

Design and Build a Web-Based Public Service Administration System Using the CodeIgniter Framework

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ABSTRACT

The village government has a very important role in serving the community. One of them is administrative services that perform many administrative services and data management, so that time, energy and cost inefficiencies often occur. Therefore we need an information system that can help the administrative service process so that it can run effectively and efficiently. This system provides public administration services to facilitate the community in its management. The system programming method uses the concept of Object Oriented Programming (OOP) and Unified Modeling Language (UML) modeling. The architecture used in this system is based on Model-View-Controller using the Codeigniter framework with the PHP programming language. This study produces an administration system that can reduce existing problems and help to improve administrative service processes.

1. INTRODUCTION

Information technology is a general term for the various types of technology available with the aim of helping humans to live life more easily and better in creating, converting, storing, communicating and disseminating information^[12].

The office of the Head of Hilalang Nagari Wali, which is located on the Padang-Bukittinggi Highway, Lubuk Bonta intersection, Nagari Kapalo Hilalang, 2X11 Kayutanam District, Padang Pariaman Regency, West Sumatra Province ^[1] is a means of providing public administration services, from managing letters to managing documents. providing assistance to underprivileged communities. People who take care of their administrative needs must come directly to the wali nagari office to submit a letter of application. The service staff processes the application letter submitted after obtaining the required data. The village head signs the letter the application has been processed by the service staff, in which all mail processing is still done manually.

The community administration service system can be used as a solution to assist the village government in serving community administration in large numbers and of course faster, because this service is processed by the system. This system can be accessed online by the community so that people

do not have to bother coming to the village office and waiting for a letter to be prepared because this system notifies the applicant if the letter has been completed, so that community administration services can run effectively and efficiently.

Relevant research related ^[13] entitled Web-Based Village Management Information System (SIMANDE) in Talawi Hilie Village. This research resulted in a Village Management System that residents can access anytime, anywhere, which can also manage population administration data and general administration as a whole and this system makes it easier for the community to take care of administration without having to go directly to the lurah office. Referring to the relevant research above which manages administration as a whole, this study aims to be more specific, namely managing the administration of public correspondence.

Service System Concept

In an article ^[2] entitled administrative service system argues that the service system is an activity or sequence of activities in a business carried out by a person or group of people or a certain agency to provide assistance and convenience to people who have an interest in the organization in order to achieve objectives in accordance with the basic rules and procedures that have been set.

The above understanding implies that a service basically involves two interrelated parties, namely the service provider organization on the one hand and the community as the recipient of the service on the other^[14]. If the organization is able to provide optimal services and meet the demands of the community, it can be said that the organization has been able to provide satisfactory services to the community.

Community Administration Concept

Referred to reference ^[3] that administration is an activity or form of business that has close links with various policy arrangements with the aim of achieving organizational targets. Based on referrals ^[4] the society or the public is a number of people who have the same thinking views and the same expectations are general. Therefore, public/public administration can be interpreted as a system of service activities carried out in the context of fulfilling administrative needs in accordance with the basic rights of every citizen provided by service providers related to the public interest^[15].

2. METHOD

The model used in the development of this application is a prototype model. The Prototype method, according ^[5] begins with gathering needs. Developers and clients meet to define the overall objectives of the software, identify all requirements in terms of input and output formats and interface descriptions, then do a quick design. From the results of the rapid design, testing and evaluation will be carried out.

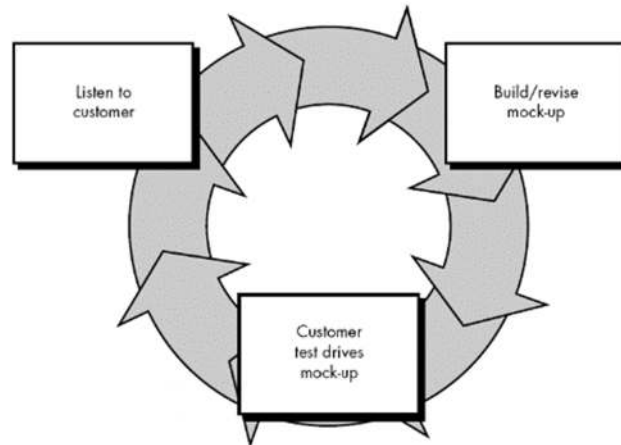


Figure 1. Prototype Model

The first stage of the prototype is needs analysis, based on the interviews that have been conducted, it can be concluded that the interviewees need a system that can simplify the process of administering letters to the public's needs, including reducing the accumulation of queues of letters, speeding up the process of issuing the required letters so that staff have no trouble when there are many letters submitted.

