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DSS using MABAC, MOORA for selection of majors according to students interests

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Abstract: In the current digital era, individual abilities are needed to be more creative and innovative in various fields, so that vocational students must better prepare their competencies. In this case the competence is related to the major they choose. On average, students take the wrong major about 35%, follow friends around 50%, for students who really choose the right major 15%. For this, the MABAC and MOORA decision support system methods are needed in terms of determining majors according to student interests and talents. System development uses the Waterfall method. The purpose of this study is to design a decision support system that can be used for selecting majors according to student interests by utilizing the results of a comparison of the MABAC and MOORA methods. The results of this study illustrate the MOORA calculation for major selection, so prospective students get the decision to choose the Multimedia major because it has the highest score. From the MABAC calculations for the selection of majors, prospective students get the decision to choose the Accounting major because it has the highest score. The comparison of the MABAC and MOORA methods is where mabac has the highest decision outcome value compared to the decision outcome value of the moora method so that the MABAC method is used to assist decision making in selecting majors according to interests.

Keywords: Interest; DSS; MOORA; MABAC; Major

INTRODUCTION

Vocational High School (SMK) is a form of formal education unit that organizes vocational education at the secondary education level as a continuation of Junior High School or other forms of equivalent or continuation of learning outcomes that are recognized as equal/equivalent to Junior High School. (Law Number 20 of 2013, Article 18 paragraph 3). Vocational education is secondary education that prepares students especially to work in certain fields (Law No. 20 of 2013, Explanation of Article 15). The number of Private Vocational High Schools (SMKS) throughout Indonesia is 10,535 schools (https://www.bps.go.id/). And for the number of Private Higher Vocational Schools (SMKS) in the city of Medan there are 153 schools (http://datapokok.ditpsmk.net/).

In the current digital era, individual abilities are needed to be more creative and innovative in various fields, so that vocational students must better prepare their competencies. In this case the competencies related to the majors they choose. The phenomenon that occurs at Tritech Vocational High School is the number of students who experience errors in choosing majors so that students cannot follow the lessons in the majors they choose when registering. On average, about 35% of students take the wrong major, around 50% join friends, for students who really choose the right major, 15% of this data is obtained by asking one department (Martadinata, RPL). Tritech Private Vocational High School (SMKS) is an educational unit with a SMK level located at Jalan Bhayangkara, Medan City, North Sumatra. In carrying out its activities, Tritech SMKS is under the auspices of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia.

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In the last five (5) years of the new school year Tritech Vocational High School received 11 study groups consisting of Software Engineering, Multimedia, Business and Office and Accounting. From the study group, it can be seen that office majors are in great demand. With so many majors at Tritech Vocational High School, it makes students experience difficulties in selecting majors. It can be seen that many students cannot follow the lessons properly while studying at Tritech Vocational High School. So far, students taking majors do not suit their interests but follow suit or the wishes of their parents, so that many vocational students do not have the expertise competence according to the major they choose. The impact caused by students who do not have competence is that there are alumni who work not according to their expertise and also many students who get unsatisfactory competency scores during the Competency Examination.

During the new academic year, Tritech Vocational High School only accepts new students without first asking for interest when choosing majors. The average number of new students per year is 450 students for all existing majors. And the problem that occurs in students is having difficulty in following the lesson because students choose the wrong major. So far, schools only ask students who register what major do you want to take? Because the Tritech Vocational School does not have a system to process data for selecting majors according to interest. This problem actually does not have an impact on the continuity of the school but instead has an impact on student competence.

