Decision Making Sistem Work Period Employee Using Profile Matching Method

Muchammad Yanuar Syaifullah
Faculty of Computer Science, Narotama University, Indonesia
yanuarsyaif@gmail.com

Latipah S.T., M.IT
Faculty of Computer Science, Narotama University, Indonesia
latifah.rifani@narotama.ac.id

ABSTRACT

Humans are social beings have a variety needs. To complete his needs, a person is required a job. Person can be an entrepreneur, employee, and government employee. In Indonesia, the majority of the population works as outsourcing employees in profession as work. However, in determining the extension of the employee's service period, it is necessary to have a system that can be a benchmark for the quality of employee work. The profile matching method is used in comparing one value profile with several other competency values so that good and precise calculation results are obtained. With this system, it makes it easier for decision makers in outsourcing companies to make decisions on employee service extension, as for the results of this study, companies have the best employee references determined from the calculation process at each stage of this method, and it is hoped that employees will be more motivated in working to provide the best performance to be worthy of an extension of the work period.

Keywords : Outsourching, Employee, Profil Matching, Decision Making Sistem

1. INTRODUCTION

Availability employment by number job seekers at this time compared reversed, so that the fulfillment process need source Power human (HR) needs time for get reliable human resources. Several companies or agencies choose do cooperation with parties third for accelerate the process of fulfilling human resources according to moderate criteria needed. Third party or what is known as the company outsourcing, is A company in channel help to other companies for support his business [1]. Outsourcing company own role in bridging HR with companies or agencies partner based on rule applicable law. Company or agency partner inform the criteria that HR has for fulfil position or division required. Outsourcing company do categorization availability of existing human resources in accordance with the established criteria given. Then Companies or agencies carry out a recruitment process by carrying out several tests until signing work agreement with time certain (PKWT), which is employment agreement between workers / laborers with entrepreneurs for stage employment relationship still [2]. One of companies that use it recommendation extension of the employee's working period is PT. PDAM Tirtanadi where the results obtained are less effective in extension contract in accordance from predetermined criteria, among others. For maintain connection collaboration with companies or agencies partner, company outsourcing implement some standards strict in managing HR. In implementation company outsourcing often experience constraint in HR management. As for the efforts that have been made done company outsourcing in HR management, namely by monitoring and evaluating HR both internally and in a way external. Monitoring and evaluation results used as material consideration company outsourcing in extending the tenure of HR, agencies associate or partner do evaluation to HR before the contract period has ends and delivers feedback to company outsourcing for extend the contract period nor ending the contract period, feedback provided agency partner done manually, that is, by means of give report to company outsourcing via messaging application whatsapp nor proof HR supporters violate rules that have been determined agency partner. The evaluation process carried out was less than optimal and effective give rise to gap social, for that it is necessary A system that can help company outsourcing in carry out monitoring based on established criteria determined. Results obtained form recommendations for appropriate HR data get extension contract as form the evaluation.

The criteria that have been determined company outsourcing, then given to agency partner for done evaluation to HR. By periodically company outsourcing will do evaluation to HR, regarding the criteria that have been determined previously, the criteria that have been determined then done calculation use system supporter decision. Method used for development system is profile matching, where this method searches mark weight every human resource and is expected can help carry out the assessment process so that the results obtained are more effective and efficient [3]. There are several assessments carried out company outsourcing including discipline, responsibility, attitude and ethics in work. Assessments the is evaluation basis set by the company outsourcing [4], the assessment the can customized for get more accurate weighting results. Weighting results the Then submitted to leader company outsourcing as the final result for select worthy human resources get extension contract according to the weighting results.

Literature Study

A. System Decision Support

System supporter decision is bunch mutual elements relate For form something unity in election various alternative For finish something problem, so problem the can resolved in a way effective and efficient [5]. As for some objective from use System Supporter Decision:

1. Help top level in taking decision

2. Give recommendation as material consideration in take decision

B. Profile Matching

Profile Matching is A mechanism taking decisions by assuming that there is something level ideal assessment variables that must be owned [6]. Assessment variables the compared and produced difference (GAP). The more the resulting small GAP so weight value the more big. Generally profile matching used in HR management, where it is first determined competency (ability) required by a person position [3].

