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Implementation of WASPAS (Weighted Aggregated Sum Product Assessment) Method in CV. Mubarokfood Cipta Delicia Employee Performance Reward Determination System Based on Responsive Web

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ABSTRACT

The advancement of information technology has revolutionized the management and assessment of employee performance. This study aims to design the implementation of the waspas method (weighted aggregated sum product assessment) on the employee performance reward determination system of CV. Mubarokfood Cipta Delicia based on responsive web with the Unified Modeling Language (UML) approach. By using the WASPAS method, it can ensure that employee performance assessments are carried out systematically and based on accurate data. The system designed includes employee data processing features, assessment criteria data. With this system, it is expected to help handle problems related to determining employee rewards.

1. INTRODUCTION

The advancement of information technology has become an inseparable part and has had a huge impact on modern human life. One of these technologies is the implementation of a system that can process data automatically and efficiently in various sectors. According to Naditya et al. (2013) stated that the basis of implementation refers to actions to achieve the goals that have been set in a decision. Implementation is also the process of applying ideas, concepts, policies, or innovations in an action so that it can have an impact in the form of changes in knowledge, skills and attitude values This is reinforced by (Mulyasa, 2015:93) System According to Jogianto in Hutahaean (2014) System is a collection of elements that interact to achieve a certain goal. This system describes real events and unity is a real object, such as places, objects, and people that really exist and occur. According to Mulyadi (2016: 1) System is basically a group of elements that are closely related to each other, which function together to achieve certain goals.

Waspas is a method that can reduce errors or optimize in interpretation to find out the highest and lowest values. The WASPAS method is a method that can reduce errors or optimize in estimation for selecting the highest and lowest values. Thus, the main objective of the MCDM approach is to select the best option from a set of alternatives in the face of multiple conflicting criteria (National et al., 2019).

Rewards are something given to someone as a form of appreciation or recognition for their achievements, behavior, or contributions. According to Sutrisno (2019), rewards are compensation given by companies to employees based on sacrifices of time, energy, and thought.

Mubarokfood Cipta Delicia is one of the largest jenang and dodol producers in Central Java. Mubarokfood has been established since 1910 and has gone through several very long historical stages located at Jl. Sunan Muria No. 33A Kudus, Central Java. the employee performance evaluation process is still not optimal, the criteria for determining bonuses are still subjective, especially based on the largest number of absences, which causes a sense of conflict among employees. For example, helping to collect, store, and analyze employee performance data so that it can provide a more objective and comprehensive assessment. Performance assessment criteria can include productivity, work quality, initiative, teamwork, and target achievement, with data processed and stored in a structured manner in the system. so that to handle existing problems, an appropriate system is needed.

In this study, the author will design a system with an object- oriented approach using the Unified Modeling Language (UML) which provides clear and standardized visualization for designing object-based information systems. (Nugroho, 2010) Explains that UML (Unified Modeling Language) is a language for determining, visualizing, constructing, and documenting artifacts (parts of information used or produced

in a software creation process. Artifacts can be models, descriptions or software) of software systems, such as in business modeling and other non-software systems.

Based on the description above, it is necessary to design a system for implementing the waspas method (weighted aggregated sum product assessment) in the employee performance reward determination system of CV. Mubarokfood Cipta Delicia based on responsive web using UML. It is expected that the results of the implementation of this system design will form a system design that will later facilitate the creation of a website at CV. Mubarokfood Cipta Delicia in providing employee rewards.

2. RESEARCH METHODOLOGY

In this study, the author will use the UML system design method which includes Use Case Diagrams and Class Diagrams. UML is one of the language standards widely used in the industrial world to define requirements, make analysis and design, and describe architecture in object-oriented programming (Sukamto & Shalahuddin, 2018). Here are some diagrams in UML that will be used in designing this system:

2.1 Use Case Diagram

According to (Nazir et al., 2022) "Use Case Diagram is the relationship between actors and use cases. Used for system analysis and design". Use case is an activity that describes the interaction between users and the system.

2.2 Class Diagram

The definition of Class Diagram is a depiction of a system structure defined as classes with the aim of building a system. (Afifah & Setyantoro, 2021). Meanwhile, according to (Muhammad Ma'Mur et al., 2019) Class diagrams are used to describe an interaction between classes in the system. From these two definitions, it can be concluded that a class diagram is a process of explaining the database in a program. In addition to using the UML design method, in this study the author uses the Adobe application as a tool that focuses on input output design.

3. RESULTS AND DISCUSSION

3.1 Waspas Method

Using the Waspas method: CV. Mubarokfood Cipta Delicia in determining employees who are entitled to receive rewards, management needs an objective, effective method that considers various aspects of performance. This study aims to determine the best employees who will receive rewards based on performance evaluations with five main criteria:

• Quality of Work (C1) - Accuracy and precision of work results.
• Discipline (C2) - Compliance with company rules and work schedules.
• Initiative (C3) - Ability to take initiative to complete tasks.
• Creativity (C4) - Ability to think creatively and propose new ideas.
• Project Success (C5) - Success in completing special projects or tasks.

