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Implementation of Web Based Leave Information System at PT Arutmin Indonesia Tambang Kintap

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ABSTRACT

Leave is one of the rights that must be given to employees by a company. The leave application process at PT Arutmin Indonesia Tambang Kintap is still done manually, starting from the leave application to the results of the leave decision. The process of checking employee leave balances, leave applications, approvals and leave reports still relies on previous leave files. This kind of management process is often complained about because it is felt to be less effective and efficient when searching, changing, deleting data and data redundancy often occurs. Therefore, the aim of this research is to build and implement an employee leave information system which is expected to be able to help the process of managing leave in the Company. This information system was designed using ERD, DFD using the waterfall system development model. This system was built based on a website using the My database. SQL Based on the results of system functionality testing, this leave information system can function well without any problems.

INTRODUCTION

PT Arutmin Indonesia is a coal mining company operating under a Special Mining Business License (IUPK). With over three decades of operation, Arutmin has become a preferred coal mining company for consumers in the power generation industry and other sectors, both in Indonesia and globally. PT Arutmin Indonesia carries out competitive coal production processes, reliable quality assurance procedures, and excellent customer service. As one of the National Vital Objects (Obvitnas) designated by the government of the Republic of Indonesia, Arutmin's operational area spans three regencies in South Kalimantan: Tanah Laut Regency, Tanah Bumbu Regency, and Kotabaru Regency.

PT Arutmin Indonesia Tambang Kintap has several departments, including the Admin Department, Sustainability Development (SSD) Department, Engineering Department, Safety Health & Environmental (SHE) Department, CPP Department, OLC Department, PORT Department, Strategic Maintenance Group (COP), and Community Development & External Affairs (CDEA) Department. The organizational structure of management at PT Arutmin Indonesia Tambang Kintap starts with the Chief Mining Engineer (KTT), Project & Maintenance Service Manager, Task Force Manager, and Superintendents across the six departments.

One of the crucial departments in the management cycle of PT Arutmin Indonesia Tambang Kintap is the Admin Department. Within this department, there are several key positions, including Superintendent, Supervisor, Admin Assistant, Accounting Assistant, and Officer. They are responsible for directing, overseeing, guiding, handling all administrative documents, and ensuring compliance with company policies and procedures as requested by each department. This ensures that operational activities align with the established goals for achieving the company's objectives.

Among the various tasks within the Admin department, one of the responsibilities is related to handling employee leave requests. Currently, leave requests are processed manually using leave request forms provided by the Admin Assistant. In this process, employees must fill out the leave request form, which is then reviewed and awaits approval and signatures from HR Admin, Superintendent, and Manager. Subsequently, the completed leave request forms are scanned and stored in the AI leave data archive folder on the desktop. However, this manual leave request mechanism is inefficient, as it requires additional time for processing and consumes physical space and memory due to paper usage.

The solution to address this issue is the implementation of an information system to assist in leave management and submission processes. This system would handle leave data input, leave data summary, leave management, and report generation. The proposed system offers several advantages,

1. Online Leave Submission: Employees can submit leave requests online through the system.
2. Paperless Approach: The system eliminates the need for paper-based processes.
3. Reduced Data Redundancy: The system minimizes data duplication.
4. Efficient Data Input: Faster data input for admin assistants.

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5. Dynamic Leave Calculation: Real-time leave balance calculations.
6. Streamlined Approval Process: Faster approval compared to the previous manual scheme.

LITERATURE REVIEW

This section discusses some of the scientific knowledge used to solve this research and in this research, the library study method is used as a method for collecting research data in the form of journals, articles, and so on. Literature studies are used as references for conducting research with several relevant sources. The following is a general overview of the literature used in this research:

1. The research conducted by Firmansyah et al. titled "Application of Employee Leave Submission Website at Assyifa Sukabumi Islamic Hospital Based on WhatsApp Blast" in 2020 discusses the automatic leave submission process, where notifications about employee leave requests are directly sent to the supervisor's WhatsApp number, allowing real-time verification of the submission process (Firmansah, Rohman, and Farlina 2020).
2. The research conducted by Kurnia et al., titled "Annual Leave Information System for Employees of the Riau Provincial Social Service," in 2020, aims to build an information system to assist and streamline tasks related to employee leave requests. The system underwent black box testing, resulting in successful system performance. Additionally, the User Acceptance Test (UAT) yielded positive results, with a system rating ranging from 60% to 80% . (Kurnia, Kom, and Putri 2020).
3. The research conducted by Wisnawa et al., titled "Employee Leave Submission Information System Based on Website at AUTO2000 in Denpasar" in 2022 resulted in an employee leave submission information system. This system serves as a medium of information that allows easy access to all details related to leave requests and the leave entitlements of each employee (Wisnawa and Sugiartawan 2022).
4. The research conducted by Yusella et al., titled "Mobile-Based Employee Leave Submission Information System" in 2023, involved ISO 25010 testing with 21 respondents. The conclusion regarding the software quality was that it achieved a success rate with an average total of 93.55% (Yusella 2023).
5. The research conducted by Rachman et al., titled "Web-Based Employee Leave Information System at Jambi University" in 2023 aimed to improve the existing system's shortcomings and streamline the employee leave submission process. In designing the prototype, the authors utilized Unified Modeling Language (UML) tools, including Use Case Diagrams, Activity Diagrams, and Class Diagrams. (Rachman and Effiyaldi (Rachman and Effiyaldi 2023).
6. Additionally, there have been other studies related to employee leave systems conducted by other researchers (Rizaldi and Primajaya 2022), (Seprina and Yulianingsih 2022), (Dasawaty 2021), (Rohendi 2015), (Handayani and Suprapto 2019), (Purnomo, Ali, and Pratami 2020), (Mulyadi and Syahidin 2021), (Agusniar, Retno, and Ul Fadila 2023), (Sikumbang, Habibi, and Pane 2020), (Tahir and Usman 2023).

METHOD

In the data collection phase, the role of the company is crucial as a supporter in obtaining the data that will be used for the development of the information system. The data collection method employed in this research involves interviews and literature studies. As for the system development model, the waterfall model is utilized.

Analysis

During this stage, data is sought and collected by conducting interviews with employees of PT Arutmin Indonesia Tambang Kintap, specifically those in the administrative department. The focus is on understanding the management of leave data and leave requests made by employees. Additionally, the needs and preferences of employees are analyzed to design a system workflow that can be easily understood by users.

Design

In this phase, the design process for the system is carried out, including data structure, device architecture, and program interfaces. Microsoft Office Visio is used for creating Entity-Relationship Diagrams (ERD), Data Flow Diagrams (DFD), and flowcharts. Balsamiq Mockups 3 is employed for designing the user interface.

Coding

The coding phase involves implementing the planned design into programming code. Native PHP (Hypertext Preprocessor) is used for this purpose, along with a MySQL (MyStructured Query Language) database. The coding aligns with the design specifications established in the previous phase.

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Testing

Testing ensures that the output or results produced align with the proposed requirements and design. The system is subjected to black box testing and User Acceptance Testing (UAT) to verify its functionality. The observed results or outputs are compared to the design specifications established during the design phase.

RESULT

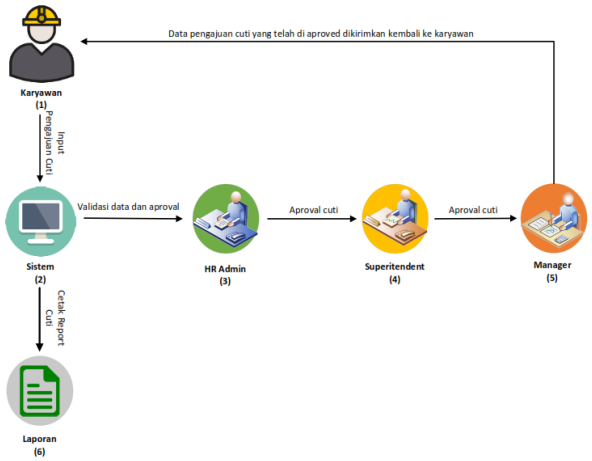

Figure 1. Analysis of the proposed system

Figure 1 shows the system proposed to the company, the description of the image above is as follows:

1. Employees apply for leave into the system in the Manager's leave application menu
2. Admin validates leave quota data in the system, if it meets the requirements then the leave application is approved. If the leave application reaches the leave quota limit, the leave application status is automatically rejected by the system.
3. If the previous status is approved by the admin, the superintendent will carry out the status approval and signature.
4. Next the status will go up to User Manager. If approved by the manager, the leave form submission status returns to the employee user system.
5. Employees can export the leave application form on the employee user's my leave data page. However, if it is rejected, the export button on the leave approval form will not be available to employee users.