Calculation process method profile matching started from determine the criteria and sub-criteria to be assessed, followed by determining factor supports and factors main from the sub- criteria that have been determined and carry out evaluation candidate [7]. Following channel calculation method profile matching :
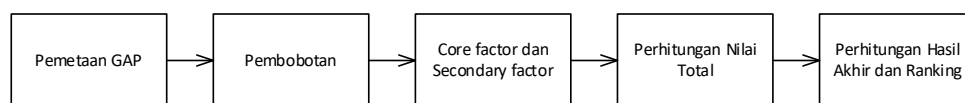

Figure 1. Profile Matching Calculation Flow [8]

1. GAP Mapping
Used For evaluate performance employees, and identify exists something the difference (disparity) between One thing with other things. Frequent GAP used in the field management and become one tools used For measure quality service (quality of service) [9].
Evaluation performance employee consists of 5 (five) criteria, namely discipline, integrity, commitment, cooperation and work performance. These criteria obtained based on need internal outsourcing company do evaluate performance calculation employee.
GAP mapping from the existing data on each aspects or criteria....... (1)

2. Weighting
Do weighting after GAP is obtained for each employee. Weighting done by looking table weight GAP value. Weight the value on the GAP is determined by the takers decision in this thing is manager in the company outsourcing.

Table 1. Table Weighting

No.	GAP Difference	Value Weight	Information
1	0	5	Competence as required
2	1	4.5	Competence individual excess 1 level / level
3	-1	4	Competence individual less 1 level / level
4	2	3.5	Competence individual excess 2 levels / level
5	-2	3	Competence individual less 2 levels / level
6	3	2.5	Competence individual advantages of 3 levels / levels
7	-3	2	Competence individual less than 3 levels / level
8	4	1.5	Competence individual advantages of 4 levels / levels
9	-4	1	Competence individual less 4 levels / level

3. Core factors and Secondary factors
After determining weight GAP value for every aspect, then every aspect grouped into 2 groups, namely the Core Factor and Secondary Factor groups Factors.
Core factor (Main Factor), namely is the most important or prominent criterion (competency) or most needed by a person expected assessment can obtain optimal results.

$$NCF = \frac{\sum NC}{\sum IC} \dots\dots (2)$$

Information formula :
NCF = Average Core Factor value
NC= Total number of core factor values
IC = number of core factor value items

$$NCF = \frac{\sum NC}{\sum IC} \dots\dots (3)$$

Information formula :
NSF = Average Secondary Factor value
NS= Total number of Secondary factor values
IS = Number of secondary factor value items

4. Calculation of Total Value
Do calculation total value based on percentage from core and secondary factors Which estimated influential to performance each each profile.

$$N = (x)\%NCF + (x)\%NS \dots\dots(4)$$

Information :
NT = Total value of the criteria
NCF = Average core factor value
NSF = Average secondary factor value
(X) % = Percent value entered

5. Calculation of Final Results and Ranking
Last to do calculation ranking is determined based on calculations total value previously carried out

$$Rangking = (x)\%Ni + (x)\%Ns + (\%)\%N \dots\dots (5)$$

Information :
NMA = Total value of Main Aspect criteria
NSA = Total value of Aspect criteria Supporter
(X) % = Percent value entered

C. UML (Unified Modeling Language)

UML (Unified Modeling Language) is Language For visualizing, specifying, building and documenting from A system OO (Object Oriented) based software development. UML not only is A Language visual programming only, but also possible directly connected to various language programming, or even connected straight in A object-oriented database [10].

D. Codeigniter

CodeIgniter is a PHP framework that is open source and use MVC (Model, View, Controller) method for makes it easier developers in build a web- based application without having to create it from beginning [11].

2. RESEARCH METHOD

A.   Problem Analysis

Analyze the problem done for know problems with the company outsourcing and determining the right solution for finish problem the. Based on analysis that has been done previously found that company outsourcing own procedure in extension of the working period based on factor perceived personality worthy, so assessment of other criteria is given less attention for filter real employees competent in their field as needed company partner. Often employees who have extended their working hours experience decline work performance caused by several factors other.

B.   Collection and Observation

Collection and observation done for help writer in make system support decision, as for the data needed is employee data, company data partners, existing assessment data in employee work evaluation. Whereas observations made form observing existing business processes, including the process of recruiting new employees, psychological testing, collection employee data files, assessments interview with the company partners, agreements first employment contract until extension of the employee's working period.

