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Implementation of A Web-Based Employee Performance Assessment System Using Self Assessment and Supervisor Rating Methods at Indra Jaya Printing Company

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ABSTRACT

Indra Jaya Printing is a printing company located in Bae, Kudus Regency. This company focuses on printing services for packing goods or products such as cigarette packs, medicine syrup cartons. The finishing service section in this company includes folding, hemming, and finishing cutting, where each section currently has approximately 10-25 employees. Indra Jaya Printing has constraints related to the performance assessment of the company's contract employees. Currently, the performance assessment of contract employees is still based on the number of products completed. In fact, in working, not only quantity needs to be assessed, but also other aspects such as character, discipline, and quality of work in order to provide a fairer assessment and allow for more objective bonuses. To avoid subjectivity in the assessment, a neutral method is needed that can assess employees more comprehensively. Therefore, this web-based system applies the Self Assessment & Supervisor Rating method combined with Key Performance Indicators (KPI). KPI is used to set more measurable parameters in assessing employee performance, such as work speed, accuracy of results, error rate, attendance discipline, and other aspects of work behavior. With this system, the employee assessment process can be carried out more effectively, efficiently, and transparently so that it can help companies in increasing the productivity and quality of work of wholesale employees.

1. INTRODUCTION

1.1 BACKGROUND

Indra Jaya Printing is a company engaged in the printing sector located in the Bae area, Kudus Regency. This company focuses on printing services for packing goods or products such as cigarette packs, medicine syrup boxes. This company has been established since 1983, founded by Harsono Tedjo. This company is a sole proprietorship company. However, it is undeniable that in order to increase the company's income, the marketing team is actively looking for orders for the company. Although the finishing services in this company are manual, the quality and quantity produced are no less competitive than companies using machine finishing. [1] [2] [3] [4] [5]

The finishing service section in this company includes: folding, hemming, finishing cutting sections where each section currently has approximately 10-25 employees. These employees are referred to as contract employees where the wage value is determined based on their work results each day and their wages will be paid every Saturday. The flow of work assignments starts from the production admin submitting the SPK (Work Order) for the Finishing Phase to the contract foreman, then the contract foreman will divide the amount to be completed to each contract employee and each time the work is completed, the production report is given to the contract admin which is then summarized by the contract admin to the contract foreman and then submitted to the finance department. [6] [7] [8]

At this time, with the SOP (Standard Operating Procedure) that is running, there are obstacles related to the performance assessment of the company's contract employees. Currently, the performance assessment of contract employees is assessed based on the number of products completed, while in working, not only that is assessed, but also character and discipline assessments in order to get company bonuses. To avoid subjective assessments, a method is needed that can be neutral and not biased towards one side of the research. So the application of the Self Assessment & Supervisor Rating method that will be combined can be done simultaneously in order to get the results of employee realization and assessments from supervisors / foremen with the existence of this assessment, it will produce a final value for each employee. [9] [10] [11]

Based on the explanation of the obstacles above, there is a solution needed by Percetakan Indra Jaya, namely by implementing KPI (Key Performance Indicator) using the Self Assessment & Supervisor Rating method so that obstacles in the field can be resolved effectively and efficiently. The current KPI implementation mechanism is filling in the realization every month during the period determined by the

company owner so that later Percetakan Indra Jaya employees report their activities and achievements in working if this can be done orderly, the business owner can provide bonuses according to their real performance.

1.2 FORMULATION OF THE PROBLEM

How the implementation of a web-based performance appraisal system can improve the efficiency and effectiveness of the employee performance appraisal process at Indra Jaya Printing Company.

1.3 SCOPE OF PROBLEM

In this research, the author limits the problem or scope of the research to the following matters:

a. Website-based system with several actors: admin for each section, foreman for each section, owner.
b. The system will manage data including: wholesale production section data, wholesale employee data for each section, assessment criteria.
c. The system will manage information and reports including: plotting employee assessment criteria, reporting performance assessment results.
d. The system will implement the Self Assessment & Supervisor Rating method for calculating the performance of wholesale employees. The system is developed with the PHP programming language and manages the MySql database.

