

BEST EMPLOYEE ASSESSMENT USING WEIGHTED PRODUCT METHOD BASED ON MOBILE WEB AT PUTRI COLLECTION TANGGAMUS

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Abstract

In the present, to reach maximum profit place business No only think of a strategy in increase profit, for place business operating in the field sales and add amount customer for companies engaged in the field services. Therefore That needed source Power competent human in their field. Decision support system is a computer-based system that can be designed to assist in the decision-making process regarding the results. election employee best in place business sale of Putri Collection. In doing so election employee best done use method Weighted Product is a method used to find the optimal alternative from a number of alternatives with a number of certain criteria through weighted multiplication of the performance rating of each alternative on each attribute. In the selection employee best used criteria discipline, skill, responsibility answer, attendance, cooperation. After done calculation use method Weighted Product t is available mark alternative employees who get mark highest become employee best V4 with weight 0.27118.

1.0 INTRODUCTION

Employee assessment is an important part of the entire employee activity process, the best and quality employees are company assets that will make a business grow rapidly. Companies that have employees conduct performance evaluations (assessments) on employees *relatively* often with the aim of providing *feedback* to employees in an effort to improve the business as a whole, therefore the company needs to conduct assessments. With existence source Power quality human being will make a company become enhancer growing very rapidly and becoming famous. However the problem with Putri Collection which is A business independent in part sale goods, equipment make up own constraint in do election employee best, selection employee best still use manual way or estimation so that not enough effective and efficient Lots element very subjective tall.

The research is supported by several study previous as done by [1] the Fuzzy Simple Additive Weighting method was chosen For do assessment and ranking performance Work employees . From the results testing can concluded that application This can implemented For evaluation performance Work employee contract at Ifun Jaya Textile. [2] Development method system use Waterfall method, and applications designed use Language PHP programming and MySQL database. From the calculation testing obtained data accuracy

is 100%, namely manual calculation and calculation application the result as expected. Research results This produce A application election employee best used For giving award / reward. [3] al this prove that SAW method can assist the retrieval process decision in problem determination employee best a Company.

There are several research conducted use SAW and WP method calculation process in determine employee the best own good accuracy. Employee performance assessment conducted at Putri Collection is used for the best employee process using the Weighted Product method. Resolving employee performance assessment problems using criteria so as to obtain the best employee assessment according to business needs, the criteria used in conducting assessments such as Discipline, Skill, Responsibility, Attendance and Cooperation. The purpose of the research conducted is determine employee best with build system Supporter decisions where alternatives and criteria are determined by the actor effort and combined with Programming Language mobile web based so that calculation will more accurate , effective and efficient.

2.0 LITERATURE REVIEW

2.1. System Decision Support (DSS)

[4], [5] System Supporter decision is part from system information based on computer used For support taking decision in a organization . [6]–[8] System Supporter decision or often Decision Support System (DSS) is System based on model consists of from procedures in data processing and its considerations for help manager in take decision. To be successful reach the purpose so system the must simple, robust, easy for controlled, easy adapt complete on things important and easy communicate with him. In a way implicit also means that system This must-based on computer and used as addition from ability settlement problem from someone. System the is a based system the computer that is intended for help taker decision with utilizing specific data and models for solve various problem that is not structured. System Supporter decision No is tool taker decision, but as system that helps in taking decision with complete information from data that has been processed and used for make fast and accurate decisions in to finish a problem.

2.2 Weighted Product (WP)

[9]–[12] Weighted Product is the method used for settlement system Supporter decision use multiplication for connect mark criteria. The weighted product method has steps as following:

- a. Determination criteria
- b. Evaluation weight interest each criteria
- c. Determination range of values each criteria
- d. Evaluation each alternative use all attribute with determination the range of values provided is indicative how much big interest between criteria.
- e. From the assessment data each weight attributes and values alternative made matrix decision (X).
- f. Normalization process is carried out for weight criteria.

Normalization criteria done with use formula.

$$W_j = \frac{W_j}{\sum W_j}$$

Information:

W_j = Weight criteria,

$\sum W_j$ = Addition weight, criteria

- g. matrix normalization process (S) is carried out decision with method multiply criteria, attributes moreover formerly must promoted with weight criteria.

In the weighted product method the criteria shared into two categories that is criteria benefits (criteria) rank worth positive), and criteria cost (rank) worth negative). Here This is formula for count normalization matrix (S):

$$S_i = \prod_{j=1}^n X_{ji} W_j$$

Information:

S_i = result normalization matrix

X_{ij} = alternative rating attribute

W_j = weight attributes

i = alternative

J = criteria

h. Preference process (V_i) or ranking for each alternative.

