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Information System for Services and Management of Fishermen's Data from the Kutai Kartanegara Marine and Fisheries Service

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Abstract- This research generally discusses the service and data management in the Department of Marine Affairs and Fisheries who still store documents in hard files, This problem arises because the fisherman administration service at the Maritime Affairs and Fisheries Service is still using manual methods in managing data and data storage, causing data management and administrative services to take a slow time and sometimes the existing data is no longer accurate. From the needs of the community, they have a desire for these services to be fast, reliable, transparent, and trustworthy services. With the service information system and web-based data management, it makes it easier for the public and admins to access and find out fisherman data by accessing anywhere. The tool is used to describe the system model in the form of Entity Relationship Diagram (ERD). To implement the service information system and fisherman data management, supporting components are needed to work properly. The component uses Laravel framework programming and stores database in MySQL. The results of this research and application are expected to be able to overcome existing problems and be useful for those concerned.

Keywords- Information, System, Service, Data Management, Web.

I. INTRODUCTION

Activities to process various kinds of data regarding data management are always endeavored to be ready to be presented to anyone who needs it. Thus, the work that must be done in providing services and data management must be carried out efficiently. This means that data can be searched easily and quickly when needed, so that in serving the presentation of information about data management it can run smoothly and orderly. In practice, Data management at the Marine and Fisheries Service of Kutai Kartanegara Regency still uses manual methods such as incoming letters, outgoing mail, cover letters and so on, and are still using word processing applications such as Ms. Excel. With so many letters that must be processed and the need for accurate and fast information, for that it would be nice if this system was changed to a computerized system.

Computers are the right means for routine data processing. Besides that, computers also have the ability with a high level of accuracy, fast processing and most importantly efficient time and energy.

In general, the public service system at the Kutai Kartanegara Marine and Fisheries Service is still inefficient. This problem arises because the fishermen's administration services at the Marine and Fisheries Service are still using manual methods in managing data and storing data.

The procedure applied to filing letters at the Kutai Kartanegara Marine and Fisheries Service Office starts from making, receipt to storage of letters is still done manually. Storage or documentation of incoming and outgoing letters is only in the form of writing in a ledger and document storage is still in hardcopy form. In addition, the search for old documents also experienced difficulties because they had to open the old data first and look for them one by one.

This causes data management and administrative services to take a slow time and sometimes the existing data is no longer accurate. From the needs of the community, they have a desire for these services to be fast, reliable, transparent, and trustworthy services.

Based on the description of the background above, the formulation of the problem in this research is, how to design or create a Web-Based Information System for Services and Management of Fishermen's Data at the Kutai Kartanegara Regency. What features are provided in the Fisherman's Information Service and Data Management System.

In this study, the researcher limits the discussion to focus on the scope that will be discussed in this study, the limitation is that this system is made using the Laravel Framework, Visual Studio Code, and MySQL Database, the limitation of the object of research is located at the Office of Marine and Fisheries of Kutai Kartanegara. The limitations of this system are applications that are built to discuss community services and fisherman data management and applications that are made based on websites.

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In accordance with the formulation of the problem that has been formulated, the purpose of this research is to help simplify the service system and fishermen's data management. The expected results of this research are facilitating fishermen's data management and administrative services to the community. Facilitate data storage and data retrieval when needed.