1.4 RESEARCH PURPOSES

Analyze how well the developed system meets the needs of users (employees and supervisors) in terms of ease of use, interface appearance, and available features.

2. RESEARCH METHODOLOGY

2.1 METHOD OF COLLECTING DATA

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Data collection aims to obtain accurate, relevant, valid and reliable data, so the author collects data sources in the following ways: [12]

2.1.1 Primary Data Sources

Primary data is data obtained directly from the research site through observation and recording of the research object. Primary data sources include:

a. Observation
Observation is a data collection technique by directly observing the activities in one of the wholesale admins in the company. Observation is carried out so that the author can know or can directly observe how the activities are in the field.
b. Interview
In the process of information system development and development activities, identifying system needs is an activity of general analysis of the existing situation to be able to find real problems while at the same time connecting them with the causes of existing problems.

Interview technique is one of the most effective ways to obtain data. In the process of implementing a computerized information system, an interview technique with one of the wholesale admins was carried out to handle the existing problems.

2.1.2 Secondary Data Sources

Secondary data sources are data sources obtained indirectly from the research object. These secondary data can be obtained from literature or books. Secondary data sources include:

a. Documentation Study
Documentation studies are collected through literature and documentation from internet media or other information sources.
b. Literature Study
This study was collected through books that are in accordance with the theme of the research problem.

2.2 SYSTEM DEVELOPMENT METHODS

The system development method is a method with an important process for creating a system. In the development that will be applied in this research is the waterfall method. Waterfall provides a sequential software lifecycle approach starting from analysis, design, coding, testing, and support stages. [13]

The stages of system development in the waterfall method include:

a. Software Requirements Analysis
The process of gathering needs is done intensively to specify software needs so that it can be understood what kind of software is needed by the user. Software requirements specifications at this stage need to be documented.
b. Software Design
Software design is a multi-step process that focuses on the design of software program creation including data structures, software architecture, interface representations, and coding procedures. This stage translates software requirements from the requirements analysis stage into design representations so that they can be implemented into programs at a later stage. The software design produced at this stage also needs to be documented.
c. Program Code Creation
The design must be translated into a software program. The result of this stage is a computer program according to the design that has been made in the design stage. In making the program code, the compiler uses PHP and Mysql as its database.
d. Testing
Testing focuses only on the software in terms of logic and functionality, ensuring that all parts have been tested. This is done to minimize errors and ensure that the output produced is as desired.
e. Supporters and Maintainersan
It is possible for a software to change when it has been sent to the user. Changes can occur because of errors that appear and are not detected during testing or the software must adapt to a new environment. The support or maintenance stage can reduce the development process from

specification analysis to changes to existing software, but not to new software.

2.3 SYSTEM DESIGN METHODS

In the development of object-oriented programming techniques, a standardization of modeling language for software development built using object-oriented programming techniques emerged, namely the Unified Modeling Language (UML). UML emerged because of the need for visual modeling to specify, describe, build, and document software systems. UML is a visual language for modeling and communicating about a system using diagrams and supporting texts. [14]

The following are the types of Unified Modeling Language (UML) diagrams, including:

a. Use Case Diagram

Use Case Diagram is a modeling for the behavior of the information system to be created. Use case describes an interaction between one or more actors with the information system to be created. There are several actors in the system, namely verification officers, field officers and department heads. Use cases are used to find out what functions are in an information system and who has the right to use these functions.

b. Class Diagram

Class diagrams describe the structure of a system in terms of defining the classes that will be created to build the system. Classes have what are called attributes and methods or operations.

c. Sequence Diagram

Sequence diagrams describe the behavior of objects in a use case by describing the lifetime of the objects and the messages sent and received between objects. They graphically depict how objects interact with each other through messages in a sequence of use cases or operations.

d. Activity Diagram

Activity diagram is a diagram that describes the workflow or work flow or activities or activities of a system or business process or menu in the software. What needs to be noted here is that the activity diagram describes the system's activities, not what the actor does, so the activities that can be done by the system only.

e. Statechart Diagram

Statechart diagram or in Indonesian called machine diagram is used to describe the status change or transmission of a machine or object system. This diagram illustrates the life cycle of an object, various states that can be assumed by the object and the events that cause the object from one place to another.

