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DSS for Selection of Exemplary Employees Using the Simple Additive Weight (SAW) Method

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Abstrak

Anagement of human resources (HR) from an office affects many aspects that determine the success of the work of the Village Office. One of the most important things in HR management in an office is the selection of the best employees to spur employee morale in improving their dedication and performance. However, in reality, the Manggung Village Office has not been optimal in the implementation of the selection of the best employees, this is due to the unavailability of media that processes employee assessments and provides recommendations in selecting the best employees. The Decision Support System can adjust to the Manggung Village Office in optimizing the selection of the best employees. The purpose of this research is to produce the best employee information based on the needs of the Manggung Village Office. Decision Support Systems are part of computer-based information systems including knowledge-based systems or knowledge management that are used to support decision making in an organization or office. The method used is Simple Additive Weighting (SAW), the calculation of this method is to use the result of the largest value that will be selected as the best alternative, the calculation will be appropriate if the selected alternative meets the predetermined criteria. This decision support system for selecting the best employee was developed using the PHP programming language (Hypertext Processor File), as well as the MySQL database as the database server. The results of this study indicate that the best employee ranking with the highest score.

Keywords: SAW, best employee, Manggung Village Office

INTRODUCTION

One of the most important elements in a company is Human Resources (HR). Human resource management of a company greatly influences many determinants of the work success of the company [1]. If HR can be well organized, it is hoped that the company or organization can carry out all its business processes properly. Manggung Village Office, Pariaman Utara District, Pariaman City conducted selection of the best employees to spur employee enthusiasm in improving their dedication and performance. Selection of the best employees is carried out periodically but has not been optimal in its implementation. The Manggung Village Office encountered problems in deciding which employees to prioritize. The obstacle faced is that the HR

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manager does not use a method that can handle priority problems with many criteria. In addition, HR often finds it difficult to choose the best employees because of the many employees being assessed. This becomes a drawback in determining whether or not someone is selected as the best employee. Searches best employees is assisted by a program or software that will be created, software(software) is a computer program that is associated with the software documentation such as documentation requirements, design models, and how to use (usermanual)[2]. A computer program without being associated with its documentation cannot be called software. A software is also often called a software system. System means a collection of components that are interrelated and have one goal to be achieved [3]. A software system means a system that has components in the form of software that have a relationship with each other to meet customer needs . A customer is a person or organization that orders or buys software from a software developer or it can be considered that a customer is a person or organization who voluntarily spends money to order or purchase software. Users or software users are people who have an interest in using or using software to facilitate their work [4]. Decision Support System Is a computer-based information system and also includes a system with a knowledge management base, used to support decision making in an organization or company. According to Antonio Marcomini and Andrea Critto (2008), SPK is a combination of individual intelligence sources with component capabilities into a computer-based information system and to improve decision quality. Computer-based information systems are used as management decision making that handle semi-structural problems [5]. In this case, DSS is not a decision-making tool, but a system that can help decision makers complete the processed data information that is relevant and necessary to make decisions on a problem more quickly and accurately. This system is not to replace decision making in the decision making process. DSS has several functions, namely to increase the ability of decision makers by providing better decision alternatives, helping to formulate the problems and circumstances at hand. In addition, DSS can also increase the effectiveness and efficiency of decision making and save costs, time and effort. There are several DSS methods, one of which is themethod Simple Addictive Weighting (SAW). The SAW method, which is often known as the weighted addition method, has several advantages compared to other methods. The advantages of the SAW method can make a more precise assessment, based on the predetermined value of the criteria and weight preferences [6].

RESEARCH METHODS

The simple meaning of research is how to find out something that is done in a

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certain way with a systematic procedure.

Starting Research

At this stage, problem identification is carried out which aims to identify the problem to be studied, the problem boundary aims to get good and directed research results, it is necessary to limit the problem so that the preparation of this final project does not deviate from the objectives to be achieved, the problem formulation aims to explain the outline of the problems faced in the research.

Analyzing Methodology

At this stage an analysis of the methodology used includes supporting materials and supporting theories and other matters needed to complete the research.

Analyzing the Data

At this stage a literature study is carried out which aims to find out what methods will be used to solve the problems to be studied which will later become a strong reference for researchers in applying a method used. In the implementation of this research, data was collected to know more about the system being studied.

Analyzing the System

At this stage, data and information is collected that are running at this time in order to know more about the system being studied.

Implementing the software

This stage the researchers used themethod fuzzy time series and the software used was Matlab.

Synthesizing Results

Displays the results of data processing. The testing mechanisms to be carried out are:

a. Perform the analysis process with manual SAW calculations.
   Input values for each of the input criteria.
b. Performing the same data test in a manual process with the SAW Method.
   From the said universe, a membership function can be made. The results of the membership function can be made rules.

Conclusion

Where at this stage the system refinement is carried out, after testing both software testing and data testing as a whole so that a fast and precise data processing occurs in the designed system.

