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Decision Support System in Determining the Best Employees with the *Weighted Product Method* At Pt. H. Power

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ABTRACT

Qualified employees are a company's strategic asset, driving rapid organizational growth and development. Their performance has a direct and significant impact on profitability and business sustainability. However, major challenges often arise when it comes to selecting the best employees. The capacity of human resources as decision-makers is often burdened by numerous alternatives and complex assessment criteria, such as productivity, initiative, teamwork, and loyalty. This can hinder the objectivity and smoothness of the selection process. Therefore, a structured and objective method is needed to address this issue. The Weighted Product (WP) method is highly appropriate. This method handles multi-criteria assessments by weighting each factor according to its importance and then mathematically evaluating all alternatives. This results in fairer, more accurate, and less subjective decisions, enabling companies to more effectively identify top employees and boost the performance of the entire team.

Keywords: Product Weight, SPK, Employees, Php, MySQL

ABSTRAK

Karyawan yang berkualitas merupakan aset strategis perusahaan yang mendorong pertumbuhan dan perkembangan organisasi secara pesat. Kinerja mereka memiliki pengaruh langsung dan signifikan terhadap tingkat keuntungan serta keberlangsungan bisnis. Namun, permasalahan utama sering muncul ketika harus menetapkan karyawan terbaik. Kapasitas SDM sebagai pengambil keputusan seringkali terbebani oleh banyaknya alternatif dan kriteria penilaian yang kompleks, seperti produktivitas, inisiatif, kerja sama tim, dan loyalitas. Hal ini dapat menghambat objektivitas dan kelancaran proses seleksi. Oleh karena itu, dibutuhkan sebuah metode yang terstruktur dan objektif untuk menyelesaikan permasalahan ini. Penerapan metode ***Weighted Product*** **(WP)** sangat tepat untuk diterapkan. Metode ini mampu menangani penilaian multi-kriteria dengan memberikan bobot pada setiap faktor sesuai tingkat kepentingannya, lalu mengevaluasi semua alternatif secara matematis. Dengan demikian, keputusan yang dihasilkan menjadi lebih adil, akurat, dan terbebas dari subjektivitas, sehingga perusahaan dapat mengidentifikasi karyawan terbaik secara lebih efektif untuk memacu peningkatan kinerja seluruh tim.

Kata Kunci: *Multi Factor Evaluation Process*, Visual Basic, SPK

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INTRODUCTION

The rapid development of computer information technology has brought significant changes in various aspects of life, including in the process of strategic decision-making in the business world. One form of utilization of this technology is the *Decision Support System* (DSS), which functions to assist management in analyzing data in a structured manner to produce fast, accurate, and objective decisions so as to increase the efficiency and effectiveness of the company's operations.

In human resource management, employees are an important asset that greatly determines the success and competitiveness of the company. Optimal employee performance can drive growth and increase company profits, but the performance appraisal process and selection of the best employees often face obstacles in the form of assessment subjectivity and many criteria that must be considered, such as competence, loyalty, productivity, and contribution to the achievement of company goals. Therefore, a system is needed that is able to help the decision-making process objectively and measurably.

The implementation of the Decision Support System using the *Weight Product* (WP) method at PT. H. Power is expected to be a solution in selecting the best employees. The WP method is able to process various criteria and their weights to produce accurate preference values, so that the resulting decisions are fairer and more transparent. Based on this description, the problems studied in this study are how to design a decision support system for the best employee selection using the *Weight Product* (WP) method at PT. H. Power and how to build a decision support system application program that is able to support the best employee selection process effectively and efficiently.

Hypothesis

Based on the formulation of the above problem, the following hypotheses can be drawn:

It is hoped that the application of the Weight Product (WP) method for the selection of the best employees can make it easier for leaders in selecting the best employees at PT. H. Power.

It is hoped that with the application program of the decision support system for the selection of the best employees with the Weight Product (WP) method, it can provide the best decision results or alternatives in helping the selection of the best employees at PT. H. Power.

THEORETICAL FOUNDATION

Definition of System

A system is a collection of elements that are interrelated with each other that cannot be separated, to achieve a certain goal. In simple terms, a system can be interpreted as a set or set of elements, components, or variables that are organized, interdependent, and integrated. A system consists of parts, parts, or components that are integrated for a single purpose (Akbar & Hadi, 2020; Prawiro et al., 2024)

System Characteristics

There are several characteristics of the system including:

1. **Components**
   A system is made up of components that interact with each other, which means that they work together to form a unit.
2. **System Boundaries**
   A system boundary is an area that delimits one system from one another or to its external environment.
3. **External Environment**
   The external environment of the system is everything outside the limits of the system that affects the operation of a system.
4. **System Connector (Interface)**
   A system connector is a medium between one subsystem and another that forms a unit, so that resources flow from one subsystem to another.

