with each other so as to form a unified whole in an effort to achieve goals. Information is the result of processing data obtained from each element of the system into a form that is easy to understand and is the relevant knowledge that people need to increase their understanding of the facts. Often information is equated with data, even though data and information have quite basic differences in substance [16]. Data is a fact that describes an event/real unit that occurs at a certain time [17][18]. Data refers to facts in the form of numbers, text, documents, pictures, charts, certain codes, and other forms [17][18]. Data that is processed by being processed through a certain system, so that it has value for someone, then the data has been turned into information [19][20]. Information implies data that has been arranged in such a way that it is meaningful and useful because it can be communicated to someone who will use it to make decisions [21]. Computer-Based Information System is a data processing system into a quality information and used for a decision-making tool. Accurate and effective information systems [22], in fact are always associated with the term "computer-based" or computer-based information processing [23]. Information systems "computer-based" means that computers play an important role in an information system [24]. In theory, the application of an Information System does not have to use a computer in its activities. But in practice it is impossible for a very complex information system to run properly without a computer [25]. Information System is an information generating system. With the integration between its subsystems, the information system will be able to provide quality, precise, fast and

accurate information according to the management who needs it [26]. According to Bodnar and Hopwood, an information system is a collection of hardware and software designed to transform data into useful information.

Archives are “archives are one of the products of office work [27]. Other office work products are forms, letters, and reports. The word archive, which in Dutch, comes from the Greek arche, arche. Changes in the form of the word arche to archea which then also changes to archeon. According to the meaning of the word itself, arche means the beginning and also means the position or power and function of the judiciary. Archea means documents or records on government matters with all their intricacies. Archeon means City Hall where government documents/records are handled. The archive itself is very similar to the Latin word archium which means town hall. From the origin of the word and its meaning, the archive can mean a document and also a place/town hall. In English, archives are expressed by the term file, which comes from the Latin felum which means rope or thread [28]. At first the Americans put the script together by tying it with string or thread. In Arabic it is called warkat which means letter [29]. According to this understanding, a letter can be said to be an archive if it meets the following requirements: 1) The letter must still have an interest (for institutions, organizations, agencies, individuals) both for the present and for the future. 2) The letter, because it still has a value of importance, must be stored using a certain system so that it can be easily and quickly found if at any time it is needed again. Meanwhile, according to some experts, archives are "a collection of documents that are stored regularly because they have a purpose so that they can be quickly retrieved whenever needed". It is clear that the archive is a supporter of office activities, so the archive must be easy to find if needed.

According to this understanding, the document, hereinafter referred to as the archive, must meet the following requirements: 1) The document must still have a use. 2) The document must be kept in an orderly and planned manner. 3) The document can be found easily and quickly if it is needed again. Given the importance of archives, the Government of Indonesia pays great attention to archives. This is evidenced by the issuance of several laws and regulations governing the National archives. The first regulation that regulates the National Archives is Law No. 19 of 1961, concerning the main points of National Archives, which is contained in the State Gazette of 1961 No. 310, additional State Gazette No. 2368. Then the law was revoked and replaced by Law number 7 of 1971 concerning the main provisions of the National Archives, which was contained in the State Gazette of 1971 number 32, an additional Sheet of State number 2964. (This Law has been replaced by Law Number 43 of 2009 concerning record management). Then the government reissued Law No. RI. 8 of 1997 concerning company documents. According to Law number 43 of 2009 concerning archives, several definitions of archives and archives have been summarized in Chapter I General Provisions Article 1. 43 of 2009: 1) Archives are matters relating to archives, 2) Archives are recordings of activities or events in various forms and media in accordance with the development of information and communication technology made and accepted by state institutions, local governments, educational institutions, companies, political organizations, community organizations, and individuals in the implementation of social, national and state life, 3) Dynamic archives are archives that are used directly in the activities of archive creators and stored for a certain period of time, 4) Vital archives are archives whose existence is a basic requirements for the operational continuity of archive creators, cannot be updated, and cannot be replaced if damaged or lost, 5) Active archives are archives with high and/or continuous frequency of use, 6) Inactive archives are archives whose frequency of use has decreased, 7) Static archives are archives generated by the archive creator because it has historical use value, has exhausted its retention, and has permanent information that has been verified either directly or indirectly by the National Archives of the Republic of Indonesia (ANRI) and/or archival institutions, 8) Safe archives are State archives related to the existence and survival Nation and State whose integrity, security and safety must be maintained, 9) General archives are archives that are not included in the category of protected archives. As complete as Law no. 43 of 2009 contains the notion of archives and archives. It's just a matter of how to apply it in managing archives for the life of nationals, organizations, companies and offices so that in the end the world archives of the country can be managed optimally, effectively and efficiently. From some of the above formulations, it can be concluded that an archive is a collection of letters or a collection of documents that contain meaning and have usefulness both for the benefit of the organization and for personal/individual/individual interests that are stored in such a way that they are easily and quickly recovered if needed at any time.