3. RESULTS AND DISCUSSION

3.1. FOD (FLOW OF DOCUMENT)

Flow-Of-Document (FOD) refers to the flow or process by which documents move through various stages in a system or organization. This concept is important in document management and business processes to ensure that documents are managed efficiently, effectively, and in accordance with existing policies. The FOD formed during the analysis of the ongoing process is as follows can bee si the figure 1.

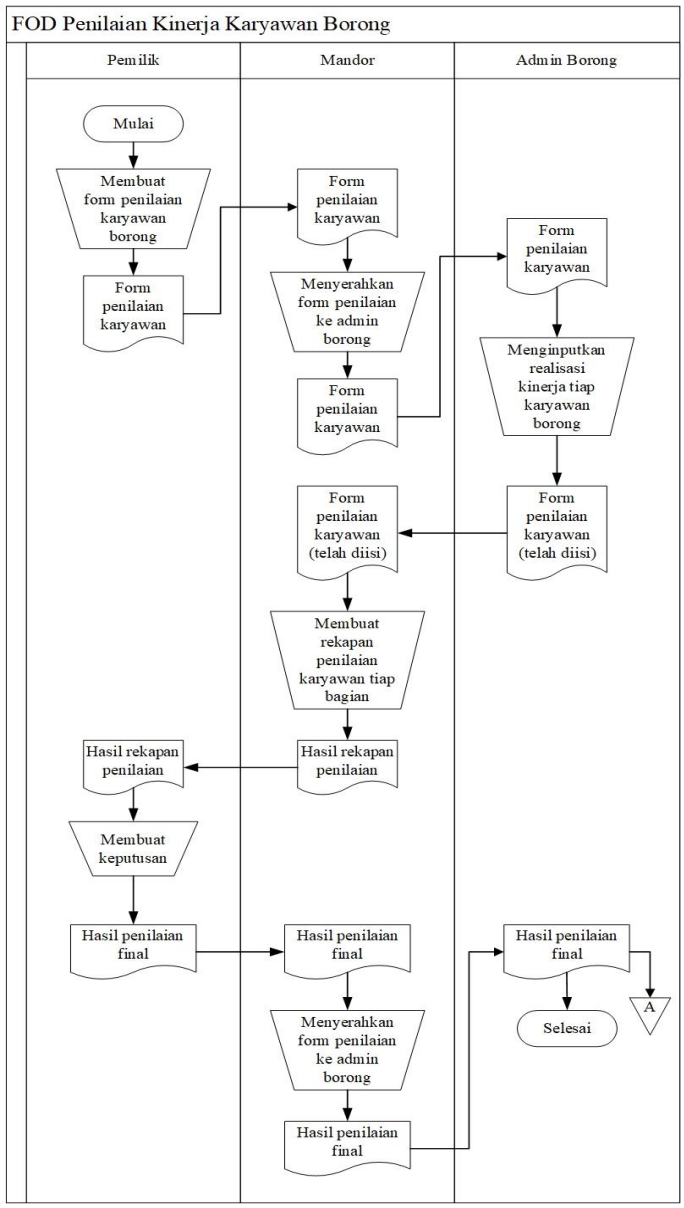

Figure 1. FOD Employee Performance Assessment Wholesale

3.2. USE CASE DIAGRAM SYSTEM

The use case system diagram is used to describe the interaction between actors and the system in order to achieve certain goals is shown in figure 2. The following is an explanation of the designed use case system diagram, The owner manages system user data. The owner manages the contract part data. The owner manages the assessment period data. The owner manages the KPI criteria. The owner manages the calculation of the self-assessment method. The owner manages the calculation of the supervisor rating. The owner manages the final assessment summary. The admin manages contract employee data. The admin manages the realization of employee performance results. The admin manages the final assessment summary. The foreman manages contract employee data. The foreman manages the realization of employee performance results. The foreman manages the foreman's assessment. The foreman manages the final assessment summary.