Ranking process for every alternative use formula as following:

$$V_i = \frac{\prod_{j=1}^n X_{ij}^{w_j}}{\prod_{j=1}^n (x_j)^{w_j}}$$

Information:

V_i = Preference alternative analogous as a vector

V, X = value criteria

W = weight criteria

i = alternative

J = criteria

n = number of criteria

2.3 Hypertext Preprocessor (PHP)

[13], [14] PHP often used by programmers for create a website that is dynamic because it's free and useful in to design web application. PHP (PHP: Hypertext Preprocessor) is a Language programming used For translate program code lines into code machine that can understood by server-side based computers that can added to in HTML. [15]–[17] PHP (Hypertext Preprocessor) is scripting language that can implanted or inserted to in HTML. PHP many used for create dynamic website programs.

3.0 RESEARCH METHOD

3.1. Research methods

Data collection methods consist of from bservation Method Do analysis to existing problems with method observe data sources and processing and collect data from related parts with Princess Collection, *observation* done use see directly the work process that is running. Interview Method is method data collection with method do ask answer direct.

3.2. Waterfall

The waterfall method or often called the waterfall method is often called the classic life cycle, where it describes a systematic and sequential approach to software development, starting with the specification of user requirements and then continuing through the planning stages. So if step 1 has not been done, then step 2 cannot be done. If step 2 has not been done, then step 3 cannot be done, and so on. Automatically step 3 can be done if steps 1 and 2 have been done. In general, the waterfall method has the following steps:

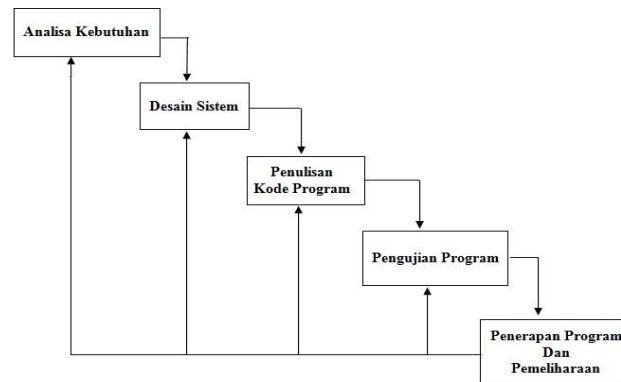


Figure 1. Waterfall [18], [19]

3.3 Determination Criteria and Calculations Weighting

Criteria in study Employee Best use website-based WP method is used for determine criteria and weights for do calculation. Research This using 5 criteria. The criteria used that is:

Table 1. Weight Table Criteria Employee Best

Code	Criteria	Criteria Value Weight	Status
C1	Discipline	50	Benefits
C2	A few minutes	40	Benefits
C3	Responsibility	40	Benefits
C4	Absence	30	Benefits
C5	Cooperation	40	Benefits

Table 2. Weighting Table Criteria

Criteria	Sub-criteria	Weight
Discipline Value	Not enough	1
	Enough	2
	Good	3
	Very good	4
Sekil Value	Not enough	1
	Enough	2
	Good	3
	Very good	4
Value of Responsibility	Not enough	1
	Enough	2
	Good	3
	Very good	4
Attendance Value	>4 Not Present	1
	3 Not Present	2
	1 Not Present	3
	Always Present	4
Value of Cooperation	Not enough	1
	Enough	2
	Good	3
	Very good	4

3.3.1 Alternative Data

Alternative data obtained after do observation in a way direct data that has been got among others:

- A1 Tiara, Good Discipline, Very Good Skill Responsibility, Absence 1 Not Present, Very Good Cooperation.
- A2 Andi Discipline Enough, Skills are not enough, Responsibility is enough, Absence 3 Not present, Cooperation is enough.
- A3 Mansur, Good Discipline, Good Skills, Sufficient Responsibility, Absence 1 Absent, Sufficient Cooperation.
- A4 Tika, Very Good Discipline, Very Good Skill, Good Responsibility, Attendance Always Present, Very Good Cooperation.
- A5 Dedi, Very Good Discipline, Sekil Enough, Lack of Responsibility, Absenteeism Always Present, Good Cooperation.

