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Design and Implementation of Village Administrative Data Management System Using Codeigniter Framework

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***Abstract*— the era of globalization today the world is very advanced with technological changes, so the researcher has created an application system is the data management application system of Tirilolo village based on the website, the system uses the programming language framework codeigniter which serves as a database server. In Tirilolo village is currently facing problems regarding population data registration and to share information to communities can access through online, so the researcher created an application system is the design and analysis of the village data management application system using codeigniter framework. The method used by the researcher to make this application is the waterfall method such as Planning, Analysis, Design, Coding, Testing and Implementation. And the models used in this system are Flow Chart, Use case Diagram, Class Diagram, Activity Diagram, Sequence Diagram and ERD Diagram. The result of this research is a web-based village data management application system that has the capacity to facilitate the village administration to obtain faster and more efficient services when registering population data in Tirilolo. Design the village data management application system in the Home menu, Information, Village Agenda, Village Profile and Tirilolo village data. In addition to the data Tirilolo village there is also a menu Overview statistics, population data, data level of vocational education, data level profession, overview data population age.**

Keyword: System, Management, Village, Codeigniter, Website

I. INTRODUCTION

Information systems are a crucial element in the technology development process, supporting human services and fostering connections across various sectors, such as organizations and institutions[1]. The village office, as a state institution, serves as a community administrator. The village's vital role also requires the recording of population and household data.

Typically, data recording and information sharing in Tirilolo village, the research site used by the researchers, still utilize a manual system. Automated methods and the creation of a system for storing data within a database are essential to support service quality and the availability of accurate and accountable village data[2].

Researchers developed and implemented this system, arguing that population data recording is crucial for village officials and the community, facilitating faster and easier service delivery, efficient data storage, and management. All recorded data and information will be stored in a database, using MySQL as the database server for all data recorded in the system[3]. The Codeigniter framework is used as the basis for the village system.

This research basis is expected to answer questions such as how to create a village data management application system in Tirilolo village and how to find out detailed data and the total number of village residents in Tirilolo.

II. RESEARCH METHOD

The model used by the researchers to conduct this research is a mixed methods research approach that integrates quantitative (numerical/statistical data) and qualitative (descriptive/in-depth data) methods in a single study[4]. The goal is to gain a more comprehensive, valid, reliable, and objective understanding of complex phenomena than using a single method alone[5].

The researchers conducted the research in Tirilolo District, Iliomar Administrative Post and Lautem Municipality for three weeks to obtain data and information on the design of a District Data Management Application System using the Codeigniter Framework.

The research methodology used by the researchers to develop this system is the Waterfall methodology, which is a daily system development cycle tailored to user needs. The waterfall method consists of many methods used depending on each researcher's system requirements analysis[6].

The waterfall model is also a classic linear sequential or directed method. Therefore, this model is considered the first method to facilitate the development and functionality progress in a systematic system cycle, starting with phases such as planning, analysis, design, coding, testing, implementation, and maintenance.

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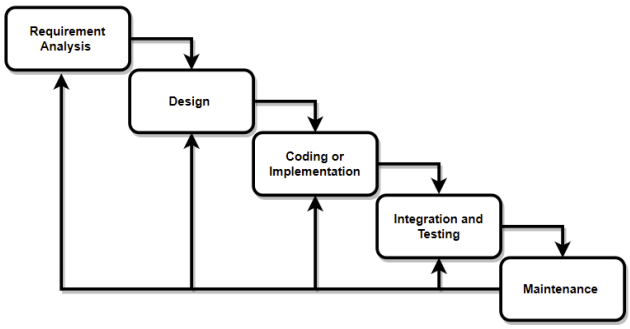

Fig. 1. Waterfall Methodology for Research.

The initial stage was to analyze the system running in Tirilolo village, where it was found that the village administration used a notebook to write village data in the village notebook before entering population data into the Excel application.

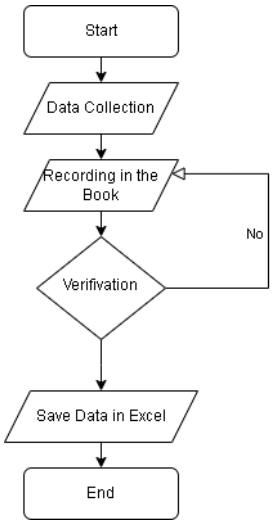

Fig. 2. Current system design.

