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Designing the Absence System of the Langkat DPRD Using the Website-Based Waterfall Method

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Abstract

Currently, computer-based technology is needed in the development of business and industry to speed up and simplify work, especially fast and accurate information. In addition, the information processing process is also important to make the information more useful. The phenomenon that exists in this era of globalization is that there are still many people who are less effective in using computer-based information technology, one of which is the Langkat DPRD. The attendance mechanism in DPRD Langkat that is applied now can be said to be less efficient and effective, where everything is still done manually starting from data collection and calculation of attendance hours, outgoing hours, up to absent information, this has an impact on the time that is long enough in the process of calculating the recapitulation of attendance from DPRD Langkat members, as well as the form of attendance reports designed in the form of hardcopy which can lead to errors in data recording, making it difficult to search for data and can be feared to lose attendance data. The attendance system for members of the Langkat DPRD is an information system designed to process attendance data for members of the Langkat DPRD, namely meeting data, DPRD member data, and attendance data. This system was built using the waterfall method with the PHP programming language and using the Mysql database. The results of this system are expected to help the relevant institutions in managing the attendance of members of DPRD Langkat, so that computerized data will be stored in a centralized database and the performance of the attendance data collection system of DPRD Langkat members will be more effective and efficient.

Keywords: *System, Information, Attendance, Waterfall, Website*

1. Introduction

Along with the rapid development of technology, web-based information systems are utilized as a means of increasing information. This utilization will facilitate a job such as faster data processing, decisions to be taken more precisely, saving time and costs [1]. In addition, web-based information systems can also be an efficient means of promotion and a source of information that can be accessed by internet users who are increasingly widespread [2].

Currently, computer-based technology is needed in the development of business and industry to speed up and simplify work, especially fast and accurate information. In addition, the information processing process is also important to make the information more useful [3]. The phenomenon that exists in this era of globalization is that there are still many people who are less effective in using computer-based information technology, one of which is the Langkat DPRD [4].

The Regional People's Representative Council of Langkat Regency (abbreviated as DPRD Langkat) is a regional people's representative body at the district level in Langkat Regency, North Sumatra [5]. DPRD Langkat has 50 members spread across 11 political parties. DPRD Langkat has an agenda that is carried out by conducting meetings of members of the DPRD council which are scheduled with the level of attendance of members known by the attendance of members of the council [6].

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The attendance mechanism in DPRD Langkat that is applied now can be said to be less efficient and effective, where everything is still done manually starting from data collection and calculation of attendance hours, outgoing hours, up to absent information, this has an impact on the time that is long enough in the process of calculating the recapitulation of attendance from DPRD Langkat members [7]. As well as the form of attendance reports designed in the form of hardcopy which can lead to errors in data recording, making it difficult to search for data and can be feared to lose attendance data [8].

Therefore, DPRD Langkat needs an information system that can overcome these problems. Where the information system that is built later will use the Waterfall Method [9]. The waterfall model is a classic model that is systematic, sequential in building software. The name of this model is actually the Linear Sequential Model and is often called the classic life cycle or waterfall method [10]. It is called waterfall because the stages passed must wait for the completion of the previous stage and run sequentially. This waterfall model provides a sequentially ordered software lifecycle approach starting from analysis, design, coding, testing and support stages [11].

2. Research Methodology

This research method is obtained based on the analysis of the research system carried out to obtain information on the current system and determine how the proposed system answers the problems that occur in the current system [12]. Below is the research mechanism and structure.

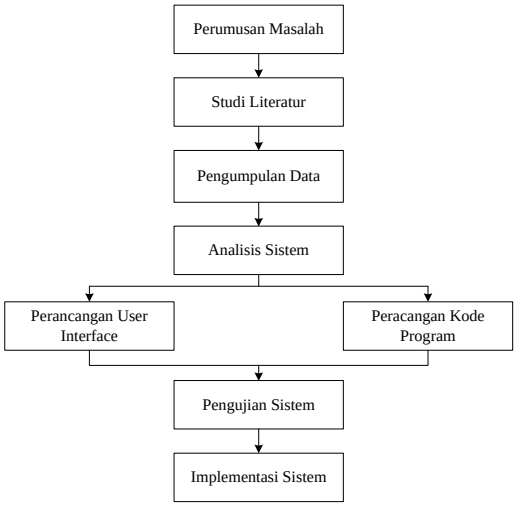

Figure 1. Research Stages

Based on the Figure above, it can be explained every step of the stages that will be achieved in designing research. The stages are arranged through several steps so that the system can run well. The research stages based on the sequence are as follows:

a) Problem Formulation
Problem formulation is a must in a research, because in this process the researcher will focus on the research objectives and find the best solution to the problem.

b) Literature Study
Literature study is the process of collecting various references through literature searches, journals and articles related to the research title to gain basic knowledge, learn and understand the theory of the Waterfall method.

c) Data Collection
At this stage, the data collection process is carried out using the interview method and direct observation to the Langkat DPRD office to observe and analyze the ongoing process, so as to obtain the data and information needed by the researcher.

d) System Analysis
At this stage, it is carried out to see the system design carried out based on the information obtained in determining the part of the system to be designed.

e) User Interface Design
At this stage of designing the User Interface is useful for designing the system interface to the user, namely the meeting schedule interface, DPRD members and attendance.

f) Program Code Design
This stage is part of forming a system in the form of a website that will be directly related to users, namely using the php programming language code.

g) System Testing
The process of testing the system internally can be done either by verification or data validation and adjusted to what is done to anticipate a minimum of tests that fail when tested by users.

h) System Implementation
System implementation is the result of implementing the system as a whole and as a whole, system implementation is carried out to receive system benefits for users and system developers.