The government also issued Law of the Republic of Indonesia (RI) Number 11 of 2008 concerning information and electronic transactions in Chapter I of General Provisions Article 1 which is referred to as follows: 1) Electronic information is one or a set of electronic data, including but not limited to writing, sound, pictures, maps, designs, photographs, Electronic Data Interchange (EDI), electronic mail (e-mail), telegram, telex, telecopy or the like, letters, signs, numbers, access codes, symbols, or processed perforations that have meaning or can be understood by people who are able to understand it. 2) Electronic transactions are legal actions carried out using

computers, computer networks, and/or other electronic media. 3) Information technology is a technique for collecting, preparing, storing, processing, announcing, analyzing, and/or disseminating information. 4) Electronic document is any electronic information created, forwarded, sent, received, or stored in analog, digital, electromagnetic, optical, or similar forms, which can be seen, displayed, and/or heard through a computer or electronic system, including but not limited to not limited to writing, sound, images, maps, designs, photographs or the like, letters, signs, numbers, access codes, symbols or perforations that have meanings that can only be understood by people who are able to understand them. 5) Electronic system is a series of electronic devices and procedures that function to prepare, collect, process, analyze, store, display, announce, transmit, and disseminate electronic information. While in Chapter III Article 5 of Law no. 43 of 2009: 1) Electronic information and/or electronic documents and/or their printouts are legal evidence. 2) Electronic information and/or electronic documents and/or their printed results as referred to in paragraph 1 are extensions of valid evidence in accordance with the procedural law in force in Indonesia. 3) Electronic information and/or electronic documents are declared valid if they use an electronic system in accordance with the provisions stipulated in this Law. 4) The provisions regarding electronic information and/or electronic documents as referred to in paragraph 1 do not apply to: (a) Letters which according to the law must be made in written form, and (b) Letters and their documents which according to the law must be made in the form of a notarial deed or deed made by the official making the deed. The definition of archive itself comes from the word archive or filing which comes from the word file. In the dictionary of office administration, filing or document storage is the activity of placing documents in a safe place in an orderly manner according to the system, arrangement and procedures that have been determined, so that the growth of the documents can be controlled and whenever needed they can be quickly recovered. From this formulation, it can also be concluded that filing (filing) is a process of archive management activities starting from archive creation to archive storage procedures. This arrangement is assisted by using a certain system, so that archives can be found when needed.

In the process of developing this research application using Visual Basic.NET. Microsoft Visual Studio is an event driven programming language and offers a visual Integrated Development Environment (IDE) to create application programs based on the Microsoft Windows operating system using the Common Object Model (COM) programming model [30]. Visual Basic is a BASIC language and offers fast graphics-based computer application development, access to databases using Data Access Objects (DAO), Remote Data Objects (RDO), or ActiveX Data Objects (ADO), and offers the creation of ActiveX consoles and objects. ActiveX [31][32]. Some scripting languages, such as Visual Basic for Application (VBA) and Visual Basic Scripting Edition (VBScript), are similar to Visual Basic, but work differently [33]. Visual Basic.Net (VB.Net) is a development of the previous Visual Basic programming language, namely Visual Basic 6.

3 | METHOD

The prototype method is a technique in developing a system by using a prototype in drawing a system which can make the client or the owner of the system itself have an overview of the system that will be built or developed by the developer team or development team [34][35]. Prototype has the meaning of a prototype or initial appearance which is the initial appearance of a system that can provide an overview of the final appearance of the system as a whole [35]. In simple terms, for example, when we are going to build a house, often a prospective home owner will be made a small-scale picture of the house that can illustrate how the house will look like when it is built. That's the analogy of the prototype itself. The method used in developing prototype software is usually used when a client does not explain a system that is to be made or developed [36]. With the prototype, clients can talk or discuss directly with system developers because the perception and understanding of the system to be created or developed will be the same [37], so there will be no misunderstandings during the process of making the system, device, and making the software. ongoing [38][39].