C.   Assessment of Decision Support Processes

Evaluation supporter decision done use method profile matching, for determine extension of the employee's working period at the company outsourcing. As for the stages supporter decision including determining GAP, weighting GAP, calculations and grouping, calculations total score, as well as final results and ranking.

D.   Planning System

Planning system done for fulfil need functional and non- functional from an application created. On planning this system will load a data based process input user so that produce the expected output with the system created web- based designing system depicted using UML diagrams.

E.   Implementation

Implementation system use Language PHP programming and for method used in system supporter decision For determine extension of the employee's working period namely by method profile matching.

F.   Testing System

Testing application system is done by comparing between the results of the calculations made manually with the results of calculations carried out by the system supporter decision using accuracy tests For determine extension of the working period of existing employees made use method profile matching.

3. RESULT AND DISCUSION

A. Problem Analysis

The results of observations that have been made done there are business processes extension of the employee's working period manually, and the data collection process was carried out using Excel. As for the manual work period business processes in the company outsourcing.

1. Out-of-date contract labor applies old work contract

2. Personnel admin staff asking application assessment to to the user

3. User does assessment

4. Personnel admin staff give new PKWT document to contract labor

5. Contract workforce do ACC new contract

6. Manager confirms agreement contract

B. Decision Support Process Assessment

B.1. Competency Gap Mapping

There are 5 criteria, namely aspect discipline, aspect integrity, aspect personality, aspect cooperation, and aspects work performance, and accompanied by information on the sub-aspects of the criteria for each aspect of the existing criteria. Each criterion produces sub-criteria determined by the manager company outsourcing.

Table 2. Sub Aspect Criteria

Criteria	Sub Criteria Description
Disciplinary Aspects	DS01 : Arrive on time
	DS02: Responsibility at work
	DS03: Dress neatly and politely
	DS04 : Attitude
Integrity Aspect	IN01: Uphold honesty in work
	IN02: Have a work ethic
	IN03: Able to work independently
	IN04 : Does not harm the company
Personality Aspects	KP01: Have motivation at work
	KP02 : Not easily provoked
	KP03: Have a willingness to learn
	KP04: Able to socialize with the work environment
Collaboration Aspect	KS01: Be passive
	KS02 : Working in groups
	KS03 : Participate and contribute
	KS04 : Helping colleagues
Aspects of Work Performance	PK01: Work according to SOP
	PK02: Able to analyze and solve problems
	PK03: Complete above average standard assignments
	PK04: Conduct learning on work unit work processes and results

B.2. Determination of GAP Weight Values

Based on the existing GAP determined from each employee furthermore will given weight value for each aspect.

B.3. Calculation and Grouping Core Factors and Secondary Factors

In calculation core factors and secondary factors For each aspects of the criteria that have been determined First , the sub- aspects are determined to be core factors and secondary factors
1. Core factor aspect discipline is a sub aspect of DS01 and DS02 meanwhile secondary factors is a sub aspect of DS03 and DS04
2. core factor aspect integrity are sub aspects IN01 and IN02 meanwhile secondary factors are sub aspects IN03 and IN04
3. Core factor aspects personality is a sub- aspect of KP01 and KP02 whereas secondary factors is a sub aspect of KP03 and KP04
4. Core factor The Cooperation aspect is a sub- aspect of KS01 and KS02 whereas secondary factors is a sub aspect of KS03 and KS04
5. Core factor aspect performance is a sub aspect namely PK01 and PK02 meanwhile secondary factors is a sub aspect namely PK03 and PK04

then each value core factors and secondary factors for each aspect calculated based on existing formula.

B.4. Calculation of Total Value

From the calculation results each aspect on Then calculated total value based on core factor and secondary factor will own influence on performance each aspects that have been determined. In determine total value then determined value first percentage added that is core factor 60% and secondary factor 40%. Then the calculation results the added up according to the existing formula.

B.5. Calculation of Final Results and Ranking

Final result of this method process is a ranking of employees who have highest score. Following is final results table and determining the ranking of eligible employees get extension of working period.

