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Analysis of COPRAS and ORESTE in Determining Superior Website Pages of Universities in Medan City

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Abstract

This research aims to evaluate the quality of university web pages in Medan City using two decision-making methods, namely Complex Proportional Assessment (COPRAS) and Organization Rangement Et Syntest De Relatonnelles (ORESTE). University websites play a very important role in reflecting the identity, vision, and mission of the institution, as well as improving its reputation in today's digital era. However, not all universities in Medan have implemented optimal standards in managing their web pages. Therefore, the results of this study show that based on the COPRAS method, there are 3 top universities, namely Muhammadiyah University of North Sumatra (UMSU) ranked first with the highest score of 100.0000, followed by Quality University with a score of 93.7500 ranked second, and Harapan University Medan with a score of 91.4063 ranked third. Meanwhile, using the ORESTE method also ranked UMSU first with a score of 5.00, followed by Universitas Pembangunan Panca Budi in second place, and Santo Thomas Catholic University in third place with a score of 7.17. The similarity of the first rank between the two methods shows consistency in the recognition of the quality of the UMSU web page. However, differences were seen in the second and third rankings, where COPRAS ranked Universitas Quality and Universitas Harapan Medan, while ORESTE ranked Universitas Pembangunan Panca Budi and Universitas Katolik Santo Thomas. This difference reflects the different evaluation approaches of the two methods. The findings are expected to assist universities in Medan in developing more effective strategies for improving user experience and strengthening institutional reputation.

Keywords: *Analysis, COPRAS, ORESTE, Higher Education, Accuracy.*

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1. Introduction

In today's digital era, universities in Medan City should be in line with higher education institutions around the world in realizing the importance of an effective web page to maintain the institution's image and reputation. Web pages are no longer just a source of information, but also a representation of the college's identity vision, and mission. In this context, increasing the effectiveness and responsiveness of web pages is becoming increasingly important amid the ever-evolving development of information technology.

However, despite the importance of web pages, not all universities in Medan City have implemented the standardization needed to ensure the quality of web pages in universities. Therefore, a special analysis is needed to identify the shortcomings and advantages of the web pages. This research aims to apply an analysis method that provides accuracy in assessing each aspect of the website page, to identify points that need to be improved or enhanced by the college and get an output result in the form of a Superior Website Decision in Medan City.

In this research, comparison, and analysis of evaluation methods such as Complex Proportional Assessment (COPRAS) and Organization Rangement Et Syntest De Relatonnelles (ORESTE) are relevant [1], [2], [3], [4], [5], [6]. Both methods are considered effective in dealing with the complexity of decision-making, which is in line with the challenges faced by universities in selecting and developing quality web pages. Therefore, this study is important to further understand the advantages and limitations of each method in the context of evaluating college web pages in Medan City.

The ORESTE method is a method built according to conditions where a set of alternatives will be sorted based on criteria according to their level of importance [7], [8], [9], [10]. Meanwhile, the COPRAS method is a method based on the ratio of favorable and unfavorable criteria [11], [12], [13], [14], [15], [16].

The results of this study are expected to provide a deeper understanding of the evaluation process of college web pages in Medan City. Thus, universities can make better decisions in the development and improvement of their web pages, which will ultimately improve the reputation and attractiveness of the institution in the eyes of stakeholders. It is hoped that the results of this study will provide a more comprehensive view of the strengths

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and weaknesses of college web pages in Medan City, as well as provide a solid foundation for the development of more effective strategies in improving and updating web pages to enhance user experience and the overall reputation of the institution.

2. Research Methods

Because this research uses the concept of an experimental approach, below is the research method, namely as follows:

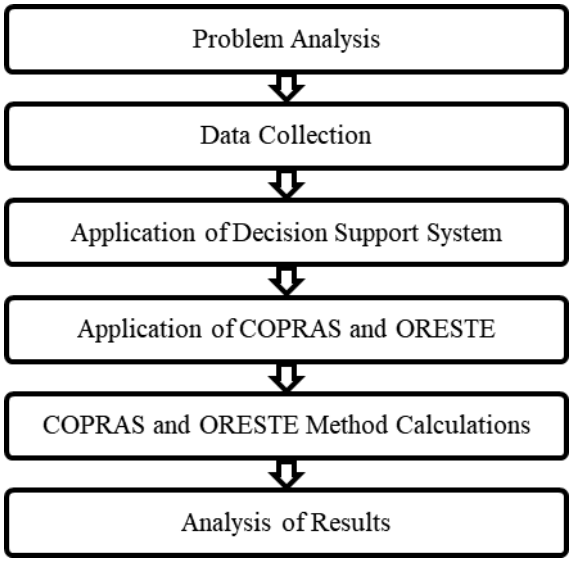

Figure 1. Research Stages

Based on Figure 1 above, the following stages can be explained:

1. Problem Analysis
   em analysis is carried out through direct observation in the field related to each college website and interviews with several experts in determining the assessment of Superior College websites in Medan City so that the problems found will then be analyzed and formulated causes and possible solutions to be developed.
2. Data Collection
   The next stage is to collect the data needed to support solving problems that arise based on the focus of the research. This stage is the stage of collecting all the data needed, the results of the college website assessment which will be analyzed using the COPRAS and ORESTE methods at universities in Medan City, the necessary data is obtained using three methods, namely literature study, direct observation and interviews with college website experts in Medan.
   Literature Study
   A literature study is carried out to broaden insights and knowledge about the problems being studied and determine suitable methods for solving problems. Literature studies can be traced through literature in the form of guidebooks, journals, other people's research results, and information searches via the internet.
   Observation
   Namely by conducting research on universities in Medan and making direct observations of each university's website in Medan City.
   Interview
   Namely by collecting information by asking directly to experts in determining Website Excellence.
3. Application of Decision Support System
   At this stage, namely implementing a Decision Support System to solve problems in determining the Superior Website Page of Higher Education in Medan City.
4. Application of COPRAS and ORESTE
   After the problem analysis is complete and the data has been collected, then apply the COPRAS and ORESTE methods to solve the problem of determining superior college websites in the city of Medan and a comparison will be made of the quality of accuracy produced by the two methods.
5. Analysis of Results
   Analysis of Results explains the results of the validity of the application of the COPRAS and ORESTE algorithms in determining the level of accuracy that has been applied and displays the ranking results which are the final output of the Superior Website decision in Medan City.

2.1. Application of the COPRAS Method

In determining the Superior Website Pages of Universities in Medan City by using the COPRAS methods, stages are needed in completing the calculations as follows [2], [3], [5], [14], [15], [16], [17], [18], [19], [20], [21]:

1. Define Criteria and Weights
2. Creating a Decision Matrix
3. Normalizing the Decision Matrix
4. Determining the Normalized Weighted Decision Matrix
5. Maximizing and Minimizing the Index for Each Alternative
6. Determining the Significance of Alternative Weights
7. Determining the Relative Significance Value
8. Calculating Quantitative Utility for Each Alternative
9. Ranking

2.2. Application of the ORESTE Method

In determining the Superior Website Pages of Universities in Medan City by using the ORESTE methods, stages are needed in completing the calculations as follows:

1. Define criteria and weights
2. Transform alternative data into Besson-Rank
3. Calculating Distance-Score Value
4. Calculating Preference Value
5. Ranking

3. Results and Discussion

3.1. Define Criteria and Weights

First, determine the criteria that will be used as a benchmark for problem-solving. The criteria used in determining the University Superior Website Page in Medan are as follows:

Table 1. Criteria Description

No	Code	Criteria Name	Type	Weight
1	C1	Adaptive Design	Benefit	0.1
2	C2	Easy Navigation	Benefit	0.1
3	C3	Performance and Speed	Benefit	0.1
4	C4	Browser Compatibility	Benefit	0.1
5	C5	Media Usage	COST	0.1
6	C6	Interactivity and Animation	COST	0.1
7	C7	Accessibility	Benefit	0.1
8	C8	Responsiveness Testing	Benefit	0.1
9	C9	Consistent Content	Benefit	0.1
10	C10	SEO	COST	0.1

Based on the data obtained, it is necessary to convert each criterion to be processed into the COPRAS and ORESTE methods. The following are the conversion results of the criteria used in solving the problem of Determining the Featured Website Pages of Universities in Medan City.:

Table 2. Alternative Data Conversion Results

Alternative	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
A1	3	4	3	3	3	2	3	3	3	4
A2	4	5	5	4	4	2	4	5	4	5
A3	2	3	4	3	2	1	2	2	2	5
A4	4	3	4	4	4	2	3	4	4	4
A5	3	2	2	3	3	2	2	3	2	3
A6	2	2	4	3	2	2	2	3	2	2
A7	4	4	3	4	4	3	3	4	3	3
A8	3	3	4	3	2	2	2	3	2	2
A9	4	4	4	4	4	2	3	4	2	2
A10	4	3	3	3	3	2	3	4	2	2
A11	3	2	2	2	2	2	2	3	2	3
A12	2	3	3	2	1	1	2	3	1	1

A13	4	4	3	3	4	2	3	4	4	3
A14	2	2	2	2	2	2	2	2	2	1
A15	2	2	4	3	1	1	2	3	2	3
A16	4	3	3	3	3	1	3	3	4	1
A17	3	4	2	3	2	2	3	3	4	3
A18	3	4	4	3	2	2	3	3	2	4
A19	2	2	4	3	4	1	2	3	2	1
A20	4	3	3	3	2	2	3	4	3	1
A21	1	1	1	1	1	1	1	1	1	2
A22	3	3	4	3	3	2	3	3	3	1
A23	1	1	1	1	1	1	1	1	1	1
A24	1	1	1	1	1	1	1	1	1	1
A25	3	2	3	3	2	1	3	3	2	1
A26	3	2	4	3	4	1	2	3	3	1
A27	3	3	3	2	1	2	3	3	2	1
A28	3	3	4	3	3	1	3	3	3	1
A29	2	2	3	3	3	1	2	3	2	1
A30	3	4	3	3	3	1	3	3	2	1
A31	4	3	4	3	2	3	3	4	3	1
A32	3	3	3	4	4	2	3	3	2	1
A33	3	3	3	3	4	4	3	3	3	4
	B	**B**	**B**	**B**	**C**	**C**	**B**	**B**	**B**	**C**