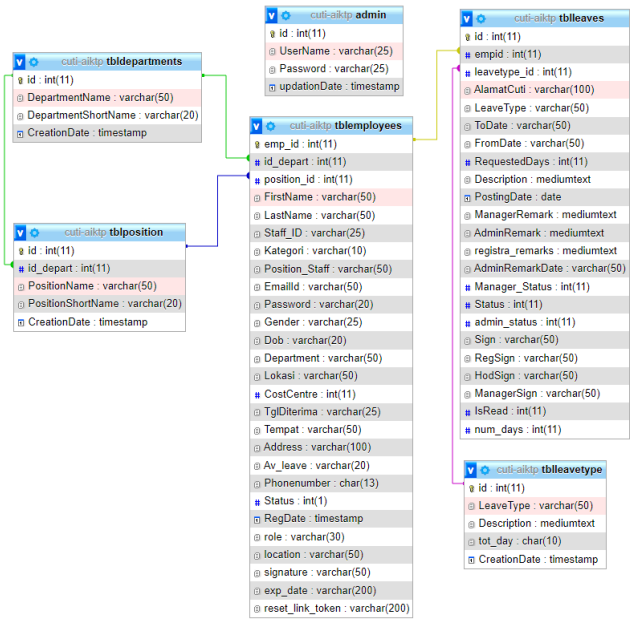

Figure 2. Design btables

Figure 2 is a RAT from the Web-Based Employee Leave Information System (SICUTI) database design at PT Arutmin Indonesia Tambang Kintap. The picture explains that tbldepartments relate with tblpostion and id_depart become foreign key in tblposition. Besides that tbldepartment and tblposition relate with tblemployees, department_id

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and position_id as foreign key. tblleaves relate with tbllemployees and empid as foreign key. tblleavet ype relate with tblleaves, leavetype_id as foreign key.

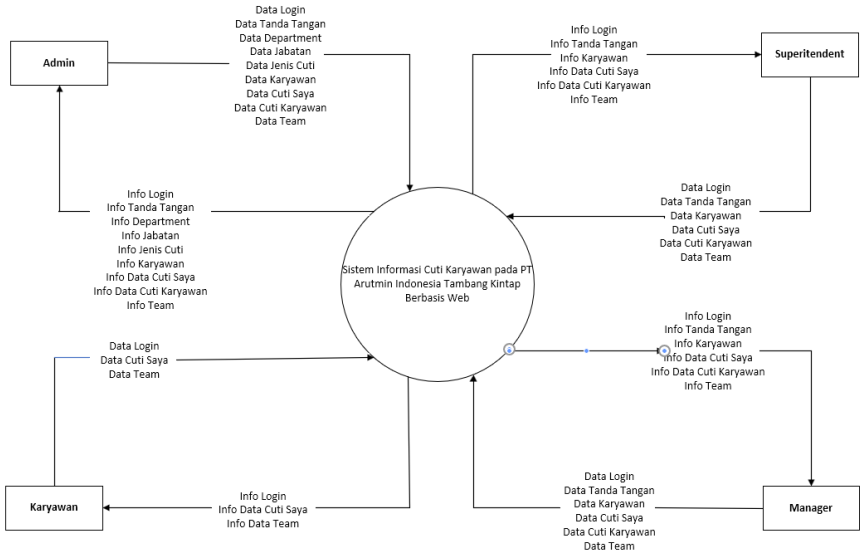

Figure 3. Context diagram

Figure 3 is a context diagram which is part of the DFD employee leave information system which has 4 users or access rights in the information system being built. These users are employees, admins, superintendents and managers. Admin can manage the entire system, namely login data, signature data, department data, position data, leave type data, employee data, leave application data, and employee leave data. Employee users can manage signature data and leave data which includes leave applications and leave history data. Superintendent users can manage login data, employee data, leave data, both leave applications and leave history, and employee leave data. Meanwhile, managers can manage login data, employee data, leave data such as leave applications and history, and employee leave data.

