JURNAL TEKNOLOGI DAN OPEN SOURCE
Vol. 8, No. 2, December 2025, pp. 1071~1083
e-ISSN: 2622-1659, accredited Four Grade by Kemenristekdikti, Decree No: 152/E/KPT/2023
DOI: https://doi.org/10.36378/jtos.v8i2.5093

Design and Build a Human Resources Management System for Bank BRI KCP 16 Ilir Palembang Based on a Dynamic Web Using PHP Native and MySQL

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Article Info

Article history:

Accepted 11 28, 2025
Revision 12 17, 2025
Accepted 12 22, 2025

Keywords:

Management System
Bank BRI
Website
MYSQL

ABSTRACT

In Indonesia, various agencies and companies are increasingly realizing the importance of digitalization in human resource (HR) management processes. Financial institutions, such as banks, which have complex organizational structures and a large number of employees, require reliable and integrated information systems to support personnel administration effectively. Bank Rakyat Indonesia (BRI), as one of the largest and oldest banks in Indonesia, has an extensive operational network reaching the sub-district level, including the BRI Sub-Branch Office (KCP) 16 Ilir in Palembang City. This unit plays a crucial role in delivering financial services while also managing internal HR administration. However, HR management at KCP 16 Ilir is still conducted conventionally using physical documents and simple applications such as Microsoft Excel, leading to inefficiencies in data retrieval, attendance recapitulation, reporting, and performance monitoring. This study aims to address these challenges by developing a dynamic web-based human resource information system. The proposed system enables centralized employee data management, online attendance recording, digital leave submission, and performance evaluation reporting. Developed using PHP Native, MySQL, and Bootstrap, the system is designed to be cost-effective, responsive, and user-friendly, thereby improving efficiency, accuracy, and transparency in HR management at the branch level.

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1. Introduction

The development of information and communication technology today has brought major changes in various fields of life, including in the business and government sectors[1]. Technology has become a key pillar in supporting the efficiency, effectiveness, and accuracy of an organization's operational processes [2]. In the digital era, the use of computerized information systems is indispensable to improve the speed of access and the quality of decision-making. System digitization has been proven to reduce operational costs

and minimize human error. The latest technologies such as artificial intelligence (AI), Internet of Things (IoT), and blockchain are also beginning to be adopted in various sectors.

The use of these different types of information technology has a significant impact on productivity, speed of service, and quality of decisions in the organization. However, each type of technology must be selected and implemented appropriately according to the needs, organizational scale, and readiness of human resources. With optimal utilization, information technology can be a strategic tool in achieving efficiency, innovation, and competitive advantage[3]. Various agencies have begun to implement web-based systems to facilitate service and data management. This system is able to provide high flexibility in accessing information in real-time. With the right implementation, information technology becomes a strategic asset for organizational development.

As organizational complexity increases, the need for effective and efficient human resource management (HR) is becoming increasingly important. Human resources are the main component in determining the productivity and success of an institution[4]. HR management includes recording employee data, attendance, leave submissions, performance assessments, and other administrative management. If it is still done manually or semi-digitally, this process has the potential to cause errors, delays, and irregularities. This will certainly have an impact on the quality of service and institutional performance. For this reason, the use of HR information systems is a practical and systematic solution in personnel management. This system allows organizations to store, manage, and analyze employee data centrally. Thus, the HR management process can be carried out more transparently, quickly, and measurably. The existence of this system also strengthens the structure of good governance in the organization.

In Indonesia, various agencies and companies are beginning to realize the importance of digitalization in the HR management process[5]. Financial institutions such as banks, with complex organizational structures and large numbers of employees, need reliable and integrated information systems. Without a good system, the process of processing employee data will be time-consuming and at high risk of input errors. This can also disrupt the evaluation and data-driven policy-making process. Therefore, financial institutions must start building a system that supports all personnel activities digitally. The use of web-based systems is an option due to its flexibility, cost efficiency, and ease of access from various devices. In addition, web-based systems make it easier for leaders to supervise employee performance. Real-time data integration also supports smooth operations and management control. That way, HR management can be carried out in an accountable and professional manner. (V. Maria & dkk, 2024)