3.2. Creating a Decision Matrix

From the alternative conversion that has been done, the next step is to form a decision matrix based on each criterion. Then the decision matrix is obtained as follows:

$$X = \begin{Bmatrix} 3 & 4 & 3 & 3 & 3 & 2 & 3 & 3 & 3 & 4 \\ 4 & 5 & 5 & 4 & 4 & 2 & 4 & 5 & 4 & 5 \\ 2 & 3 & 4 & 3 & 2 & 1 & 2 & 2 & 2 & 5 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 3 & 3 & 3 & 3 & 4 & 4 & 3 & 3 & 3 & 4 \\ \hline 95 & 93 & 103 & 94 & 86 & 57 & 83 & 100 & 80 & 70 \end{Bmatrix}$$

3.3. Normalize the Decision Matrix

Criteria 1 (C1)
A11 = 3 / 95 = 0.0316
A21 = 4 / 95 = 0.0421
⋮
A331 = 3 / 95 = 0.0316

Criteria 2 (C2)
A12 = 4 / 93 = 0.0430
A22 = 5 / 93 = 0.0538
⋮
A102 = 3 / 93 = 0.0323

Criteria 3 (C3)
A13 = 3 / 103 = 0.0291
A23 = 5 / 103 = 0.0426
⋮
A103 = 3 / 103 = 0.0291

Criteria 4 (C4)
A14 = 3 / 94 = 0.0319
A24 = 4 / 94 = 0.0426
⋮
A104 = 3 / 94 = 0.0319

Criteria 5 (C5)
A15 = 3 / 86 = 0.0349
A25 = 4 / 86 = 0.0465
⋮
A105 = 4 / 86 = 0.0465
Criteria 6 (C6)
A16 = 2 / 57 = 0.0351
A26 = 2 / 57 = 0.0351
⋮
A106 = 4 / 57 = 0.0702

Criteria 7 (C7)
A17 = 3 / 83 = 0.0361
A27 = 4 / 83 = 0.0482
⋮
A107 = 3 / 83 = 0.0361

Criteria 8 (C8)
A18 = 3 / 100 = 0.0300
A28 = 5 / 100 = 0.0500
⋮
A108 = 3 / 100 = 0.0300

Criteria 9 (C9)
A19 = 4 / 80 = 0.0375
A29 = 5 / 80 = 0.0500
⋮
A109 = 4 / 80 = 0.0375

Criteria 10 (C10)
A110 = 4 / 70 = 0.0571
A210 = 5 / 70 = 0.0714
⋮
A1010 = 4 / 70 = 0.0571

From the above calculations, the X_{ij} matrix is obtained as follows:

$$X_{ij} = \begin{Bmatrix} 0.0316 & 0.0430 & 0.0291 & 0.0319 & 0.0349 & 0.0451 & 0.0361 & 0.0300 & 0.0375 & 0.0571 \\ 0.0421 & 0.0538 & 0.0485 & 0.0426 & 0.0465 & 0.0351 & 0.0482 & 0.0500 & 0.0500 & 0.0714 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0.0316 & 0.0323 & 0.0291 & 0.0319 & 0.0465 & 0.0702 & 0.0361 & 0.0300 & 0.0375 & 0.0571 \end{Bmatrix}$$

3.3. Determining the Normalized Weighted Decision Matrix

Weighted decision matrixCriteria 1 (C1) :
A11 = 0.0316 x 0.1 = 0.0032
A21 = 0.0421 x 0.1 = 0.0042
⋮
A101 = 0.0316 x 0.1 = 0.0032

Criteria 2 (C2)
A12 = 0.0430 x 0.1 = 0.0043
A22 = 0.0538 x 0.1 = 0.0054
⋮
A102 = 0.0323 x 0.1 = 0.0032

Criteria 3 (C3)
A13 = 0.0291 x 0.1 = 0.0029
A23 = 0.0485 x 0.1 = 0.0049
⋮
A103 = 0.0291 x 0.1 = 0.0029

Criteria 4 (C4)
A14 = 0.0319 x 0.1 = 0.0032
A24 = 0.0426 x 0.1 = 0.0043
⋮
A104 = 0.0319 x 0.1 = 0.0032
Criteria 5 (C5)
A15 = 0.0349 x 0.1 = 0.0035
A25 = 0.0465 x 0.1 = 0.0047
⋮
A105 = 0.0465 x 0.1 = 0.0047