Table 3. The Final Result

No.	Employee name	Nd	Nin	Nkp	Nks	Nkp	Score
1	A Nurcahyo	4.1	4.3	4.3	3.7	3.4	3.96
2	Avit Kurniawan	4	3.6	3.8	3.7	3.8	3.78
3	Hasna Lutfi	3.8	3.6	4.1	4.6	3.7	3.96
4	M. Syafril	4.5	3.8	3.7	3.3	4.4	3.94
5	M. Zainudin	3.6	3.9	3.8	3.7	4.3	3.86

Table 4. Ranking

No.	Employee name	Score
1	A Nurcahyo	3.96
2	Hasna Lutfi	3.96
3	M. Syafril	3.94
4	M. Zainudin	3.86
5	Avit Kurniawan	3.78

C. Planning System

Planning system supporter The decisions in this research use the Unified Modeling Language (UML) usecase diagram
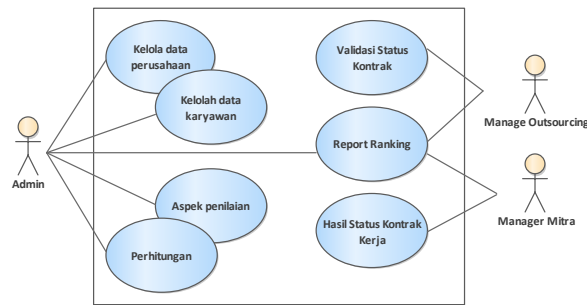
Figure 2. Use Case Diagram

Usecase diagram aims For detail features or menus presented system supporter decision. There are 7 features or menus, with 3 users namely admin, outsourcing manager, and partner manager.

D.   Implementation System

Implementation The system in this research is the result of calculating employee years of service use method profile matching into the system supporter decision.

D.1. Final Results and Ranking Page

Displays a list of final results as well as ranking in the assessment process. There are also score results, total percentages and contract status employees who have not been validated, this is because manager outsourcing has not been and should do validation to the final result For determine contract status employee.
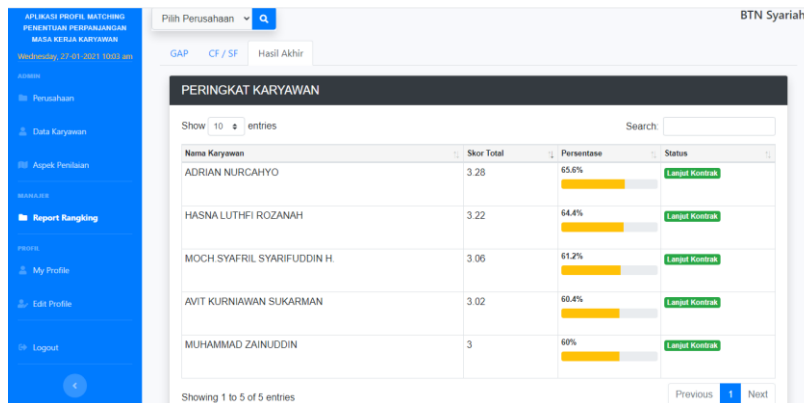

Figure 3. Aspect Page Evaluation

D.2. Outsourcing Manager Validation Page

Displaying feature validation carried out by managers outsourcing based on assessment and consideration from all parties related for determine the status of employee extension of service as well as add information special for evaluation.
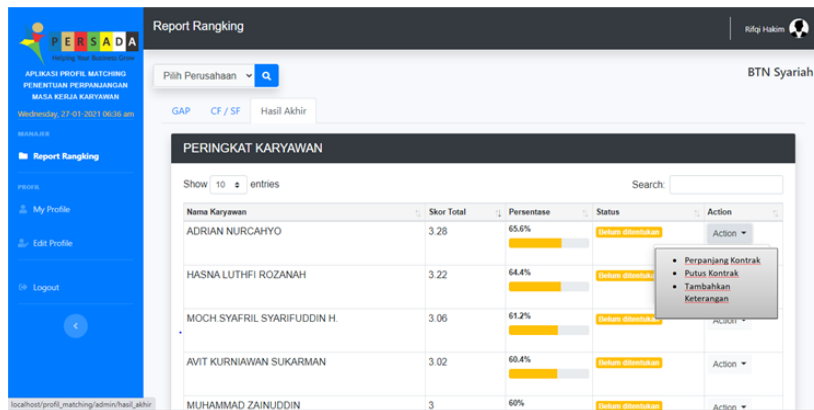
Figure 4. Outsourcing Manager Validation Page

