ISSN 2502-5872 (Print)
ISSN 2622-3627 (Elektronik)

Volume 9 Number 2 May 2024, 575-590

DECISION SUPPORT SYSTEM SELECTING THE BEST SKINCARE USING THE ORESTE METHOD

Ismail Husein[1], Dwi Anggraini[2*], R. Maisaroh Rezyekiyah Siregar[3]
[1,2,3]Department of Mathematics, Universitas Islam Negeri Sumatera Utara, Medan, North Sumatra, Indonesia
*Correspondence: anggrainidwi676@gmail.com

ABSTRACT

The development of the beauty industry, especially in skincare products, raises the need for a system that helps individuals choose skincare products according to their needs and skin conditions. This research aims to develop a Decision Support System (SDM) using the ORESTE Method to facilitate the selection of the best skincare. ORESTE is a multi-criteria decision-making method capable of dealing with uncertainty and ambiguity. This research adapts the ORESTE Method in the context of skincare product selection by considering important criteria such as price, quality, brand, age, and suitability to the user's skin type. The sampling technique that will be used in this research is non probability sampling technique with purposive sampling type. Applied research is the type of research used in this study. As a continuation of basic research, applied research aims to solve a problem in society, industry, or government. The type of data used is primary data, and the data source used is a questionnaire / questionnaire. The data was used to develop a decision model using the ORESTE Method, which was then tested and validated using a diverse sample of skincare products. The results show that the developed SPK provides skincare product recommendations according to user preferences and needs. By using the ORESTE Method, this SPK is able to overcome the complexity in skincare decision making, providing accountable results. This research contributes to making it easier for individuals to choose skincare products according to their skin conditions and preferences, and serves as a basis for the development of similar systems in the beauty field. An attempt to show the novelty between this research and previous research was made by using the ORESTE method in skincare product selection. The results show MS Glow as the best alternative with a preference value of 1.348, followed by Wardah, Scarlett, Garnier, and Pond's with their respective preference values.
Keywords: Decision Support System, Skincare, Facial Wash, ORESTE

How to Cite: Husein, I., Anggraini, D., Siregar, R. M. R.. (2024). Decision Support System Selecting The Best Skincare Using The Oreste Method. *Mathline: Jurnal Matematika dan Pendidikan Matematika*, *9*(2), 575-590. http://doi.org/10.31943/mathline.v9i2.635

PRELIMINARY

Nowadays, a beautiful face is an important and must-have thing for the people of Indonesia. A beautiful face and charming appearance are important because it is a consideration to be able to appear confident in front of everyone. However, it is not only a beautiful and alluring face that one needs, but also healthy and clean skin. To have healthy and clear skin, of course, requires consistent maintenance. One way is by using skincare (Rahayu & Sulaiman, 2022). Skin is the outermost part of the human body that is visible

(Syabaniah et al., 2022). Skincare is the steps of caring for the skin carried out by using skincare products with good quality and using safe ingredients (Maarif & Nur, 2019).

The use of skincare is needed from an early age, it is necessary to prevent various health problems on the face, and prevent premature aging (Widayanti et al., 2023). However, in choosing skincare, especially face wash, consumers often make mistakes in choosing skincare products that are not in accordance with the type of skin and skin problems they have at that time. This will have a negative impact on the facial quit. The bad impact that can occur is that the skin becomes sensitive, a reddish rash appears, stinging, stinging and can even result in fataI, there can be continuous skin irritation (Safitri et al., 2021). The key to using skincare is to use products with the lightest to heaviest texture. Products should be used with water-based ingredients before using oil-based products (Batam et al., 2021).

When making decisions under uncertainty, the decision maker knows which situation he or she expects and chooses the decision alternative with the highest utility from the given space of valid situations. Therefore, decision making has become more difficult nowadays (Yerlikaya, 2022). Decision Support System or often called Decision Support System (DSS) is a mode-based framework consisting of information handling strategies and thinking to help administrators make decisions (Oktaputra & Noersasongko, 2014). Decission Support System is one of the computational methods that is quite developed today. (Purwadi et al., 2020). So it can be concluded that the Decision Support System is an elective arrangement that can be used to solve problems in selecting products.

A total of 17,889 women in Indonesia and found that 59.7% suffer from acne or blackheads, 57.7% suffer from spots or acne scars, 36.9% suffer from dull skin, 36.8% suffer from large pores, and 34.1% suffer from excessive oil levels. This data shows that the majority of quit care users suffer from various types of facial quit conditions (Zap Beauty Index, 2019). Under these circumstances, companies that produce cosmetics and skin health products produce various types of care products, one of which is facial wash. However, because all companies make this product, to make a decision to be difficult (Purnomo et al., 2021).

