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WEB-BASED MAIL DATA MANAGEMENT INFORMATION SYSTEM IN THE DEPARTMENT OF CAPITAL INVESTMENT AND ONE-Stop INTEGRATED SERVICES WEST SUMATRA PROVINCE

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Abstract

This research intends to create a web-based mail data management information system at Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Sumatera Barat which can facilitate archivists in managing correspondence so as to speed up correspondence processing, make it easier for archivists to find evidence of correspondence, can store, change, print correspondence data and reduce the accumulation of archives in the workspace in the Secretariat. This research method is carried out by collecting data through internships, observations and interviews. The method used in developing this system uses the SDLC concept. At the analysis stage, the system modeling uses the Unified Modeling Language (UML) as a design tool. The implementation process is carried out using the MySQL database and the PHP programming language. The process of testing this system is carried out using the Black Box testing method. The results of the trial of the designed system have been in accordance with the needs expected by the agency. This research has produced a mail data management information system at Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Sumatera Barat

Keywords: *Management information System, MySQL, PHP, UML*

Abstrak

Riset ini bermaksud merancang sistem informasi manajemen data surat berbasis web di Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Sumatera Barat yang dapat memudahkan arsiparis dalam pengelolaan surat menyurat sehingga mempercepat pemrosesan surat menyurat, mempermudah arsiparis dalam mencari bukti surat menyurat, dapat menyimpan, mengubah, mencetak data surat menyurat serta mengurangi penumpukan arsip dalam ruangan kerja di Bidang Sekretariat. Metode penelitian ini dilakukan dengan pengumpulan data melalui kegiatan magang, observasi dan wawancara. Metode yang dipakai dalam pengembang sistem ini menggunakan konsep SDLC. Pada tahap analisis permodelan sistem menggunakan Unified Modeling Language (UML) sebagai sarana perancangan. Proses implementasi dilakukan dengan menggunakan database MySQL dan bahasa Pemograman PHP. Proses pengujian sistem ini dilakukan dengan menggunakan metode Black Box testing. Hasil uji coba sistem yang dirancang telah sesuai dengan kebutuhan yang diharapkan oleh instansi. Penelitian ini telah menghasilkan sebuah sistem informasi manajemen data surat di Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Provinsi Sumatera Barat.

***Kata Kunci**: Sistem Informasi Manajemen, MySQL, PHP, UML*

1. INTRODUCTION

Currently, information systems are increasingly needed to help the performance of an agency. Because an optimal data processing system improves the work of an agency for the achievement of that agency. According to Rusdiyanto in (Anover et al., 2019) a system is a combination of sub-forms/elements/elements without exception, whether physical or non-physical, interconnected with each other, controlled simultaneously to achieve a specific goal. To support human work, sophisticated information technology is very necessary.

Nurmi in (Husaini et al., 2019) information is something that can actually reduce the degree of uncertainty about a situation or incident, data that has been processed forms a purpose for the recipient and is useful for making current or future decisions.

With the development of information technology, an agency needs an application or system that can process information systematically, accurately and on target both in input and output according to work needs. According to Satria Dedi in (Mary et al., 2020) an information system is an organized way to collect, enter and manage as well as store data and convey information in such a way that an organization can achieve the goals that have been implemented.

The speed of delivering information and data access is one of the supporting media for an agency to progress. One of them is a management information system. According to (Oktasari & Kurniadi, 2019) a management information system is a system designed to send information that leads to decisions when preparing, monitoring, estimating agency activity in the abstract form of activity in all parts. A management information system is a system intended to send reports to simplify methods, administration and decision making within an institution.

The one-stop investment and integrated services service is one of the government agencies that operates in the field of capital investment for investments in the West Sumatra region. As an institution that operates in the field of capital investment, regional investment cooperation and work facilitation with the business world, of course the implementation of official administration in the investment sector cannot be separated from document management. According to (Sitohang, 2018) a letter is a relationship that is based on one side and delivered to the other side to convey news. The letter is material, meaning it can convey secrets, effective, meaning it is balanced with the situation it should be in, and economical, meaning the processing, completeness and transfer costs are cheap.

agencies that do not pay enough attention to problems in managing this correspondence. For example, in writing incoming and outgoing letters, manual methods (handwritten) are still used in agenda books. Wursanto in (Rumaf et al., 2019) incoming letters are various letters that come from organizations/agencies and even individuals, whether they come via the post office, use a courier (letter delivery person) or use a delivery book. And according to (Listiawati, 2015) outgoing letters are letters sent by an organization or company. The management of outgoing mail within an organization or institution is included in the system used by the organization or institution concerned. Handling of outgoing letters must be done correctly and quickly so as not to cause misunderstandings.