II. LITERATURE REVIEW

A. *Study of literature*

1. Research conducted by (Desyani, 2018), in his research entitled Design of Drug Data Management Information System at Sinar Mulia Pharmacy Web-Based. This study discusses the sales and purchase transaction activities of drugs. The purpose of this research is to make it easier for owners and employees of Sinar Mulia Pharmacy to work, especially in the process of managing drug data and making reports.
2. Research conducted by (Putra & Indriyati, 2020), in his research entitled Design and Build a Web-Based Village Administration Service System Application Using the Laravel Framework. This study discusses the application of public complaints made by the PHP programming language and the Laravel framework. Based on the application made, it makes it easier for the community to make administrative letters and makes it easier for the village government in the administrative system.
3. Research conducted by (Abidah et al., 2017) in his research entitled Laravel Web Framework-Based Internship Data Processing Application at PT Neuronworks Indonesia This study discusses the application of internship data processing based on the Laravel web framework at PT Neuronworks Indonesia which can make it easier for staff to process internship data and archive internship data and make it easier for apprentices to obtain internship data information.
4. Research conducted by (Siregar & Sundari, 2016) in his research entitled Design of a Village Population Data Management Information System (Case Study at Sangiang Village Office, East Sepatan District). This study discusses population data management that is still running manually, the absence of a special program to process population data has resulted in inefficient work being carried out. By implementing a village population data management information system to manage letters and population data into a fast and accurate report.
5. Research conducted by (Supriatiningsih et al., 2019) in his research entitled Design of a Web-Based Public Service Information System in Sambeng Kulon Village Banyumas Regency. This study discusses a web-based public service information system designed as a solution for the Sambeng Kulon Village to manage the service department quickly and precisely so that it can accelerate the data processing process to maximize work results.

Based on the information above, according to the author, the Web-Based Service Information System and Fisherman Data Management of the Kutai Kartanegara Department of Marine Affairs and Fisheries was created to improve services to the wider community and make it easier for admins to manage fisherman data, to create easier and faster governance and services.

B. *System*

The system is defined as a set of interrelated and interconnected procedures to perform a task together (Lestari et al., 2018).

C. *Information*

Information is data that has been processed into a more meaningful and useful form for the recipient to make current and future decisions(Khaerunnisa & Nofiyati, 2020).

D. *Information System*

An information system is a unit consisting of the interaction of several networks that are trying to achieve the same goal. Information systems have a goal to produce information that comes from the results of data processing into a form that is useful for the wearer (Anraeni et al., 2020).

E. *Service*

Service is an effort to aid or help to others, either in the form of material or non-material so that the person can solve the problem himself (Khaerunnisa & Nofiyati, 2020).

F. *Data Management*

Data management consists of data storage and data handling activities. Data Storage consists of collection activities, searching, and maintenance. Data handling includes various checking activities namely checking data that appears on various related lists or that comes from various sources, To find out various sources and to find out differences and discrepancies, this examination is carried out with file maintenance activities (Siregar & Sundari, 2016).

G. *Fisherman*

Fishermen are people who work daily to catch fish in the sea or in fresh water there are two types of fishermen namely:

1. Small fishermen are fishermen who catch fish to fulfill their daily needs, whether not using small or large fishing vessels.
2. Traditional fishermen are fishermen who catch fish in waters which are traditional fisheries rights that have been used for generations in accordance with local culture and wisdom (Nasution & Ulfa, 2020).

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H. Technology

1. Website
   The website is the entire web page contained from a domain that contains information. A web is usually made up of many interconnected web pages. The relationship between one web page and another is called a hyperlink, while the text that is used as a connecting medium is called hypertext (Supriatiningsih et al., 2019).
2. Database
   Database is a system consisting of parts that are joined for a specific purpose. A system can consist of interrelated parts that operate together to achieve a specific goal or objective (Rusmayanti, 2015).
3. Xampp
   XAMPP is one of the Apache installation packages, PHP, and MySQL instantly which can be used to help with the instant installation process (Siregar & Sundari, 2016).
4. MySQL (My Structured Query Language)
   MySQL is a multi-threaded and multi-user SQL or DBMS data-based management system software, with about six million installations worldwide (Suryadi, 2019).
5. Tailwind CSS (Cascading Style Sheet)
   Tailwind CSS is a utility-first framework for quickly building custom interface designs. Tailwind CSS was developed with the aim of speeding up the process of prototyping web pages to suit your needs (custom). Tailwind CSS tries to take another approach in web development, which has been dominated by Bootstrap, so that there is no longer the term "view of a million people" because of the similarities between one web and another (because both use the default Bootstrap theme, minimal customization) (Sholihin & Nurudin, 2018).
6. Laravel
   Laravel is a PHP framework consisting of various plugins that have been integrated and have adhered to the MVC (Model, View, Controller) concept. Laravel is designed to improve software quality by reducing initial development and maintenance costs, and to improve the experience of working with applications by providing an expressive, clear and time-saving syntax. (Prayudha & Rochmawati, 2020).
7. Unified Modelling Language (UML)
   Unidified Modeling Language (UML) is a standard specification language used to build, document and specify software. and supports object-oriented system development (Putra & Indriyati, 2020).