Bank Rakyat Indonesia (BRI) as one of the largest and oldest banks in Indonesia, has a very extensive network up to the sub-district level[6]. One of the important work units at the local level is Bank BRI Sub-Branch Office (KCP) 16 Ilir which is located in Palembang City. This work unit plays a direct role in providing financial services to the community while carrying out internal administrative functions[7]. In practice, HR management at KCP is still carried out conventionally using physical files and simple applications such as Microsoft Excel. This method is considered less efficient because it makes it difficult to search for data, recap attendance, and reporting. In addition, the absence of an integrated system makes it difficult for leaders to monitor employee performance thoroughly. This condition is a separate obstacle for the work unit in maintaining the accuracy and efficiency of the personnel process. Therefore, an information system that is able to handle these needs automatically and in a structured manner is needed. This system must be able to store, process, and display employee data quickly and accurately.

The problems faced by BRI KCP 16 Ilir are closely related to the effectiveness of human resource management. For example, in terms of attendance and attendance recap, recording is still done manually so that it is prone to recording errors and manipulation. In addition, the process of applying for leave and permits often takes a long time due to convoluted and poorly documented procedures. The absence of a standard performance appraisal system also makes it difficult to assess employee productivity objectively. This condition causes strategic decision-making to be less on target. The lack of digital documentation also has the potential to lead to the loss of important archives. Therefore, an integrated digital solution is needed to speed up the process and minimize the risk of errors. With a web-based system, the entire process can be done online and automatically recorded in a database. This will help the management in taking data-based and more accurate policies.

The development of a dynamic web-based HR information system can be an ideal solution to overcome these problems[7]. This system is designed to manage all employee data centrally and can be accessed at any time through the internet network. Features such as employee data management, online attendance, digital leave submissions, and performance evaluation reports, can help simplify processes that were previously done manually. By using PHP Native as a backend programming language, systems can be developed at relatively low cost while still being optimal in performance. MySQL databases allow for structured and efficiently accessible storage of information. Coupled with Bootstrap as the interface framework, the system view can be designed to be responsive and user-friendly[9].

The appropriate use of information technology will strengthen organizational governance and significantly improve internal performance[8]. With digitalization, administrative processes that previously required a lot of time and manpower can be drastically cut. Employees can focus more on core work because the system has automated routine administrative tasks. In addition, information transparency will also increase because every transaction and employee activity is systematically recorded in the database. Historical data of employees can be analyzed for promotion, training, and periodic evaluation purposes. The system also serves as digital documentation that can be used during audits or other administrative needs. The availability of real-time data allows leaders to make decisions faster and more accurately. Therefore, a well-designed HR information system will be an important instrument in the digital transformation of the institution[10].

This research is expected to be a solution to administrative obstacles in personnel management. With the right technology and a user-friendly interface, HR management can be done more efficiently, structured, and accountable. This system also has the potential to be a model for digitizing human resources for other banking work units[11]. The implementation of this system supports the acceleration of digital transformation at the local level. The integration of user needs and good system design principles is the main focus of development. The results of this study are expected to improve the quality of internal services as a whole. In addition, the system will help with documentation and data-driven decision-making. The use of this technology strengthens modern organizational governance. Thus, the system built can support the performance and professionalism of the agency in a sustainable manner[12]

2. Research Methods

a) Time and Place of Execution

Practical work activities were carried out at Bank BRI KCP 16 Ilir Palembang, which is located on Jl. Pasar 16 Ilir, Ilir Timur I District, Palembang City, South Sumatra. The practical work was carried out for two months, starting from February 26, 2025 to May 9, 2025. During this period, students conducted observations, interviews, system needs analysis, and development and testing of HR information systems. Describe the chronology of the research, including the research design, the research procedure (in the form of algorithms, pseudocode or others), the method of testing and data acquisition. The description of the research course must be supported by references, so that the explanation is scientifically acceptable[13],[14].

b) Data Collection Methods

The data collection methods used in this practical work activity consist of:

1. Observation
   It is carried out directly to the HR administration process that runs at Bank BRI KCP 16 Ilir. Observations are carried out to understand the workflow, constraints, and needs of the information system.
2. Interview
   It is carried out in a structured manner to HRD employees to explore the functional and non-functional needs of the system.
3. Documentation
   Collect supporting documents such as employee data formats, leave application archives, and personnel report formats to be used in system design[15].