If the needs analysis has been obtained, the next step is to build a temporary prototype by designing the interface. The goal of interface design is to design an effective interface for a software system. Effective means ready to use, and the results are as needed. Requirements here are the needs of its users. Users often judge the system from the interface, not from its function but from its user interface. This interface design must be comfortable to look at, easy to use, unambiguous and so on.

The temporary prototype that has been designed must be evaluated first and then tested so that it can be tested on related users and stakeholders.

3. RESULTS AND DISCUSSION

Before testing the results of the design on users and stakeholders in this study, namely the Public Service Office of Nagari Kapalo Hilalang Public Administration, the authors obtained the results of a needs analysis which were concluded from the results of direct interviews with stakeholders.

Running System Analysis

Based on observations from the administrative service process at the Wali Nagari Kapalo Hilalang Office, the service is still manual in which people come to the office themselves to submit their administration. This analysis covers aspects related to business processes, document analysis and business rules. The results of the needs analysis are that stakeholders need a system that can reduce the problem of the accumulation of queues for submitted letters, a system that can help staff so that they can speed up processing time and issuing letters from the office, the system can make it easier for the public to obtain letters that have been issued such as being able to access letters online so that people do not need to come directly to the office.

System Analysis Proposed

Based on the analysis obtained from field observations, an administrative service system is proposed to facilitate the public in submitting their administration. The following is the flowmap of the proposed system.

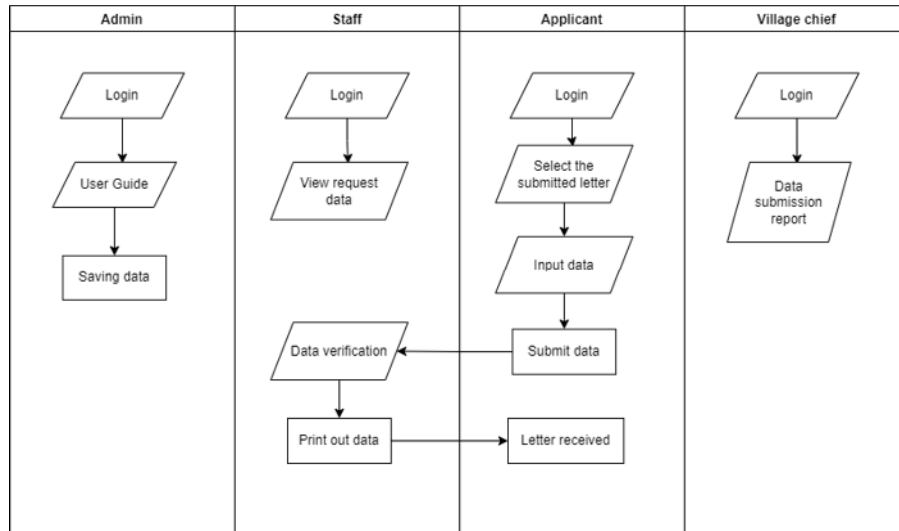


Figure 2. Proposed Analysis Flowmap

In the picture above there is each user role in the system to be built, namely Admin, Staff, and Applicant where the user role will differ based on the login level. For the admin level has the role of accessing data stored in the system, staff level has access rights to view submitted data, verify data and print verified letters, the applicant level can choose the letter to be submitted, input data, submit data and obtain verified data, while the village chief has access rights to view reports on data submissions stored in the system.

Referring to the results of the needs analysis, an overview of the interface design is obtained which is then immediately evaluated and produces the following requirement diagrams.

System planning

System design is to make modeling of the application / system so that it can overcome the problems that exist in the current system. The design of this system uses the Unified Modeling Language (UML).