After conducting an evaluation based on HRD records and direct assessments from supervisors, management collected data from 7 employees who were eligible for nomination. The following is the performance assessment data for each employee (scale 1-10, where 10 is the best) is shown ini Table 1:

Table 1. Performance Assesment Data

No	Name	Jekel	C1	C2	C3	C4	C5
1	Agun g	Male	9	8	7	9	8
2	Bagu s	Male	8	7	8	8	9
3	Citra	Female	7	9	6	7	8
4	Dewi	Female	6	8	8	6	7
5	Eka	Male	8	7	9	8	7
6	Fitri	Female	9	8	8	9	9
7	Dani	Male	7	6	7	7	6

Implementation of the WASPAS Method

The steps in the WASPAS method are implemented as follows:

1. Matrix Normalization – Each performance value is normalized based on the highest value in each criterion.
2. Calculation of WSM (Weighted Sum Model) – The normalized performance value is multiplied by the criteria weight, then added up for each employee.
3. Calculation of WSM (Weighted Sum Model) – The normalized performance value is multiplied by the criteria weight, then added up for each employee.
4. Calculation of WPM (Weighted Product Model) – The normalized performance value is raised to the power according to the criteria weight, then the multiplication result is calculated for each employee.
5. Combination of WSM and WPM – The WASPAS value is calculated using the formula:
to get the final score for each employee.

$$Q_i = 0.5 \times \mathrm{WSM}_i + 0.5 \times \mathrm{WPM}_i$$

Results and Analysis:

From the calculation results, here are the WASPAS scores for each employee can see in table 2 bellow:

Table 2. WASPAS Scores

No.	Nama	Jekel	WASPAS Score
1	Fitri	Perempuan	0.9253
2	Agung	Laki-laki	0.9105
3	Bagus	Laki-laki	0.9007
4	Eka	Laki-laki	0.8904

5	Citra	Perempuan	0.8741
6	Dewi	Perempuan	0.8523
7	Dani	Laki-laki	0.8359

Based on the WASPAS value calculation, Fitri has the highest score with a value of 0.9253, followed by Andi with a score of 0.9105.

Therefore, the management of CV. Mubarokfood Cipta Delicia decided that Fitri is the employee with the best performance and deserves to receive an annual performance reward.

Sutrisno (2019) argues that rewards or awards are compensation given by the company to employees based on the sacrifice of time, energy, and thought.

3.2 Business Use Case

Business use case describes the relationship between business actors, business use cases and business workers within the organization. In figure 1 is a description and flow of the Business Use Case.

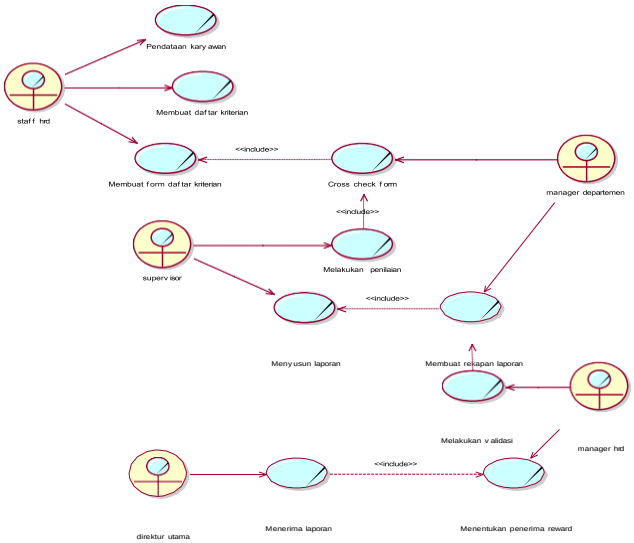

Figure 1. ***Business Use Case***

3.3 Sistem Use Case

The use case system diagram explains who is involved in the system (actors) and what the system can do (use cases). From the business use case process, it can be described with a use case system diagram. The following is a description of the Use Case System diagram is shown in figure 2.

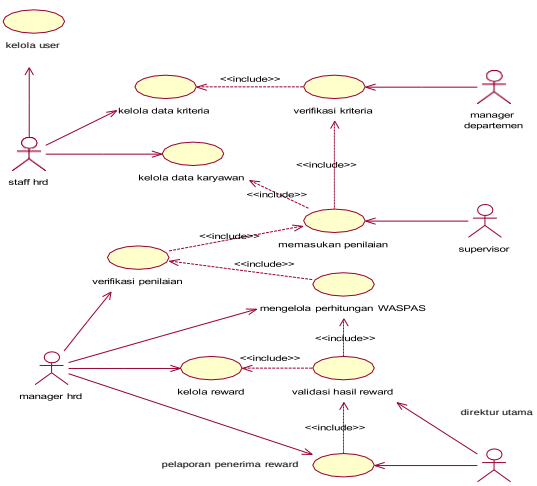

Figure 2. Sistem Use Case

3.4 Class Diagram

A class diagram is a diagram used to display several classes in a system/software being developed is shown in figure 3.