Correspondence management at the One Stop Integrated Services and Investment Service (DPMPTSP) has not been carried out optimally. This is caused by the factors that influence the processing of correspondence which have not been taken seriously, the writing of incoming and outgoing letters still uses manual methods, the code of incoming letters does not match the letter causing the letters to be difficult to find, there is no special place to store archives, there is no there is an act of shrinking or destroying archives as a result of the continuous increase in letters. And there is no system that supports the management of correspondence in this agency.

For this reason, there is a need for a web-based management information system because the decision in selecting the system is taken based on the various advantages of the web programming language, namely that it is easy to develop and access to information is easier and can be used offline / online. According to Tama in (Saeppu et al., 2019) a website or site can be defined as a collection of pages used to display information, text, still or moving images, animation, sound, and/or a combination of all of these, both static and

dynamic which forms a series of interrelated buildings, each of which is connected by a network of courtyards. (Indarto, 2014) web-based information systems are the same as other information systems, but have differences that lie in the programming language used, namely web programming languages and also online web-based information systems. A web-based information system is a medium used to display information about information through interaction media such as images, video, audio, or a combination of all data.

2. METHOD

Field Research Methods

Field research is conducting research directly on problem objects faced by the Secretariat sector at the One Stop Investment and Integrated Services Service regarding Incoming and Outgoing Letters which still uses the manual agenda book method, in this case it can be done by observing interviews with the parties related to the problem being solved in producing information.

System Development Method

SDLC is one of the methods used in this research. Because SDLC contains the parts that need to be implemented to operate a software development and provides a description of input and output from one level to the next. So there are 5 stages, namely:

a. Planning

The planning stage contains information about what kind of information system will be developed and the goals that will be achieved. These steps include defining a problem, determining the purpose of the system, finding system obstacles, evaluating the results obtained and making a feasibility study of the system when it is running.

b. Analysis

In the analysis stage, there is a stage that determines details related to what the proposed system will do. At this stage the researcher will approach the current system with the aim of creating a cutting-edge system by applying UML tools or tools.

c. Design

At the design stage, we will ensure that the data processing required for the new system aims to fulfill the client's wishes with UML tools. This stage will create a prototype and the output includes a copy of the design, model with important parts of a project.

d. Implementation

The implementation stage is where the system design that has been created is made into program code and is ready to be implemented. So, in its implementation there will be an assessment of the system according to the error level so that it matches the available menus to your needs.

e. Maintenance

The final stage is the maintenance stage, which contains monitoring activities for the resulting software to run ideally. Various variations were created so that the system could be adapted according to the required needs.

Testing Method

(Hidayat & Muttaqin, 2018) say there are 2 types of techniques:

a. White box testing is testing based on justification of design details, requiring a form of program design authority to procedurally sort tests into test cases. In short, white box testing is a useful guide to getting a 100% program.

b. Black box testing is testing centered on the functional part of the software, testing can be defined as a combination of input requirements for efficient specification testing of the program.

On going system analysis

Berdasarkan Based on observations made on correspondence in the Secretariat sector at DPMPTSP, they still use the manual method of writing in agenda books to this day. The processes in correspondence that are carried out include:

a. Each incoming letter from various agencies is handed over to the security guard, then the security guard hands over the incoming letter to the Secretariat Division, then the Secretariat Division Archivist records the incoming letter data in the agenda book in the form of: following number, sender, date, letter number, summary of contents.

b. Then the Archivist makes a disposition of the incoming letter to be submitted to the head of service, the head of service hands it over to the intended field.

c. After that the Archivist will write an outgoing letter if needed/ordered.

Analysis of the Proposed System

In observing correspondence in the secretariat sector at the One Stop Integrated Services and Investment Service (DPMPTSP), the proposed system is to make it easier for the secretariat sector to process incoming and outgoing letters. This is expected to make things easier in terms of service, archiving, time efficient and more systematic. So the system proposed in this research for correspondence is:

a. The archivist inputs incoming mail data into the system as admin.

b. The archivist inputs the disposition of incoming letters.

c. The archivist inputs outgoing letters if needed/ordered.

System Planning

According to Pressman in (Audrilia & Budiman, 2020) Unified Modeling Language is a general language for designing software in the form of images. Unified Modeling Language can be used to describe, determine, form and support systems in software.

a. Use Case Diagrams

Use Case Diagrams are graphical representations of all actors, use cases and interactions, among others, presenting a system. Use case diagrams do not explain in detail about the use case client, but only provide a brief sketch of the interactions in the use case, actors, and system. In the use case you will find all the activities in the system being carried out.