A software development method is a framework that is used to structure, plan, and control the the development process of an information system. method used by the author is the waterfall method. Waterfall method is a method that provides approach to the software lifecycle in a sequential or sequenced". The stages in the waterfall method are as follows :

a) Communication
At this stage the Waterfall model to identify existing problems and other information needed for system development. This emphasizes that the design of a system using the Waterfall model communicates to the staff of the Langkat DPRD office in order to fulfill the wishes and expectations of the users.

b) Planning
At this stage, it is done by determining resources, specifications for development based on system needs and objectives based on the results of communication carried out so that development can be in accordance with the expected review.

c) Modeling
In the next stage is the representation or describing the system model to be developed such as the process by designing using UML the necessary inter-entity relationships, and designing the interface of the system to be developed.

d) Construction
This coding stage uses the PHP programming language. The installation process and user-support presentation are also carried out so that the system can run accordingly.

e) Deployment delivery & feedback
Before handing over the system. This system will be tested. The test method used in the construction of this system is to use the Black-Box testing method. Black-Box testing is testing that focuses on software functional requirements. Where black box testing (Black-Box testing) relates to tests performed on the software interface. After testing is completed, the final stage of the waterfall model development method is system submission. After analyzing, designing, coding and testing, the finished system will be submitted for use by users and periodic maintenance is carried out.

3. Results And Discussion

This research produces an application that is designed and developed into a Website-Based Attendance System for the Langkat DPRD. This system is able to process attendance data digitally well. Through literature studies, it was found that a web-based attendance system can improve efficiency, data security and produce uptodate reports

when needed. The needs analysis conducted through interviews and direct observation found sources of problems, such as recording errors, missing data and difficulties in producing reports because it takes a long time to recap attendance data that is done manually. The following is a view of the system that was successfully built and its discussion.

3.1. Main Menu Page

The main menu page is a landing page for the Langkat DPRD Absence System Application web-based application that contains information about attendance data. On this main menu page there are several sub menus, namely the home menu, about menu and contact. For more details can be seen in the following figure.

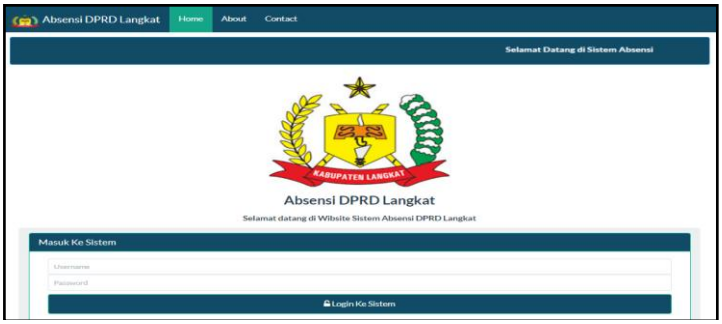

Figure 2. Main Menu Page

a) About Display Page

The About display page is a page that displays information about the Langkat DPRD. For more details can be seen in the following figure.

Figure 3. About Display Page

b) Admin Display Page

Admin View Page is a page that appears when the user logs in as an admin. On the admin page there are several sub menus, namely: Master Data, Reports, About, Contact and LogOut. For more details can be seen in the following figure.

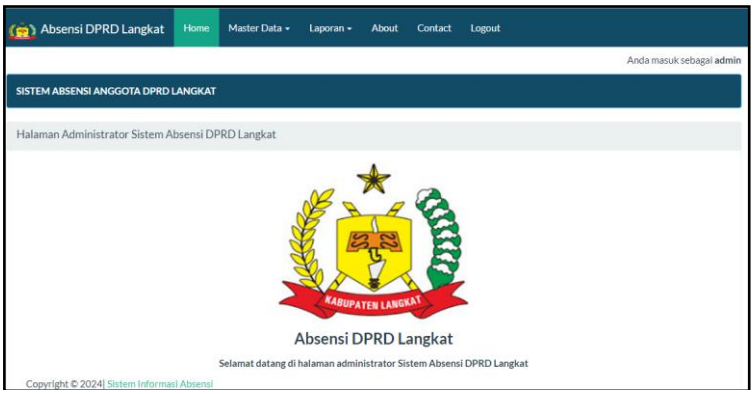

Figure 4. Admin Display Page

3.2. Meeting Schedule Display Page

Meeting Schedule Display Page is a page that appears when the user activates the meeting schedule sub menu. This page has a function to manage meeting schedule data, such as saving, changing, deleting and searching meeting schedule data. For more details can be seen in the following figure.