III. RESEARCH METHODS

A. Research Procedure

1. Analysis
   Analysis can be defined as information with a view to identifying and evaluating problems and obstacles that occur so as to provide information so that later data can be more easily understood.

2. Data collection
   The thing to do in system analysis is to collect data. The techniques used are as follows:
   a. This method the researcher uses to observe how the activities of the Fisherman's Data Processing run at the Kutai Kartanegara Marine and Fisheries Office.
   b. The researcher conducted questions and answers about activities related to fisherman data processing to Mr. Muslik who served as the Head of the Service, Mr. Muslik who served as the Head of the Kutai Kartanegara Marine and Fisheries Service to get clearer and more complete information regarding things that the researchers did not know.
   c. In addition to carrying out these activities, the researcher also conducted a literature study to add information in the form of theory by collecting data obtained from journals and writings sourced from the internet.

3. System planning
   System design aims to describe the system elements that you want to implement or implement into the system you want to create. At this stage is the first step in building an information system that will be poured and has a function after analyzing the current system and determining the functional requirements to be achieved.

4. System Test
   At this testing stage, ensuring that the program created can run properly without any errors to the program that has been made, if an error occurs in the program that has been tested it is done to look for errors that later these errors can be corrected.

5. Maintenance
   At this maintenance stage, an effort is made so that later the system is maintained properly and can still be used more optimally.

In this study, the author uses a software development method with the waterfall model as the basis for system design. The Waterfall model provides a sequential flow starting from analysis, design, coding, testing and system maintenance. The waterfall method can be seen in Figure 1.

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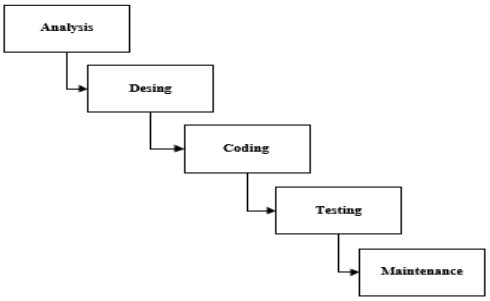

Figure 1. Waterfall Model

B. System development

The analysis of system development used by the author in this study is as follows:

1. Use case diagram

Use Case Diagram is a scenario description of the interaction between the user and the system. A use case diagram illustrates the relationship between actors and activities that can be carried out on the application (Djaksana. 2021).

For use case diagrams, the admin has several systems that will run later, including logging in, managing data in which there is group data and membership data. Admins can also input, edit, view, delete and print data and logout. Admin Use Case Diagram can be seen in Figure 2.

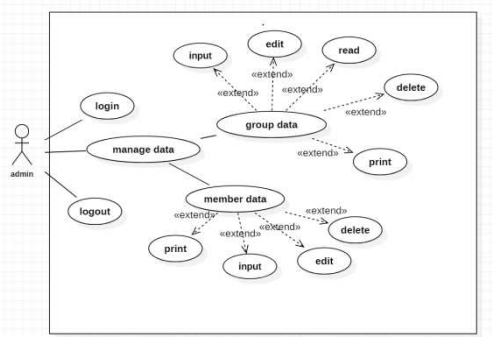

Figure 2. Use case admin

For the use case diagram, the officer has several systems that will run later, including logging in, managing data then submitting in which the officer can view the submission and verify the submission, then to the service after that to the proposal requirements in which the officer can also input, edit, view and clear data and logout. The Officer's Use Case Diagram can be seen in Figure 3.