Several previous studies related to the method used as reference material in this study. Research conducted by Ernita Br Barus in 2022 regarding the application of the MABAC method in selecting the Best Employee by establishing 5 criteria, namely knowledge, responsibility, cooperation, discipline, and attendance. The results of the study obtained the Best Employee, namely Siska Purnama Sari with a value of 0.5266 as a recommendation for PT Smart Glove Indonesia (N. H. Lubis, I. S. Damanik, 2022) Research conducted by Devani Agma, et al in 2022 discussed the MABAC method in selecting Springbed Mattresses by establishing 6 criteria, namely Price, Per/Spring, Foam, Support, Fabric and Upholstery Material. The results obtained from this study are the A4 alternative with the brand name Mattress Type Tend with an optimization value of 0.61 as the best spring bed mattress (Sinurat, 2021) Research conducted by Siti Aspah Panjaitan in 2022 examined the combination of the AHP and MABAC methods in internal audit recruitment by establishing 5 criteria, namely Experience, GPA, Education, Age and Appearance. This study resulted in 3 selected internal audit persons namely Husna, Tinah, and Evilina as the first rank with the acquisition of the same score of 0.4794 (I. R. Rahadjeng, M. N. H. Siregar, 2022). Research conducted by Ismail and Hasanah in 2022 discusses SPK using the MABAC method in lending which stipulates 4 criteria, namely Loan Purpose, Loan Amount, Savings and Salary. The research produced the best ranking, namely Za'a with a value of 0.46618 (Barus, 2022). Research conducted by Saefudin and Mirza in 2022 examined the assessment of the best teachers using the MABAC method. There are 4 criteria, namely Absenteeism, Lesson Plans, Number of Teaching Hours and Education so that the research produces the best teacher, namely Rahma Hayati, S.Si, Apt with a score of 0.342 (Mirza, 2022). From several related studies that have been reviewed, it can be used as a basis for writing research. From research (D. Agma, Y. Maulita, S. Ramadani, 2022) entitled MABAC Method For Multiple Attribute Group Decision Making Under Q-Rung Orthopair Fuzzy Environment. This study describes how to apply the MABAC method in solving problems in construction in China. There are several problems in the aspects of construction management in the construction industry as follows. First, in terms of safety evaluation technology, the existing safety evaluation methods have some technical constraints. Second, inaccurate evaluation results and strong staff subjectivity are also major problems in construction industry safety evaluation methods. Therefore, it is important to find good ways of disclosing valuation information and use appropriate tools to obtain reasonable valuation results.

Research conducted by (Panjaitan, 2022) entitled Smartphone Selection Using MOORA and MOOSRA. This research explains how to choose a smartphone using the MOORA and MOOSRA methods, because according to the Digital 2020 report, there are 5.19 billion cellphone users worldwide. According to this report, the rate of possession of all types of mobile phones is assigned to 90% among Internet users aged 16 to 64 in our country. Statistics also show that 89% of internet users between the ages of 16 and 64 in Turkey own a smartphone. Therefore the MOORA and MOOSRA methods are used as decision making for choosing a good smartphone so that every person does not choose the wrong

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smartphone. Therefore the MOORA and MOOSRA methods are used as decision support for choosing a good smartphone so that every person does not choose the wrong smartphone. From the research above, it can be concluded that SPK using the MABAC and MOORA methods has a good level of consistency in supporting the right decisions and can produce optimal solutions.

Based on the review of related research, it can be used as a foundation in solving the problems that have been described so that the authors made this research regarding recommendations for selecting majors according to their interests by implementing the MOORA method. Implementation of this method can produce the best alternative from predetermined criteria so that it is expected to produce appropriate and reliable recommendations (I. E. Ismail, A. D. Hasanah, 2022).

LITERATURE REVIEW

Decision Support System

SPK is a system that is implemented in making a decision on a structured or unstructured problem so as to obtain the right decision results based on ranking the best alternative based on established criteria (Mirza, 2022). SPK is part of a computer-based interactive information system that aims to provide information that can direct information users to obtain effective decisions, modeling and information needed to be able to solve problems, so that problems can be solved efficiently and reliably (Sipahutar, 2022)

Interest

Interest is a preference and a sense of attachment to something or activity, without being told. Meanwhile, according to Crow and Crow, interest is related to the style of motion that encourages to face or try to deal with people, objects, activities, experiences that are stimulated by the activity itself. Meanwhile, according to Tampubolon, stated that interest is a combination of desire and will that can develop if there is motivation (Yasir.Hasan, 2022)