Input

Input is energy or something that is put into a system which can be in the form of input, namely the energy that is put in so that the system can operate or input signal which is energy that is processed to produce an output.

Output

It is the result of energy being processed and classified into useful outputs, as well as the output or final goal of the system.

Processor

A system has a processing part that will convert inputs into outputs.

Objectives

The goal of the system is to determine the input needed by the system and the output that the system will produce (Alfarizi et al., 2020; Andrianof, 2018; Mario Orlando et al., 2020).

RESEARCH METHODOLOGY

Research Framework

In conducting this research, the author uses the research framework as a sequence or process with the aim of making the research carried out more structured, where the research framework carried out is described as Figure 1:

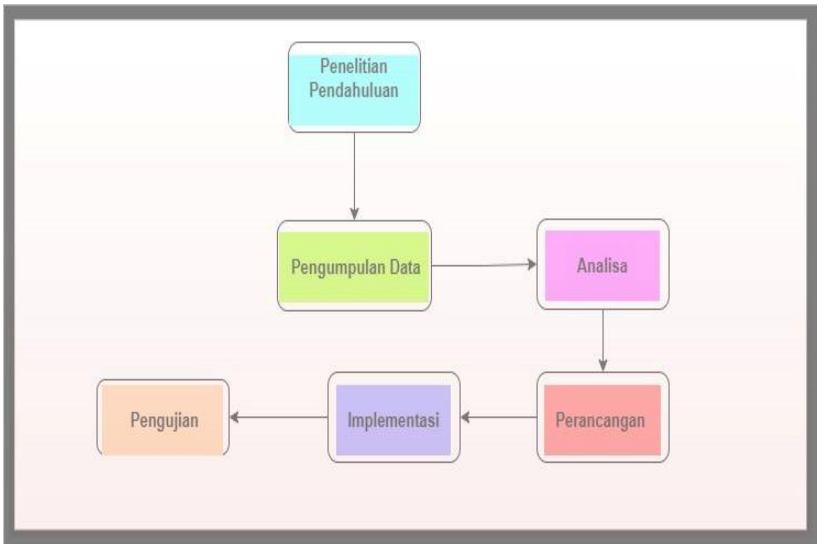


Image 1. Research Framework

ANALYSIS AND RESULTS

Systems analysis is the process of understanding and evaluating a running system. The goal is to identify the strengths that need to be maintained and the weaknesses that need to be improved. Based on this evaluation, it is then proposed to develop a new system that is better, by minimizing or even eliminating the shortcomings in the old system to achieve more optimal results and close to perfection.

Running System Analysis

The running system flow diagram describes the data flow, its source, processing process, and producing reports. This overview simplifies the level of system analysis by showing where the data comes from, how it is processed, and to whom the report is given. Thus, weaknesses and points of improvement in existing systems can be identified more clearly and structured.

New System Analysis

To overcome existing problems, it is necessary to design a new system to define functional needs. A new system was built to facilitate the data processing process so that it no longer takes a long time and is proposed to be presented in the form of a physical design and a logic design. The proposed system is expected to make improvements to the shortcomings in the old system.

UML

UML (*Unified Modelling Language*) is a tool for software analysis and design. UML is a language standard that is widely used in the industrial world to define requirements, make analysis and design, and describe architecture in object-oriented programming (Andrianof, 2018; Aprisa & Monalisa, 2015; Ferdika et al., 2017; Management et al., 2024; Putra et al., 2024).

Use Case

Diagram *Use case* will be used to describe the features that can be used by admins. This diagram is also used to verify whether all the functions described in this diagram are *Use case* has been implemented into the system. The use case model serves to describe the functional needs and describe the behavior of the system to be created as well as to describe an interaction between one or more actors and the system to be created (Alfarizi et al., 2020; Aprisa & Monalisa, 2015; Ferdika et al., 2017; Management et al., 2024; Putra et al., 2024). The use case diagram on this system can be seen in Figure 2.

