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Development Individual Work Activity Report Information System at PT. Ayub Pri Tower Kreasi Website based

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ABSTRACT

PT. Ayub Pri Tower Kreasi operates in the construction and network installation services sector. Based on interviews and observations, work activity reporting is still done manually after the job is completed and by only one person. This creates obstacles such as a lack of information, potential reporting errors, and difficulties in storing and retrieval of historical data. As a result, management does not obtain accurate and real-time information on employee work activities, hampering decision-making and employee performance evaluation. Therefore, this research aims to develop a web-based individual work activity information reporting system. This system is expected to assist management in operations, support decision-making, improve performance, and ensure the accountability of each employee. Through the data and information from the developed system, company management can make effective decisions, conduct evaluations and assess management strategies, and ensure each technician/employee's performance. The system was developed using the waterfall method, which includes analysis, design, implementation, testing, and maintenance. System testing was conducted using black box testing to ensure system functions operate as required.

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INTRODUCTION

Based Today, technology is a crucial tool used in companies to help them achieve their goals effectively and efficiently [1]. This can be achieved by leveraging technology in management, particularly human resource management. Because Human Resource Management (HRM) plays a crucial role in increasing organizational productivity by optimizing workforce utilization and adapting to technological developments, the implementation of appropriate HRM strategies, such as competency-based recruitment, continuous training, and the use of technology in performance management, has been proven to increase efficiency and strengthen organizational competitiveness [2].

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But at the same time, there are also companies that have constraints in resource management because they do not implement information technology and do not have a structured system, which actually experiences difficulties and operations do not run effectively, such as what happened at PT. Ayub Pri Tower Kreasi, which experienced difficulties because it could not monitor employee work in the field and work reports from each employee, Therefore, the lack of a mechanism for creating periodic work results reports also becomes an obstacle in decision making and this condition causes difficulties [3].

Currently, a company should need a computerized system and a database to facilitate data storage and access data if needed at any time to produce useful information for the company. The company can easily monitor employee performance online and efficiently [4]. Therefore, PT. Ayub Pri Tower Kreasi requires a management information system because a management information system is a set of structured systems for managing and processing information, the aim of which is to always provide available information as a basis for decision making related to achieving organizational goals [5].

To optimize the information system used for monitoring and reporting the work of each employee, a website based system will be created because the website based system can make the monitoring process effective and efficient because each employee can directly enter the work process they do directly into the system, and the HRD department can monitor the completion of employee work in real time, this system can make the process of monitoring employee performance easy to do at any time, can make the monitoring process not take a long time because it can be done in real time so that the monitoring process becomes effective and efficient [6].

So that the system developed can overcome existing problems in the company such as monitoring work in the field, work reports from each employee, storing work data, and having work-related information data from employees as information systems act as control tools and strategic decision-making tools in modern organizations along with the development of information technology, information systems not only function as operational data providers, but also become the main foundation in managerial planning and monitoring processes [7].

METHODS

In this research, the method used for website development is the Waterfall method. The Waterfall method (classic life cycle), also known as the "Linear Sequential Model," was introduced by Winston Royce around 1970 and is often used in Software Engineering (SE). This development model must be sequential, from system development to maintenance [8]. If one stage fails, it's repeated until successful. Some businesses continue to use the Waterfall method. This model requires careful consideration of the time and resources required. This model is typically used for small to medium-sized projects. It also doesn't require a lot of money or resources [9].

The waterfall method is a systematic and sequential approach to software that begins with user requirements specifications and continues through several stages, and ends with the handover of the system/software to the customer.