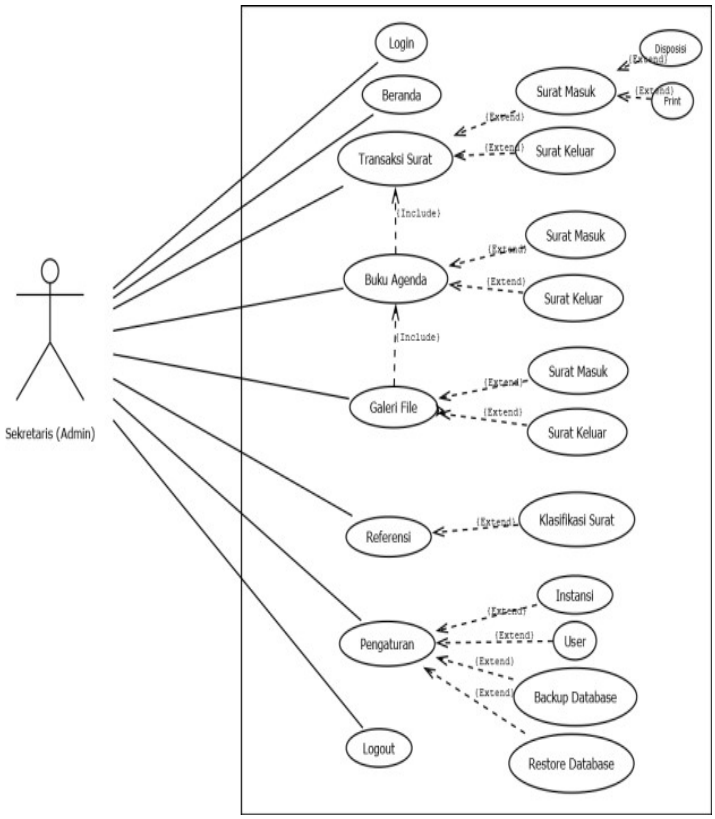


Figure 1. Use Case Diagram for Mail Data Management Information System (SIMDS)

a. Activity Diagrams

Activity Diagrams show processes at operational workflow stages step by step regarding system components. This diagram contains activities, action selection, and the results of the activities carried out.

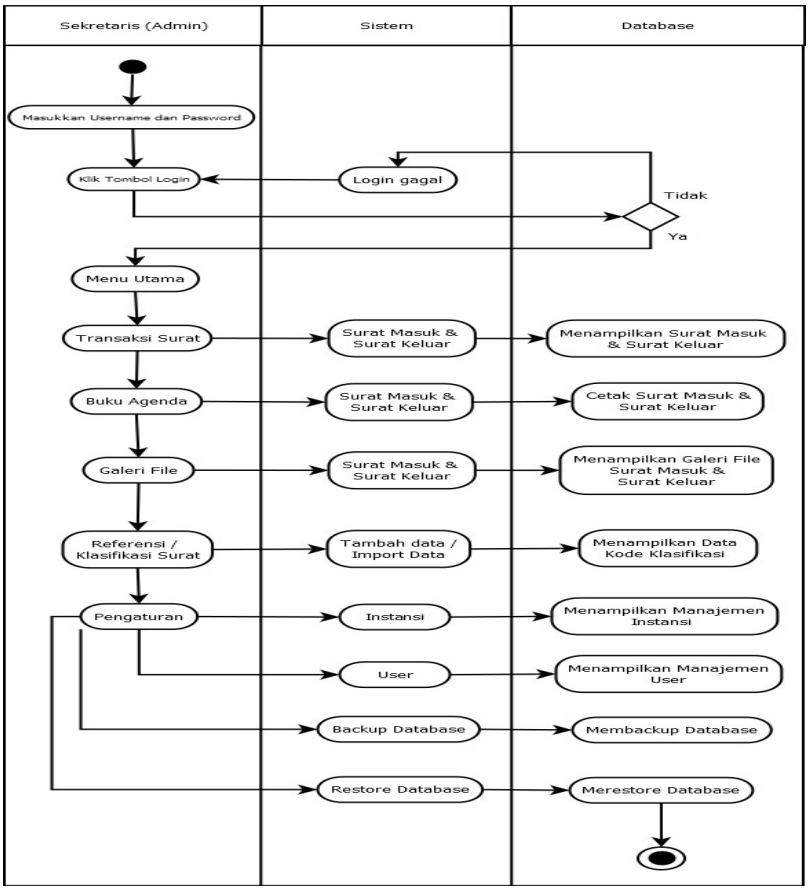


Figure 2. Activity Diagram for Mail Data Management Information System (SIMDS)

b. Sequence Diagrams

Sequence Diagram is a relationship diagram that describes how an operation is carried out.