c) System Development Methods

The system development method used in this study is the Waterfall method. This method is linear and sequential, meaning that each stage must be completed first before moving on to the next. Waterfall is suitable for projects that have clear system needs at the beginning and minimal changes during development. The stages in the Waterfall method consist of:

1. Needs Analysis
   This stage is carried out to identify and formulate user needs and system functions to be developed. Activities in this stage include observation of business processes and interviews with related parties such as employees, leaders, and IT staff. The result of this stage is a system requirements document that will be the basis for the design process.
2. System Design
   After the system needs are known, the system design process is carried out including the creation of a user interface (UI) design, database structure, and system process flow. Tools such as Draw.io are used to compile use case, class, and activity diagrams as logical and visual representations of the system to be built.

3. Implementation
   At this stage, the approved system design is transformed into program code using the PHP programming language with the MySQL database. The interface design is built using HTML, CSS, JavaScript, and the Bootstrap framework to produce a responsive and user-friendly look.
4. Testing
   This stage aims to ensure the system runs according to the needs and specifications. The testing method used is black box testing, where the main focus is testing the functionality of the system without looking at the program code. The test results are used to fix bugs or shortcomings before the system is fully implemented.
5. Maintenance
   This stage includes maintenance of the system that has already been implemented, including bug fixes that may be found after implementation as well as additional adjustments as per the user's needs in the future.

3. Results and Discussion

3.1 UML Plan

In this phase, the author presents the UML design for the BRI KCP 16 Ilir Palembang Human Resources Management System website. The design includes a variety of UML diagrams, such as use case diagrams, class diagrams, activity diagrams, and sequence diagrams designed to visualize the workflow and structure of the system. The author designed this system to support the operational needs of HR management efficiently, from employee data management to performance and attendance monitoring, with a structured and easy-to-understand approach.

3.2 Usecase Diagram

The use case diagram illustrates the relationship between the actor (system user) and the functionality of the accessible system. In this system, there are several main actors such as admins, employees, and managers. Each has access rights to certain features, for example, admins can manage employee data and approve leave, while employees can apply for leave and view their own attendance data. This diagram provides a comprehensive overview of the main features of the system and how users interact with it[16].

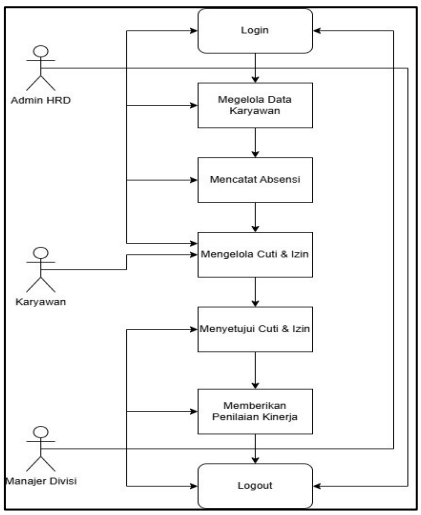

Figure 1. Ranacangan Usecase Diagram

3.3 Class Diagram

This Class Diagram is designed to reflect the data structure and process flow in the BRI KCP 16 Ilir Palembang Human Resource Management System website. Each class has specific responsibilities, such as employee data management, attendance, leave, and performance appraisals. Relationships between classes are designed to be integrated with each other to support the overall HR management function. With this design, the system can be developed to handle the administrative and operational processes of HR in an efficient, accurate, and structured manner[17].