There have been many studies on decision support systems for choosing the best skincare, including research conducted by Riffa Nurafifah Syabaniah, et al in 2020 on choosing the best face cream that contains ceramide using the TOPSIS method. In this study, the TOPSIS method is used with three criteria to solve problems, so that the process of selecting face creams can be done quickly and precisely. Then in the same year by

Alwendi and Dasril Aldo "Decision Support System for Choosing the Best Mobile Phone Shop in Padangsidimpuan City Using the ORESTE Method". This type of research is quantitative research with secondary and primary data sources. From the analysis and application, the ORESTE method produces alternative A as the best cellphone store in Padangsidimpuan city with a preference value of A = 5.3556, thus the ORESTE method is able to solve the problem of selecting the best cellphone store (Alwendi & Aldo, 2020). In the following year Dentaruni entitled "Selection of Millennial Teen Skincare Products with the Simple Additive Weighting (SAW) Method. The purpose of this research is to get alternative skincare products with a low budget but have the maximum benefits for teenagers. In this study using 10 product data to be compared as the best alternative, then the authors performed calculations using Microsoft Excel and obtained the results of Wardah as the best alternative with a preference value of 3.7 and Garnier ranked second with a preference value of 3.6.

One solution that can be used to overcome the problem of choosing skincare products is the ORESTE method. ORESTE is a general ranking method for handling MCDM problems with qualitative information (Zhang et al., 2018). The ORESTE method is a method that can overcome a problem in a selection, where this method is a method of developing a Decision Support System where the development of Multi Attribute Decision Making (MADM), and in obtaining a ranking of alternatives in a selection, then it is done first ranking in a criterion or adopting the Besson Rank (Lubis et al., 2020). Criterion decision-making decision model (MADM) to solve decision problems with various methods such as Organization Rangement Et Synthese De Donnes Relationnelles (ORESTE). (Nurjanna & Rakhmawati, 2023).

Based on the above phenomena and problems, it can be concluded that the best skincare selection decision support system is very important, and seeing the suggestions from previous research, the authors are interested in raising this matter to choose the best skincare products with an affordable but quality budget, have maximum benefits, and are in accordance with the type of facial skin.

METHODS

This research was conducted among students of the State Islamic University of North Sumatra Medan. This research uses the type of applied research. Applied research is an investigative technique that involves solving problems by applying empirical methodology to an object, field of study, or research subject. This is generally a type of

research that applies to real life situations (Aulia, 2024). The type of data used is primary data. Primary data is data that comes from the first source or original source. Neither files nor compiled versions of this data are available. Technically, respondents or people we make research subjects or informants must be used to obtain this data. The questionnaire/questionnaire serves as a source of data or information.

Every research has problem boundaries in its research, so that the problem boundaries in this study do not expand, the authors limit this research by only discussing the object in this study skincare products (facial wash) and the subject of this research, namely students of the State Islamic University of North Sumatra Medan. The data collection technique used to obtain information or data is a questionnaire/questionnaire. Questionnaire/questionnaire is a data collection method that has been carried out by providing several kinds of questions related to research problems (Prawiyogi et al., 2021). The sampling technique used is to use non-probability sampling technique with purposive sampling type. This technique is usually carried out due to several considerations such as sampling based on certain characteristics, criteria and characteristics.

The scale used is a Likert scale. There are 5 factors that are used as indicators to answer the research instrument. The reason for using these 5 factors is because the scale used is a Likert scale. 5 Likert scale factors are described as follows (Kussudyarsana & Rejeki, 2020):

Score 1 = Strongly Disagree (STS)

Score 2 = Disagree (TS)

Score 3 = Disagree (KS)

Score 4 = Agree (S)

Score 5 = Strongly Agree (SS)

Table 1. List of Research Instrument Statements for Each Criterion

Number	Statement	STS	TS	KS	S	SS
1.	Pricing Criteria: The price of facial wash products must be in accordance with the perceived quality and benefits	✓				
2.	Quality Criteria: Guaranteed efficacy of facial wash products according to their quality		✓			
3.	Brand Criteria: Facial wash product brands must be well-known so that they can increase consumer attractiveness			✓		
4.	Age Criteria:				✓	

Number	Statement	STS	TS	KS	S	SS
	The use of facial wash products is determined by the age factor					
5.	Skin Type Appropriateness Criteria: Facial wash products that suit your skin type do not cause problems on your skin					✓