Table 3. Suitability Rating Alternative

No	Alternative	C1	C2	C3	C4	C5
1	Tiara	3	4	3	3	4
2	Andi	2	1	2	2	2
3	Mansoor	3	3	2	3	2
4	Tika	4	4	3	4	4
5	Deddy	4	3	2	4	3

3.3.2 Determination Normalization Weight

Before do calculation done weighting on each criteria moreover before, weight beginning namely (5,4,4,3,4). Will be fixed so that the total weight $\sum w_j = 1$, with method $W_j = \frac{w_j}{\sum w_j}$

W= Weight Value criteria divided by the total value of all criteria viewed from Criteria table 3.1

Then the repair the weight that done:

$$W1 = \frac{50}{50+40+40+30+40} = \frac{50}{200} = 0.25$$

$$W2 = \frac{40}{50+40+40+30+40} = \frac{40}{200} = 0.2$$

$$W3 = \frac{40}{50+40+40+30+40} = \frac{40}{200} = 0.2$$

$$W4 = \frac{30}{50+40+40+30+40} = \frac{30}{200} = 0.15$$

$$W5 = \frac{40}{50+40+40+30+40} = \frac{40}{200} = 0.2$$

3.3.3 Determining the Value of Vector S

Determine mark vector S = Alternative table 3 raised to the power with Normalization Weight with multiply all over criteria for a alternative with weight as rank.

$$S1 = (3^{0.25})(4^{0.2})(3^{0.2})(3^{0.15})(4^{0.2}) = 3.365865$$

$$S1 = (2^{0.25})(1^{0.2})(2^{0.2})(2^{0.15})(2^{0.2}) = 1.741101$$

$$S1 = (3^{0.25})(3^{0.2})(2^{0.2})(3^{0.15})(2^{0.2}) = 2.550849$$

$$S1 = (4^{0.25})(4^{0.2})(3^{0.2})(4^{0.15})(4^{0.2}) = 3.77635$$

$$S1 = (4^{0.25})(3^{0.2})(2^{0.2})(4^{0.15})(3^{0.2}) = 3.103691$$

3.3.4 Determining Vector Values

Determine mark vector V which will used for ranking, then compare results mark end from vector V and determine order alternative the best that will be become decision.

$$V1 = \frac{3.365865}{3.365865 + 1.741101 + 2.550849 + 3.77635 + 3.103691} = 0.231524$$

$$V2 = \frac{1.741101}{3.365865 + 1.741101 + 2.550849 + 3.77635 + 3.103691} = 0.119763$$

$$V3 = \frac{2.550849}{3.365865 + 1.741101 + 2.550849 + 3.77635 + 3.103691} = 0.175463$$

$$V4 = \frac{3.77635}{3.365865 + 1.741101 + 2.550849 + 3.77635 + 3.103691} = 0.25976$$

$$V5 = \frac{2.491462}{3.365865 + 1.741101 + 2.550849 + 3.77635 + 3.103691} = 0.21349$$

After all stage is done, then searched mark the biggest, because based on calculation with Weighted Product method value best is mark the biggest from all existing alternatives, Tika 0.25976, The largest alternative value become employee best.

4.0 DISCUSSION

System election employee best in build web based using Language PHP programming, applications calculation employee This running on *Mobile Web*

4.1. Context Diagram

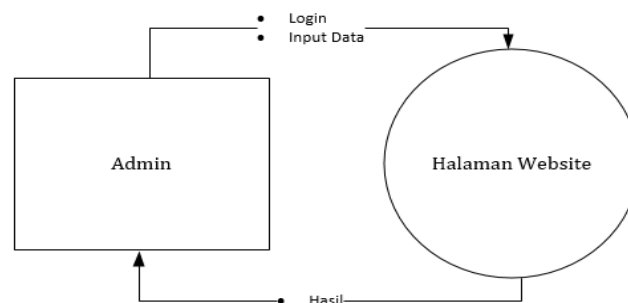


Figure 2. Context Diagram

4.2. Flow chart

Inside view flow chart form from algorithms in a program, which states direction the flow of the program. Here is a number of symbols used in draw a flowchart.

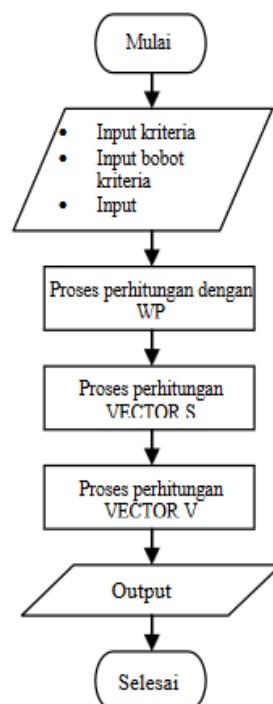


Figure 3. Flowchart of WP Problem Solving Flow on Mobile Web System

4.3. System Test Application

Application system Supporter decision This election employee best, for evaluate employee best, application This is made using Language PHP programming.