Use Case Diagrams

Use case diagram digunakan untuk mengetahui fungsi yang ada di dalam sebuah sistem dan dapat mempresentasikan interaksi-interaksi aktor dengan system^[7]. Use case used to shape the behavior of objects in a model and realized by a collaboration. The following is the design of the Use case diagram:

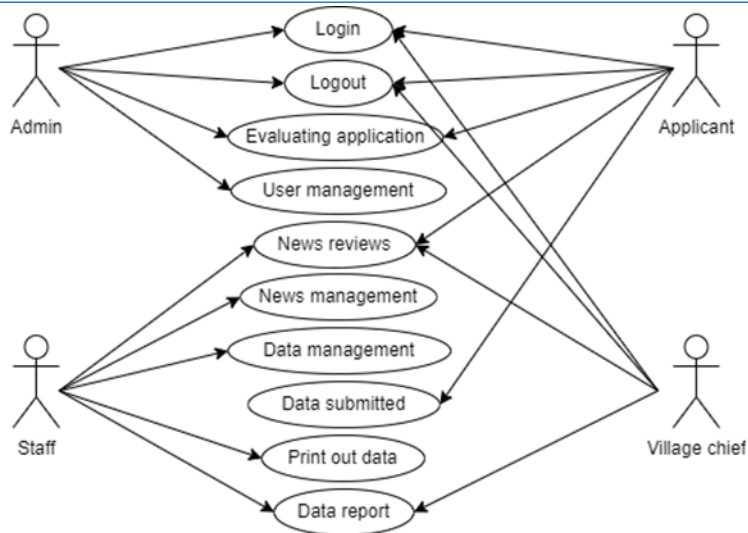


Figure 3. Use Case Diagrams

ERD (Entity Relationship Diagram)

ERD describes the relationship between entities that have attributes in an integrated system ^[8]. Database design requires an Entity Relationship Diagram (ERD) to describe the entities (actors) that play a role in a database and the relationship between the actors who play a role so that the ERD design is formed as follows:

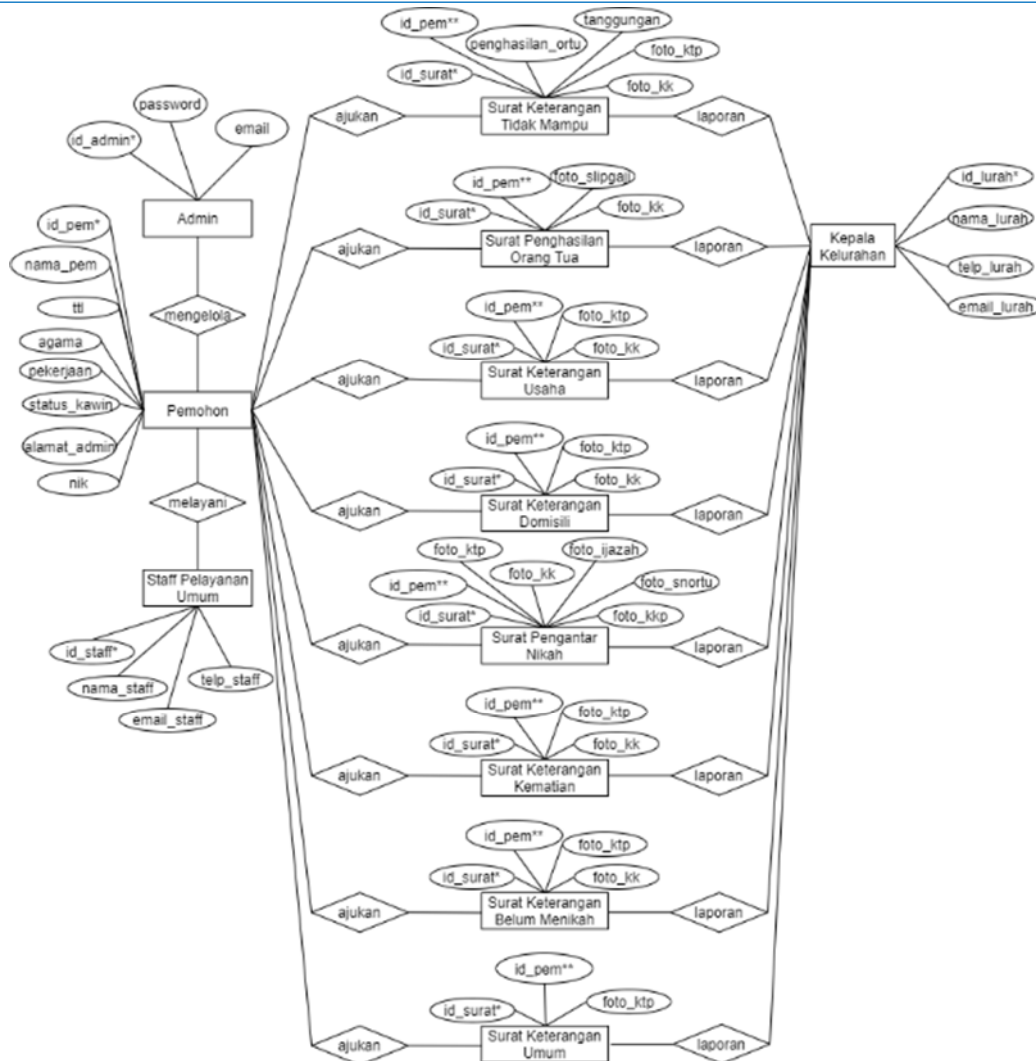


Figure 4. Entity Relationship Diagram (ERD)

Context Diagram

The context diagram uses three symbols; symbol that represents external entity, data flow and symbolizes process [6]. Context diagram is a data logic model in the form of a diagram consisting of a process and describes the scope of a system. What is needed in making a context diagram are; who are the parties who will provide data to the system, what data is provided to the system, to whom the system must provide information or reports and what are the contents or types of reports that the system must produce.

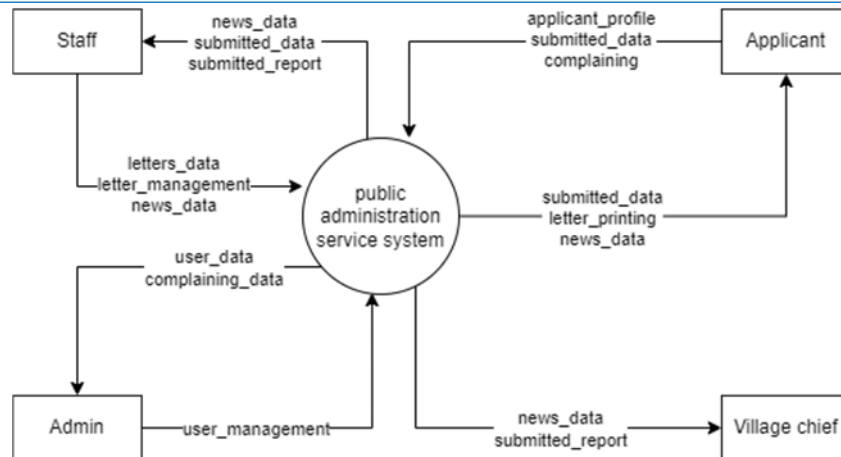


Figure 5. Context Diagram

Starting from the user interface design, then apply the design in the form of program code so that it displays a layout^[9]. Display layout will facilitate interaction with the system interface as a whole. The following is the result of the display design on the Nagari Kapalo Hilalang Public Service Administration System:

3.1. Homepage

Homepage is the main page when accessing this system. This page displays the initial display of this system which from this view can be continued to access the login. Here is what the start page looks like.



Figure 6. Homepage

3.2. Login Page

The login page is the main page when the user wants to use this application. Based on reference^[10], this page meets the login process requirements, which consist of a username and password.

The login page is a useful page for users to access the system. This page serves to enter the system using the username and password. Here is what the login page looks like.

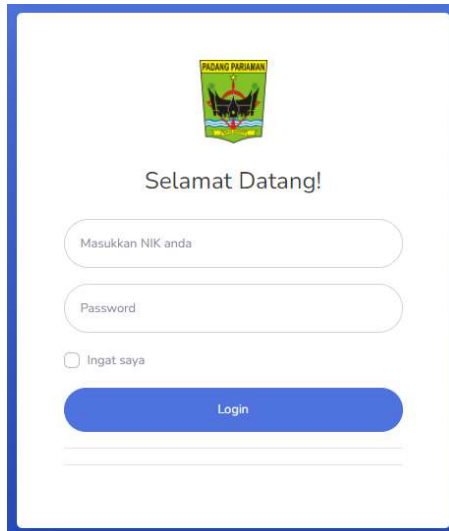


Figure 7. Login Page

3.3. Register Page

The register page is the main page when accessing this system. This page serves to register into the system by using nik, password, email and access level only for the applicant. Here is a display of the registration page.