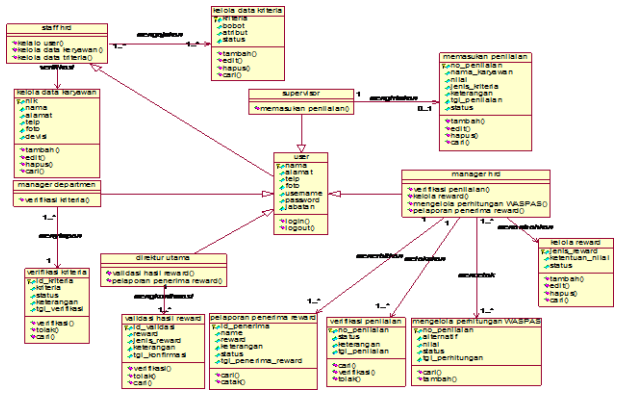

Figure 3. Class Diagram

3.5 Design System

3.5.1 Login Page

The following is the login page that can be accessed by HRD, supervisors and directors to enter the system is shown in figure 4.

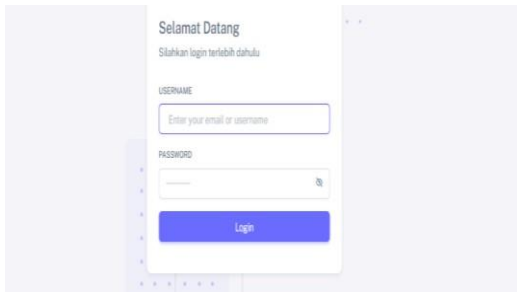

Figure 4. Login Page

3.5.2 Manage Criteria page

This page is used to manage employee criteria that will get rewards. HR can add, change related employee criteria is shown in figure 5.

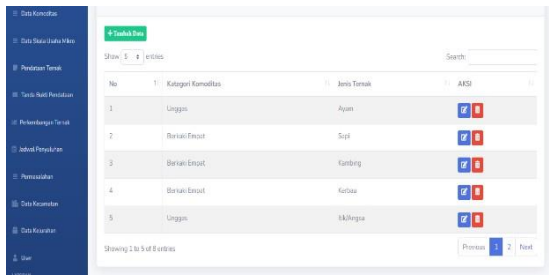

Figure 5. Manage Criteria page

3.5.3 Employee Page

A page listing employees who will be given rewards. It contains a feature for adding employee data can bee in figure 6.

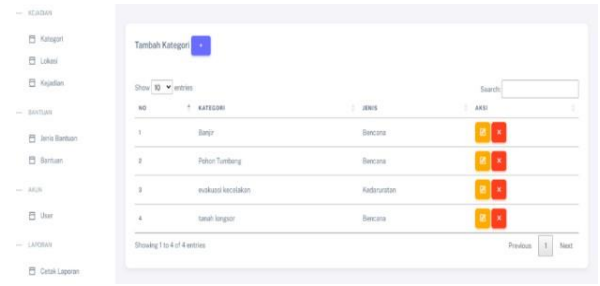

Figure 6. Employee Page

3.5.4 Assessment Verification Page

This page is used to verify the assessment results of employees who will be given rewards is shown in figure 7.

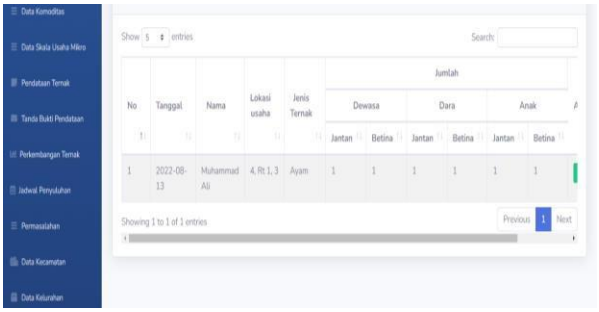

Figure 7. Assessment Verification Page

3.5.5 Reward Recipient Report Page

This page is designed to display reports of reward recipients that have occurred. Includes the results of employees who receive rewards is shown in figure 8.

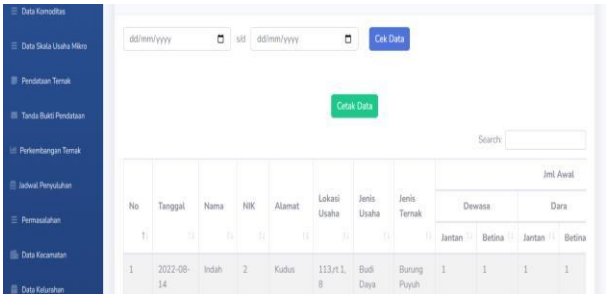

Figure 8. Reward Recipient Report Page

4. CONCLUSIONS

The advancement of information technology has opened up great opportunities in creating efficiency in various fields, such as cv. Mubarokfood Cipta Delicia. With the use of a web- based system, the process of giving employee rewards can be done faster, fairly and accurately. The implementation of this system is expected to help and facilitate the provision of employee rewards to be more active in working.

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