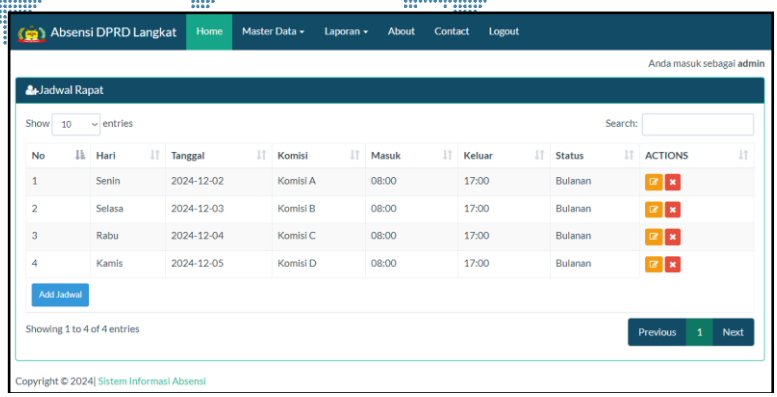

Figure 5. Meeting Schedule Display Page

a) DPRD Member Display Page

DPRD Member Display Page is a page that appears when the user activates the DPRD Member sub menu. This page has functions to manage DPRD member data, such as saving, changing, deleting and searching DPRD member data. For more details can be seen in the following figure.

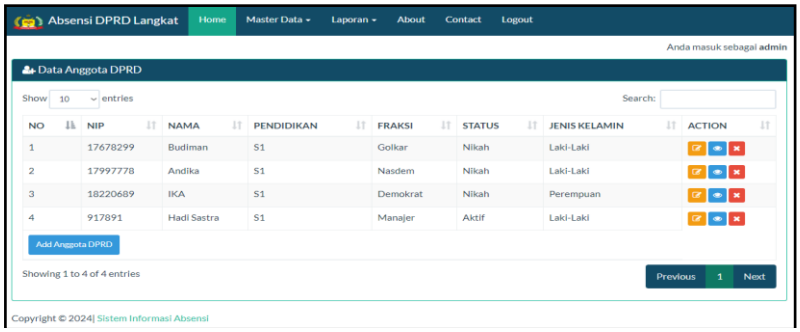

Figure 6. DPRD Member Display Page

b) The Attendance Display Page

The Attendance Display Page is the page that appears when the user activates the attendance sub menu. This page has functions to manage attendance data, such as saving, changing, deleting and searching attendance data for DPRD members. For more details can be seen in the following figure.

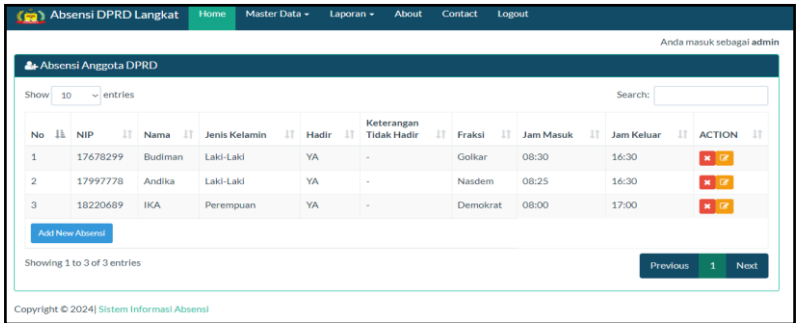

Figure 7. The Attendance Display Page

c) The Attendance Report Display Page

The Attendance Report Display Page is the page that appears when the user activates the attendance report sub menu. This page has a function to view attendance data in the form of a report that can be downloaded in the form of a pdf file. For more details can be seen in the following figure.


Sistem Absensi DPRD Langkat

Jl. T. Amir Hamzah No.2 Stabat Sumatera., Kabupaten Langkat, Sumatera Utara, Kode Pos : 20762

DATA SELURUH ABSENSI ANGGOTA DPRD

No.	NIP	Nama	Jenis Kelamin	Hadir	Keterangan Tidak Hadir	Jabatan	Jam Datang	Jam Pulang
1	17678299	Budiman	Laki-Laki	YA	-	Golkar	08:30	16:30
2	17997778	Andika	Laki-Laki	YA	-	Nasdem	08:25	16:30
3	18220689	IKA	Perempuan	YA	-	Demokrat	08:00	17:00

Langkat, 24-12-2024

Drs. BASRAH PARDOMUAN

Figure 8. The Attendance Report Display Page

4. Conclusion

The results of the completion of the previously described and the creation of the Langkat DPRD Absence System Application Website Based, it can be concluded several conclusions, The Langkat DPRD Absence system application is designed using UML tools, namely designing a system overview, system interface overview and designing a system report overview. Waterfall method is applied in building the DPRD attendance application by performing several stages, namely communication, planning, modeling, formation and feedback. The system designed is able to produce upto date reports when needed, this can be seen from the reports generated by the system in accordance with the data inputted into the system and reports can be viewed whenever needed.

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