D.3. Partner Manager Report Page

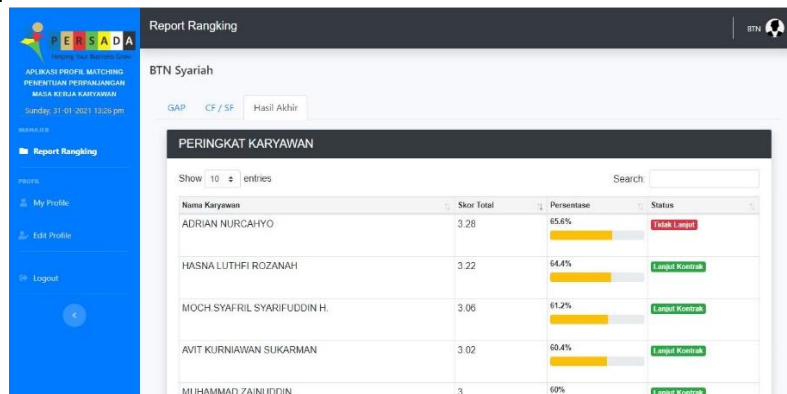Displays reports from all results of the assessment process accompanied by validation of contract status employee.

Figure 5. Partner Manager Report Page

D.4. Testing System

There is two step namely by testing calculations and testing system itself. Testing calculation intended for ensure the results of manual calculations have been completed according to supporting applications decisions made. Manual calculations are carried out use Microsoft Excel later done testing accuracy. Which is shown in figures 6 and 7.
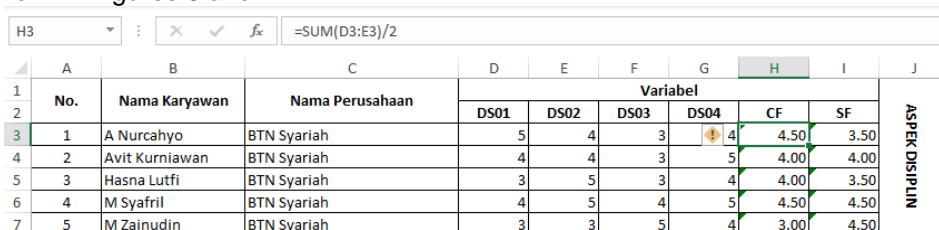

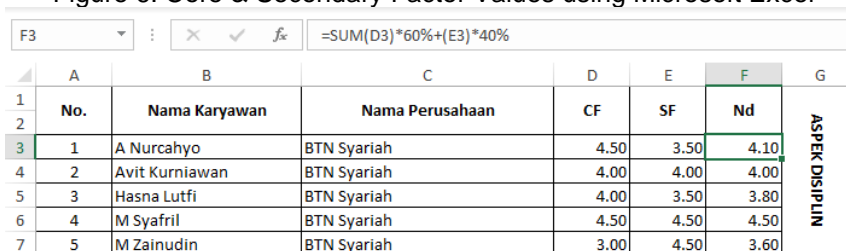Figure 6. Core & Secondary Factor Values using Microsoft Excel

Figure 7. Total GAP Value using Microsoft Excel

Calculation use Microsoft Excel is used as reference For determine suitability calculations on the system supporter decision . The application calculation results are shown in figures 8 and 9.
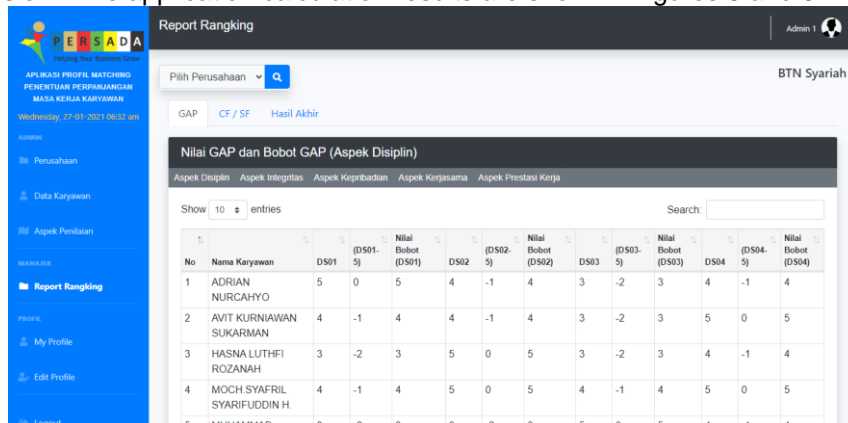