From the results of the initial analysis on the system running in Tirilolo village, Researchers created a recommended system to solve the problem by creating a village administration system using a website-based application model where this system can be accessed by two categories of users, namely the manager category (Backend) and the visitor category (Frontend)[7]. The manager will be represented by the alias admin where the admin is the user whose job is to manage the entire village administration system such as population data and for the visitor category are the community who can view the information that has been managed by the system manager.

The Manager/Admin is responsible for managing village information data, population data, village activities, and hamlet data including details of the existing community.

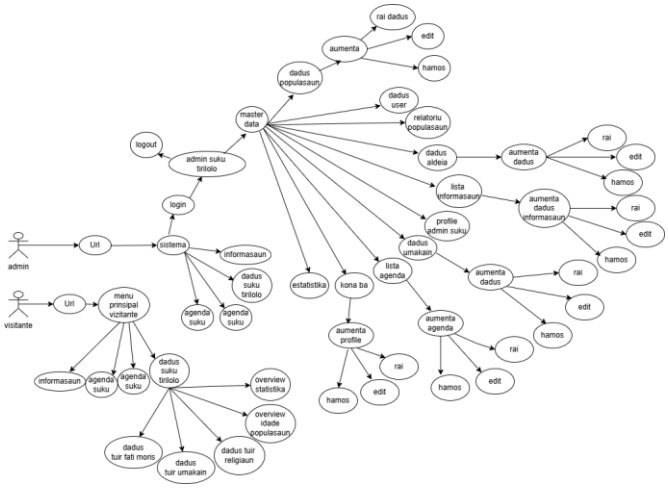

Fig. 3. Use case diagram of the system.

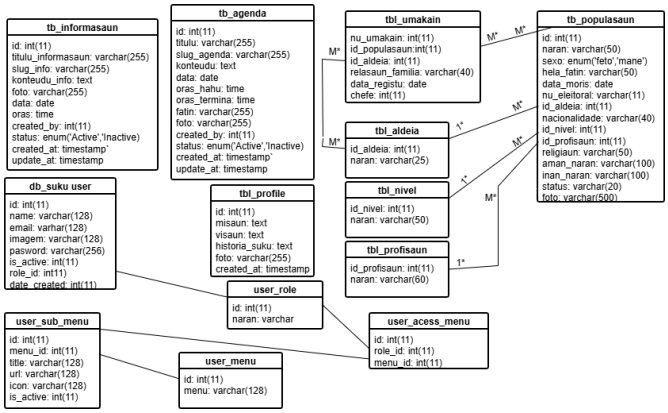

Fig. 4 Class diagram of the system.

III. RESULT

The result of creating the Tirilolo village data administration system website is the home page of the system which can be seen in the image below.

Fig. 5 Homepage System.

On the home page of the system, visitors can see all data related to village information, village agendas/activities and Tirololo village data where the village data includes overall village statistical data, population data, education data, employment data and data based on the age of the population.

Dili Journal of Engineering, Technology and Innovation (DILIJETIN)
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Fig. 6 Overall village statistical data.

On the Village Statistics page, information on the total population is displayed based on religion, place of birth, and total number of heads of households. The diagram also displays the percentage of the total population based on marital status and the total number of hamlets under the administration of Tirilolo village.

Fig. 7 Overall Population Data by Age.

On the Statistics page, population data by age is displayed in more detail, with the data further divided by gender and age into several categories (Infants, Children, Youth, Adults, and the Elderly). All data is presented in diagrams and tables to make it easier for visitors to understand and read.

IV. Conclusion

The conclusions from the implementation of this tribal data management system are as follows:

1. This system was created in Tirilolo Village to manage population data and expand the promotion and information of Tirilolo village data.
2. This system was created using the waterfall model and UML methods to design the system.
3. The system pages were created using the Code Igniter framework version (3), which was implemented in Tirilolo village.
4. This system has two users: the administrator and visitors. In this system, the administrator has the right to determine what visitors can see and what is published by the administrator or operator.
5. The results of the system, implemented online, allow the Tirilolo village administrator to process data information and input population data smoothly, and visitors can access population data information, including population totals, via the internet.

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