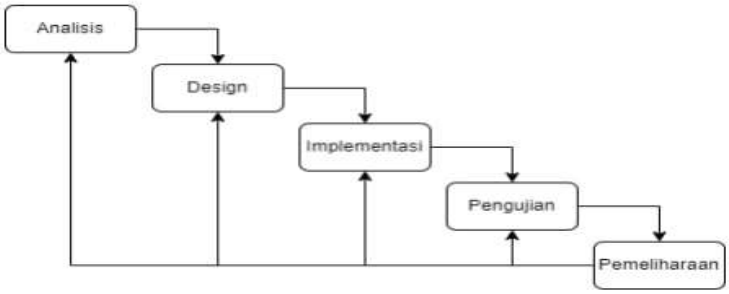

Figure 1. Waterfall Method

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1. Analysis
   This step is the system requirements analysis. It contains system services, constraints, and objectives established through consultation with system users, then defined in detail to serve as system specifications.
2. Design
   The design phase aims to gather hardware and software requirements to build a comprehensive system architecture, including data structures, software architecture, interfaces, and detailed procedures or algorithms. This process translates system requirements into a software plan that can be estimated before the coding phase begins.
3. Implementation
   At this stage, the software plan is realized in the form of a collection of programs or program units through a coding process. Coding is the translation of the system design into a programming language that can be understood and executed by the computer.
4. Testing
   At this stage, all program units are combined and tested as a unified system to ensure that all software requirements are met.
5. Maintenance
   Maintenance is the longest life cycle of a system once it is installed and used by users. Maintenance involves correcting previously undiscovered errors, improving the implementation system, and enhancing system services as new requirements are identified [10].

The advantages of using the waterfall method are a clear workflow, good documentation results, can save costs, used for large-scale software development [11].

Research Stages

Figure 2. Reseach Stage

1. Problem Formulation
   Problem formulation was determined based on the problems encountered at PT. Ayub Pri Tower Kreasi Medan in managing daily activities.
2. Purpose Determination

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Purpose determination was carried out to determine the steps taken in developing an employee performance reporting application. The objective of this research is to develop a system that can be used at PT. Ayub Pri Tower Kreasi to manage work data.

3. literature Study
   A literature Study is a learning process conducted by referring to various sources related to information systems Information can be obtained through books, journals, and internet sources.
4. Data Collection
   The author collected data directly at PT. Ayub Pri Tower Kreasi Medan through interviews to obtain employee performance reporting data.
5. System Design
   The purpose of system design is to design a general outline of the complaints information system.
6. Implementation
   Implementation testing is a successful trial of the information system using existing data at PT. Ayub Pri Tower Kreasi to determine whether the developed application meets the previously designed requirements.
7. System Testing
   System testing is used to test the functions of an activity information system to ensure the program is working properly and correctly.

RESULTS AND DISCUSSION

Needs Analysis

Based on the results of observations that have been carried out at PT Ayub Pri Tower Kreasi, several needs were obtained as follows.

Table 1. Requirements table

User	Need	Description of needs
Admin	Login	Enter Username, Password, and Login
	Manage technician/employee account data Manage team data	Adding, Modifying, Deleting Accounts, and Adding, Modifying, and Deleting team data
	Manage customer data	Add, Change, Delete customer data
	Manage assignment data	Add, Change, Delete assignment data
	Manage activity data	Add, Change, Delete activity data
	Manage report data	Filtering, and printing report data
Technician/Employee	Login	Enter Username, Password, and Login
	Manage activity data	Update job reports, and delete activity data
	Manage report data	Filtering, and printing report data