Interest is a preference and a sense of attachment to something or activity, without being told. Meanwhile, according to Crow and Crow, interest is related to the style of motion that encourages to face or try to deal with people, objects, activities, experiences that are stimulated by the activity itself (Nisa, 2022)

Talent

Talent implies innate abilities which are potential abilities that still need further development and training. Due to its potential or latent nature, talent is a potential that still requires serious and systematic efforts to develop and train so that it can be realized. Talent is different from ability (ability) which implies the power to do something, as a result of nature and practice (C. Handayani, A. M. Muhsidi, 2021)

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MOORA Method

The MOORA method has a degree of flexibility and ease of understanding in separating the subjective part of an evaluation process into decision weight criteria with several decision-making attributes (Abdullah, et.al. 2012). This method has a good level of selectivity because it can determine goals from conflicting criteria. Where criteria can be profitable (benefit) or unprofitable (cost). (Fadli, S., & Imtihan, 2020)

The steps to solving the problem using the MOORA method include:

1. Matrix Formation

$$X = \begin{bmatrix} X11 & X12 & X1n \\ X21 & X22 & X2n \\ Xm1. & Xm2. & Xmn \end{bmatrix} \quad (1)$$

x is the criterion value of each criterion represented as a matrix.

2. Define Normalization Matrix

$xij = \sqrt{\sum} xij\ m\ 2\ j{=}1\ Xij -$ (2)

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The Xij ratio shows the ith size of the alternative on the jth criteria, m shows the number of alternatives and
shows the number of criteria.

3. Define a weighted Normalized Matrix

MABAC Method

MABAC is a method developed by Pamucar and Cirovic in 2015 which in this method is known as a method that can provide solutions in making a decision compared to other methods. In the MABAC method, the best alternative can be based on the distance between the Border Approximation Area (BAA) and the alternatives (AKPINAR, 2022). In carrying out calculations using the MABAC method, you can follow the following steps (Baydaş, 2022), (A. Triayudi, F. Nugroho, 2022):

1. Form the initial decision matrix (X).

$$X = \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_m \end{matrix} \begin{bmatrix} C_1 & C_2 & \dots & C_n \\ X_{21} & X_{22} & \dots & X_{1n} \\ . & . & . & \\ . & . & . & \\ . & . & . & \\ X_{m1} & X_{m2} & \dots & X_{mn} \end{bmatrix} \qquad 1)$$

2. Normalization of the initial matrix (X)

$$N = \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_m \end{matrix} \begin{bmatrix} C_1 & C_2 & \dots & C_n \\ n_{11} & n_{12} & \dots & n_{1n} \\ n_{21} & n_{22} & \dots & n_{1n} \\ n_{m1} & n_{m2} & \dots & n_{mn} \end{bmatrix} \qquad (2)$$

The value of the normalized matrix (N) is determined using the formula:

$$nij = \frac{Xij - X\bar{i}}{Xi^{+} - Xi^{-}} \; Untuk\ kriteria\ benefit \qquad (3)$$

$$nij = \frac{Xij - Xi^{+}}{Xi^{-} - Xi^{+}} \; Untuk\ kriteria\ cost \qquad (4)$$

3. Calculate a weighted matrix where the formula can be seen as follows:

$$V_{ij} = W_{j\,.\,(nij+1)}$$

$$V = \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_m \end{matrix} \begin{bmatrix} V_{11} & n_{12} & \dots & n_{1n} \\ v_{21} & n_{22} & \dots & n_{1n} \\ v_{m1} & n_{m2} & \dots & n_{mn} \end{bmatrix}$$

$$V_i = w_{j.}(n_{ij} + 1)$$

$$V = \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_m \end{matrix} \begin{bmatrix} V_{11} & v_{12} & \dots & v_{1n} \\ v_{21} & v_{22} & \dots & v_{1n} \\ \vdots & \vdots & \ddots & \vdots \\ v_{m1} & v_{m2} & \dots & v_{mn} \end{bmatrix} = \begin{bmatrix} w_1.(n_{11}+1) & w_2.(n_{12}+1) & \dots & w_n.(n_{1n}+1) \\ w_1.(n_{21}+1) & w_2.(n_{22}+1) & \dots & w_n.(n_{2n}+1) \\ \vdots & \vdots & \ddots & \vdots \\ w_1.(n_{m1}+1) & w_2.(n_{m2}+1) & \dots & w_n.(n_{mn}+1) \end{bmatrix} \qquad (5)$$