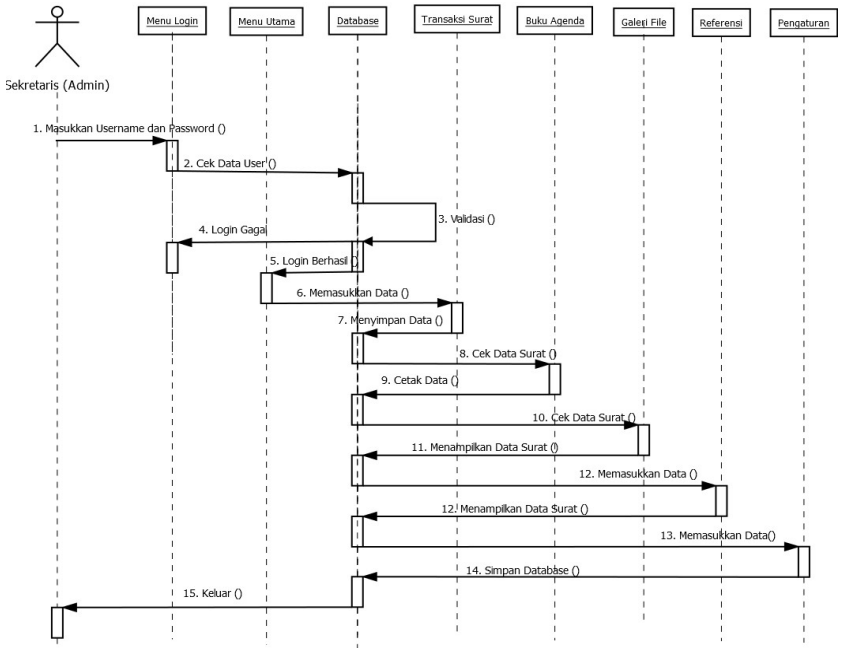


Figure 3. Sequence Diagram of Mail Data Management Information System (SIMDS)

c. Class Diagrams

Class Diagrams are a form of static diagram in the Unified Modeling Language that describes a system chart and determines system classes, their attributes, procedures, as well as connections between objects.

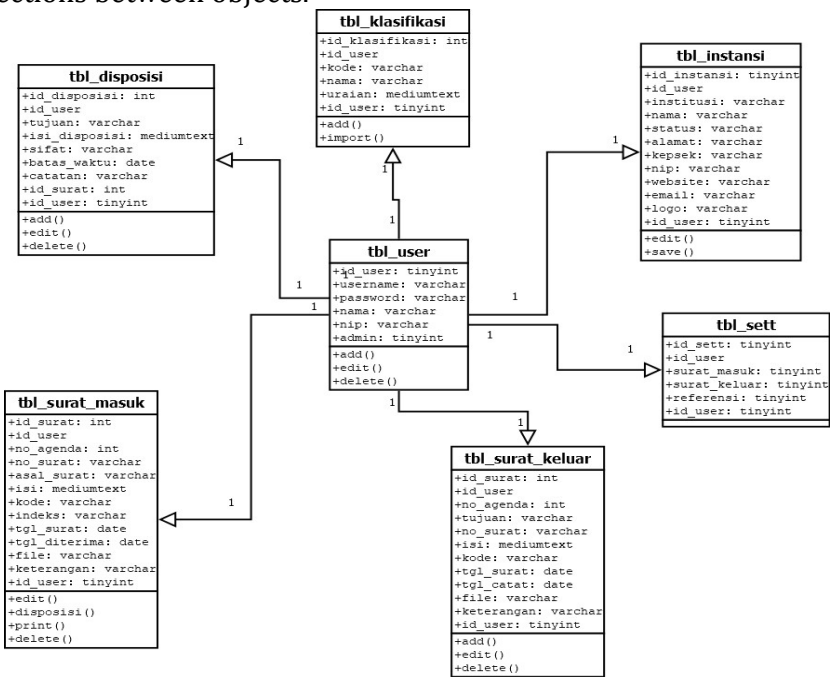


Figure 4. Class Diagram of Mail Data Management Information System (SIMDS)