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Design system

1. Flowchart Diagram

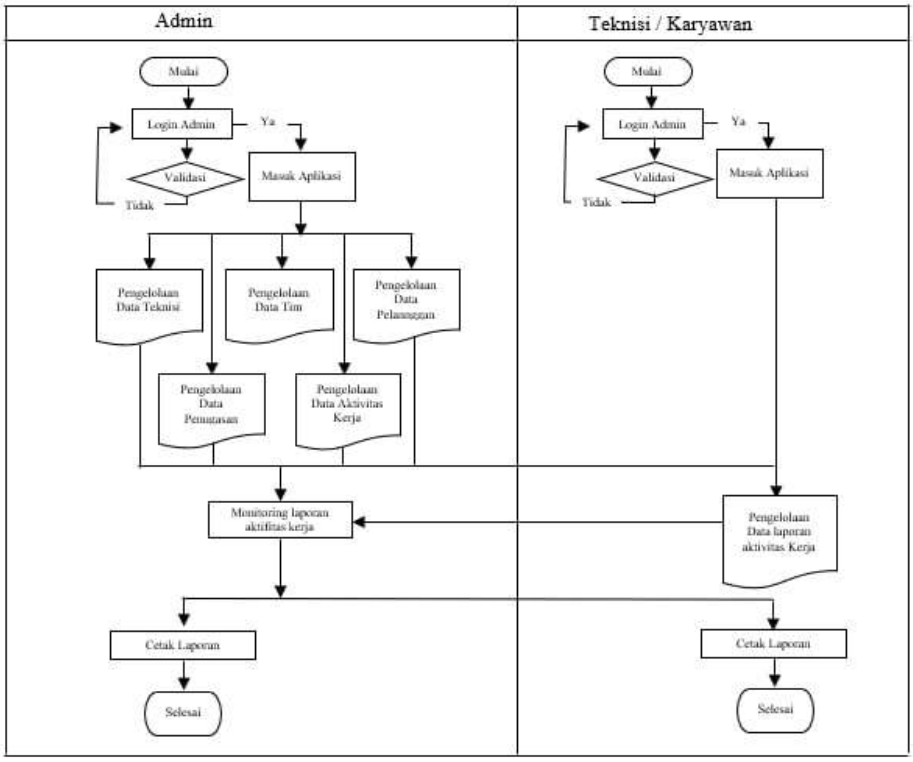

Figure 3. Flowchart Diagram

The proposed system flowchart is used to illustrate the overall flow of the designed system. The cycle is as follows:

a. Login is required for admin and technician/employee accounts to enter the system.
b. The admin manages Data teknisi, which is the technician/employee account data, by creating a technician/employee account with a username, password, name, and related data to access the system.
c. If the required technician account is available, the admin manages Data tim, which is the team data consisting of registered technicians/employees. This is created because the work is done as a team.
d. The admin manages Data pelanggan, which is the customer data used to enter information about customers related to the company.
e. The admin then manages Data Penugasan, which contains information about the tasks to be assignment at the customer. This data contains the customer, the team or technician to be assigned, and a description of the tasks at the work location.
f. The admin then manages Data aktivitas kerja, which contains information related to the work activities performed by each technician/employee, is responsible for ensuring each technician/employee fulfills their assigned role. Each data item contains a series or stages of work activities performed in the assigned team. Therefore, each assignment can create more than one work activity record. Because this data represents a series and stages of assignments, the information from this data serves as operational monitoring for the assignment's progress and which parts have or have not been completed within the assigned assignment.
g. The administrator will print work activity reports from technicians at specific times for assessment reports to superiors and as data for job analysis.

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h. Technicians/employees update the activity data created and provided by the administrator to designated technicians by inputting information regarding the work activities provided by the administrator to the relevant technician/employee as part of their job responsibilities.
i. The technician/employee report data manages serves as a place to print and sort activity data assigned to the relevant technician based on specific categories.

2. Class Diagram
The construction of a system can be represented in the form of a structure that explains the definition of each class involved, and this representation is known as a class diagram.

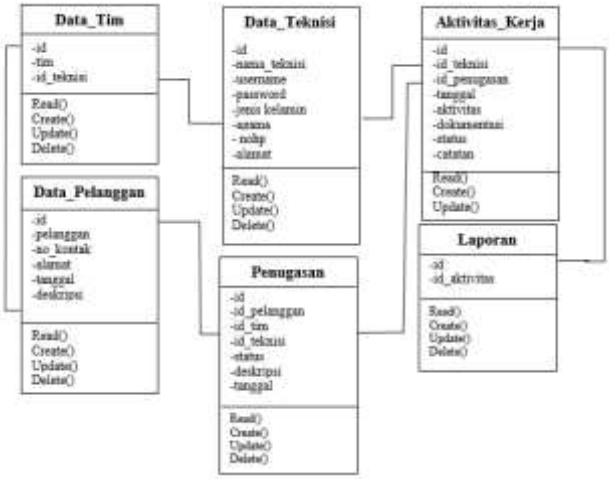

Figure 4. Class Diagram

3. Use Case Diagram
Information system modeling is performed to describe the behavior of the system being developed. The goal is to describe the interactions between one or more actors involved in the information system.