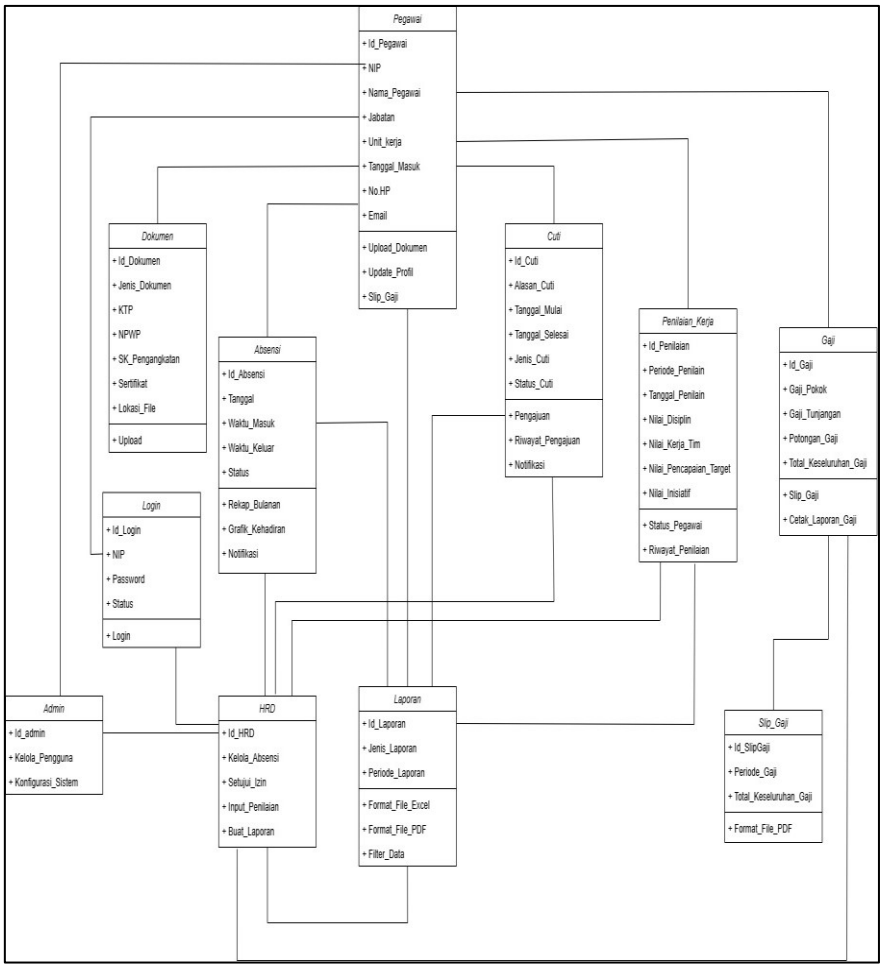

Figure 2. Diagram Class Design

3.4 Activity Diagram Login Activity

Describe the user's flow when accessing the system by entering a username and password. The system will verify the data, then direct the user to the dashboard according to the access rights if the login is successful. If it's invalid, the system displays an error message. This diagram shows the authentication process that ensures secure access to the HR system's data and features[18].

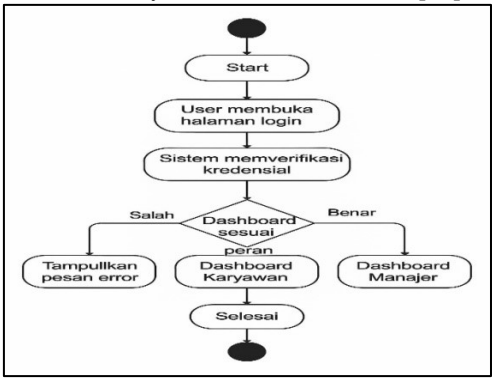

Figure 3. Design *Activity Diagram Login*

3.5 Activity Diagram Activity Diagram Managing Employee Data

Describes the process by admins to add, edit, or delete employee data. Once logged in, the admin accesses the employee menu and selects the desired action. The system will validate the data; If valid, the data is saved to the database. If it's invalid, the system displays an error message. This diagram shows an efficient and structured workflow in employee data management[19].

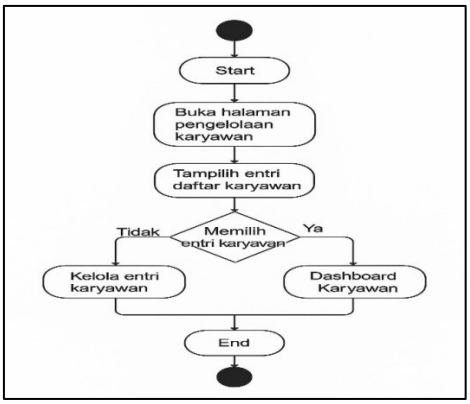

Figure 4. Activity Diagram Design for Managing Employee Data

3.6 Activity Diagram Attendance Activity

Describe the flow of the employee's process in conducting attendance through the system. The process starts from logging in to the system, then the user selects the attendance menu. After that, the system will automatically record the attendance time and save the attendance data into the database. This diagram shows how the system makes it easy to record attendance digitally, quickly, and accurately without manual processes[20].