Program Design

a. Login Page

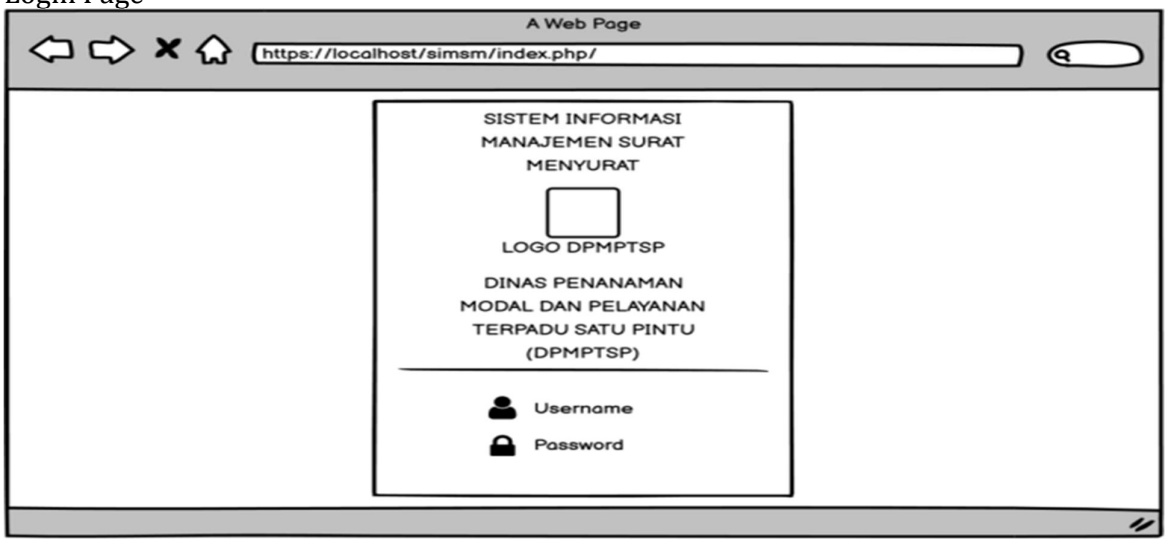


Figure 5. Login page

b. Home / Main Menu

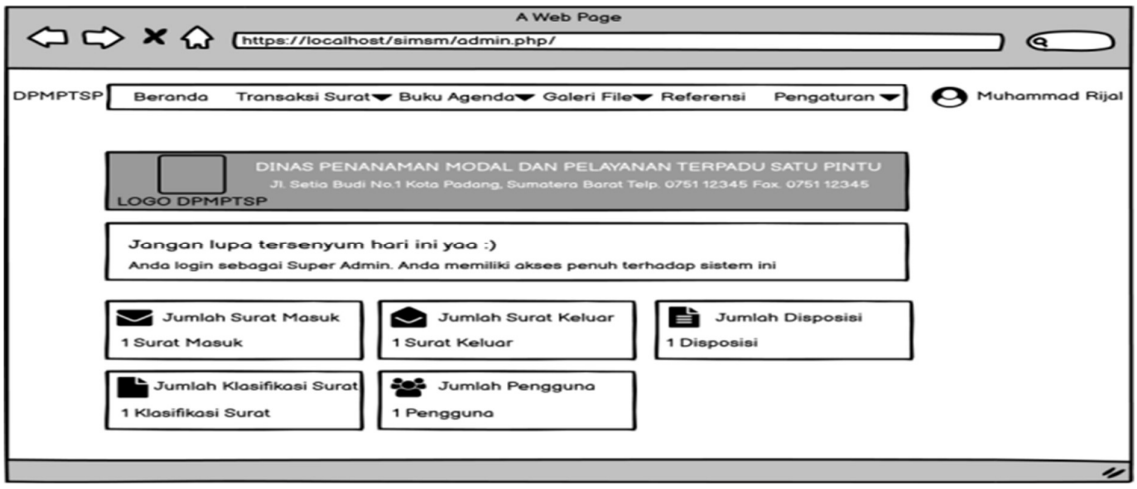


Figure 6. Home / Main Menu

3. FINDINGS AND DISCUSSIONS

System Implementation

Implementation in KKBI is defined as execution, application. System implementation is a step or stage in system design that has been carried out.

Software Implementation

To support the data processing system, software is needed to support the running of the system:

a. Windows 10
b. Sublime Text
c. PHP programming language
d. XAMPP (Apache HTTP Server & MySQL database)

Hardware Implementation

Hardware (hardware) as an element makes the integrity of a computer system and has an important role in creating systems and data processing programs, because to be able to implement an information system that has been designed, it needs hardware that is compatible with other equipment and allows it to carry out its function. among others:

a. HP laptop, processor Intel® core™ i3-60060 CPU @ 2.00GHz 2.00 GHz
b. Hard disk capacity 500GB
c. RAM 4.00 GB
d. EPSON L120 Series Printers
e. Mouse and Mouse Pad

Program Implementation

Program implementation is the step in which the program will be used so that it can be used as expected. The operation is carried out when XAMPP 3.2.4 is activated for the server when the designed system executes a file. When this information system is running, Sublime Text is a programming language that supports system design and produces a system according to user needs. Databases and tables use MySQL phpMyAdmin software. Below are the stages of implementation:

a. Menu Login

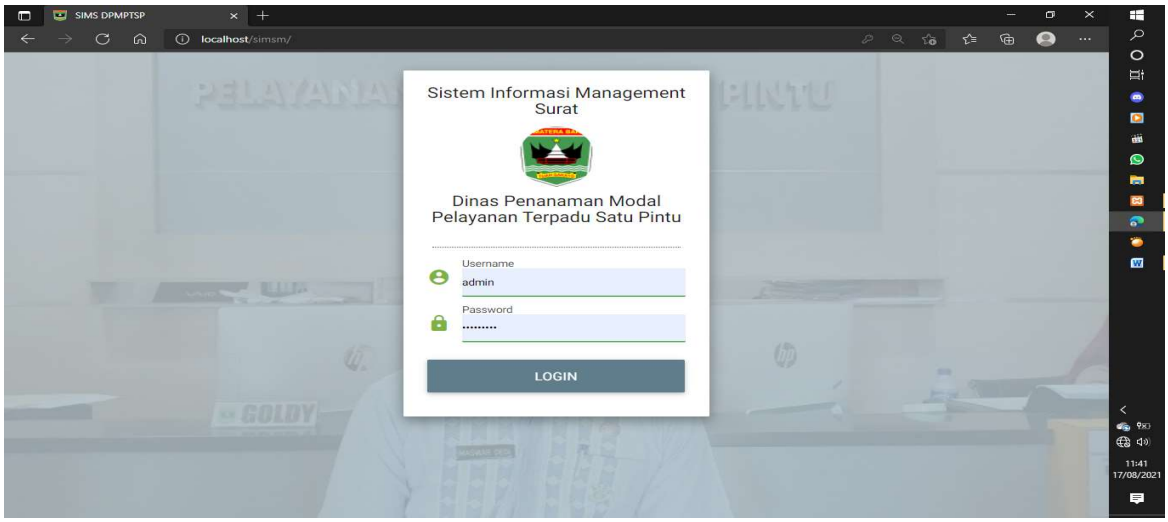


Figure 7. Login Menu

b. Home / Main Menu

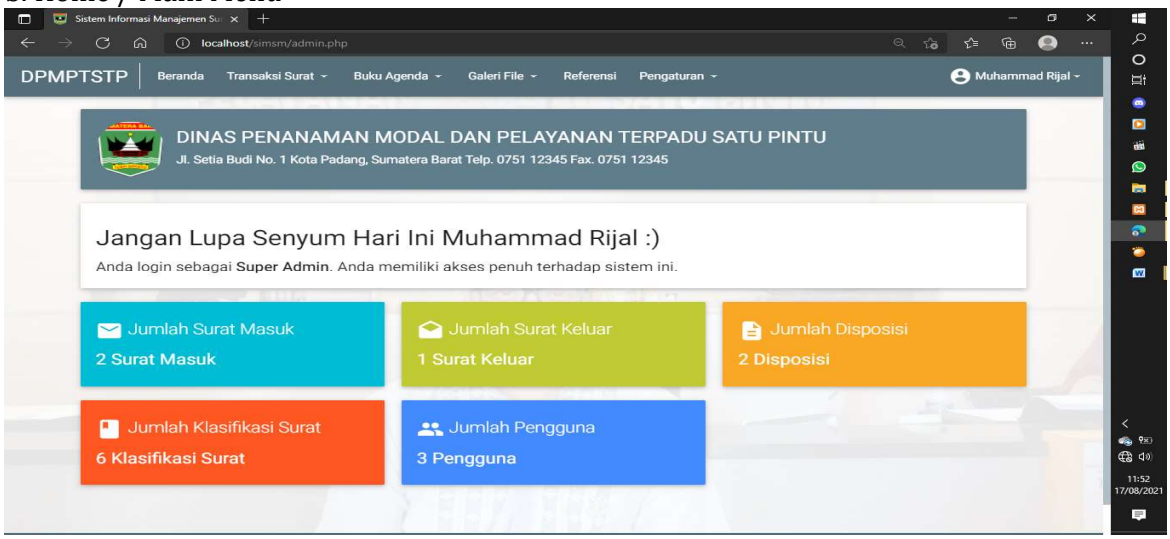


Figure 8. Home Menu / Main Menu

c. User Profile Menu