Implementation

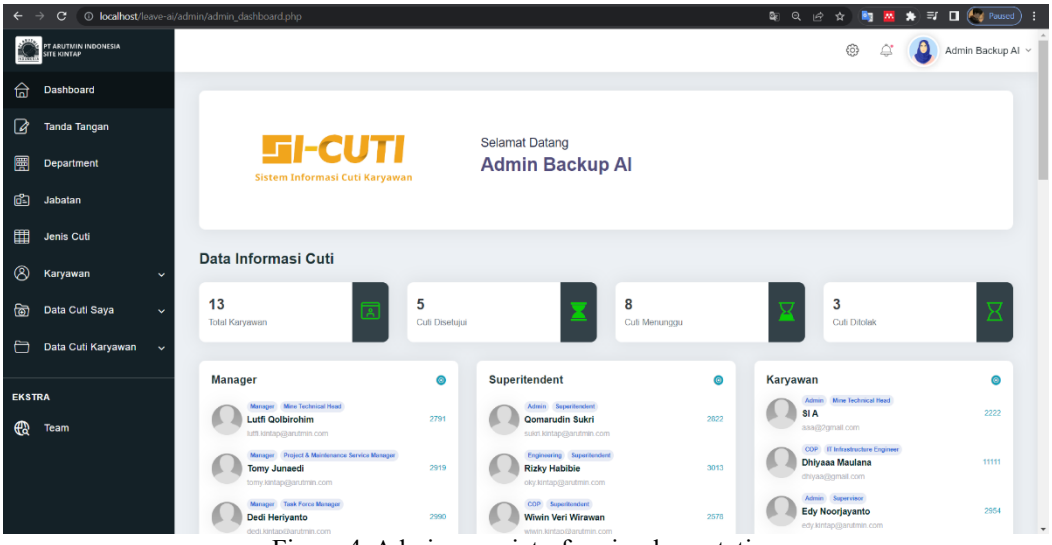

Figure 4. Admin page interface implementation

Figure 4 is the interface page of the Admin homepage. In it there is some information displayed such as Leave Information Data, Leave Application Graphic Data, Employee Leave Remaining Data, and Recent Leave History. In the Navbar section there is a gear icon for the display settings function, a bell icon for notification information, and a user icon to display the user's personal data profile.

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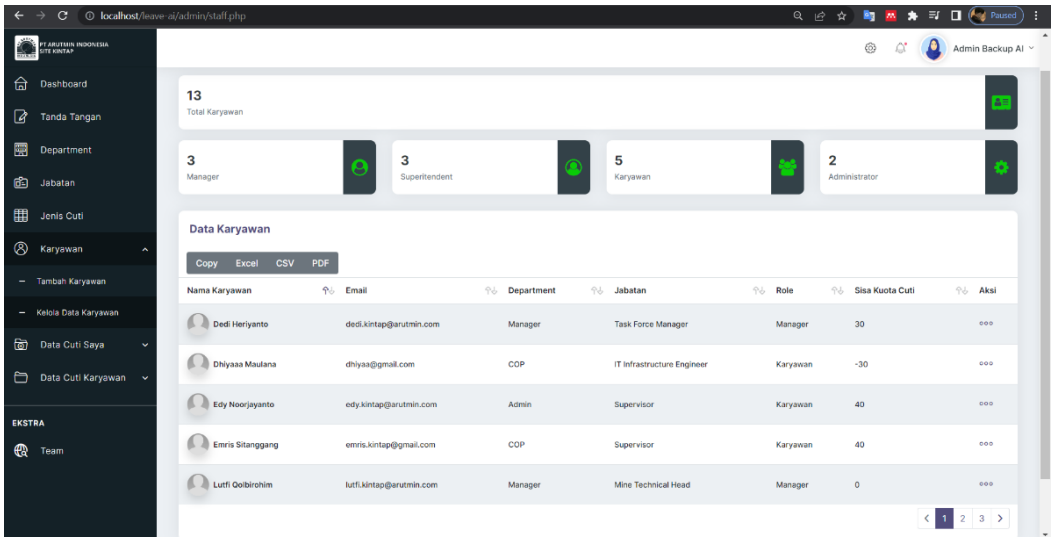

Figure 5. Implementation of employee data

Figure 5 is an implementation of the Manage employee page interface which contains employee data such as total employees, number of managers, number of superintendents, number of employees and number of administrators. On this page there is also information regarding employee data in the form of employee name, email, department, position, role, remaining leave quota, and actions to change or delete.