Table 1 above is one of the many statements asked of respondents. However, the author only presents one statement from each criterion. The statement above has been tested for validity and reliability with the help of MS. Office Excel 2010 and stated that all statement items are valid and reliable. The significance level used is 0.05, namely 0.3610 with the formula of Product moment Corellation:

$$r_{xy} = \frac{n(\sum X_i Y_i) - (\sum X_i)(\sum Y_i)}{\sqrt{n(\sum X_i^2) - (\sum X_i)^2)(n(\sum X_i)^2) - (\sum X_i)^2)}} \quad (1)$$

Description:

n = number of data pairs X and Y

$\sum X_i$ = total number of variables X

$\sum Y_i$ = total number of variables Y

$\sum X_i^2$ = square of the total number of variables X

$\sum Y_i^2$ = square of the total number of variables Y

$\sum X_i Y_i$ = the product of the total number of X variables and Y variables

Relibiality shows that the instrument is consistent when used to measure the same symptoms elsewhere. In this study, the reliability test used the Cronbach Alpha formula:

$$r_{11} = \frac{k}{k-1}(1 - \frac{\sum \sigma_b^2}{\sigma_h^2} \quad (2)$$

Description:

r_{11} = instrument reliability

k = number of statement items

$\sum \sigma_b^2$ = sum of item variances

σ_h^2 = total variance

In this research, the method used is the ORESTE method. This research discusses how to choose the best skincare using the ORESTE method in a Decision Support System (SPK) based on five criteria, namely price, quality, brand, age, skin type suitability. The completion steps using the ORESTE method are as follows, (Octavia, 2019):

1. Define the criteria, weights and alternatives that will be used as benchmarks for solving the problem.

2. Convert alternative data into Besson Rank

   Enter the value of each alternative in each criterion starting from the first criterion to the last criterion. Then do the ranking. In Besson-Rank, to rank, the largest to smallest value of each criterion is sorted, where the value of the largest criterion becomes the first rank and so on until the value of the smallest criterion.

3. Calculating the Distance Score of each pair of alternatives

$$D_{a_j,c_j} = [\frac{1}{2} rcj^r + \frac{1}{2} rcj_{(rcj_{(a)}R}]^{\frac{1}{R}} \quad (3)$$

   Description:

   D(aj,cj) = Distance Score

   R cj = Besson Rank Criterion j

   R cj (a) = Besson Rank of Alternatives in Criteria

   R = Coefficient (Default = 3)

4. Calculating the preference score

$$V_i = \sum(Distance\ score^* Wj) \quad (4)$$

   Description:

   Vi = Preference Value

   D(aj,cj) = Distance Score

   Wj = Criteria Weight

5. Perform Ranking

   Ranking is done based on the results of the lowest preference value to the highest preference value. The lowest preference value is ranked first and so on until the highest preference value.