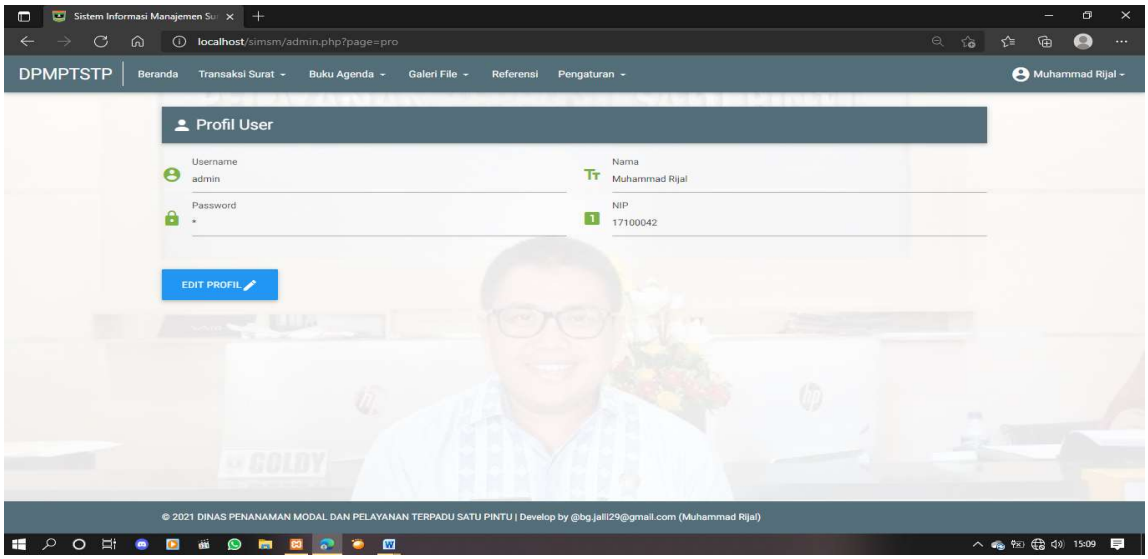


Figure 9. User Profile Menu

d. Change Password Menu

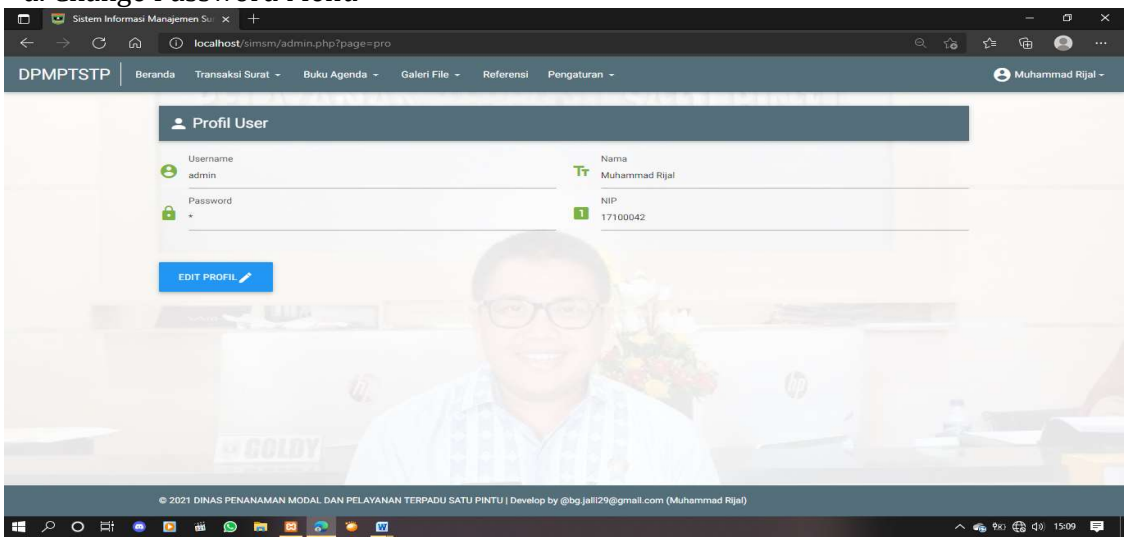
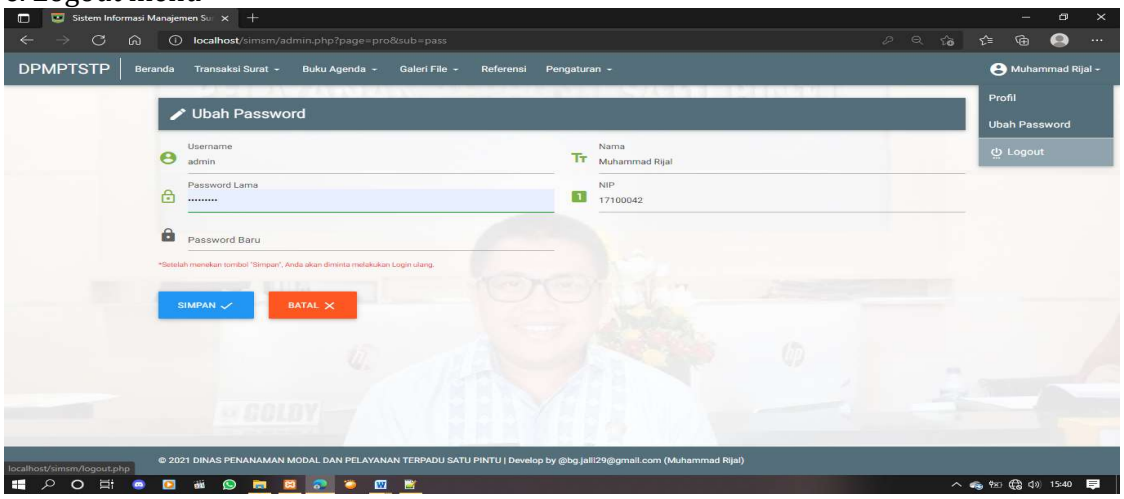