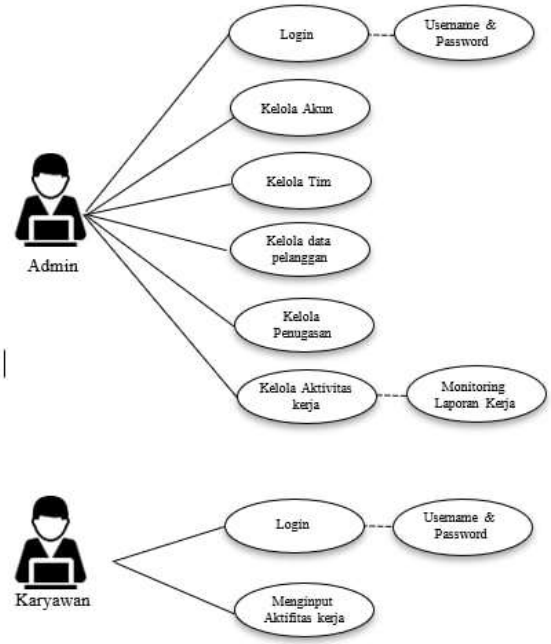

Figure 5. Use Case Diagram

System Implementation

1. Login Page

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This login page appears when users, whether admin or technicians/employees, want to access data in the application. This is to ensure the security of the application's data and prevent anyone from accessing the application except those whose user accounts have been registered in the system.

Figure 6. Login Page

2. Home Page (Admin)

The application homepage is the initial page displayed to the admin upon opening the application and successfully logging in. This page primarily serves as an information and navigation center for users, providing easy access to key features.

Figure 7. Home Page (Admin)

3. Teknisi Page (Admin)

Teknisi page in the app is where admins manage data teknisi, specifically technician/employee data accounts in the app. Teknisi page displays information and input such as name, username, password, address, and phone number. Admins can also perform various actions, such as adding, changing, or deleting technician data.

Figure 8. Teknisi Page (Admin)

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4. Tim Teknisi Page (Admin)

Tim teknisi page within the app is where you manage data tim, which is the team's data within the app. Tim teknisi page displays information about the team and its members. Here, admins can perform various actions, such as modifying or deleting team and member data.

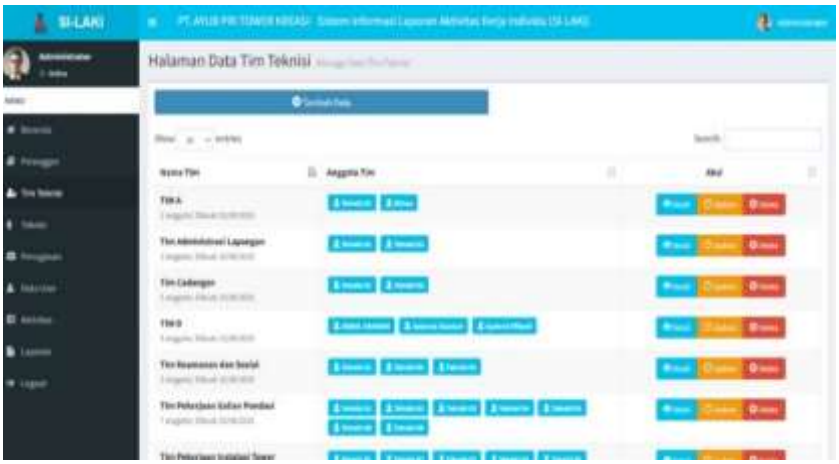

Figure 9. Tim Teknisi Page (Admin)

5. Pelanggan Page (Admin)

Pelanggan page in the application is where you manage data pelanggan which is customer data in the application, On the Pelanggan page display, there is information and management related to customer data. Here the admin can perform various actions such as adding, changing, or deleting customer data.