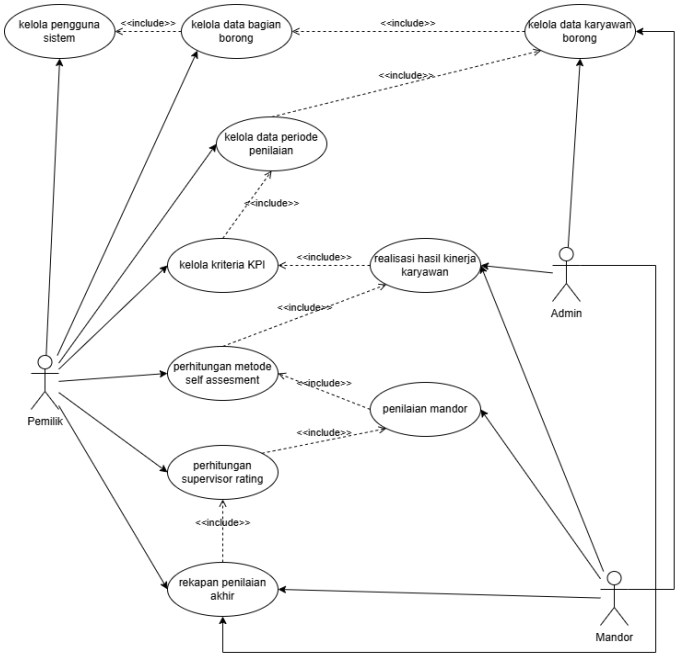

Figure 2. Use Case System

3.3. CLASS DIAGRAM

Class Diagram is a diagram used to show various classes in a system or software being developed. This diagram provides a comprehensive overview of the structure of the system or software and the relationships between existing classes. The following are the stages in planning a Class Diagram is shown in figure 3.

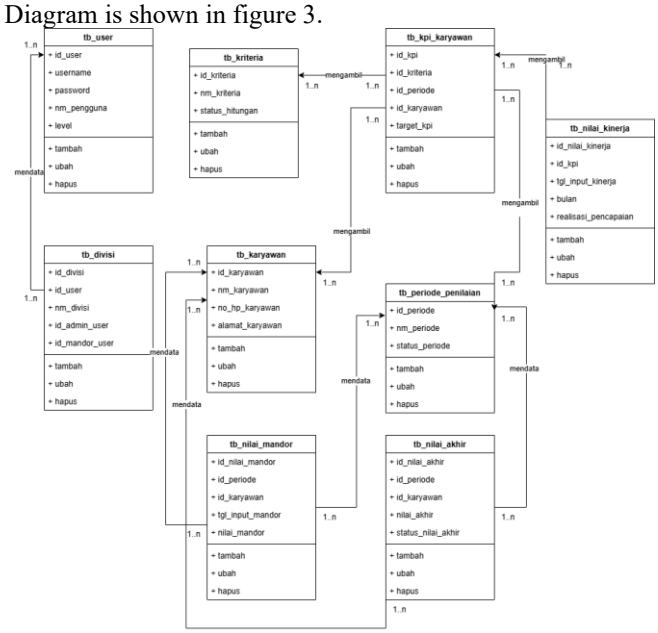

Figure 3. Class Diagram

3.4. ER-DIAGRAM

ERD (Entity Relationship Diagram) is one of the important design tools used in designing business data structures. This diagram serves to describe the relationship or relationship between various entities or objects involved in the system, along with the attributes attached to each entity. By using ERD, we can visualize and understand how entities in the system relate to each other and interact with each other. This diagram helps in designing and documenting data structures in a clear and systematic manner.

The following is an ER-Diagram of the Implementation of the Employee Performance Assessment System Using the Self Assessment & Supervisor Rating Method at the Indra Jaya Printing Company which is formed from several entities. The ER-Diagram can be seen in the figure 4.