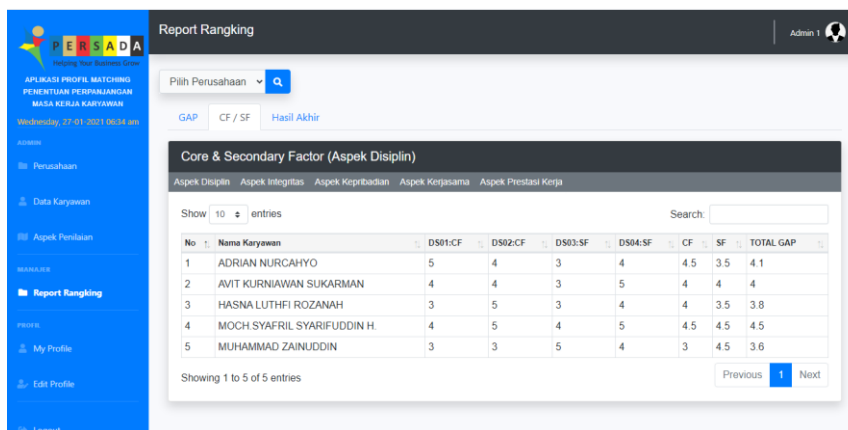Figure 8. GAP Results and GAP Weights

Figure 9. GAP Results and GAP Weights

For ensure that calculation using Microsoft Excel and system supporter decisions made has in accordance so writer use testing accuracy in ranking results.

Table 5 . Testing Accuracy in Ranking Results

Sample Name	Ranking Results			
	Reference Value	Measurement Value	Error (Reference – Measurement)	Percentage
A Nurcahyo	4.10	4.1	0	0
Avit Kurniawan	4.00	4	0	0
Hasna Lutfi	3.80	3.8	0	0
M Syafril	4.50	4.5	0	0
M Zainudin	3.60	3.6	0	0

Testing accuracy obtained is 100% which is declared very good because it is more than equal to 95%. Value results reference obtained in Microsoft Excel calculations with the last two digits comma. Furthermore done testing system supporter decision For ensure that system that has built suitable and acceptable used by users.

Table 6. Testing System

Enter Data	Observation System	Conclusion
Competency GAP mapping calculation	Displayed on the GAP Value and GAP Weight Results page	[√] As per [ ] It is not in accordance with
Core Factors and *Secondary Factors*	Displayed on the Core Factor and Secondary Factor Results Page	[√] As per [ ] It is not in accordance with
Total Value Each Access	The final results and ranking page is displayed	[√] As per [ ] It is not in accordance with
Final Results and Ranking		[√] As per [ ] It is not in accordance with

4. CONCLUSIONS

Decision support system uses the profile method matching can provide benefits for the effectiveness of related parties in determining the extension of the working period of existing employees proven by testing accuracy in calculations weighting and testing system use black box testing before use by users.

REFERENCES

Anak Agung Prabhaputra, INP Budiartha, and IPG Seputra, "Outsourcing System in Industrial Relations in Indonesia," J. Analog. Huk. , vol. 1, no. 1, pp. 22–27, 2019, [Online]. Available: http://dx.doi.org/10.22225/wedj.2.2.1297.44-50.

F. Shalihah, "Specified Time Work Agreement (PKWT) in Employment Relations According to Indonesian Labor Law from a Human Rights Perspective," UIR Law Rev. , vol. 1, no. 2, pp. 149–160, 2017.

F. Idam, A. Junaidi, and P. Handayani, "Selection of the Best Employees Using the Profile Method Matching at PT. Surindo Murni Agung," J. Infortech , vol. 1, no. 1, pp. 21–27, 2019, doi: 10.31294/infortech.v1i1.6985.

