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Decision Support System For Submitting Work Leave Using The Vikor Method

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Abstract

Human resources have an important role in an office, namely as the spearhead for carrying out the organization's activities, because after all the progress and success of a company cannot be separated from the role and capabilities of good human resources. This study aims to determine the effect of work motivation (X1) and work ability (X2) variables partially and simultaneously on employee performance (Y). This type of research is explanatory research with a quantitative approach and is carried out using the genetic method. Genetics is a search technique that in computer science to find approximate solutions for optimization and Genetic search problems are particularly applied as computer simulations in which a population of abstract representations (called chromosomes) of candidate solutions (called individuals) to an optimization problem develops into a solution. - a better solution. This research was conducted on 40 permanent employees of the Binjai City Regional Civil Service Agency. The data analysis technique used is descriptive analysis and multiple linear regression. Based on the results of the study shows that work motivation and work ability partially or simultaneously affect the performance of employees at the Binjai City Regional Personnel Office, the conclusion is that the two independent variables that have the dominant influence on employee performance are Job Ability. The advice given to the Company is to strive to continue to improve work motivation and work ability of employees so that they continue to develop and be able to provide maximum service.

Keywords: Genetic, Work Motivation, Work Ability, And Employee Performance

INTRODUCTION

In an organization, Human Resources (HR) has an important role compared to other factors. Humans have an important function in achieving performance, so HR requires reliable expertise. Employee performance is one of the most dominant factors in improving company performance. How great and sophisticated the equipment and technology as well as large capital, but if the human element does not have the ability to work effectively and efficiently, the company's goals will not be achieved. High ability will help employees in carrying out various tasks, thus facilitating their work. Meanwhile, low ability causes employees to be passive. Motivation can be placed as a fundamental part of management, in this case motivation plays an important role because everything can be aimed at influencing human potential and power by generating, animate a high level of desire and increasing the enthusiasm of togetherness in carrying out their duties and responsibilities to achieve goals company.

This is supported by the theory of Keith Davis in Mangkunegara stating that a person's performance is influenced by two things, namely the ability and motivation of the Binjai City Regional Personnel Service Office, as a regional government office, always strives to improve employee performance. In fact, the office really needs the ability and motivation of a good workforce, especially in terms of processing all employee data in the city of Binjai. As a benchmark for the progress of the Office of the Regional Personnel Agency, the City of Binjai conducts employee performance assessments every semester, semester 1 in June and semester 2 in December. Employee performance appraisal is carried out by superiors by filling out the Employee Performance Assessment Form. Based on the results of the performance assessment of the employees of the Binjai City Regional Service Agency in 2019, the value of employee performance

at grade 4 (performance exceeded the target) decreased in semester 2 from 14.74% to 7.98% (almost 50%). And employees in grade 3 (performance on target) increased from 85.26% to 92.02%. The absence of office employees of The Binjai City Regional Service Agency in 2019 fluctuated and employees who took leave continued to increase until December.

RESEARCH METHODS

Decision Support System (DSS) 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) DSS is a combination of individual intelligence sources with component capabilities into a computer-based information system and to improve the quality of decisions. Computer-based information system is used as a management decision making that handles semi-structured problems.

DSS in this case is not a decision-making tool, but a system that can help decision-makers to complete data information that is processed relevantly and needed 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 improve the ability of decision makers by providing better decision alternatives, helping to formulate problems and the situation being faced. In addition, DSS can also increase the effectiveness and efficiency of decision making and save costs, time and energy.

Definition of Decision Support System

According to (Pahwi et al., 2017), Decision Support Systems (DSS) / Decision Support Systems (DSS) are part of a computer-based information system including a price base system or price management that is used to make decisions within an organization or company. It can also be said as a computer system that processes data into information to make decisions on specific semi-structured problems. Decision Support Systems are interactive information systems that provide information, modeling and manipulating data. The system is used to assist decision making in semi-structured and unstructured situations.