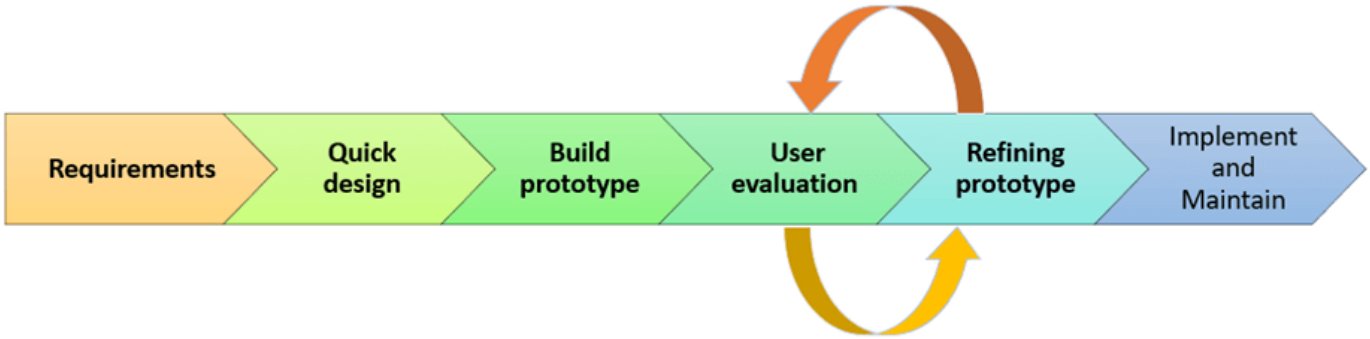


Figure 1. Prototype Method

In running the prototype method there are several stages where the prototype should have at least 6 stages.

1) Stage 1 Requirements Gathering and Analysis
   The first stage begins with a needs analysis. In conducting a system requirements analysis, a detailed definition is required. Therefore, in the process, the client as well as the development team need to hold a meeting to discuss in detail and detail about a system to find out what kind of system users want or expect in the future.
2) Stage 2 Quick Design
   This second stage is to make a simple design which will be able to provide a brief description of what system will be created or developed. Surely this picture is the result of the discussion in stage 1 at the beginning.
3) Stage 3 Building the Prototype
   The third stage is to build a prototype. When the quick design has been approved by the client, the actual prototype construction will begin to be made and used as a reference by the team of programmers who will create a program and application.
4) Stage 4 Evaluating Early Users
   In the fourth stage, an evaluation of early users is carried out. At this stage, the system that has been made into a prototype form will later be presented in front of the client for immediate evaluation and assessment. After that, the client can later provide a comment and also a suggestion regarding what has been made.
5) Stage 5 Refining Prototype
   In the fifth stage, the prototype repair is carried out. when the client writes a note aimed at improving the system, then the 4th and 5th phases will be repeated continuously until the client agrees on a prototype in developing a system. However, if the client does not have a revision of the prototype made, then the development team or developer can proceed to the 6th stage, namely implementation and maintenance.
6) Stage 6 Implement Product and Maintain
   At this last stage, the system product will immediately be created and made by programmers according to the prototype that has been approved by the client. Later the product or system will be tested and submitted to the client. In the next stage after product implementation, a maintenance phase is carried out which aims to make the system run smoothly without any obstacles [40][41].

The next stage is data collection and interviews which aim to help establish the user context of the system that will be created. The data and information needed are user groups, therefore interviews with stakeholders and users were conducted. Then evaluate the appearance of the current web application which aims to determine the usability value by distributing questionnaires to 30 respondents, the questionnaire consists of 4 categories, namely Content, Organization and Readability, Navigation, User Interface Design and Performance and Effectiveness.

4 | RESULT

Information System for incoming and outgoing letters at the Department of Earth Engineering, Faculty of Engineering, Shia University is an application designed and built to assist and facilitate the Department of Earth Engineering, Faculty of Engineering, Shia University in the process of archiving letters. The technology used in the development of this system is based on desktop based application technology, which forms a program that can stand alone and can be run in a windows environment. In the process of its application, this system requires several components, if all components supporting the application design and construction of incoming and outgoing mail information systems are installed on the computer, such as NET.Framework 3.5. Then the next step is to realize the system design that has been made, the following shows the most important parts (modules) of the

system that will be implemented. Menu design in the design program for incoming and outgoing mail information systems, the user is faced with a page that is described in the following program menu structure.