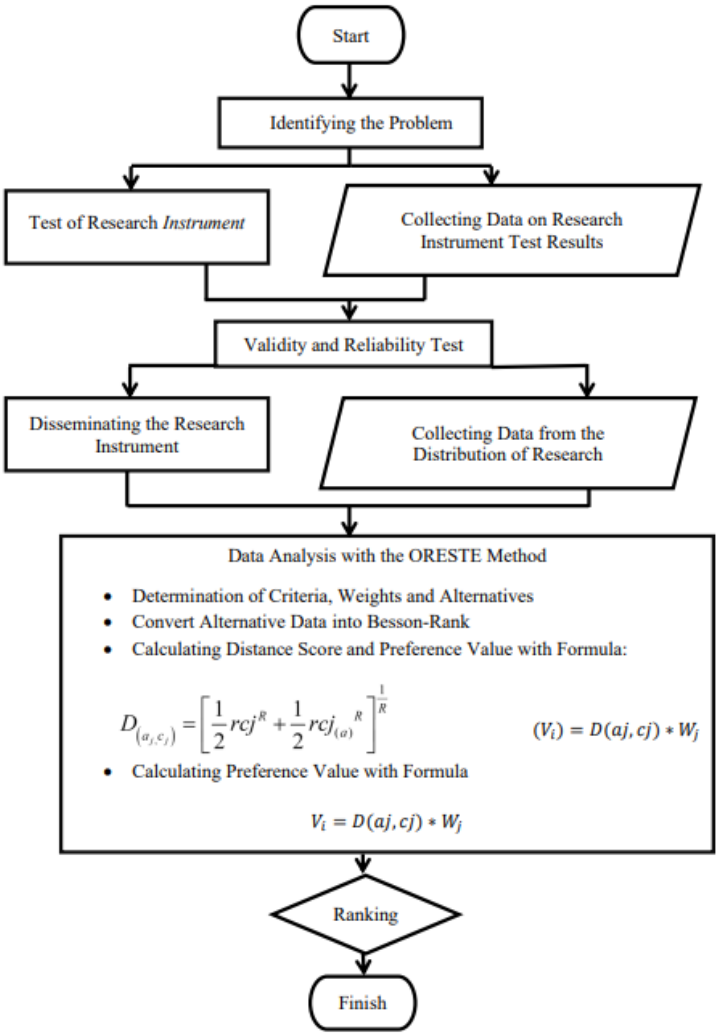

Figure 1. Research Flow

RESULT AND DISCUSSION

The initial step taken in calculating using the ORESTE method is to fill in information on each predetermined parameter such as price, quality, brand, age, skin type suitability. The five criteria were obtained from previous research conducted by Novita Sari in 2019 with the title "Decision Support System for Selection of Skincare Products That Match Facial Skin Using the SAW Method (Novita, 2019).

1. Determining Criteria

Table 2. Skincare Criteria (Facial Wash)

Number	Criteria (C)	Description
1	C1	Price
2	C2	Quality
3	C3	Brand
4	C4	Age
5	C5	Skin Type Suitibility

In table 2, there are 5 (five) criteria that are very influential in purchasing skincare products (facial wash). These criteria include price, quality, brand, age and skin type suitability.

2. Weighting

Each weight on each criterion is obtained through the result value of each criterion divided by the total result value.

Table 3. Weight of Each Criterion

Number	Criteria (C)	Results	Weight
1	Price	183,4	0,106
2	Quality	365,6	0,212
3	Brand	367,2	0,213
4	Age	451,8	0,262
5	Skin Type Suitibility	350,4	0,203
	Total	1.718,4	

In table 3, the calculation of the result value uses the Likert formula:

a. Price Criteria(C1)

$$= \frac{(0 \times 1) + (0 \times 2) + (0 \times 3) + (83 \times 4) + (117 \times 5)}{5} = 183{,}4$$

b. Quality Criteria (C2)

$$= \frac{(0 \times 1)+)0 \times 2) + (0 \times 3) + (172 \times 4) + (228 \times 5)}{5} = 365{,}6$$

c. Brand Criteria (C3)

$$= \frac{(0 \times 1) + (0 \times 2) + (5 \times 3) + (154 \times 4) + (241 \times 5)}{5} = 367{,}2$$

d. Age Criteria (C4)

$$= \frac{(1 \times 1) + (0 \times 2) + (0 \times 3) + (227 \times 4) + (270 \times 5)}{5} = 451{,}8$$

e. Leather Type Suitability Criteria (C5)

$$= \frac{(6 \times 1) + (7 \times 2) + (33 \times 3) + (137 \times 4) + (217 \times 5)}{5} = 350{,}4$$

After obtaining the result value as calculated above, the next step is to determine each criterion weight. In determining the weight of each criterion, the result value of each criterion is divided by the total result value, after which the weight is obtained for each criterion. The weight value can be seen in table 3.

3. Alternative

The following alternative data below is obtained from the results of distributing questionnaires that have been filled in by respondents.

Tabel 4. Skincare Alternative (Facial Wash)

Number	Alternatif
1	Wardah
2	Garnier
3	Ms Glow
4	Pond's
5	Scarlett

4. Criteria Value

At this stage, we then determine the criteria values of price, quality, brand, age and skin type suitability:

a. Price Criteria Value (C1)

Table 5. Price Criteria

Number	C1	Value
1	Very Cheap	5
2	Cheap	4
3	Quite Expensive	3
4	Expensive	2
5	Very Expensive	1

In the price criteria, there are 5 sub criteria, namely very cheap, cheap, quite expensive, expensive and very expensive. For the very cheap sub criteria, the value is 1, the cheap sub criteria is 2 and so on until the very expensive sub criteria. Each of these sub criteria will be used to find the value of each alternative for each criterion.

b. Criteria Value for Quality (C2)

Table 6. Quality Criteria

Number	C2	Value
1	Very bad	1
2	Bad	2
3	Good Enough	3
4	Good	4
5	Very Good	5

In the quality criteria, there are 5 sub criteria, namely very bad, bad, pretty good, good and very good. For the very bad sub criteria, the value is 1, the bad sub criteria is 2 and so on until the very good sub criteria. Each of these sub criteria will be used to find the value of each alternative for each criterion.

c. Criteria Value for Brand (C3)

Table 7. Brand Criteria

Number	C3	Value
1	Unrecognized	1
2	Lesser-known	2
3	Quite Famous	3
4	Famous	4
5	Highly Recognized	5