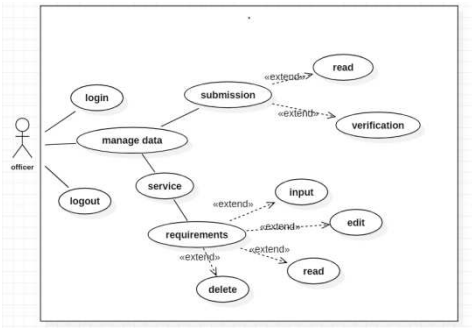

Figure 3. Officer Use Case

For the use case diagram, the user has several systems that will run later including login, a list of proposals in which the user fills out a registration form and sees confirmation and logout. Use Case User Diagram can be seen in Figure 4.

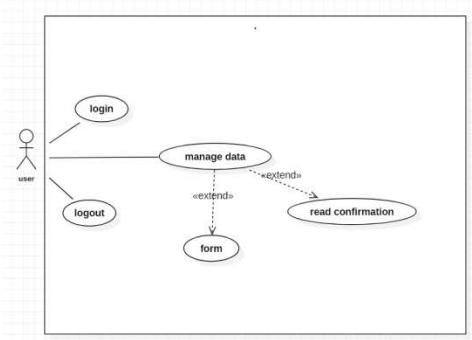

Figure 4. Use Case Diagram

2. Class diagram

Class diagram is a diagram that describes the structure of the system in terms of defining the classes that will be created in building the system. Classes have attributes and methods or operations. Attributes are the variables that belong to a class, while operations or methods are functions that belong to a class (Djaksana, 2021). Class Diagram can be seen in Figure 5.

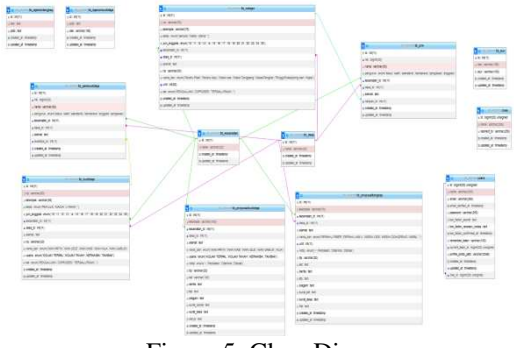

Figure 5. Class Diagram

IV. Results and Discussion

The results of the Web-Based Service Information System and Data Management application for the Kutai Kartanegara Marine and Fisheries Service that has been done by the author are as follows:

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A. Main page

The main page is the page that appears for the first time when visiting the web created by the author, on the main page there are menus such as service menu, E-Proposal list menu, Analytics and Login view. The main page can be seen in Figure 6.

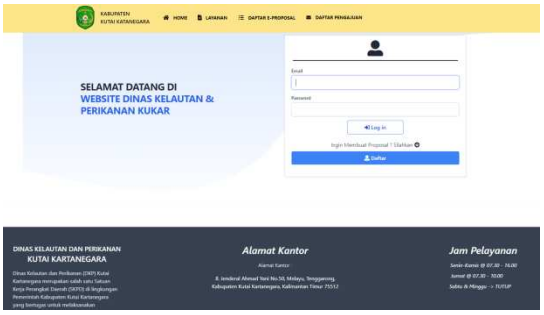

Figure 1. Main Page

B. Login page

The login page is the page used by the community admin to enter the next menu. So, admins and the public must log in first in order to enter the next page. The login page can be seen in Figure 7.