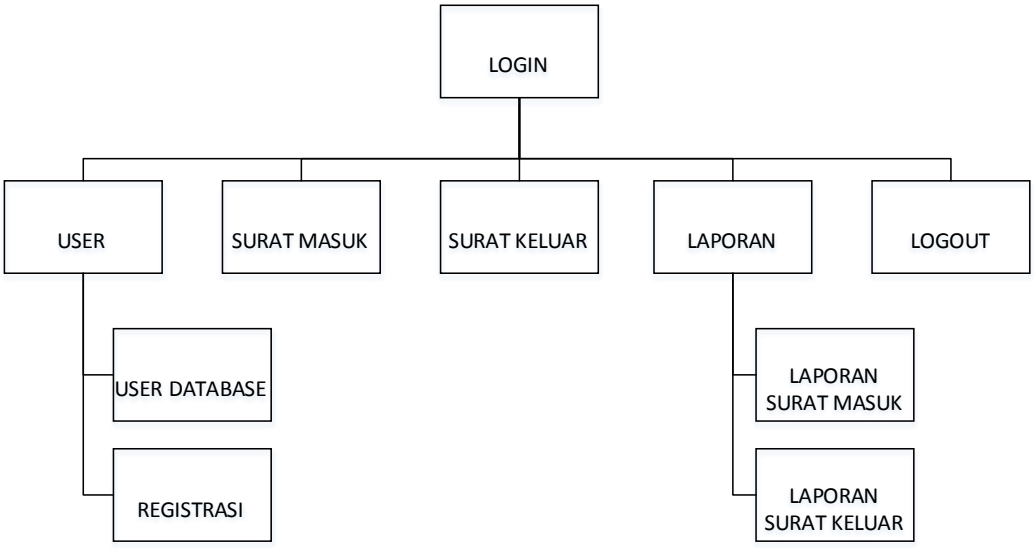


Figure 2. Program Menu Structure

The purpose of designing this system is to facilitate the Administration in the management process of incoming and outgoing mail and in the process of filing letters. Use Case Diagram consists of actors, use cases and their relationships. Use case diagrams are important for visualizing, specifying and documenting the behavioral requirements of the system. Use case diagrams are used to explain what activities can be carried out by the user / user of the system that is currently running. The following is a depiction of the system in the form of a use case shown in Figure 3.

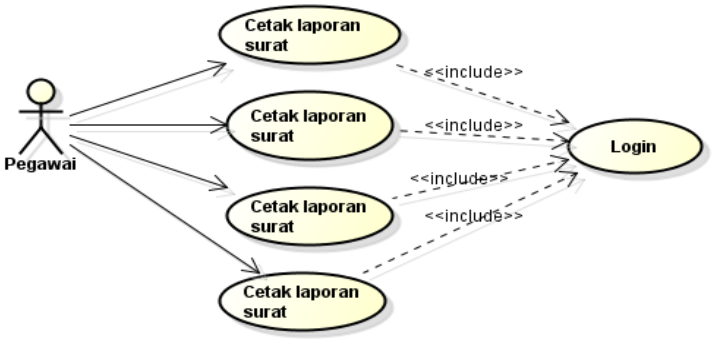


Figure 3. Use Case Diagram of a Mail Filing Information System

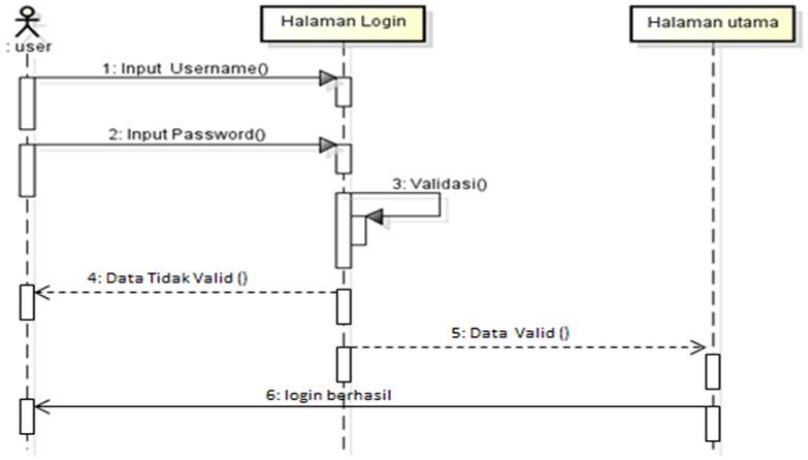
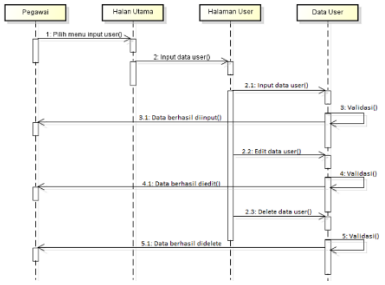
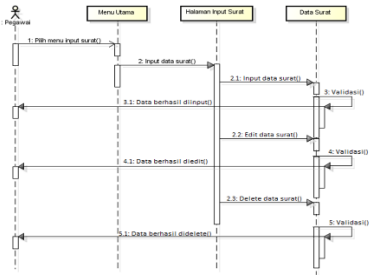