4. Determination of the border approximation area matrix (G).

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$$g_i = \left(\prod_{j=1}^{m} v_{ij}\right)^{\frac{1}{m}} \quad (6)$$

After calculating the value of gi for each criterion, the boundary approximation of the area matrix G is formed in the n x 1 format (n is the number of criteria on which the selection of alternatives is based).

$$G = \begin{bmatrix} C_1 & C_2 \ldots . C_n \\ g_1 & g_2 \ldots . g_n \end{bmatrix} \quad (7)$$

5. Calculation of alternative distances from the border approximation area for matrix elements (Q)

$$Q = \begin{bmatrix} q_{11} & q_{12} \cdots q_{1n} \\ q_{21} & q_{22} \cdots q_{1n} \\ \vdots & \vdots \quad \ddots \quad \vdots \\ q_{m1} & q_{m2} \quad \cdots \quad q_{mn} \end{bmatrix} = \begin{bmatrix} v_{11} - g_1 & v_{12} - g_2 \cdots v_{1n} - g_n \\ v_{21} - g_1 & v_{22} - g_2 \cdots v_{2n} - g_n \\ \vdots & \vdots \quad \ddots \quad \vdots \\ v_{m1} - g_1 & v_{m2} - g_2 \cdots v_{mn} - g_n \end{bmatrix} \quad (8)$$

6. Create alternative ratings
The calculation of the criterion function value for the alternative is obtained from the sum of the alternative distances from the border approximation area (Q). The greater the value of Si, the better the alternative.

$$S_i = \sum_j^i = 1 \, Qi_j \quad (9)$$

METHOD

The research framework can be seen in the image below:

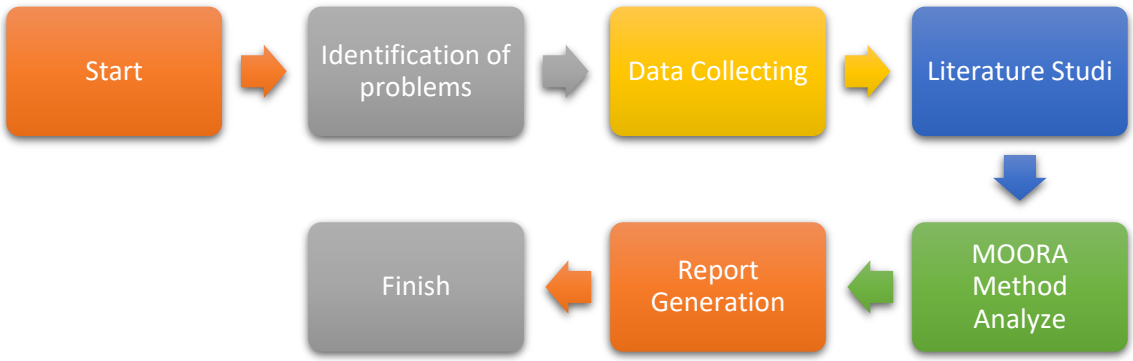

Fig. 1. Research Framework

From Figure 1 it can be seen that the stages of research carried out to achieve research objectives in recommendations for selecting majors according to student interests can be explained several stages in a study as follows:

1. Identify the Problem
At this stage in a study it is very necessary to be the subject of discussion so that the problem can be solved and resolved.
2. Data Collection
In conducting this research, it is very necessary to collect various data needed in selection of majors according to student interests.
3. Literature Study

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This stage is necessary in order to increase the researcher's insight into the SPK and the MOORA method as well as the references needed in the research.

4. Analysis of the application of the method
   At this stage of the research, it analyzes the recommendations for selecting majors according to students' interests so that they get accurate final results.
5. Research Report
   After the author completes this research, the author can make a research report to see the results are as expected and make conclusions in this study.