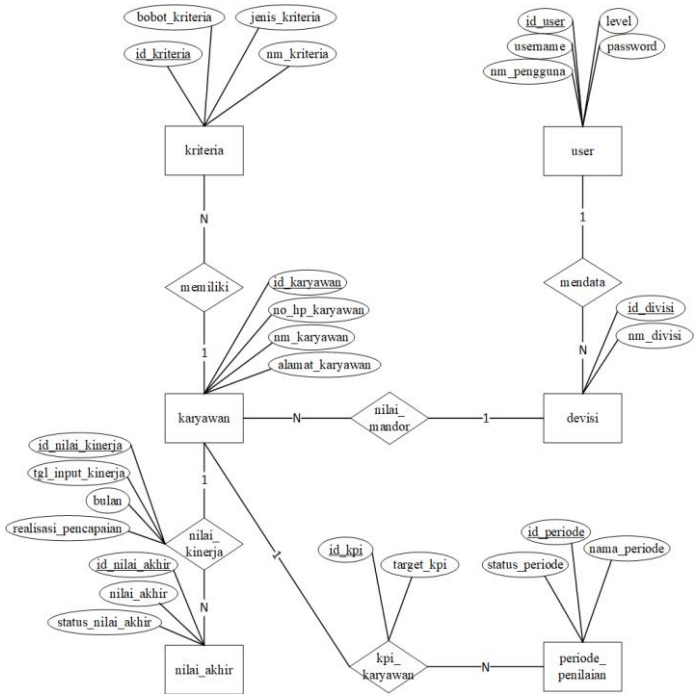

Figure 4. ER-Diagram

3.5. TABLE TRANSFORMATION

Table transformation from ER-Diagram (Entity-Relationship Diagram) is the process of converting the conceptual model depicted in the ER-Diagram into a table schema that can be used in a relational database system such as MySQL.[15]

The following is a table transformation of the ER-Diagram formed for the Implementation of the Employee Performance Assessment System Using the Self Assessment & Supervisor Rating Method at Perce Company.said Indra Jaya.

user	:	{id_user, username, password, nm_user, level (owner, admin, foreman)}
division	:	{division_id, admin_user_id, foreman_user_id, division_nm}
employee	:	{employee_id, employee_nm, employee_phone_no, employee_address}
assessment_period	:	{period_id, period_name, period_status (active, inactive)}
kpi_employee	:	{kpi_id, criteria_id, period_id, employee_id, kpi_target}

criteria	:	{criteria_id, criteria_nm, count_status (min, max)}
performance_value	:	{performance_value_id, kpi_id, performance_input_date, month, achievement_realization}
foreman_value	:	{foreman_value_id, period_id, employee_id, foreman_input_date, foreman_value}
final score	:	{final_value_id, period_id, employee_id, final_value, final_value_status (satisfactory, unsatisfactory, unsatisfactory)}

3.6. DATABASE RELATIONS

Relationships in MySQL databases are relationships established between tables to ensure data integrity and query efficiency. Several tables are connected to each other by lines that indicate the relationships between the tables. Each table is represented by a box containing the table name and the columns it contains. Relationships between tables are depicted by lines or arrows that show how data in one table relates to data in another table.

The table relations formed in the database for the creation of the Application of the Employee Performance Assessment System Using the Self Assessment & Supervisor Rating Method at the Indra Jaya Printing Company is shown in figure 5.

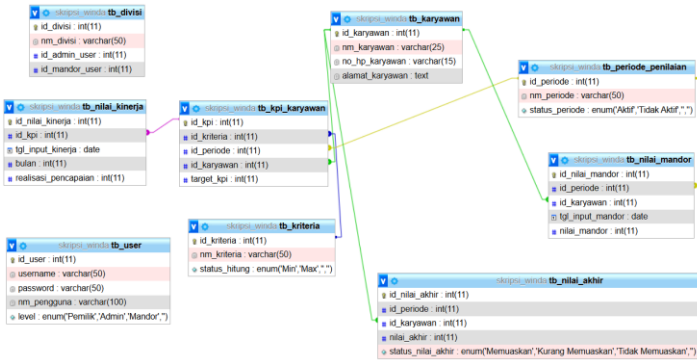

Figure 5. Table Relations

3.7. SYSTEM IMPLEMENTATION

The implementation of the system formed in the Implementation of the Employee Performance Assessment System Using the Self Assessment & Supervisor Rating Method at the Indra Jaya Printing Company is as follows.

a. Login Page

The login page is a page in an application or website that is used to log in to a user account. This page asks the user to enter an email or phone number and password in order to access the wholesale employee assessment system at Indra Jaya Printing. Here is the implementation of the login page is shown in figure 6.