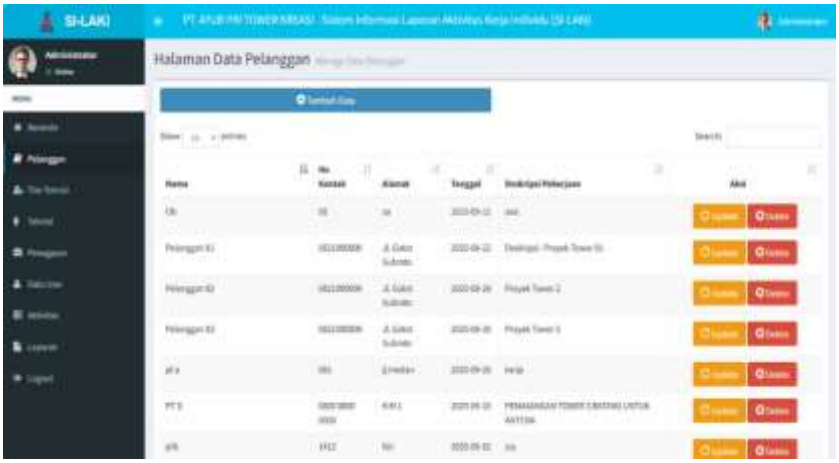

Figure 10. Pelanggan Page (Admin)

6. Penugasan Page (Admin)

Penugasan page in the application serves as a management location for data penugasan, which is the assignment data for customers in the application. Penugasan page displays assignment data information, which is the task data to be carried out, including the customer, assignment information, and the team or technician to be assigned. Here, the admin can perform various actions such as adding, changing, or deleting customer data.

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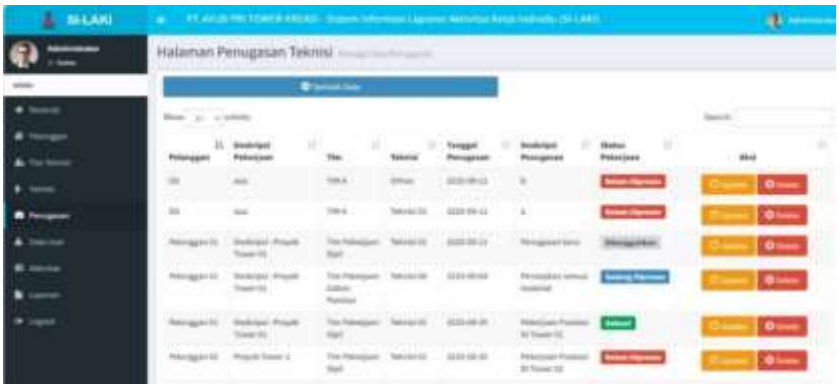

Figure 11. Penugasan Page (Admin)

7. Aktivitas Page (Admin)

Aktivitas page for admin in the application where you manage data aktivitas witch is activity data and monitors work activity updates from employees assigned to the application. Activity data is a series or stages of work activities from assignments carried out so that one assignment data can create more than one activity data and this data will appear on the related technician/employee page and will be inputted to update the activity information provided, here the admin can perform various actions such as adding, changing, or deleting activity page data.

Figure 12. Aktivitas Page (Admin)

8. Laporan Page (Admin)

Laporan page for admin in the app contains all activity data generated by the admin and reports from technicians/employees in the app. On the Reports page, admins can filter and print the report data entered there.