RESULT

Data Criteria

Determining the criteria and the weight of the criteria for the Selection of Majors The criteria used in making this decision consist of 4 (four) criteria. The criteria table can be seen in table 1 below:

Table 1. Criteria

Code	Criteria	Criteria Weight
K1	US Value	0.25
K2	Written Test	0.25
K3	Oral Test	0.20
K4	Interest	0.30

Data Sub Criteria

Determine the criteria and sub-criteria weights for Supervisor criteria. The sub-criteria used in making this decision consist of 5 (five) criteria including: The sub-criteria of the US Score criteria can be seen in table 2:

Table 2. Sub Criteria US

Sub Criteria	Weight
US Value =>90	6
US Value =>80	5
US Value =>70	4
US Value =>60	3
US Value =>50	2
US Value <50	1

The sub criteria and criteria for the written test can be seen in table 3 below:

Table 3. Sub Criteria Written Test

Sub Criteria	Weight
Written Test =>90	5
Written Test =>80	4
Written Test =>70	3
Written Test =>60	2
Written Test < 60	1

The sub criteria for the oral test can be seen in table 4 below:

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Table 4. Sub Criteria Oral Test

Sub Criteria	Weight
Oral Test =>90	5
Oral Test =>80	4
Oral Test =>70	3
Oral Test =>60	2
Oral Test < 60	1

The sub criteria for the Interest can be seen in table 5 below:

Table 5. Sub Criteria Interst

Sub Criteria	Weight
Very Interested	5
Interest	4
Enough Interest	3
Little Interest	2
Not interested	1

Decision Matrix

After the results of the student assessment data are known, the next step we can take is to make a decision matrix on alternative student data from each criterion, namely:

$$X = \begin{bmatrix} 1 & 1 & 4 & 1 \\ 2 & 3 & 4 & 2 \\ 3 & 5 & 3 & 4 \\ 5 & 3 & 4 & 4 \end{bmatrix} \quad (3)$$

Table 6. Evaluation Data

Code	Department Name	K1	K2	K3	K4
A1	SOFTWARE ENGINEERING	1	1	4	1
A2	MULTIMEDIA	2	3	4	2
A3	OFFICE	3	5	3	4
A4	ACCOUNTANCY	5	3	4	4

Normalization

After the results of the decision matrix on the alternative major data are known, the next step is to determine the normalization value of each major criterion data in the following way:

Table 7. US Value Normalization

$K1 = \sqrt{1^2 + 3^2 + 5^2 + 3^2}$ $= \sqrt{44} = 6{,}63$
X2.1 = 1/6,63=0,15
X2.2 = 3/6,63=0,45
X2.3 = 5/6,63=0,75
X2.4 = 3/6,63=0,45

Table 8. Written Test Normalization

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K1= $\sqrt{1^2 + 3^2 + 5^2 + 3^2}$ = $\sqrt{44}$ = 6,63
X2.1 = 1/6,63=0,15
X2.2 = 3/6,63=0,45
X2.3 = 5/6,63=0,75
X2.4 = 3/6,63=0,45

Table 9. Oral Test Normalization

K1= $\sqrt{4^2 + 4^2 + 3^2 + 4^2}$ = $\sqrt{57}$ = 7,54
X3.1 = 4/7,54=0,53
X3.2 = 4/7,54=0,53
X3.3 = 3/7,54=0,39
X3.4 = 4/7,54=0,53

Table 10. Interest Normalization

K1= $\sqrt{1^2 + 2^2 + 4^2 + 4^2}$ = $\sqrt{37}$ = 6,08
X4.1 = 1/6,08=0,16
X4.2 = 2/6,08=0,32
X4.3 = 4/6,08=0,65
X4.4 = 4/6,08=0,65

From the results of calculating the normalization values for the alternative major data from each criterion, a normalization matrix is obtained whose results are known, namely:

$$X * ij = \begin{bmatrix} 0.16 & 0.15 & 0.53 & 0.16 \\ 0.32 & 0.45 & 0.53 & 0.32 \\ 0.48 & 0.75 & 0.59 & 0.65 \\ 0.80 & 0.45 & 0.53 & 0.65 \end{bmatrix} \quad (4)$$

Compute Optimization

After the results of the normalization of the alternatives are known, optimization will be carried out by multiplying the values in the normalization matrix with the weight values taken from each known criterion.