Figure 2. Home Menu Display

Data Kriteria				
Tampilkan				
10 ▼				
Cari :				
No.	Kriteria	Kepentingan	Cost / Benefit	Opsi
1	C1 Disiplin	50	BENEFIT	Edit
2	C2 Sekil	40	BENEFIT	Edit
3	C3 Tanggung Jawab	40	BENEFIT	Edit
4	C4 Absensi	30	BENEFIT	Edit
5	C5 Kerja Sama	40	BENEFIT	Edit

Figure 3. Criteria Data and Weight Values Each Criteria

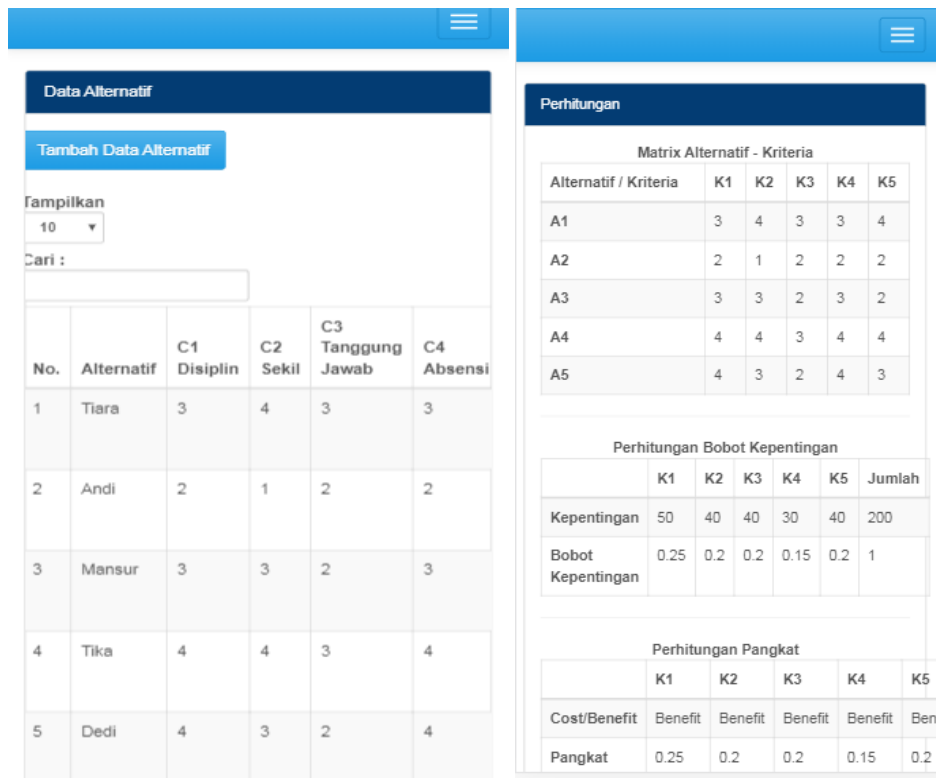


Figure 4. Alternative Data

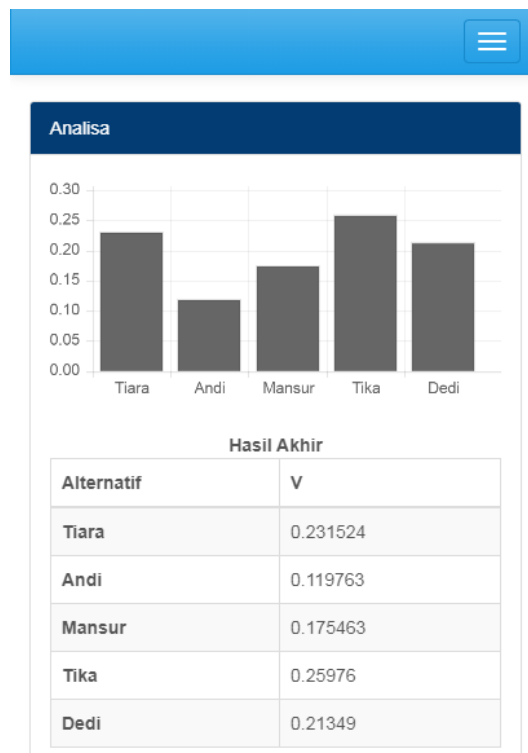


Figure 6 Analysis Calculation Result Graph Mobile Web System

5.0 CONCLUSION

With existence system Supporter decision election employee best with use method *Weighted Product*. The results of testing the system developed using the *Weighted Product* model can be concluded that the best employee assessment decision-making system at Putri with mark the biggest from all Tika $V_4 = 0.25976$, which gets greatest alternative value become employee best. Application This only handle One election employee only, and

applications This can only be accessed by the admin, so only admin can see and give information assessment. Need existence study with use other methods as comparator For get alternative best

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