RESULTS AND DISCUSSION

Testing and implementation of the system aims to see whether the system designed is in accordance with what is desired or not, after testing and implementation, the quality of a system will be seen. The program display is a sub-chapter that describes the process from starting until the program is finished executing, the points in thiswill explain how a form is run and what functions are contained in the form section. The first page that

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appears is the login page. This program is intended for motorbike dealer owners. Therefore, employees are not allowed to access this program, the person entitled to the username and password is the Village Head of Manggung. The login page display can be seen in the following image:

Figure 1: Login Page Display

The main page of this application consists of several menus, namely the main page, alternatives, criteria, sub criteria, SPK data, normalization, results, admin settings. The main page display can be seen in the following image:

Figure 2 Main Page Display

Each menu contains data that can be added and changed according to the wishes of the Village Head. Alternative data, criteria data, and sub-criteria data that have been inputted can be seen in the following figure:

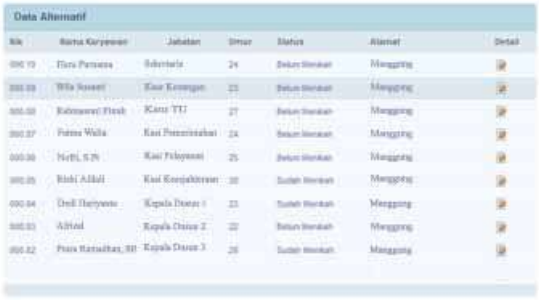

Figure 3 Alternative Data Display

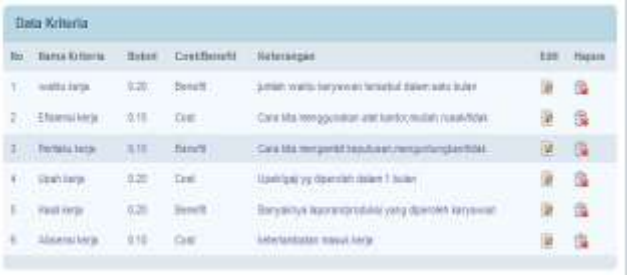

Figure 4 Criteria Data Display

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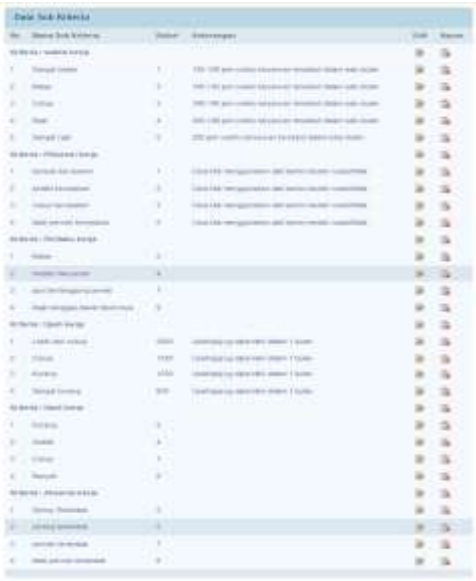

Figure 5 Sub Criteria Data Display

page display The SPK page displays the SPK data. SPK data is data used for the calculation of SPK using the SAW method, the data is obtained from combining alternative data, criteria data, and sub-criteria data. The data contains values that can be used as a calculation of the SPK using the SAW method. 4.3 is a display of data that has been inputted for the SPK calculation using the SAW method. The SPK page view can be seen in the following image:

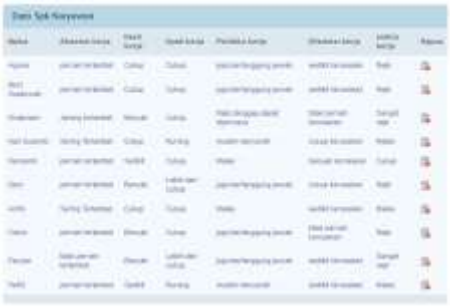

Figure 6 Display of DSS Page

Display Data Normalization

Data on the first line are input from the criteria data. The first column is alternative data that has been inputted, then the continuation of the rows and columns are sub-criteria data that are in accordance with the criteria data and alternative data. The data that has been inputted is then calculated using the SAW method on the normalization page shown in the following figure

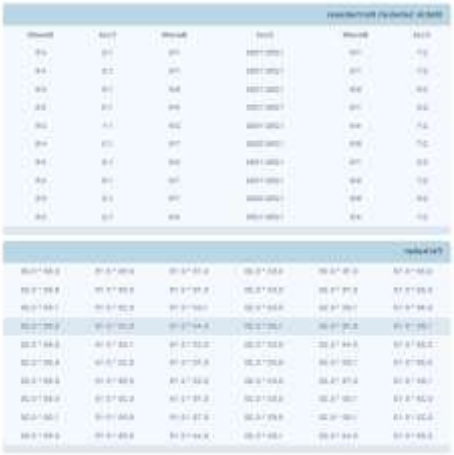

Figure 7 Display Normalization Data

Display of SPK Results

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Based on the multiplication results, the results are used as a reference for determining the best employee rankings. The results of the multiplication are first stored in the database and in the results menu there are the final results of the calculations which have been sorted according to the highest to the lowest ranking value, the ranking results can be seen as shown below:

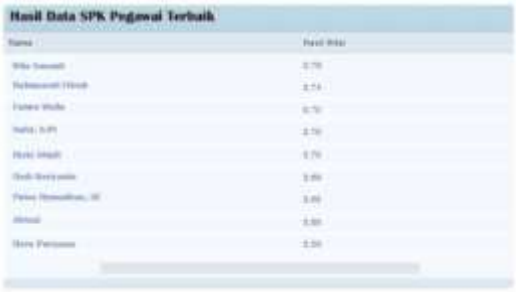

Figure 8 Display of SPK Results

Figure 9 shows the value of each employee, and it can be seen that employees are the most diligent, lazy and casual. Based on the analysis, it is known that Wila Susanti with a score of 0.79 is the most diligent employee, while the laziest employee is Heru Purnama with a score of 0.59..

CONCLUSION

DSS using the SAW method in this study is designed to calculate the weight of each available alternative. A person in authority will find it difficult to determine the best employee if many criteria are used. SPK using the SAW method can make it easier for a person or company leader to choose the best employees. From the above study, the authors expect further research, because there are several deficiencies in the application and there are still many that have not been discussed due to time constraints and the limitations of the authors in compiling this research.

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