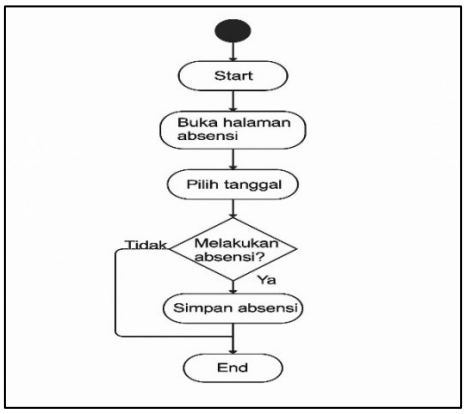

Figure 5. Design *Activity Diagram* Attendance

3.7 Sequence Diagram

A sequence diagram depicts the sequence of interactions between objects in the system for each activity. This diagram emphasizes the sequence of time the process takes place from start to finish. For example, in attendance activities, a sequence diagram shows how employees log in, the system verifies data, and records attendance time. Sequence diagrams help developers understand the flow of communication between parts of the system dynamically and ensure that each process runs in a logical order[21].

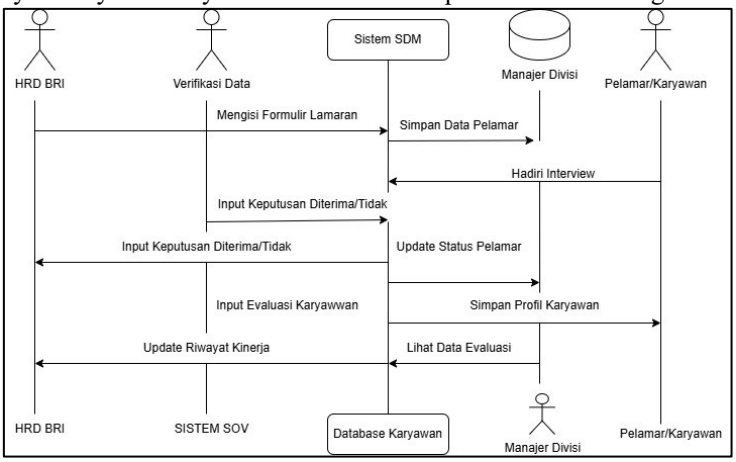

Figure 6. Sequence *Diagram Design*

3.8 Flowchart Before System

The after-system flowchart displays the HR management workflow after the implementation of a web-based system. The entire process becomes more integrated and digitally documented, starting from login, employee data input, online attendance, leave and permit applications, to performance assessments. This system makes it easier for management to monitor employee activities, reduce reliance on physical documents, and improve accuracy and operational efficiency[22].