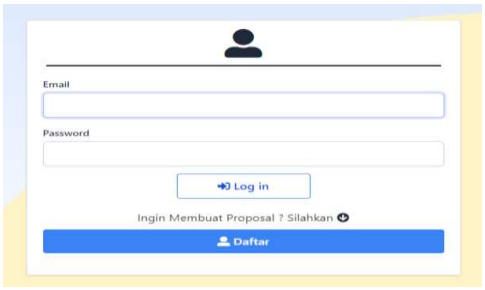

Figure 2. Login page

C. Dashboard page

Dashboard page is a page that displays a menu of total fisherman groups, total fishermen, total cultivation groups, and total cultivators. Admins who have logged in will be directed to the dashboard page and admins can also manage fisherman and aquaculture data. The dashboard page can be seen in Figure 8.

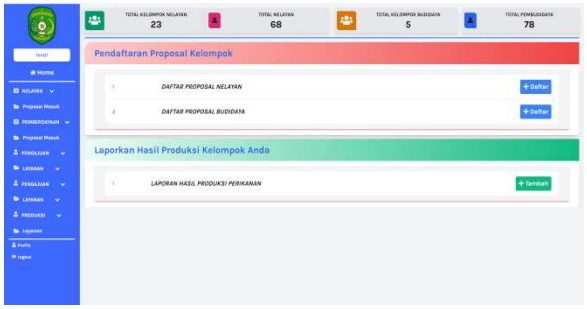

Figure 3. Dashboard

D. Fisherman Admin page

The Fisher Group data page is a page managed by the admin in which there are fisher group data such as Confirmation Number, Group Name, Class, Number of Members, District Name, Village Name, Address, Mobile/WA Number, Application, Unit, and Information. On the data page, fishermen groups can input data, edit data and delete data. The fisherman group data page can be seen in Figure 9.

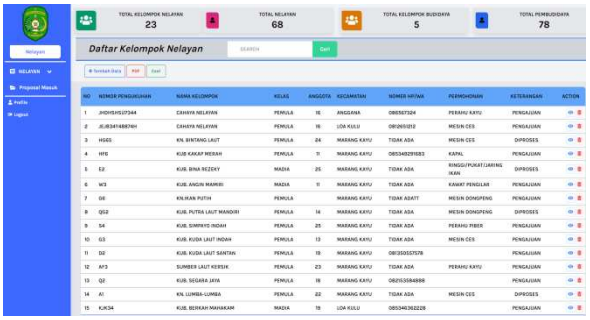

Figure 4. Fisherman Admin page

E. Cultivation Admin Page

Cultivation Group data page is a page that is managed by the admin in which there are fisher group data such as Inauguration Number, Group Name, Class, Number of Members, District Name, Village Name, Address, Mobile/WA Number, Application, Unit, and Information. On the cultivation group data page, you can input data, edit data and delete data. Cultivation group data page can be seen in the Figure 10.

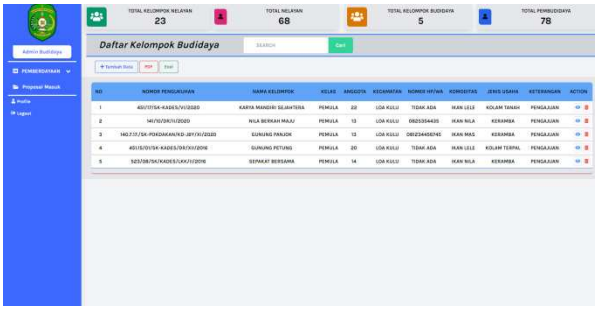

Figure 5. Cultivation Admin Page

F. Proposal verification

In the Verification view of the Submission of Proposals the officer can verify or change the status of the proposal submission. Submission Verification of Proposal can can be seen in Figure 11.