According to (Erwiyah, 2017), the Decision Support System, which we will briefly describe in this thesis as DSS, is generally defined as a system capable of providing the ability to support decisions in problem solving. Specifically, DSS is defined as a system that supports the work of a manager or a group of managers in solving semi-structured problems by providing information or suggestions towards certain decisions.There are several reasons for using a decision support system, namely unstable economic conditions, increasing competition that occurs in the business world, the need for new accurate information, providing timely and effortless information.

to reduce operating costs. In addition, another reason in the development of decision support systems is the change in the computational behavior of end-users, end-users are not programmers.

Objectives of Decision Support Systems

According to (Pangaribuan et al., 2019) the objectives of the Decision Support System (DSS) are as follows:

1. Assist managers in making decisions on semi-structured problems.
2. Provide support for the manager's judgment and is not intended to replace the manager's function.
3. Increasing the effectiveness of decisions taken by managers more than improving their efficiency.
4. Computing speed, computers allow decision makers to do a lot of computing quickly at low costs.

5. Increased productivity, building a group of decision makers, especially experts, can be very expensive. Computerized support can reduce group size and allow members to be in different locations (saving travel costs).
6. Quality support, computers can improve the quality of decisions made.
   For example, the more data that is accessed, the more alternatives that can be evaluated.
7. Competitive, management and empowerment of company resources. Competitive pressures make the decision-making task difficult.
8. Overcome cognitive limitations in processing and storage.

Stages of Decision Support System

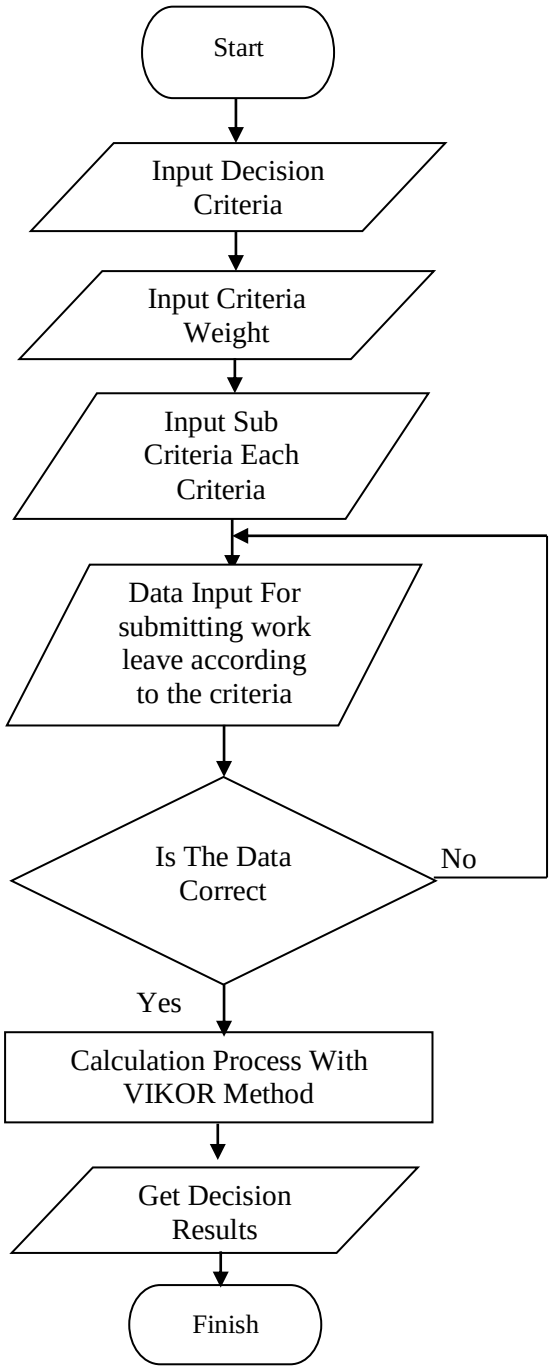
According to (Pangaribuan et al., 2019), the stages of the Decision Support System (DSS) are as follows:

1. Intelligence Phase
   Intelligence in decision making involves scanning the environment, either intermittently or continuously. Intelligence includes various activities that emphasize the identification of problem situations or opportunities. The stages in the intelligence phase include problem identification (opportunities), problem classification, and problem ownership.
2. Design Phase
   The design phase includes discovering or developing and analyzing possible actions to take. This includes understanding the problem and testing feasible solutions. The stages in the intelligence phase include choosing a principle of choice, developing (generating) alternatives, and measuring the final result.
3. Choice Phase
   Choice is a critical decision-making act. The choice phase is the phase where a real decision is made and a commitment is made to follow a certain course of action. The boundary between the choice and design phases is often not clear because certain activities can be performed during both phases and because people can frequently return from the choice activity to the design activity.
4. Implementation Phase
   In essence, the implementation of a proposed solution to a problem is the initiation of something new, or the introduction of change. The definition of implementation is a bit complicated because implementation is a long process and

   involves unclear boundaries. In short, implementation means making a recommended solution work, not requiring the implementation of a computer system.

Flowchart

According to (Suhardi et al., 2019), Flowchart is a systematic presentation of the process and logic of information handling activities or graphical depiction of the steps and sequences of procedures of a program. A flowchart is a chart that shows the flow in a program or system procedure logically. Flowcharts are used primarily for communication aids and for documentation



Description of the flowchart on the above system is as follows:

1. Enter the criteria to be used.
2. Enter the weight of each criterion with a value range of 1-100.
3. Enter the sub-criteria and sub-criteria weights with a value of 1 - 100 for each criterion.
4. Enter the data for submitting leave in accordance with predetermined criteria.
5. After inputting the data, then check whether the data is appropriate or not, if appropriate, then proceed to the calculation process using the VIKOR method, if not, then re-enter the data correctly.
6. After the process is complete, it will display the results of the decision by the system.
7. The process is complete.

System Database Design

Database design is organizing data according to the database model. The designer determines what data should be stored and how the data elements relate to each other. The following is a database design to build a decision support system for determining leave for employees using the VIKOR method at the Binjai City Regional Personnel Agency (BKD) Office, the database design is as follows:

Table 1.

No	*Field Name*	*Type*	Keterangan
1	id_user	*Int*(10)	**Auto_Increment*
2	Username	*Varchar*(40)	-
3	User_address	*Varchar*(40)	-
4	no_phone	*Text*	-
5	username	*Varchar*(20)	
6	password	*Text*	-
7	level	*Enum*('admin','user')	-

Table 2.

No	*Field Name*	*Type*	Keterangan
1	id_criteria	*Int*(10)	**Auto_Increment*
2	id_user	*Int*(10)	-
3	code_criteria	*Varchar*(5)	-
4	criteria_name	*Varchar*(30)	-
5	criterion_weight	*Int*(3)	-
7	criterion_type	*Enum*('*benefit*','*cost*')	-

Table 3.

No	*Field Name*	*Type*	Keterangan
1	id_subcriteria	*Int*(10)	**Auto_Increment*
2	id_criteria	*Int*(10)	-
3	value_subcriteria	*Varchar*(50)	-
4	weight_subcriteria	*Int*(3)	-

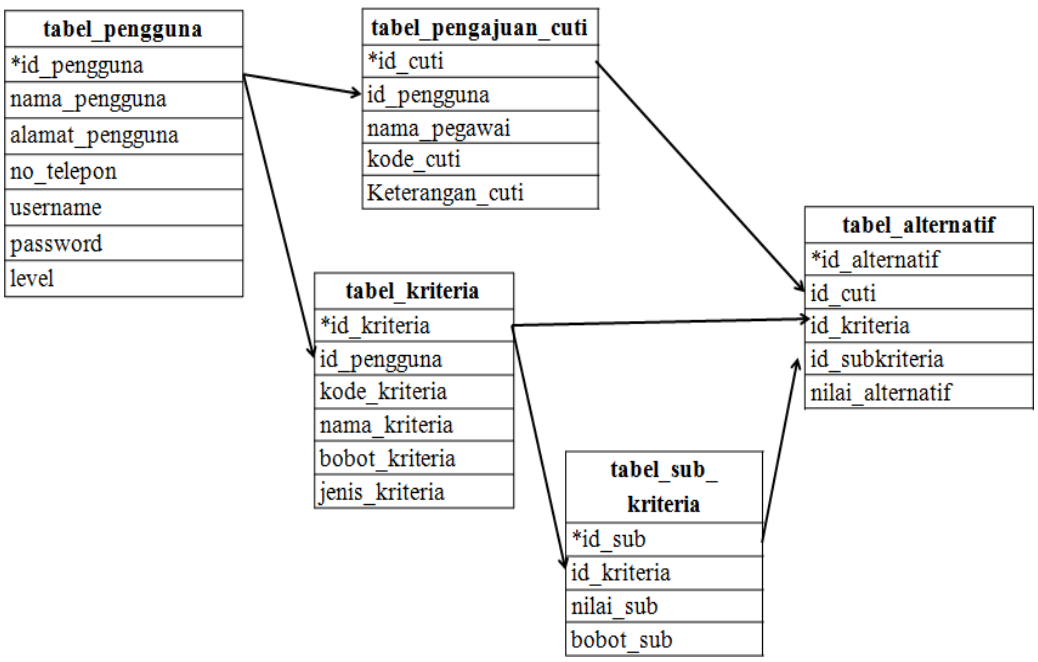
Table 4.