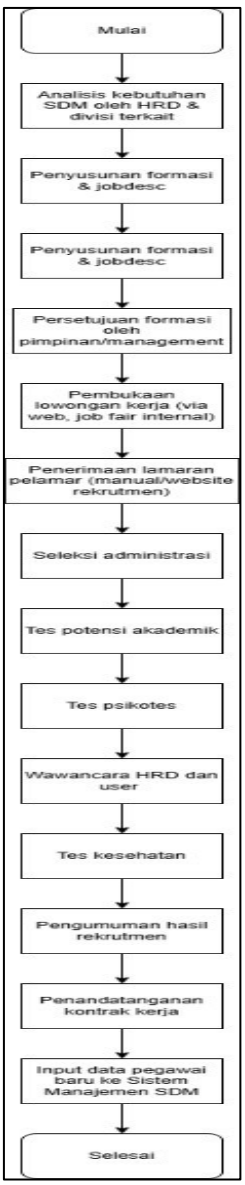

Figure *7* Flowchart Design Before System

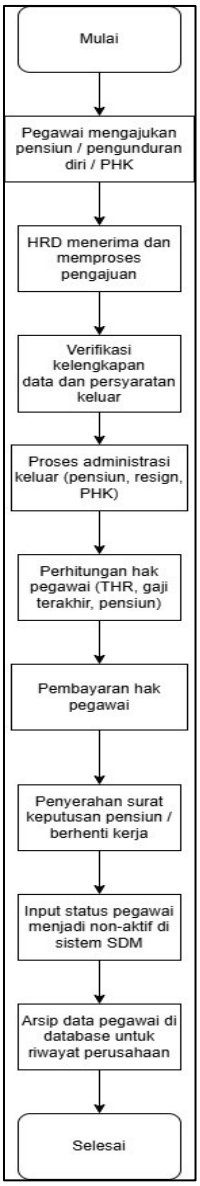

Figure *8* Flowchart Design After System

3.9 Flowchart After System

The after-system flowchart displays the HR management workflow after the implementation of a web-based system. The entire process becomes more integrated and digitally documented, starting from login, employee data input, online attendance, leave and permit applications, to performance assessments. This system makes it easier for management to monitor employee activities, reduce reliance on physical documents, and improve accuracy and operational efficiency[23].

3.9 Interface Design Design

The design of the website interface design of the BRI KCP 16 Ilir Palembang HR management system website was made to provide an efficient and professional user experience. The main page displays navigation menus such as Dashboard, Employee Data, Performance Appraisals, Attendance, Leave, and

Reports, as well as login access and user profiles. The employee data page comes with an informative table with search, filter, and action (add, edit, delete) features. Performance appraisals are presented in a dynamic form based on performance indicators. The attendance and leave feature is equipped with simple inputs and an organized history. Reports are displayed in the form of tables and graphs, supporting data-driven decision-making. The interface is designed to be responsive for optimal access on desktop and mobile, with a focus on ease of navigation and work efficiency consisting of the following designs[24],[25].

a. Login Menu Design Design
b. Profile Design Design
c. Dashboard Design Design
d. Employee Data Design Design
e. Design Design for Employee Enhancement
f. Attendance Data Design Design
g. Attendance Input Design Design
h. HR Report Design Design
i. Employee Data Report Design Design
j. Attendance Report Design Design
k. Attendance Recap Report Design Design
l. Design Setup

3.10 Login Menu Page

The login page on the BRI KCP 16 Ilir Palembang Human Resources Management System serves as initial access for users who have authorization. Users are required to enter the appropriate username and password to be able to log in to the system. This feature keeps data secure and restricts access to only authorized users. If the login is successful, the user is redirected to the Dashboard; If it fails, the system displays an alert to correct the data entered.

Figure 9. Login Menu Page

a. Admin Profile Page

This profile page displays the user's key information, including name, email, and role in the system. Users can update their personal data and change their passwords to keep their accounts secure. This feature ensures that every admin can manage their access and identity easily and securely, supporting the smooth operation of human resources in the BRI KCP 16 Ilir Palembang environment.

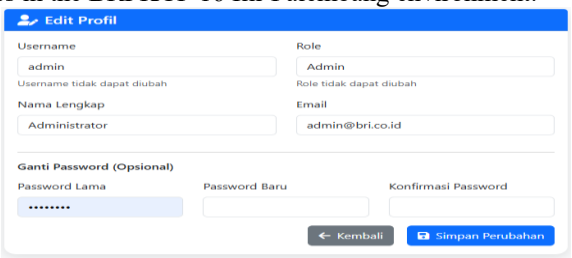

Figure 10. Admin Profile Page

b. Admin Dashboard Page

This Dashboard page provides a quick summary of daily HR data, such as total number of employees, attendance, leaves/illnesses, and alphas. Admins can directly add employees, input attendance,

and view reports. System information such as user roles, dates, times, and database status are also available to ensure smooth operations and efficient HR management.

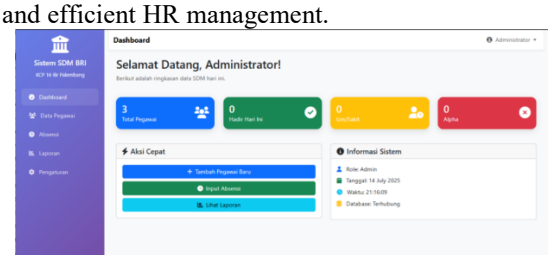

Figure 11. Admin Dashboard Page

c. Employee Data Page

This page displays the full list of employees along with their NIP, name, position, department, and activity status. Admins can easily view details, edit, or delete employee data, as well as add new employees to ensure HR data is always updated and accurate.