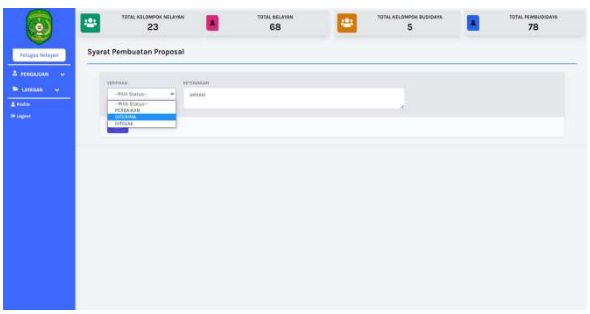

Figure 6. Proposal verification

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G. Service menu

The fisherman's service menu is a page that displays the requirements for making fisherman proposals, which are managed by fisherman officers besides that fisherman officers can also add files, edit files, and delete files on the service menu. Fisherman service menu can be seen in the Figure 12.

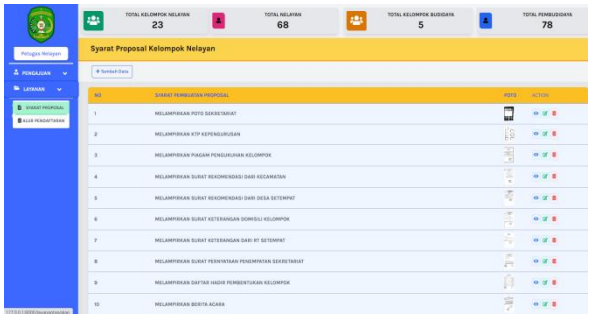

Figure 7. Service menu

H. User Dashboard

User Page is a page that displays a menu to register fisherman proposals and aquaculture proposals. Users who have logged in will be directed to the dashboard page and users can also register to submit proposals on the available menu. User Dashboard display can be seen in the Figure 13.

Figure 13. User Dashboard

I. Proposal Making

On the proposal creation page, the user can see the requirements that have been determined, on this page the user can view the file and download the requirements file. The Proposal Making Requirements page can be seen in Figure 14.

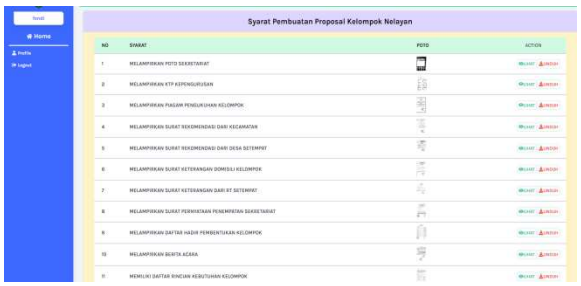

Figure 14. Proposal Making

Testing the Web-Based Service Information System and Fisherman Data Management of the Kutai Kartanegara Department of Marine Affairs and Fisheries using the black box method. Testing is done by running all the existing functions one by one. Then see if the results are in accordance with what was designed and expected by the application. The results of testing the application of the Service Information System and Fisherman Data Management can be seen in table 1.

Table 1. System Test

#	Test	Testing Scenario	results
1	office employees	Entering and filling in the login data, then clicking the login button	succeed
2	office employees	View dashboard	succeed
3	office employees	Input data and save data by clicking the save button	succeed
4	office employees	Change the data by clicking the change button, then there is an alert that tells you that the data has been changed	succeed
5	office employees	View the input data and register	succeed
6	office employees	Delete data by clicking delete, then there is a notification that the data has been Deleted	succeed
7	office employees	Search for data that has been registered with the Search button	succeed
8	office employees	Download data	succeed
9	office employees	Print data on print button	succeed

V. CONCLUSION

Based on the Web-Based Information Service and Fishermen Data Management Information System, the Office of Marine Affairs and Fisheries of Kutai Kartanegara, this application can make it easier for admins to manage fishermen's data, such as storing and searching for data when needed, as well as facilitating administrative services for people who want to apply. online proposals. Web-Based Fisherman Information Service and Data Management System at the Maritime Affairs and Fisheries Office of Kutai Kartanegara has been successfully created using the Laravel Framework, Tailwind Cascading Style Sheet (Tailwind CSS). and MySQL.

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