Figure 6. Login Page

b. Dashboard Page

The system dashboard page is the main display after the user successfully logs in to an application or system. The dashboard on the employee assessment system at Percetakan Indra Jaya contains a summary of important information and a navigation menu containing the dashboard, wholesale data, period data, calculation type data, and KPI type data. Here is the implementation of the dashboard page is shown in figure 7.

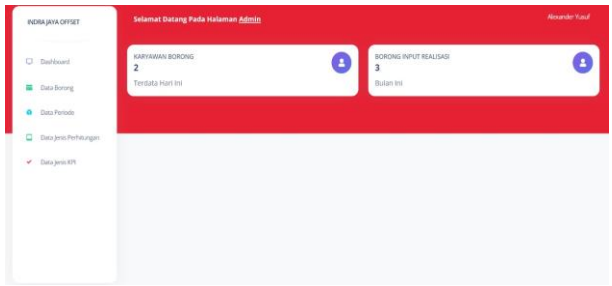

Figure 7. Dashboard Page

c. Wholesale Data Page

The wholesale data page is a part of the wholesale employee assessment system at Indra Jaya Printing which is used to view, add, edit, and delete wholesale data. This page is usually used by admins who have the right to manage certain information. Here is the implementation of the wholesale data page is shown in figure 8.

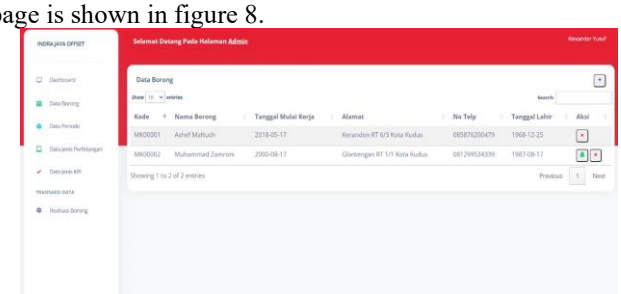

Figure 8. Wholesale Data Page

d. Employee KPI Results Page Wholesale

The employee KPI results page is a page in the system that is used to calculate and display Key Performance Indicators (KPIs). KPIs are used to measure the success of employee performance at Percetakan Indra Jaya. Here is the implementation of the employee KPI results page is shown in figure 9.

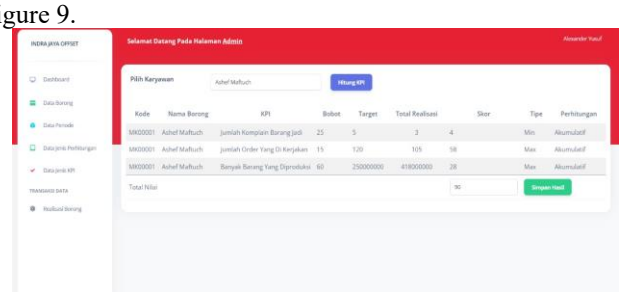

Figure 9. Employee KPI Results Page Wholesale

4. CONCLUSION

This study has successfully implemented a web-based employee performance appraisal system using the Self Assessment and Supervisor Rating methods at Indra Jaya Printing Company. The evaluation results show that this system is effective in increasing the objectivity of performance appraisals, accelerating the appraisal process, and increasing employee involvement in self-assessment.

With the implementation of Key Performance Indicators (KPI), this system is able to measure employee performance in a more structured manner based on parameters such as work speed, accuracy of results, error rates, discipline, and other aspects of work behavior. This allows for clearer and more constructive feedback, and supports the improvement of overall employee performance. However, there are still several obstacles that need to be overcome, such as the lack of employee understanding of the system and limited internet access in some work areas.

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