Criteria 6 (C6)
A16 = 0.0351 x 0.1 = 0.0035
A26 = 0.0351 x 0.1 =0.0035
⋮
A106 = 0.0702 x 0.1 = 0.0070

Criteria 7 (C7)
A17 = 0.0361 x 0.1 = 0.0036
A27 = 0.0482 x 0.1 = 0.0048
⋮
A107 = 0.0361 x 0.1 = 0.0036

Criteria 8 (C8)
A18 = 0.300 x 0.1 = 0.0030
A28 = 0.0500 x 0.1 = 0.0050
⋮
A108 = 0.0300 x 0.1 = 0.0030

Criteria 9 (C9)
A19 = 0.0375 x 0.1 = 0.0038
A29 = 0.0500 x 0.1 = 0.0050
⋮
A109 = 0.0375 x 0.1 = 0.0038

Criteria 10 (C10)
A110 = 0.1111 x 0.1 = 0.0057
A210 = 0.0889 x 0.1 = 0.0071
⋮
A1010 = 0.0889 x 0.1 =0.0057

From the above calculations, the matrix D_{ij} is obtained:

$$D_{ij} = \begin{Bmatrix} 0.0032 & 0.0043 & 0.0029 & 0.0032 & 0.0035 & 0.0035 & 0.0036 & 0.0030 & 0.0038 & 0.0057 \\ 0.0042 & 0.0054 & 0.0049 & 0.0043 & 0.0047 & 0.0035 & 0.0048 & 0.0050 & 0.0050 & 0.0071 \\ \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots & \vdots \\ 0.0032 & 0.0032 & 0.0029 & 0.0032 & 0.0047 & 0.0070 & 0.0036 & 0.0030 & 0.0038 & 0.0057 \end{Bmatrix}$$

3.4. Maximizing and Minimizing the Index for Each Alternative

S_{+i} = C1 + C2 + C3 + C4 + C7 + C8 + C9
A1 = 0.0032 + 0.0043 + 0.0029 + 0.0032 + 0.0036 + 0.0030 + 0.0038 = 0.0240
A2 = 0.0042 + 0.0054 + 0.0049 + 0.0043 + 0.0048 + 0.0050 + 0.0050 = 0.0336
⋮
A33 = 0.0032 + 0.0032 + 0.0029 + 0.0032 + 0.0036 + 0.0030 + 0.0038 = 0.0229
S_{-i} = C5 + C6 + C10
A1 = 0.0035 + 0.0035 + 0.0057 = 0.0127
A2 = 3.1111 + 1.3636 + 1.7045 = 0.0153
⋮
A33 = 0.0047 + 0.0070 + 0.0057 = 0.0112
Total =0.3007

3.5. Determining the Significance of Alternative Weights

Then calculate the relative weight of each alternative using the equation 1 *S*-1 and *S*-1 * Total 1 *S*-1 as below:

Table 3. Calculation of Relative Weight of Each Alternative

Alternative	(1/S-i)	S-i*TOTAL(1/S-i)
A_1	1/0.0127 = 78.7402	0.0127 * 4103.5174 = 52.1147
A_2	1/0.0153 = 65.3595	0.0153 * 4103.5174 = 62.7838
⋮	⋮	⋮
A33	1/0.0174 = 57.4713	0.0112 * 4103.5174 = 71.4012
Total	**4103.5174**	

3.6. Determining the Relative Significance Value (Q_i)

$$Q_i = S_{+i} + \frac{S_{-i\ min}\sum_{i=1}^{m} s_{-1}}{S_{-i}\sum_{i=1}^{m}(S_{-min}/S_{-i})} = S_{+i} + \frac{\sum_{i=1}^{m} S_{-i}}{S_{-i}\sum_{i=1}^{m}(1/S_{-i})} (i = 1,2,\dots,m)$$

$$Q1 = 0.0240 + \frac{0.3007}{52.1147} = 0.0240 + 0.0058 = 0.0298$$

$$Q2 = 0.0336 + \frac{0.3007}{62.7838} = 0.0336 + 0.0048 = 0.0384$$

⋮

$$Q33 = 0.0229 + \frac{0.3007}{71.4012} = 0.0229 + 0.0042 = 0.0271$$

Value Max Q_i = 0.0384

3.7. Calculating Quantitative Utility for Each Alternative U_i

$$U_i = \left[\frac{Q_i}{Q_{max}}\right] x100\%$$

U_1 = 0.0298 / 0.0384* 100 = 77.6042

U_2 = 0.0384 / 0.0384 * 100 = 100.000

⋮

U_{33} = 9.5742 / 0.0384 * 100 = 70.5729

3.8. Perform Ranking

The results of the COPRAS method ranking calculation can be seen in the table below:

Table 4. Ranking of Alternatives

No	Code	Name	Final Grade	Ranking
1	A2	Universitas Muhammadiyah Sumatera Utara	100.0000	A2
2	A16	Universitas Quality	93.7500	A16
3	A20	Universitas Harapan Medan	91.4063	A20
4	A28	Universitas Mikroskil	90.6250	A28
5	A31	Universitas Satya Terra Bhinneka	88.5417	A31
6	A25	Universitas Haji Sumatera Utara	88.2813	A25
7	A12	Universitas Al-Azhar	87.7604	A12
8	A30	Universitas Mandiri Bina Prestasi	87.5000	A30
9	A4	Universitas Pembangunan Panca Budi	87.2396	A4
10	A9	Universitas Dharmawangsa	86.9792	A9
11	A13	Universitas Muslim Nusantara Al-Washliyah	86.1979	A13
12	A22	Universitas Battuta	84.8958	A22
13	A27	Universitas Deli Sumatera	84.6354	A27
14	A7	Universitas Katolik Santo Thomas	83.8542	A7
15	A17	Universitas Sari Mutiara Indonesia Medan	82.0313	A17
16	A10	Universitas Al Washliyah	80.7292	A10
17	A26	Universitas IBBI	80.7292	A26
18	A32	Universitas Murni Teguh	78.9063	A32
19	A18	Universitas Potensi Utama	78.3854	A18

20	A8	Universitas Amir Hamzah	77.6042	A8
21	A1	Universitas Islam Sumatera Utara	77.6040	A1
22	A15	Universitas Prima Indonesia	76.3021	A15
23	A29	Universitas Mahkota Tricom Unggul	76.0417	A29
24	A19	Universitas Nahdlatul Ulama Sumatera Utara	74.4792	A19
25	A6	Universitas Darma Agung	72.1354	A6
26	A33	Universitas HKBP Nommensen	70.5729	A33
27	A3	Universitas Medan Area	67.1875	A3
28	A14	Universitas Tjut Nyak Dhien	66.1458	A14
29	A5	Universitas Methodist Indonesia	64.8438	A5
30	A11	Universitas Pembinaan Masyarakat Indonesia	64.0625	A11
31	A23	Universitas Audi Indonesia	63.8021	A23
32	A24	Universitas Budi Darma	63.8021	A24
33	A21	Universitas Imelda Medan	52.6042	A21

3.9. Transforming Alternative Data into Besson-Rank

In this step. Each alternative data is converted into Besson-Rank form so that it is ordinal or ranked. if there is the same value then find the mean. And based on the results of the Besson-Rank assessment the following is a table of normalized Besson-Rank values :

Table 5. Besson-Rank Normalization Results

No	Name Alternative	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
1	Universitas Islam Sumatera Utara	16.5	5	20	16	13.5	12	10.5	18.5	13.5	6
2	Universitas Muhammadiyah Sumatera Utara	5	1	1	3	5	12	1	1	3	1.5
3	Universitas Medan Area	27	15	7.5	16	22.5	27	25	29.5	21.5	1.5
4	Universitas Pembangunan Panca Budi	5	15	7.5	3	5	12	10.5	5	3	6
5	Universitas Methodist Indonesia	16.5	26	28.5	16	13.5	12	25	18.5	21.5	9.5
6	Universitas Darma Agung	27	26	7.5	16	22.5	12	25	18.5	21.5	15
7	Universitas Katolik Santo Thomas	5	5	20	3	5	2.5	10.5	5	13.5	9.5
8	Universitas Amir Hamzah	16.5	15	7.5	16	22.5	12	25	18.5	21.5	15
9	Universitas Dharmawangsa	5	5	7.5	3	5	12	10.5	5	21.5	15
10	Universitas Al Washliyah	5	15	20	16	13.5	12	10.5	5	21.5	15
11	Universitas Pembinaan Masyarakat Indonesia	16.5	26	28.5	28.5	22.5	12	25	18.5	21.5	9.5
12	Universitas Al-Azhar	27	15	20	28.5	30.5	27	25	18.5	31.5	25.5
13	Universitas Muslim Nusantara Al-Washliyah	5	5	20	16	5	12	10.5	5	3	9.5
14	Universitas Tjut Nyak Dhien	27	26	28.5	28.5	22.5	12	25	29.5	21.5	25.5
15	Universitas Prima Indonesia	27	26	7.5	16	30.5	27	25	18.5	21.5	9.5
16	Universitas Quality	5	15	20	16	13.5	27	10.5	18.5	3	25.5
17	Universitas Sari Mutiara Indonesia Medan	16.5	5	28.5	16	22.5	12	10.5	18.5	3	9.5
18	Universitas Potensi Utama	16.5	5	7.5	16	22.5	12	10.5	18.5	21.5	6
19	Universitas Nahdlatul Ulama Sumatera Utara	27	26	7.5	16	5	27	25	18.5	21.5	25.5
20	Universitas Harapan Medan	5	15	20	16	22.5	12	10.5	5	13.5	25.5
21	Universitas Imelda Medan	32	32	32	32	30.5	27	32	32	31.5	15
22	Universitas Battuta	16.5	15	7.5	16	13.5	12	10.5	18.5	13.5	25.5
23	Universitas Audi Indonesia	32	32	32	32	30.5	27	32	32	31.5	25.5
24	Universitas Budi Darma	32	32	32	32	30.5	27	32	32	31.5	25.5
25	Universitas Haji Sumatera Utara	16.5	26	20	16	22.5	27	10.5	18.5	21.5	25.5
26	Universitas IBBI	16.5	26	7.5	16	5	27	25	18.5	13.5	25.5
27	Universitas Deli Sumatera	16.5	15	20	28.5	30.5	12	10.5	18.5	21.5	25.5
28	Universitas Mikroskil	16.5	15	7.5	16	13.5	27	10.5	18.5	13.5	25.5