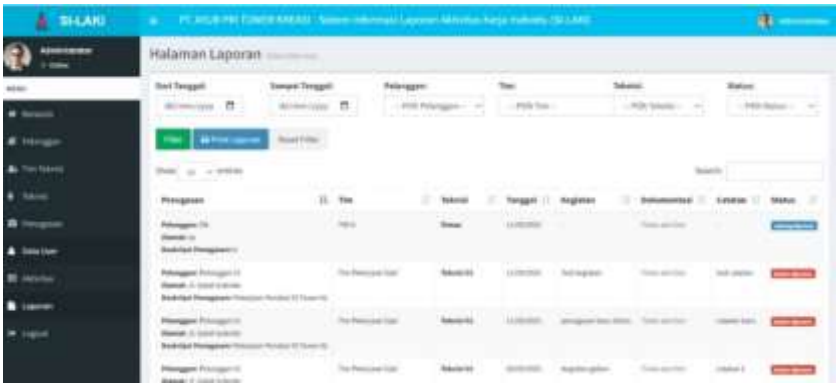

Figure 12. Laporan Page (Admin)

9. Home Page (Technician / Employee)

The application homepage is the first page technicians/employees see when they open the application and successfully log in. This page serves primarily as an information and

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navigation center for users. The primary purpose of the homepage for technicians/employees is to provide users with an overview of what the application can do and provide easy navigation to key features.

Figure 13. Home Page (Technician / Employee)

10. Aktivitas Page (Technician / Employee)

Aktivitas page for Technicians in the application is a page that acts as a place to contain data aktivitas kerja which is activity data, The admin provides the technician with information about the work activities, and the technician can input and update the work activities provided in the activity data provided by the administrator. The technician activity page displays information about the work to be done.

Figure 15. Aktivitas Page (Technician / Employee)

11. Laporan page (Technician / Employee)

Laporan halaman for Technician/Employee in the application contains all the activity reports in the technicians who own the account. On the Reports page, technicians can filter and print the activity reports for the technicians involved.

Figure 16. Laporan Page (Technician / Employee)

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Testing

The testing process for this website uses the Blackbox Testing method, and the following are the test results:

Table 2. BlackBox Testing table

Testing Class	Expected results	Success status
Menu Login	Successfully logged in as admin and employee/technician	Success
Teknisi page (Admin)	Show technician/employee account data	Success
	Add technician / employee data	Success
	Changing technician/employee account data	Success
	Deleting technician/employee account data	Success
Tim Teknisi page (Admin)	Displaying team data	Success
	Adding a team and adding technicians/employees as team members	Success
	Changing team data	Success
	Delete team data	Success
Pelanggan page (Admin)	Display customer data	Success
	Adding customer data	Success
	Changing customer data	Success
	Delete customer data	Success
Penugasan page (Admin)	Display assignment data	Success
	Adding assignment data	Success
	Changing assignment data	Success
	Delete assignment data	Success
Aktivitas page (Admin)	Display Work Aktivities	Success
	Adding Work Aktivities	Success
	Changing Work Aktivities	Success
	Delete Work Aktivities	Success
Laporan page (Admin)	Displaying report data	Success
	Filtering report data	Success
	Print report	Success
Aktivitas page (Technician / Employee)	Displays activity data provided by the admin to the relevant technician/employee	Success
	Provide job updates on the provided activity data	Success
	Deleting activity data	Success
Laporan page (Technician / Employee)	Displays related technician/employee report data	Success

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	Filtering related technician/employee report data	Success
	Print report	Success

CONCLUSION

The Development Individual Work Activity Report Information System at PT. Ayub Pri Tower Kreasi Website based has been able to help PT. Ayub Pri Tower Kreasi overcome existing problems, such as the inability to monitor field operations, which hinders accurate and effective decision-making. Furthermore, the lack of job information data to assess each technician, making it difficult to determine whether they are performing their assigned tasks, given that they are performed as a team. The website-based information system design provides data on work activities assigned to each technician as a responsibility, and monitors the sequence of work activities within the assignment, providing information related to assigned tasks. This allows management to monitor operations, providing information for accurate and effective decision-making, supporting operational efficiency, and providing data for analysis to find solutions and work strategies for the company.

Testing using the Black Box method demonstrated that the features and functions of the developed website-based information system function as desired and expected. This system is expected to effectively improve company performance.

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