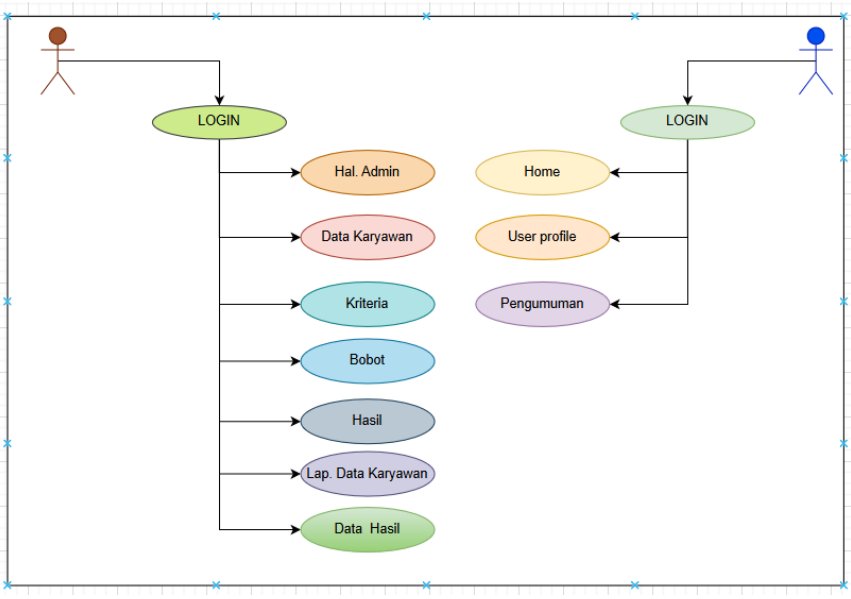


Image 2. Use Case

Class Diagram

Diagram classes are a fundamental part of object-oriented system modeling. This diagram visualizes various*Class*and relationships (*Relationship*) among them in the logical design of the system. Each*Class*is a specification or blueprint; When instantized, it will generate an object. Thus, the diagram class is at the heart of an efficient and structured development and design process, as it clearly represents the static structure of the system. (Aprisa & Monalisa, 2015; Management et al., 2024; Putra et al., 2024; Rad, 2020). The following is a class of the system to be built, which can be seen in Figure 3.

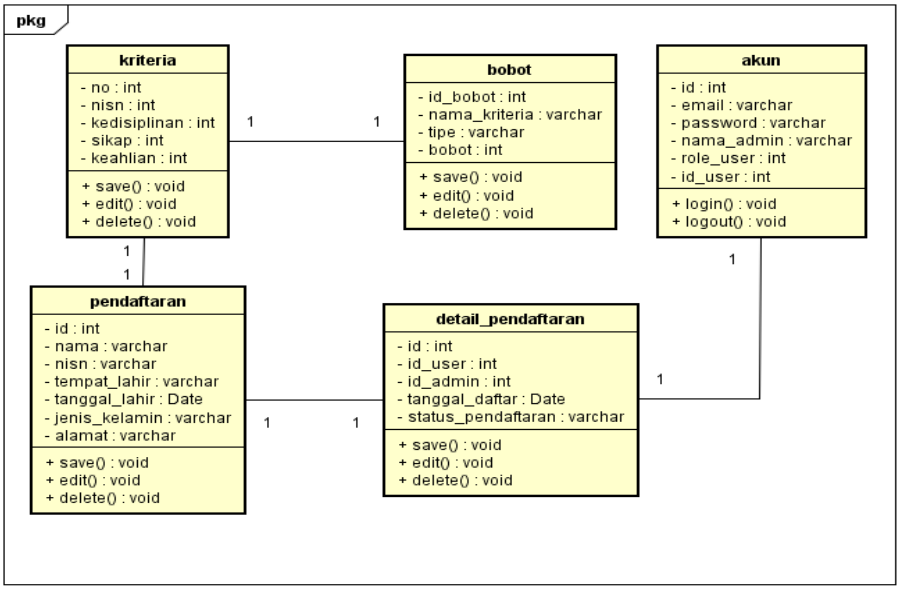


Image 3. Class Diagram

Activity Diagram

Activity diagrams are a part of UML that functions to model workflows or behaviors in the system. This diagram illustrates a series of activities, starting from the starting point, the decision (*Decision*) that may occur during the process, until the end point. Its main advantage is its ability to display processes running in parallel on multiple executions. By focusing on a general top-level overview, activity diagrams are very effective at visualizing business logic, operational flows, and interactions between various components in a system in a clear and structured manner. (Alfarizi et al., 2020; Management et al., 2024; Zulfiandri, 2016). An activity diagram or activity diagram describes the activities that the system performs, not what the actors do. The activity diagram on this system can be seen in the following Figure 4:

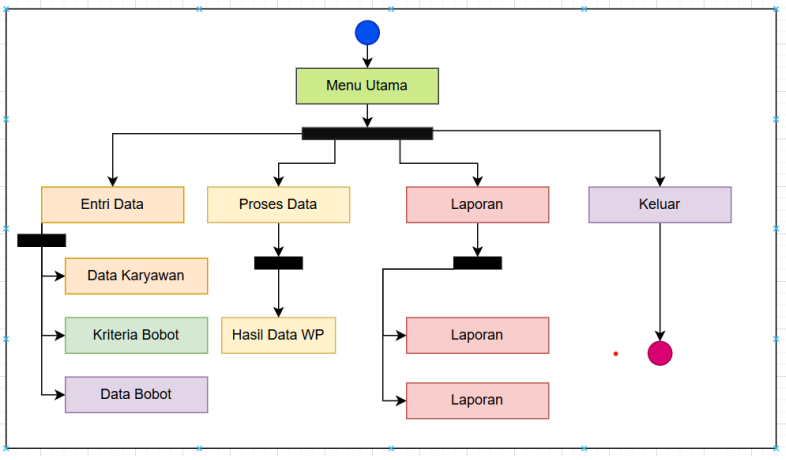


Image 4. Activity Diagram

System Implementation and Testing

System Implementation

System implementation is an important stage for deploying an application that has been built into an actual operational environment. The goal is to verify whether the application can function according to the specifications, provide the expected benefits to the user, and identify the limitations and resource requirements required to run it optimally. This process becomes the final validation before the system is fully deployed.

Login

Inside the login there is a username and password menu. For more details, you can see the following figure 5:

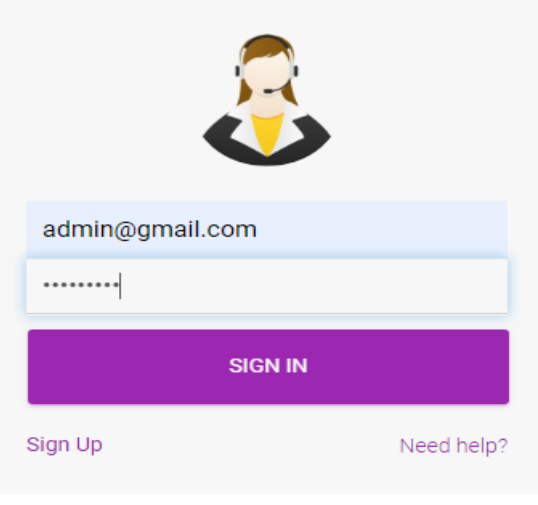


Image 5. Login

Main Menu

In the main admin menu there is an entry menu. For more details, see the following Figure 6:

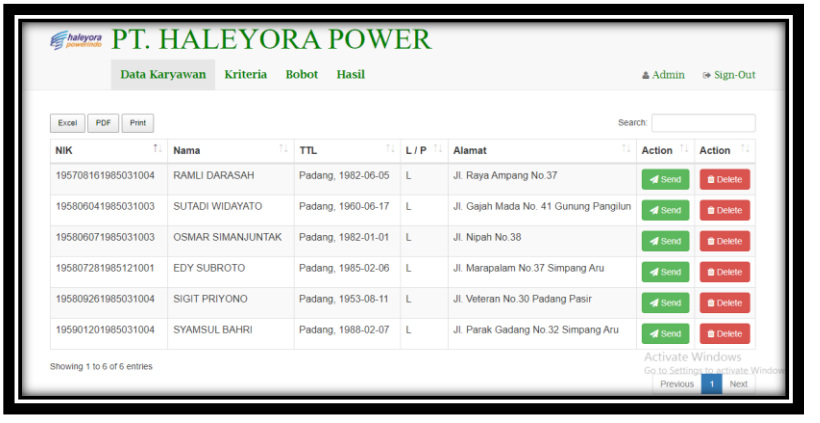


Image 6. Main Menu Page

Criteria Data Input Page

On this page information criteria can be added. For more details, you can see the following Figure 7:

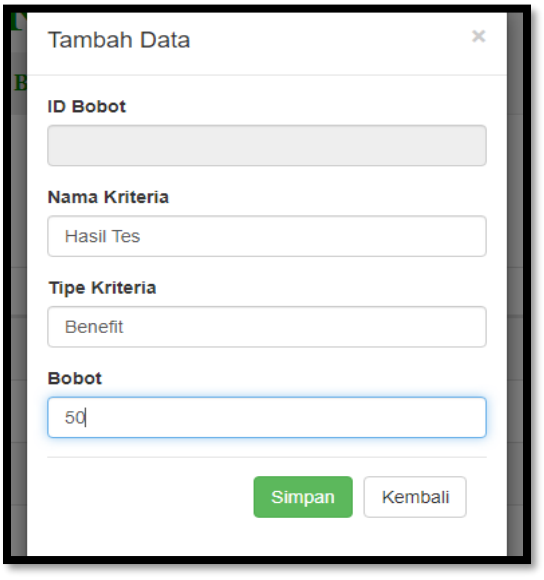


Image 7. Criteria Data Input Page

Employee Data Input Page

On this page, employee data can be completed. For more details, you can see the following figure 8:

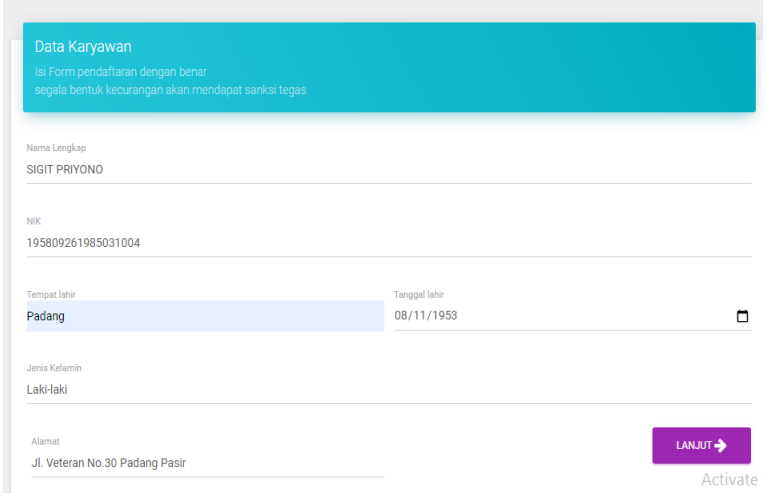
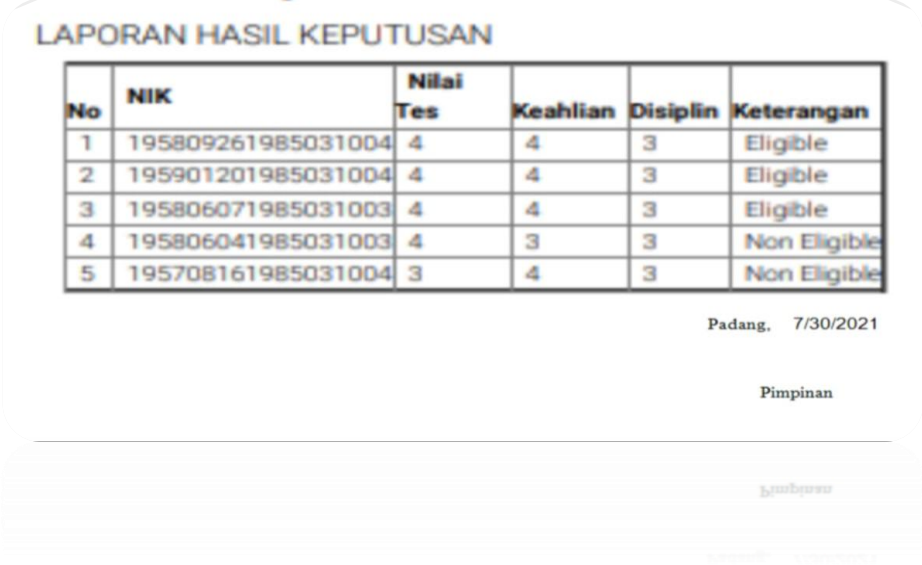


Image 8. Employee Data Input Page

Results Announcement Page

On this page the announcement of the results can be seen by employees. For more details, you can see the following figure 9



LAPORAN HASIL KEPUTUSAN

No	NIK	Nilai Tes	Keahlian	Disiplin	Keterangan
1	195809261985031004	4	4	3	Eligible
2	195901201985031004	4	4	3	Eligible
3	195806071985031003	4	4	3	Eligible
4	195806041985031003	4	3	3	Non Eligible
5	195708161985031004	3	4	3	Non Eligible

Padang, 7/30/2021

Pimpinan

Image 9. Results Announcement Page

CONCLUSION

Based on the description and discussion that has been presented in the previous chapters, it can be concluded that the implementation of the decision support system that has been built is able to help and facilitate the process of selecting the best employees more objectively, while data storage and system design in the form of databases can reduce the need for storage space and overcome the problem of redundancy and data inconsistency so that the data becomes more organized. as well as the use of PHP programming language and MySQL databases that are simple, robust, object-oriented, and secure are considered appropriate to support the development of decision support systems in solving the problem of selecting the best employees.

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