29	Universitas Mahkota Tricom Unggul	27	26	20	16	13.5	27	25	18.5	21.5	25.5
30	Universitas Mandiri Bina Prestasi	16.5	5	20	16	13.5	27	10.5	18.5	21.5	25.5
31	Universitas Satya Terra Bhinneka	5	15	7.5	16	22.5	2.5	10.5	5	13.5	25.5
32	Universitas Murni Teguh	16.5	15	20	5	5	12	10.5	18.5	21.5	25.5
33	Universitas HKBP Nommensen	16.5	15	20	16	5	1	10.5	18.5	13.5	6

3.10. Calculating Distance-Score Value

Calculate the Distance - Score value by calculating each alternative - -criterion pair as a "distance" value for the ideal position occupied by the best alternative for the most important criteria. This score is the average value of Besson - rank **rcj** criteria **cj**. and Besson rank **rcj (a)** alternative **a** in criteria **cj**.

Distance – Score $\mathbf{D(a_j.c_j) = [\ ½\ r\ c_j^R + ½\ r\ c_j\ (a)^R]^{\ 1/R}}$.

Description :

D (aj.cj) = *Distance-Score*

rcj = *Besson – rank* criteria j

rcj (a) = *Besson – rank* alternatives in criteria.

R = Coefficient (*default* = 2) The value of the determination of multiplication.

Solution :

D(a1,c1)

$D(a1, c1) = \sqrt{\left(\frac{1}{2} \times 16.5^2\right) + \left(\frac{1}{2} \times 1^2\right)}$

$D(a1, c1) = \sqrt{136.125 + 0.5}$

$D(a1, c1) = \sqrt{136.625}$

D(a1, c1) = 11.69

D(a1,c2)

$D(a1, c2) = \sqrt{\left(\frac{1}{2} \times 5^2\right) + \left(\frac{1}{2} \times 2^2\right)}$

$D(a1, c2) = \sqrt{12.5 + 2}$

$D(a1, c2) = \sqrt{14.5}$

D(a1, c2) = 3.81

D(a1,c3)

$D(a1, c3) = \sqrt{\left(\frac{1}{2} \times 20^2\right) + \left(\frac{1}{2} \times 3^2\right)}$

$D(a1, c3) = \sqrt{200 + 4.5}$

$D(a1, c3) = \sqrt{204.5}$

D(a1, c3) = 14.30

D(a1,c4)

$D(a1, c4) = \sqrt{\left(\frac{1}{2} \times 16^2\right) + \left(\frac{1}{2} \times 4^2\right)}$

$D(a1, c4) = \sqrt{128 + 8}$

$D(a1, c4) = \sqrt{136}$

D(a1, c4) = 11.66

D(a1,c5)

$D(a1, c5) = \sqrt{\left(\frac{1}{2} \times 13.5^2\right) + \left(\frac{1}{2} \times 5^2\right)}$

$D(a1, c5) = \sqrt{91.125 + 12.5}$

$D(a1, c5) = \sqrt{103.625}$

D(a1, c5) = 10.18

D(a1,c6)

$D(a1, c6) = \sqrt{\left(\frac{1}{2} \times 16.5^2\right) + \left(\frac{1}{2} \times 6^2\right)}$

$D(a1, c6) = \sqrt{72 + 18}$

$D(a1, c6) = \sqrt{90}$

D(a1, c6) = 9.49

D(a1,c7)

$D(a1, c7) = \sqrt{\left(\frac{1}{2} \times 10.5^2\right) + \left(\frac{1}{2} \times 7^2\right)}$

$D(a1, c7) = \sqrt{55.125 + 24.5}$

$D(a1, c7) = \sqrt{79.625}$

D(a1, c7) = 8.92

D(a1,c8)

$D(a1, c8) = \sqrt{\left(\frac{1}{2} \times 18.5^2\right) + \left(\frac{1}{2} \times 8^2\right)}$

$D(a1, c8) = \sqrt{171.125 + 32}$

$D(a1, c8) = \sqrt{203.125}$

D(a1, c8) = 14.25

D(a1,c9)