Table 11. Data Criteria of Weight

No	Criteria Name	Attribute	Weight	Conversion
K1	US	Benefits	0.25%	0,25
K2	Written Test	Benefits	0.25%	0,25
K3	Oral Tes	Benefits	0.20%	0,2
K4	Interest	Cost	0.30%	0,3

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From the table above the criteria data weights will be processed to find out the results of the normalized matrix multiplication with the criteria data weights. The attributes of each criterion data are in the form of benefits (Maximum or also known as Max) and costs (Minimum or also known as Min) in the form of the table below.

Table 12. Weighted Normalized Multiplication

Alternatif	Max	Max	Max	Min
	0,25	0,25	0,2	0,3
	US	Written Test	Oral Test	Interest
A1	0,16	0,15	0,53	0,16
A2	0,32	0,45	0,53	0,32
A3	0,48	0,75	0,59	0,65
A4	0,80	0,45	0,53	0,65

The results of the weighted normalization multiplication on the alternative major data from each criterion data that are already known results are:

Table 13. Weighted Normalization Calculation Results

Alternative	Max	Max	Max	Min
	US	Written Test	Oral Test	Interest
A1	0,04	0,03	0,10	0,04
A2	0,08	0,11	0,10	0,05
A3	0,12	0,18	0,11	0,19
A4	0,2	0,11	0,10	0,19

From the results of the calculation of the weighted normalization matrix, the next step is to calculate the optimization value by adding up all the values in the attributes and subtracting the benefits (Maximum or also known as Max) and cost (Minimum or also known as Min) in order to obtain a Yi value that is already known results are:

Table 14. Yi Value Calculation Results

Alternative	Maximum	Minimum	Yi = Max - Min
A1	0,17	0,04	0,13
A2	0,29	0,05	0,24
A3	0,41	0,19	0.22
A4	0,41	0,19	0,22

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Recommendation Result

The best alternative is the alternative that has the highest optimization value. The results obtained from the optimization value of the alternatives can be shown in the following table.

Table 15. Recommendation Result

Code	Alternative Name	Value
A1	SOFTWARE ENGINEERING	0,13
A2	MULTIMEDIA	0,24
A3	OFFICE	0.22
A4	ACCOUNTANCY	0,22

From the MOORA calculation for major selection, prospective students get the decision to choose the Multimedia major because it has the highest score.

DISCUSSION

Decision Support Systems (DSS) are computer-based tools that help individuals or organizations make informed decisions. MABAC and MOORA are both multi-criteria decision-making methods that can be used in DSS to evaluate and rank alternatives based on multiple criteria. MABAC is a method used for ranking alternatives in decision-making problems with multiple criteria. It involves comparing the performance of each alternative with respect to each criterion against the reference set (i.e., the best and worst performance of each criterion) and determining the borderlines that represent the ranges of acceptable performance. MABAC then calculates the area between the borderlines for each alternative, and the alternative with the highest area is considered the best.MOORA, on the other hand, is a method used for multi-objective decision-making problems where multiple criteria are optimized simultaneously. MOORA involves normalizing the performance of each alternative with respect to each criterion, weighting the criteria based on their relative importance, and then calculating the overall performance score for each alternative. The alternative with the highest overall performance score is considered the best. From the MOORA calculation for major selection, prospective students get the decision to choose the Multimedia major because it has the highest score.

CONCLUSION

From the results of the research that has been done, the conclusion is obtained. The conclusion from the results of this study is that by building a decision support system for selecting majors at Tritech Vocational Schools it can help students choose majors according to their interests. Multi-Objective Optimization On The Basis Of Ratio Analysis (MOORA) can be applied to a decision support system application (DSS) to assist students in choosing majors according to their interests. This decision support system (DSS) application can help reduce student errors in selecting majors according to their interests.