No	*Field Name*	*Type*	Keterangan
1	id_leave	*Int*(10)	**Auto_Increment*
2	id_user	*Int*(10)	-
3	employee_name	*Varchar*(30)	-
4	code_leave	*Varchar*(5)	-
5	leave_statement	*Varchar*(30)	-

Table 5.

No	*Field Name*	*Type*	Keterangan
1	id_alternative	*Int*(10)	**Auto_Increment*
2	id_leave	*Int*(10)	-
3	id_criteria	*Int*(10)	-
4	id_subcriteria	*Int*(10)	-
5	alternative_value	*Varchar*(20)	-

Table 6.
Intertable Relationship Design



RESULTS AND DISCUSSION

The Regional Personnel Agency (BKD) of Binjai City in determining the approval of employee leave does not yet have an application and is still done manually. In connection with this, we need a system that can support a decision so that it can assist in making decisions on determining employee leave. A decision support system (DSS) or better known as a Decision Support System (DSS) is a system to support managerial decision makers in semi-structured decision situations.

The Decision Support System for determining the application for employee leave was built using the Višekriterijumsko Kompromisno Rangiranje (VIKOR) method was built to facilitate the Regional Civil Service Agency (BKD) of Binjai City in selecting employee leave applications based on the given criteria. By using the system that has been built, it is hoped that the selection process for submitting employee leave will be more effective and efficient in making decisions. The system is built with the PHP programming language with PHP MySQL database.Membership function;Membership function:

Implementation is an advanced process of applying the Višekriterijumsko Kompromisno Rangiranje (VIKOR) method to the system. Application of the Višekriterijumsko Kompromisno .

method Rangiranje (VIKOR) and the design of the decision support system that has been discussed in the previous chapter will be implemented in the system for determining the eligibility for applying for leave that has been built. At this stage the Višekriterijumsko Kompromisno Rangiranje (VIKOR) method used in the decision process will be applied to the system program in accordance with the previously designed system design. The implementation is carried out in the PHP programming language with MySQL database.

CONCLUSION

After discussing and describing the previous chapters, the author provides several conclusions. The conclusion that the author wrote in this study related to the decision support system for determining the application for employee leave using the VIKOR method at the Regional Personnel Agency (BKD) of Binjai City is as follows:

1. The right criteria to be used in determining the application for employee leave are those that have been successfully analyzed and applied to the system, namely the type of leave (K1), length of leave (K2), length of work (K3) and rank group (K4).
2. The application of the Višekriterijumsko Kompromisno Rangiranje (VIKOR) method to the decision support system in applying for leave using 15 submission data, from the results of the application it was found that Asli Pandia S. Sos., (A4) was in the first rank, with the lowest index value (Qi). , which is 0.000. With these results, it is also concluded that A4 employees who are accepted for leave applications.
3. The design of the system that has been built using the PHP programming language with a MySQL database has succeeded in determining the application for employee leave by implementing the Višekriterijumsko Kompromisno Rangiranje (VIKOR) method in decision support in the system

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