$D(a1, c9) = \sqrt{\left(\frac{1}{2} \times 16.5^2\right) + \left(\frac{1}{2} \times 9^2\right)}$

$D(a1, c9) = \sqrt{136.125 + 0.5}$

$D(a1, c9) = \sqrt{136.625}$

D(a1, c9) = 11.69

D(a1,c10)

$D(a1, c10) = \sqrt{\left(\frac{1}{2} \times 8.25^2\right) + \left(\frac{1}{2} \times 10^2\right)}$

$D(a1, c10) = \sqrt{18 + 50}$

$D(a1, c10) = \sqrt{68}$

D(a1, c10) = 8.25

Here are the results of the accumulated Distance-Score values. as follows :

Table 6 Distance Score Results

No	Name Alternative	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
1	Universitas Islam Sumatera Utara	11.69	3.81	14.30	11.66	10.18	9.49	8.92	14.25	11.47	8.25
2	Universitas Muhammadiyah Sumatera Utara	3.61	1.58	2.24	3.54	5.00	9.49	5.00	5.70	6.71	7.15
3	Universitas Medan Area	19.10	10.70	5.71	11.66	16.30	19.56	18.36	21.61	16.48	7.15
4	Universitas Pembangunan Panca Budi	3.61	10.70	5.71	3.54	5.00	9.49	8.92	6.67	6.71	8.25
5	Universitas Methodist Indonesia	11.69	18.44	20.26	11.66	10.18	9.49	18.36	14.25	16.48	9.75
6	Universitas Darma Agung	19.10	18.44	5.71	11.66	16.30	9.49	18.36	14.25	16.48	12.75
7	Universitas Katolik Santo Thomas	3.61	3.81	14.30	3.54	5.00	4.60	8.92	6.67	11.47	9.75
8	Universitas Amir Hamzah	11.69	10.70	5.71	11.66	16.30	9.49	18.36	14.25	16.48	12.75
9	Universitas Dharmawangsa	3.61	3.81	5.71	3.54	5.00	9.49	8.92	6.67	16.48	12.75
10	Universitas Al Washliyah	3.61	10.70	14.30	11.66	10.18	9.49	8.92	6.67	16.48	12.75
11	Universitas Pembinaan Masyarakat Indonesia	11.69	18.44	20.26	20.35	16.30	9.49	18.36	14.25	16.48	9.75
12	Universitas Al-Azhar	19.10	10.70	14.30	20.35	21.85	19.56	18.36	14.25	23.17	19.37
13	Universitas Muslim Nusantara Al-Washliyah	3.61	3.81	14.30	11.66	5.00	9.49	8.92	6.67	6.71	9.75
14	Universitas Tjut Nyak Dhien	19.10	18.44	20.26	20.35	16.30	9.49	18.36	21.61	16.48	19.37
15	Universitas Prima Indonesia	19.10	18.44	5.71	11.66	21.85	19.56	18.36	14.25	16.48	9.75
16	Universitas Quality	3.61	10.70	14.30	11.66	10.18	19.56	8.92	14.25	6.71	19.37
17	Universitas Sari Mutiara Indonesia Medan	11.69	3.81	20.26	11.66	16.30	9.49	8.92	14.25	6.71	9.75
18	Universitas Potensi Utama	11.69	3.81	5.71	11.66	16.30	9.49	8.92	14.25	16.48	8.25
19	Universitas Nahdlatul Ulama Sumatera Utara	19.10	18.44	5.71	11.66	5.00	19.56	18.36	14.25	16.48	19.37
20	Universitas Harapan Medan	3.61	10.70	14.30	11.66	16.30	9.49	8.92	6.67	11.47	19.37
21	Universitas Imelda Medan	22.64	22.67	22.73	22.80	21.85	19.56	23.16	23.32	23.17	12.75
22	Universitas Battuta	11.69	10.70	5.71	11.66	10.18	9.49	8.92	14.25	11.47	19.37
23	Universitas Audi Indonesia	22.64	22.67	22.73	22.80	21.85	19.56	23.16	23.32	23.17	19.37
24	Universitas Budi Darma	22.64	22.67	22.73	22.80	21.85	19.56	23.16	23.32	23.17	19.37
25	Universitas Haji Sumatera Utara	11.69	18.44	14.30	11.66	16.30	19.56	8.92	14.25	16.48	19.37
26	Universitas IBBI	11.69	18.44	5.71	11.66	5.00	19.56	18.36	14.25	11.47	19.37
27	Universitas Deli	11.69	10.70	14.30	20.35	21.85	9.49	8.92	14.25	16.48	19.37