REFERENCES

A. Triayudi, F. Nugroho, and A. G. S. (2022). Sistem Pendukung Keputusan Dalam Penilaian Kinerja Supervisor Menggunakan Metode COPRAS Dengan Pembobotan ROC. *Josyc*, *3*(4), 461–468.

AKPINAR, R. N. K. and M. E. (2022). Personnel Performance Assessment using Entropy based MABAC Method: An Application in the Food Sector. *Equinox J. Econ. Bus. Polit. Stud*, *9*(1), 89–106.

Barus, E. B. (2022). Sistem Pendukung Keputusan Pemilihan Best Employee Dengan Menerapkan Metode MABAC. *TIN : Terapan Informatika Nusantara*, *2*(9), 551–557.

Baydaş, M. (2022). *The effect of pandemic conditions on financial success rankings of BIST SME industrial companies : a different evaluation with the help of comparison of special capabilities of MOORA , MABAC and FUCA methods Salgın koşullarının BIST KOBI sanayi firmaların*. *10*, 245–260.

*Ayulita Purnama Sari

C. Handayani, A. M. Muhsidi, and N. I. K. (2021). *Metode Multi Attributive Border Approximation Area Comparison (MABAC) Untuk Penilaian Kinerja Dalam Pengelolaan Alokasi Dana Desa*. *20*(1), 303–309.

D. Agma, Y. Maulita, S. Ramadani, B. K. (2022). Sistem Pendukung Keputusan Penilaian MatrasSpringbed Dengan Metode MABAC (Studi Kasus PT . Ocean Centra Furnindo). *J. T. Informatika*, *6*(3).

Fadli, S., & Imtihan, K. (2020). Implementation of MOORA Method in Evaluating Work Performance of Honorary Teachers. *Sinkron*, *4*(1).

I. E. Ismail, A. D. Hasanah, and P. N. (2022). *Sistem Pendukung Keputusan Pemberian Pinjaman Menggunakan Metode Multiattribute Approximation Border Area Comparison*. *8*, 70–81.

I. R. Rahadjeng, M. N. H. Siregar, and A. P. W. (2022). Pemanfaatan Sistem Keputusan Dalam Mengevaluasi Penentuan Aplikasi Chatting Terbaik Dengan Multi Factor Evaluation Process. *J. Media Inform. Budidarma*, *6*(2), 1258–1262.

Mirza, M. D. S. and A. (2022). *Sistem Penunjang Keputusan Penilaian Guru Terbaik Dengan Metode Multi-Attributive Border Approximation (MABAC)*. *1*(6), 609–619.

N. H. Lubis, I. S. Damanik, and W. S. (2022). Sistem Pendukung Keputusan dengan Metode Electre II Dalam Menentukan Aplikasi Belanja Online Terbaik. *BEES Bull. Electr. Electron. Eng*, *2*(3), 98–105.

Nisa, K. (2022). Optimalisasi Metode MABAC Dalam Menentukan Prioritas Penerima Pinjaman Koperasi. *Jurnal Teknologi Sistem Informasi Dan Sistem Komputer TGD*, 280–292.

Panjaitan, S. A. (2022). Sistem Pendukung Keputusan Perekrutan Internal Audit Officer (Audit) Menerapkan Kombinasi Metode AHP dan MABAC. *TIN : Terapan Informatika Nusantara*, *2*(12), 710–720.

Sinurat, R. D. and S. (2021). Penerapan Metode Metode Multi-Attribut Border Approximation Area Comparison (MABAC) dalam Penentuan Akademi Kebidanan (AKBID) Terbaik. *J. Comput. Syst. Informatics*, *3*(1), 1–8.

Sipahutar, D. W. (2022). *Sistem Pendukung Keputusan Pemilihan Teknisi Broadcasting Pada TVRI Medan Menerapkan Metode MABAC*. *8*(2), 55–63.

Yasir.Hasan, Z. and. (2022). Sistem Pendukung Keputusan Pemilihan Peserta FLS2N SMAN 1 Perbaungan Menggunakan Metode MABAC. *KLIK Kaji. Ilm. Inform. Dan Komputer*, *2*(1), 1–7.

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