Figure 4. Sequence Diagram of User Login

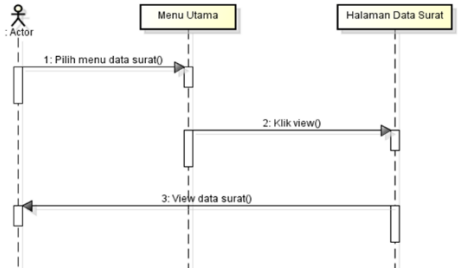
From Figure 4 it is clear that the archiving information system has a user authentication module, each user will be checked into the system if the user is available then will enter the administrator page. Meanwhile, for User Management Sequence Diagrams, Letter Data Input Sequence Diagrams, Mail Data View Sequence Diagrams, Letter Data Print Sequences are also shown in Figure 5 below.



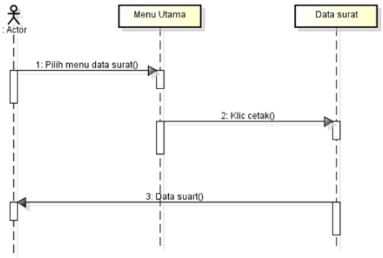
(a. Sequence Diagram Manage User)



(b. Letter Data Input Sequence Diagram)



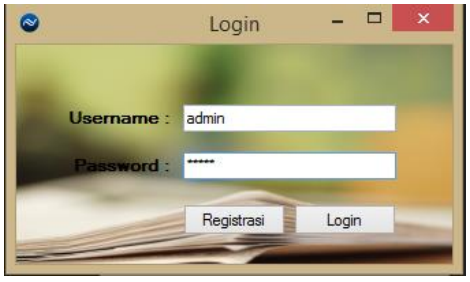
(c. Sequence Diagram View Letter Data)



(d. Letter Data Print Sequence)

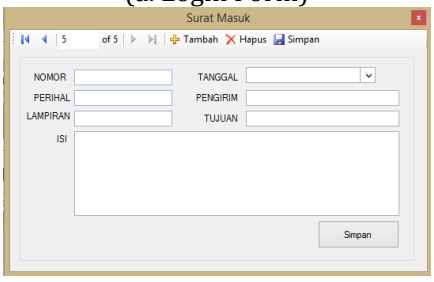
Figure 5. Sequence Diagram

The results of this design resulted in an archiving application as shown in Figure 6 below:

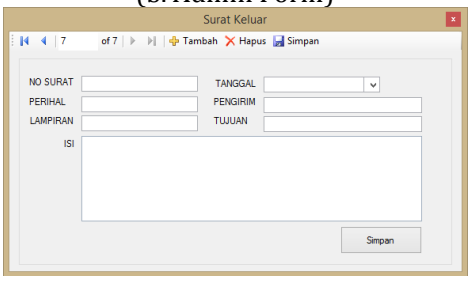


(a. Login Form)

(b. Admin Form)



(c. Login Archive Form)



(d. Exit Archive Form)

Figure 6. Application Display Results

In the evaluation activity, an assessment of the resulting display is carried out. Evaluation using a Google Form questionnaire. Questionnaires were distributed to 30 respondents from AMIK Indonesian students. The results of the evaluation of the current application display in each category, namely the Content, Organization and Readability categories, obtained an average usability value of 0.64. Navigation category obtained an average value of 0.69. Category User Interface Design obtained an average value of 0.58. Performance and Effectiveness category obtained a value of 0.62. Design analysis before repairs and also after completion of the user interface improvement and discussion of the comparison between the results of the evaluation conducted by 30 respondents to the current desktop application display and the results of the evaluation of the prototype design.