28	Sumatera Universitas Mikroskil	11.69	10.70	5.71	11.66	10.18	19.56	8.92	14.25	11.47	19.37
29	Universitas Mahkota Tricom Unggul	19.10	18.44	14.30	11.66	10.18	19.56	18.36	14.25	16.48	19.37
30	Universitas Mandiri Bina Prestasi	11.69	3.81	14.30	11.66	10.18	19.56	8.92	14.25	16.48	19.37
31	Universitas Satya Terra Bhinneka	3.61	10.70	5.71	11.66	16.30	4.60	8.92	6.67	11.47	19.37
32	Universitas Murni Teguh	11.69	10.70	14.30	4.53	5.00	9.49	8.92	14.25	16.48	19.37
33	Universitas HKBP Nommensen	11.69	10.70	14.30	11.66	5.00	4.30	8.92	14.25	11.47	8.25

3.11. Calculating Preference Value

Calculating the preference value (Vi) = *Distance-Score* x Wj (Weight) is as follows :

A1 = (11.69 x 0.1) + (3.81 x 0.1) + (14.30 x 0.1) + (11.66 x 0.1) + (10.18 x 0.1) + (9.49 x 0.1) + (8.92 x 0.1) + (14.25 x 0.1) + (11.47 x 0.1) + (8.25 x 0.1) = 10.40

A2 = (3.61 x 0.1) + (1.58 x 0.1) + (2.24 x 0.1) + (3.54 x 0.1) + (5.00 x 0.1) + (9.49 x 0.1) + (5.00 x 0.1) + (5.70 x 0.1) + (6.71 x 0.1) + (7.15 x 0.1) = 5.00

⋮

A33 = (11.69 x 0.1) + (10.70 x 0.1) + (14.30 x 0.1) + (11.66 x 0.1) + (5.00 x 0.1) + (4.30 x 0.1) + (8.92 x 0.1) + (14.52 x 0.1) + (11.47 x 0.1) + (8.25 x 0.1) = 10.05

3.12. Performing Ranking

After calculating using the Oreste method. The last step is to do the ranking. The following is a ranking table which is as follows :

Table 7 Final Result Table

No	Name Alternative	Weight Value	Ranking
1	Universitas Islam Sumatera Utara	10.40	8
2	Universitas Muhammadiyah Sumatera Utara	5.00	1
3	Universitas Medan Area	14.66	22
4	Universitas Pembangunan Panca Budi	6.86	2
5	Universitas Methodist Indonesia	14.06	20
6	Universitas Darma Agung	14.25	21
7	Universitas Katolik Santo Thomas	7.17	3
8	Universitas Amir Hamzah	12.74	17
9	Universitas Dharmawangsa	7.60	4
10	Universitas Al Washliyah	10.48	9
11	Universitas Pembinaan Masyarakat Indonesia	15.54	27
12	Universitas Al-Azhar	18.10	30
13	Universitas Muslim Nusantara Al-Washliyah	7.99	5
14	Universitas Tjut Nyak Dhien	17.98	29
15	Universitas Prima Indonesia	15.52	26
16	Universitas Quality	11.93	15
17	Universitas Sari Mutiara Indonesia Medan	11.28	12
18	Universitas Potensi Utama	10.66	10
19	Universitas Nahdlatul Ulama Sumatera Utara	14.79	24
20	Universitas Harapan Medan	11.25	11
21	Universitas Imelda Medan	21.47	31
22	Universitas Battuta	11.34	13
23	Universitas Audi Indonesia	22.13	32
24	Universitas Budi Darma	22.13	33
25	Universitas Haji Sumatera Utara	15.10	25
26	Universitas IBBI	13.55	19
27	Universitas Deli Sumatera	14.74	23
28	Universitas Mikroskil	12.35	16
29	Universitas Mahkota Tricom Unggul	16.17	28
30	Universitas Mandiri Bina Prestasi	13.02	18

31	Universitas Satya Terra Bhinneka	9.90	6
32	Universitas Murni Teguh	11.47	14
33	Universitas HKBP Nommensen	10.05	7

4. Conclusion

Based on the research conducted, a comparison between two evaluation methods, namely COPRAS and ORESTE, shows different results in assessing the quality of university web pages in Medan City. The results of the COPRAS and ORESTE methods show the top three rankings, namely Muhammadiyah University of North Sumatra (UMSU) in the first position with the highest score of 100.0000, followed by Quality University in the second rank with a score of 93.7500, and Harapan University Medan in the third rank with a score of 91.4063.
Meanwhile, the ORESTE method produced a different order although UMSU remained in first place with a score of 5.00. However, the second and third rankings are filled by Universitas Pembangunan Panca Budi and Universitas Katolik Santo Thomas, each with a score of 7.17.
This difference in results shows that the two methods have different evaluation approaches. COPRAS, which focuses on the ratio between favorable and unfavorable criteria, emphasizes the technical performance aspects of web pages. On the other hand, ORESTE ranks alternatives based on the importance of criteria, providing a broader perspective in decision-making.
Therefore, despite the difference in the second and third-ranking positions, UMSU consistently ranked first in both methods, indicating the superior quality of its webpage. However, the results of these two methods still need to be considered by other universities to identify areas of improvement and enhance the quality of their web page management, to strengthen the institution's image and attractiveness in the eyes of stakeholders.

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