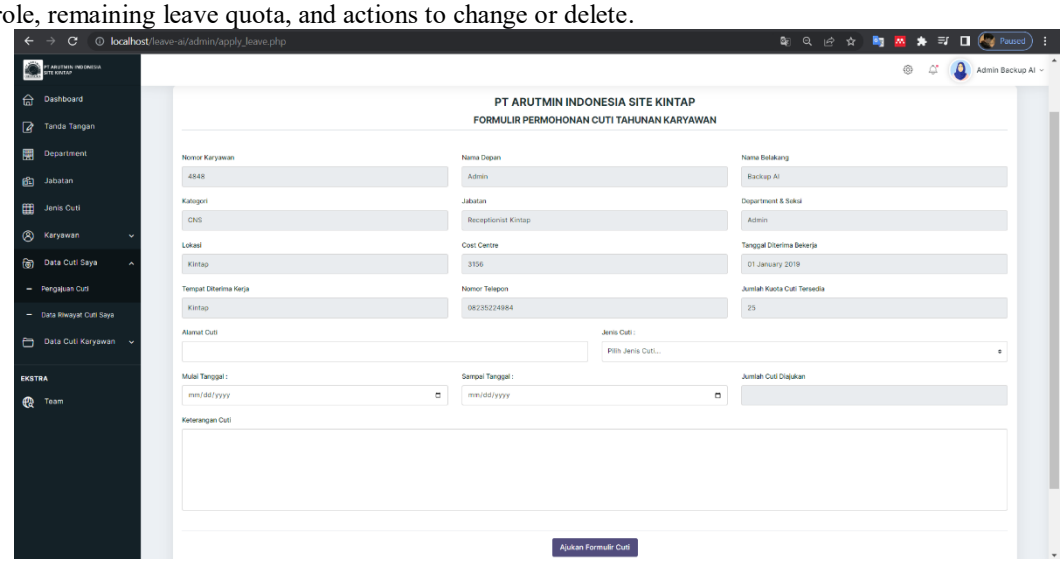

Figure 6. Implementation of user leave application page

Figure 6 is an implementation of the admin user admin leave application page interface. There is an employee leave application form.

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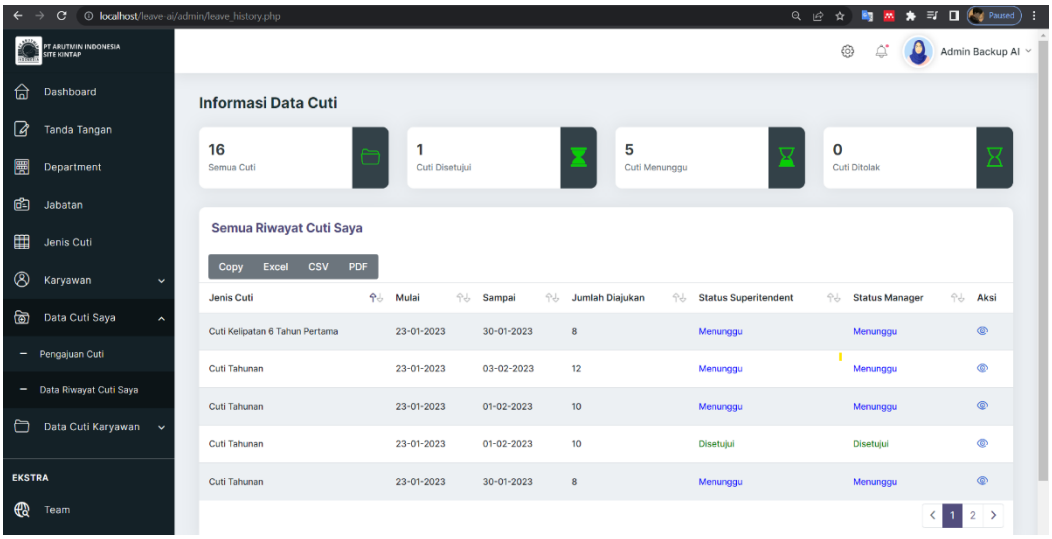

Figure 7. Implementation of employee leave history page

Figure 7 is an implementation of my leave history data interface which contains information related to leave data information such as the total of all leave, number of leave approved, number of leave waiting, number of leave rejected and a list of all leave history made by the admin user.

Testing

The functionality testing of the employee leave information system was conducted using the black box method. The test results indicate that the information system functions well without encountering any issues during the system testing.

DISCUSSION

Based on the test results, it can be concluded that the development of the employee leave information system can be successfully implemented. In this system testing, functional testing was conducted using the black box method. The information system produces inputs and outputs that align with the expected outcomes. The testing process involved two stages: first, testing from the admin perspective, and second, testing from the user perspective (in this case, the employees). From the admin side, administrators can view employee data, access leave information, and check remaining leave balances. On the employee side, users can submit leave requests and review their leave history. For further improvement, the system could be developed into a mobile-based application in the future.

CONCLUSION

The implementation of the application during the actual process went smoothly. The system fulfills the targets related to time-saving in leave requests, computerized data input, database storage within the system, and reduction of data redundancy. As for recommendations for system improvement, consider adding features such as email notifications for leave activities, enhancing system security, incorporating a chat feature, and dynamically managing annual public holidays.

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