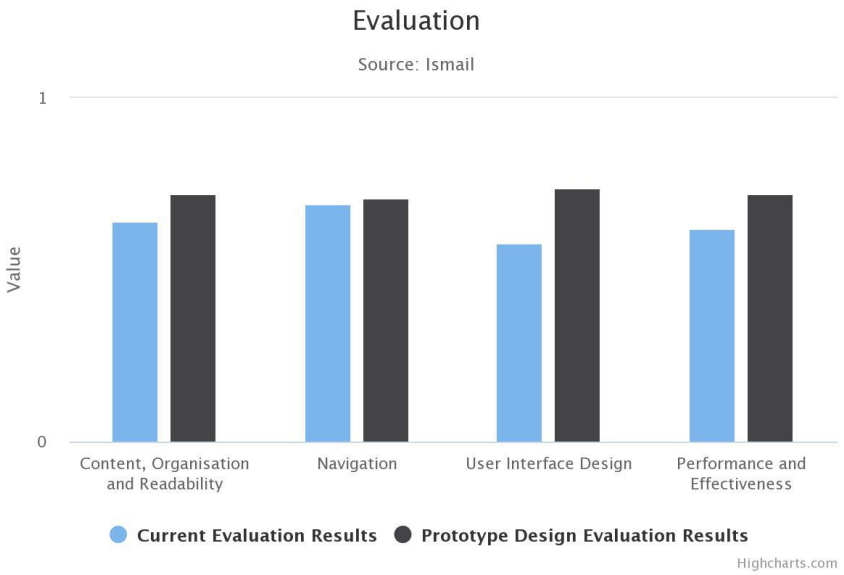


Figure 7. Category Value Diagram of Current Desktop Application Display Evaluation Results with Prototype Design.

Based on the picture 7, it can be seen that each category experienced an increase in the usability value. Content, Organization and Readability previously had a value of 0.64 and increased to 0.72. The Navigation category was previously 0.69 to 0.71. The previous User Interface Design category was 0.58 to 0.74 and the previous Performance and Effectiveness category was 0.62 to 0.72.

5 | CONCLUSIONS AND FUTURE WORK

Referring to the results of the author's research, designing a system that is in accordance with user needs and various system tests and program tests in its design, in the end the author draws several conclusions regarding the Analysis and Design of Archival Information Systems Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University that has been carried out, including that is; 1) The current system uses two worksheets for documenting correspondence archives, namely handwritten agenda cards and Ms. Excel for complete information, so that processing takes longer and is quite complicated to manage, 2) Incoming mail information system and leaving the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University is ready to replace the old system gradually in a certain parallel period (4-6 months). During that time, the old system is still used to maintain data security and integrity if an error occurs in the new system, 3) The system will greatly assist users or archive managers in the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University more quickly, easily and accurately in every activity. relating to correspondence archives, 4) The system works on one worksheet, to print cards, documentation and monthly reports, 5) The system is very user friendly and in accordance with the needs of the object. Because in the design of designs and others, the author does not design based on personal but always consults with the user, and 6) Based on the evaluation of the current desktop application display with prototype design, it is known that each category has increased usability values. Content, Organization and Readability previously had a value of 0.64 and increased to 0.72. The Navigation category was previously 0.69 to 0.71. The previous User Interface Design category was 0.58 to 0.74 and the previous Performance and Effectiveness category was 0.62 to 0.72.

The author is very aware that in all activities ranging from identification, analysis and system design, of course, it is far from perfect, therefore suggestions and criticisms are highly expected and will certainly make the author better in developing archival systems and other system designs. Referring back to the Archival System of the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University, here are some suggestions that are proposed in developing a better system; 1) For the system guide, while using the manual that is packaged in a *pdf file. It is hoped that in the future it can create a help menu on the system, 2) In processing incoming mail, it still processes in general, unlike outgoing mail which provides processing forms for various types of outgoing mail, 3) The system does not provide backup and restore database menus, but manually via export. and import databases, users are sufficient in their knowledge, 4) The system is still stand alone, so that only one computer can manage the system, it is hoped that it can be developed into a client server, and 5) The system is still offline, along with the development of the information era, online processing online is very necessary, because it makes it easy to access which can be done anywhere, not only in the Department of Earth Engineering, Faculty of Engineering, Syiah Kuala University. And also as a solution if there are changes or urgent data needs.

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