Figure 10. Change Password Menu

e. Logout menu



picture 11. Menu Logout

System Testing

a. System Testing Table

Table 1. System Testing Table

No	Kelas Uji	Butir Uji	Jenis Pengujian
1.	Login	Isi data login	Blackbox
		Verifikasi login	Blackbox
2.	Menu Utama / Beranda	Menampilkan surat masuk	Blackbox
		Menampilkan surat keluar	Blackbox
		Menampilkan disposisi	Blackbox
		Menampilkan klasifikasi surat	Blackbox
		Menampilkan pengguna	Blackbox
3.	Transaksi Surat	Tambah data surat masuk	Blackbox
		Edit data surat masuk	Blackbox
		Hapus data surat masuk	Blackbox
		Tambah data disposisi	Blackbox
		Cetak data surat masuk serta disposisi	Blackbox
		Tambah data surat keluar	Blackbox
		Edit data surat keluar	Blackbox
		Hapus data surat keluar	Blackbox
4.	Buku Agenda	Tampilkan data surat masuk dari tanggal sampai tanggal	Blackbox
		Cetak agenda surat masuk	Blackbox
		Tampilkan data surat keluar dari tanggal sampai tanggal	Blackbox
		Cetak agenda surat keluar	Blackbox
5.	Galeri File	Tampilkan data surat masuk dari tanggal sampai tanggal	Blackbox
		Tampilkan detail file data surat masuk (.pdf)	Blackbox
		Tampilkan data surat keluar dari tanggal sampai tanggal	Blackbox
		Tampilkan detail file surat keluar (.pdf)	Blackbox
6.	Referensi	Tambah data referensi klasifikasi surat	Blackbox
7.	Pengaturan	Memasukkan profil instansi pada menu “Instansi”	Blackbox
		Menambah user pada menu “User”	Blackbox

	Membuat cadangan database pada menu "Backup database"	Blackbox
	Melakukan restore database dari hasil backup pada menu "Restore database"	Blackbox

b. Trial Login

Table 2. Login Trial

Kasus dan Hasil Uji			
Requirement form	Alur uji	Hasil	Kesimpulan
Login	Masukan username dan password (Benar)	Berhasil masuk	Valid
	Masukan username dan password (Salah)	Gagal	Valid
	Tidak memasukkan data	Muncul pesan "please fill out this field."	Valid

c. Testing Home / Main Menu

Table 3. Test Home / Main Menu

Kasus dan Hasil Uji			
Requirement form	Alur uji	Hasil	Kesimpulan
Menu Utama / Beranda	Tambah data surat masuk	Tampil jumlah surat masuk	Valid
	Tambah data surat keluar	Tampil jumlah surat keluar	Valid
	Tambah data disposisi	Tampil jumlah disposisi	Valid
	Tambah data klasifikasi surat	Tampil jumlah klasifikasi surat	Valid
	Tambah data pengguna	Tampil jumlah pengguna	Valid

d. User Profile Testing

Table 4. User Profile Testing

Kasus dan Hasil Uji			
Requirement form	Alur uji	Hasil	Kesimpulan

Profil User	Klik “edit profil”	Pindah ke halaman edit profil	Valid

c. Password Change Testing

Table 5. Password Change Test

Kasus dan Hasil Uji			
Requirement form	Alur uji	Hasil	Kesimpulan
Ubah Password	Klik “simpan”, jika edit profil telah terisi (Benar)	Muncul pesan "SUKSES! Password berhasil diupdate"	Valid
	Klik “simpan”, jika edit profil belum terisi (Salah)	Muncul pesan “please fill out this field.”	Valid
	Klik “batal, jika edit profil batal diisi (Benar)	Kembali ke halaman profil user	Valid

d. Logout Testing

Table 6. Logout Test

Kasus dan Hasil Uji			
Requirement form	Alur uji	Hasil	Kesimpulan
Logout	Klik “Logout”	Kembali ke halaman login	Valid

Conclusion From Testing

Based on the results of testing the mail data management information system at the West Sumatra Province DPMPTSP which was carried out, the results obtained were as expected based on the correspondence needs of the agency.

Discussions

The letter data management information system that has been carried out previously, obtained the expected results based on the needs of correspondence at the One Stop Investment and Integrated Services Service with several features, namely being able to print the disposition of incoming letters, being able to print agendas of incoming letters as well as outgoing letters according to certain dates, being able to Upload file attachments, either scanned/image files in (.jpg.png) format or documents in (.doc.docx and .pdf) format. The file gallery can also be uploaded, can upload letter classification codes in *.csv format (excel file), multilevel user, as well as backing up and restoring the database.

It can be said that the aim of creating this mail data management information system has been achieved and has met the agency's correspondence needs and is ready to be implemented. The results of testing this system were successful in operating according to design. It was discovered that when the system entered incorrect data, an error message appeared when it did not comply with the proper rules.

4. CONCLUSION

Based on the descriptions from the previous chapters as well as from the trials and implementation results of using this letter data management information system, it can be concluded:

1. By having a computerized system, it can make it easier for archivists to manage correspondence. These speeds up the processing of correspondence.
2. Using a computerized system can also make it easier for archivists to find evidence of correspondence. So, it saves more time and costs.
3. With a mail data management information system, you can store, change and print correspondence data. So that letter data or letter archiving is well documented and letter security is guaranteed.
4. With this letter data management information system, it can reduce the accumulation of archives in the work space in the secretariat sector.

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