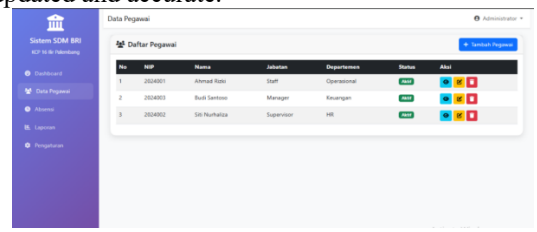

Figure 12. Employee Data Page

d. Employee Input Page

In the BRI KCP 16 Ilir Palembang HR system, there is an "Add Employee" feature that allows users to enter new employee data. This form includes various important information such as PIN, full name, place and date of birth, gender, phone number, address, email, job title, department, and date of entry. All data entered will be used to manage employee information effectively in the system.

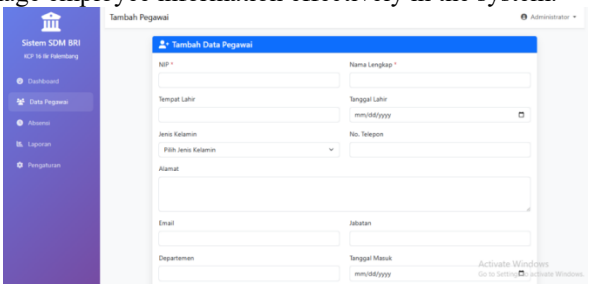

Figure 13. Employee Input Page

e. Attendance Data Page

BRI's HR attendance system is a digital platform that simplifies employee attendance recording. There are key features such as dashboards for information and navigation, as well as attendance data tables that include sequence numbers, PINs, names, dates, entry times, exit hours, attendance status, captions, and options to edit. This system improves the efficiency of monitoring staff activities and supports better policy-making in Human Resource management.

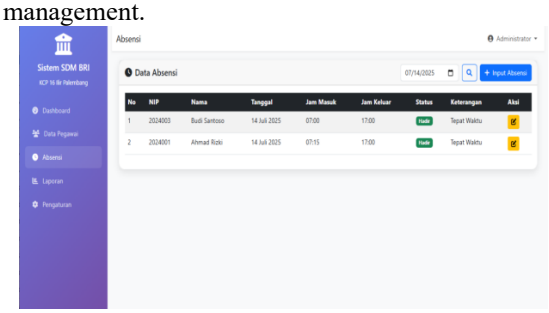

Figure 14. Attendance Data Page

f. Attendance Input Page

On the employee attendance input page at Bank BRI KCP 16 Ilir Palembang, users can follow the steps to record employee attendance. First, select the employee's name from the list provided. Next, enter the date of attendance you want to record. Fill in the arrival time in the check-in and return time column in the check-out hours column. After that, select the status of attendance, such as present or absent, and then provide additional information if needed. Once all the data is inputted, click the "Save" button to complete the process.

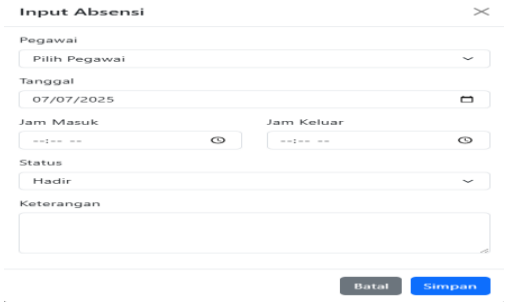

Figure 15. Attendance Input Page

g. HR Report Page

This page displays reports related to employee attendance and activity. In the presented view, users can select the month and year to view employee attendance data, with a feature to export reports in PDF format. In the July 2025 report, three active employees were recorded, with eight employees present and no inactive employees. It also enables the efficient monitoring of attendance statistics and the management of employee data, supporting decision-making in HR management.

Figure 16. HR Report Page

h. Employee Data Report Page

The employee data report page is designed to efficiently manage employee data, including information such as employee identification number (NIP), name, job title, and department. In this view, there is a list of active employees, with the ability to add new employee data, as well as perform actions such as viewing details, editing, or deleting existing employee information. This system simplifies the human resource management process and ensures that employee information is always organized and easily accessible.