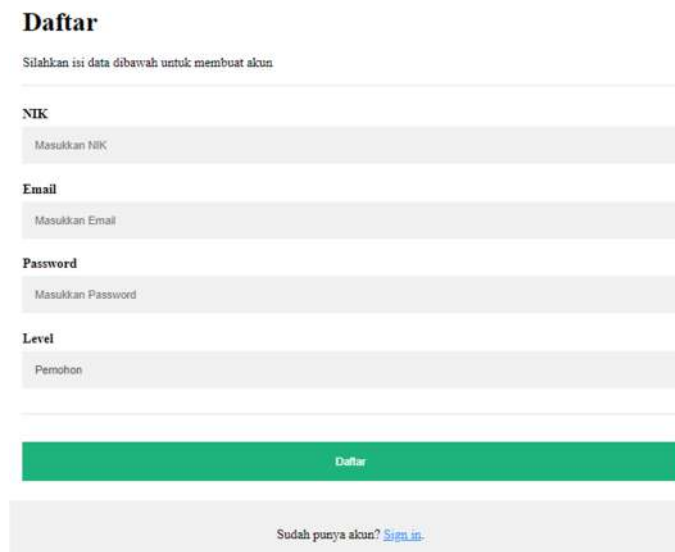


Figure 8. Register Page

3.4. Admin Page

After successfully logging in, the user will enter the main page. Referring to ^[11] the main page displays all system data that can be accessed by the admin. The main page on the admin functions to display menus that can be accessed by accounts with admin access. Here is the main page on admin access.



Figure 9. Admin Main Page

3.5. Village's Page

The main page of the lurah serves to display menus that can be accessed by accounts with lurah access. Here is the main page on the access of the lurah.



Figure 10. Head of Village Head

3.6. Staff Page

The main page on the staff functions to display menus that can be accessed by accounts with staff access. Here is the main page on staff access.

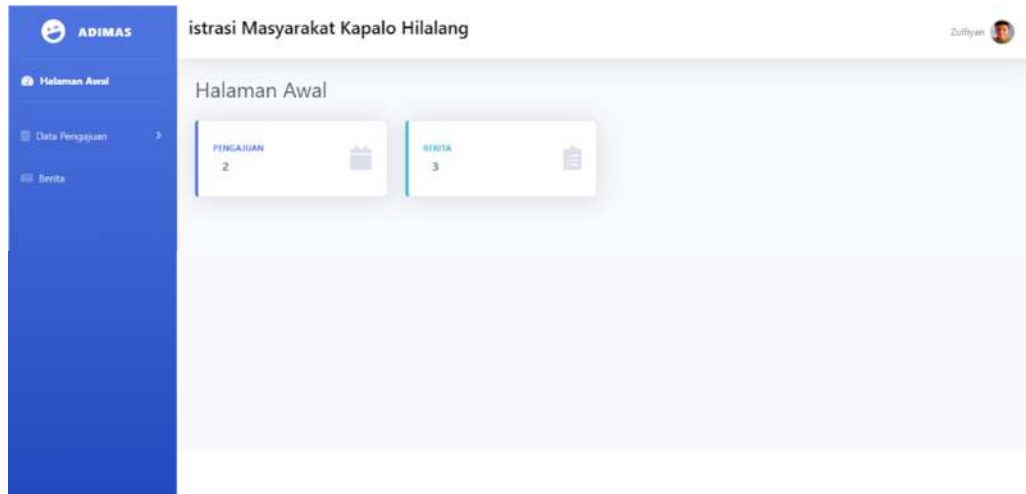


Figure 11. Staff Main Page

3.7. Community Page

The main page on the community serves to display menus that can be accessed by accounts with applicant access. Here is the main page on requester access.