AN Saefulloh, PB Katili, T. Industri, U. Sultan, and A. Tirtayasa, "Designing a Performance Appraisal System for PKWT Employees at PT Agung Mandalika using the Analytical Hierarchy Process & Fuzzy Simple Additive Weighted Method," vol. 5, no. 2, 2017.

RizaldyM., MuchayanA., & KamisutaraM. (2021). The Decision Support System For The Acceptance of Pencak Silat Athletes in Pra-PON and PUSLATDA Team Selection Using Technique For Other Preference By Similarity To Ideal Solution Method. *JEEIT nternational ournal of lectrical ngineering and nformation echnology*, *3*(2), 8 - 19. etrieved from https://jurnal.narotama.ac.id/index.php/ijeeit/article/view/1297

Saefudin and S. Wahyuningsih, "Decision Support System for Employee Performance Assessment Using the Analytical Hierarchy Process (AHP) Method at Serang District Hospital," JSiI (Journal of Information Systems) , vol. 1, no. 1, pp. 33–37, 2017, doi: 10.30656/jsii.v1i0.78.

MC Umam, D. Arifianto, and TA Cahyanto, "Decision Support System for Selecting Outstanding Employees at the Muhammadiyah University of Jember Using the Profile Method Matching ," JUSTINDO (Jurnal Syst. Teknol. Inf. Indonesia. , vol. 3, no. 2, pp. 57–66, 2018.

Z. Abidin, IG Anugrah, and RP Setyono, "Maximizing the Use of the Profile Method Matching in Determining the Best Candidates," J. Inform. Univ. Pamulang , vol. 4, no. 3, p. 95, 2019, doi: 10.32493/informatika.v4i3.3249.

Rani Irma Handayani, "Decision Support System for Selecting Outstanding Employees Using the Profile Method Matching At Pt. Sarana Inti Persada (Sip)," J. Pilar Nusa Mandiri , vol. 13, no. 1, pp. 28–34, 2017.

Y. Muchsam, Falahah, and GI Saputro, "Application of Gap Analysis in Supporting System Development," Semin. National App. Technol. Inf. , vol. 2011, no. September 2020, p. A-94-A-100, 2011.

Reni Maharani & Mustar Aman, "WEB-BASED STUDENT VALUE INFORMATION SYSTEM IN 19 STATE HIGH SCHOOLS, REGENCY. TANGERANG," vol. 5, no. 2, 2017.

M. Destiningrum and QJ Adrian, "Web-based Doctor Scheduling Information System Using the CodeIgniter Framework (Case Study: Yukum Medical Center Hospital)," J. Teknoinfo , vol. 11, no. 2, p. 30, 2017, doi: 10.33365/jti.v11i2.24

Translation Guide		
Number	Indonesian	English
1	Pemetaan GAP	GAP Mapping
2	Pembobotan	Weighting
3	Perhitungan Nilai Total	Calculation of Total Value
4	Perhitungan Hasil Akhir dan Ranking	Calculation of Final Results and Ranking
5	Kelola Data Perusahaan	Manage Company Data
6	Kelola Data Karyawan	Manage Employee Data
7	Aspek Penilaian	Assessment Aspects
8	Perhitungan	Calculation
9	Validasi Status Kontrak	Validate Contract Status
10	Hasil Status Kontrak Kerja	Employment Contract Status Results
11	Manager Mitra	Partner Manager
12	Hasil Akhir	The Final Result
13	Peringkat Karyawan	Employee Ratings
14	Nama Karyawan	Employee name
15	Skor Total	Total Score
16	Persentase	Percentage
17	Perpanjang Kontrak	Extend Contract
18	Putus Kontrak	Contract Termination
19	Tambahkan Keterangan	Add Description
20	Nama Perusahaan	Company Name
21	Variabel	Variable
22	Aspek Disiplin	Disciplinary Aspects
23	Nilai GAP	GAP Value
24	Bobot GAP	GAP Weight
25	Nilai Bobot	Value Weight
26	Aspek Integritas	Integrity Aspect
27	Aspek Kepribadian	Personality Aspects
28	Aspek Kerjasama	Collaboration Aspect
29	Aspek Presetasi Kerja	Aspects of Work Presentation