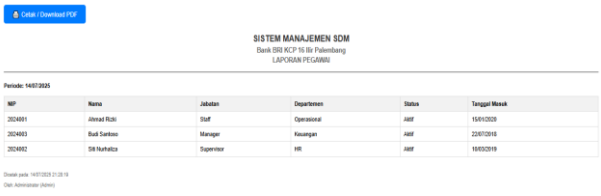

Figure 17. Employee Data Report Page

i. Attendance Report Page

In this attendance report, there is data regarding dates, employee names, entry hours, exit hours, attendance status, and information related to punctuality. The report includes several employees, including Ahmad Rizki, Budi Santoso, and Siti Nurhaliza, with most of them arriving on time according to the

specified schedule. This data is important to monitor employee discipline and attendance in carrying out their duties.

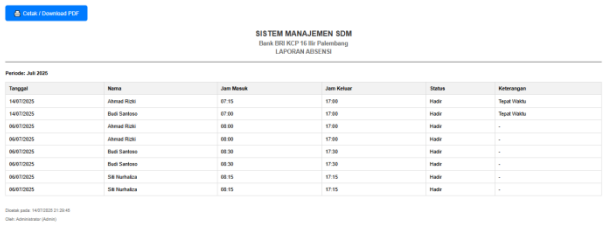

Figure 18. Attendance Report Page

j. Attendance Recap Page

The attendance report page displays the recapitulation of employee attendance at Bank BRI KCP 16 Ilir Palembang. In this report, there is a column that shows the employee's name and attendance status, which includes the number of days attended, leave, sick, leave, and alpha. From the data listed, Ahmad Rizki and Budi Santoso recorded 3 days of attendance, while Siti Nurhaliza was recorded to be present for 2 days, without permission, illness, leave, or alpha for all employees. The report also shows the printing time and the identity of the admin responsible for compiling it

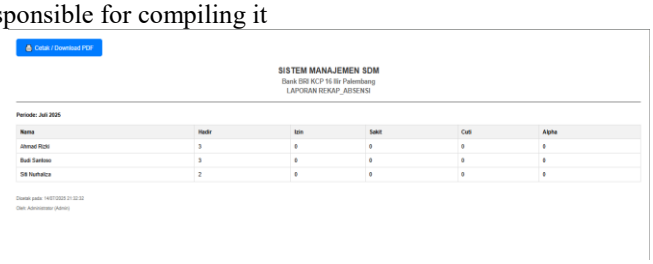

Figure 19. Attendance Recap Page

4. Conclusion

Based on the research conducted, the development of a web-based HR management system for Bank BRI KCP 16 Ilir Palembang provides effective solutions in overcoming various personnel administration problems. This system is able to automate the process of managing employee data, attendance, performance appraisals, and personnel documentation, thereby minimizing manual errors and improving work efficiency.

In addition, the system supports transparency and faster and more accurate data access, which makes it easier for management to make decisions. With the implementation of this system, human resource management at Bank BRI KCP 16 Ilir Palembang becomes more structured, modern, and in line with the needs of digitizing banking services. The results of this study show that the use of information technology is very important in improving the performance and effectiveness of human resource management in the banking work environment.

Suggestion

Based on the results of the research and system development that has been carried out, the author conveys some suggestions as follows:

1. Additional Features Development
   It is recommended that the system continue to be developed by adding other supporting features, such as leave management, overtime submissions, and automatic monthly performance reports to support more complete HR administration needs.
2. User Training
   Bank BRI KCP 16 Ilir Palembang should provide training to employees who will use the system, so that the adaptation process runs faster and the system can be used optimally.
3. Improved System Security
   It is necessary to make improvements in terms of data security, such as the implementation of data encryption and routine backup systems, to protect sensitive employee information.
4. Periodic Evaluation

It is recommended that the system be evaluated periodically to determine the effectiveness of its use, as well as to identify potential technical constraints or other additional needs.

5. Integration with Existing Systems
   To support work efficiency, this HR management system in the future can be considered to be integrated with other internal systems used within Bank BRI.

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