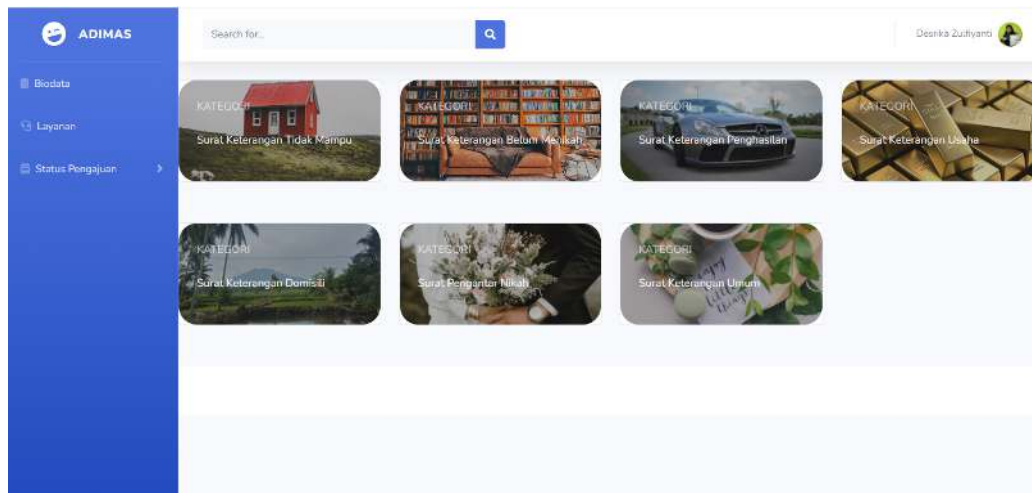


Figure 12. Community Home

3.8. Discussion

The points resulting from the user interface design have displayed the pages and features of the Nagari Kapalo Hilalang Public Service Administration Public Service System. The following is a discussion of the results of the design of the display.

1. Homepage

Homepage on this system is the page that first appears when the url is accessed. This page contains information about administration. Users will be able to access the login when the user selects the login menu on the initial screen.

2. Login Page

Page *login* on this system is the second page that appears when the url is accessed. This page will ask the user to enter a username and password. The user will get an account to access the system from the staff. Users who already have an account can input their username and password. If the username and password are correct, the user will be redirected to the main page.

3. Register Page

The register page in this system is the page that appears when the account register is accessed. This page will ask the user to register a username, password, and email. The user will get an account after registering his account. Users who already have an account can input their username and password.

4. Main page

The main page is the page that will be accessed by the user when successfully logged in. User activity will vary according to the access rights of each user, so that each user gets a different menu based on the access level of each account.

a) Admin Page

Main pageadmin is the page that will be shown when the logged in user uses the 'Admin' account level. The menu that will be displayed on accounts with admin level is as follows.

1. User Data

- Community Data
- Staff Data
- Village Head Data

Admin is useful for adding all registered users in this system.

b) Village's Page

The lurah's main page is the page that will be displayed when a user logs in using the 'Lurah' account level. The menu that will be displayed on an account with a lurah level is as follows.

2. User Data

- Staff

3. Report

In this report menu, the lurah can print a report if the application has been processed by the staff.

c) Staff Page

The main staff page is the page that will be displayed when a user logs in using the 'Staff' account level. The menu that will be displayed on accounts with staff level is as follows.

1. Submission Data

There are 7 data submissions submitted by the applicant, namely:

1. Submission of Certificate of Unmarried
2. Submission of Domicile Certificate
3. Submission of Income Certificate
4. Submission of Certificate of Underprivileged
5. Submission of Business Certificate
6. Submission of General Certificate
7. Submission of Marriage Cover Letter

This submission data can be printed if there is a submission from the applicant.

2. News

d) Community Page

The community main page is the page that will be displayed when the logged in user uses the 'Applicant' account level. The menu that will be displayed on an account with the applicant level is as follows.

1. Biodata
2. Service

There are 7 services that can be submitted by the applicant according to what the applicant wants, namely:

1. Unmarried Certificate Service
2. Domicile Certificate Service
3. Income Certificate Service
4. Certificate of Poor Service
5. Business Certificate Service
6. General Certificate Service
7. Marriage Cover Letter Service

The applicant adds data from the form that has been made by the system in accordance with what the applicant wants.

3. Submission Data

The submission data menu contains the data that has been added by the requester in the service menu.

4. Conclusion

The conclusion obtained from the design of the Public Service Administration System for the Kapalo Hilalang Community is that the resulting system is the Public Service Administration System for the Kapalo Hilalang Community. In the system that has been designed, there is a menu that makes it easier for both staff and the community to arrange letters of submission of their needs. This system has a simple interface design with easy-to-understand menu groups that make it easier for administrative officers to managing administration and making it easier for the community to apply for their administration.

5. Suggestion

The Public Service Administration System for the Kapalo Hilalang Community cannot be used in Nagari Kapalo Hilalang because it is still far from perfect. It is hoped that further development can be used properly so as to make it easier for the Community and the Office of the Mayor of Nagari Kapalo Hilalang in managing administration.

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