In the brand criteria, there are 5 sub criteria, namely not well-known, less well-known, quite well-known, well-known and very well-known. For the sub-criteria, not well-known is given a value of 1, the less well-known sub-criteria is given a value of 2 and so on until the sub-criteria is very well-known. Each of these sub criteria will be used to find the value of each alternative for each criterion.

d. Criteria Value for Age (C4)

Table 8. Age Criteria

Number	C4	Value
1	Will Teenagers	1
2	Teens	2
3	Mature Enough	3
4	Adults	4
5	Very Mature	5

In the age criteria, there are 5 sub-criteria, namely teenagers, adolescents, moderately mature, mature and very mature. For the sub-criteria will be teenagers are given a value of 1, the teenage sub-criteria are given a value of 2 and so on until the sub-criteria are very mature. Each of these sub criteria will be used to find the value of each alternative in each criterion.

e. Criteria Value for Leather Type Suitability (C5)

Table 9. Leather Type Suitability Criteria

Number	C5	Value
1	Not Suitable	1
2	Less Suitable	2
3	Suitable Enough	3
4	Suitable	4
5	Very Suitable	5

In the skin type suitability criteria, there are 5 sub-criteria, namely not suitable, less suitable, quite suitable, suitable and very suitable. For the sub-criteria not suitable is given

a value of 1, the sub-criteria less suitable is given a value of 2 and so on until the sub-criteria is very suitable. Each of these sub criteria will be used to find the value of each alternative in each criterion.

5. Value of Each Alternative in Each Criteria

Table 10. Value of Each Alternative in Each Criteria

Number	Alternative	Criteria				
		C1	C2	C3	C4	C5
1	Wardah	Quite Expensive	Good	Famous	Mature Enough	Less Suitable
2	Garnier	Cheap	Good	Famous	Mature Enough	Suitable Enough
3	Ms Glow	Very Expensive	Good	Famous	Adults	Less Suitable
4	Pond's	Cheap	Bad	Quite Famous	Mature Enough	Not Suitable
5	Scarlett	Cheap	Good	Famous	Mature Enough	Suitable

The responses (results) to the questionnaire were used to assign a value to each alternative for each criterion. Table 10 above provides a summary of these results.

6. Value of Each Alternative in Each Criteria Based on Score

Table 11. Value of Each Alternative in Each Criteria Based on Score

Number	Alternative	Criteria				
		C1	C2	C3	C4	C5
1	Wardah	3	4	4	3	2
2	Garnier	2	4	4	3	3
3	Ms Glow	5	4	4	4	2
4	Pond's	2	2	3	3	1
5	Scarlett	2	4	4	3	4

The value of each alternative in each criterion based on the score is filled in based on the value of each alternative in each criterion in table 10 above.

7. Convert Each Alternative Data into Besson-Rank

Table 12. Recapitulation of Besson Rank (C1-C5)

Number	Alternative	Besson Rank Value				
		C1	C2	C3	C4	C5
1	Wardah	2	2,5	2,5	3,5	3,5
2	Garnier	4	2,5	2,5	3,5	2
3	Ms Glow	1	2,5	2,5	1	3,5
4	Pond's	4	5	5	3,5	5
5	Scarlett	4	2,5	2,5	3,5	1

In table 12 obtained the results of the recapitulation of the calculation of Besson Rank from all criteria, namely price criteria (C1), quality criteria (C2), brand criteria (C3), age criteria (C4), skin type suitability criteria (C5). For quality criteria (C2), brand criteria

(C3), age criteria (C4), leather type suitability criteria (C5) the calculation is the same as the price criteria (C1) in table 13.

Table 13. Besson-Rank Price (C1)

Alternative	Price Criteria (C1)	Besson Rank (r cj)
Wardah	3	2
Garnier	2	4
Ms Glow	5	1
Pond's	2	4
Scarlett	2	4

In Besson-Rank price, the 1st rank is occupied by Ms. Glow and the 2nd rank is occupied by Wardah. While rank 3, 4 and 5 are occupied by Garnier, Pond's and Scarlett, because the values are the same then we find the Mean, namely $\left(\frac{3+4+5}{3}\right) = 4$.

8. Finding the Distance Score Value of Each Pair of Alternatives

Table 14. Recapitulation of Distance Score of Each Alternative Pair (C1-C5)

Number	Alternative	Criteria				
		C1	C2	C3	C4	C5
1	Wardah	1,040	1,310	1,400	1,552	1,619
2	Garnier	2,008	1,310	1,400	1,552	1,517
3	Ms Glow	0,855	1,310	1,400	1,356	1,619
4	Pond's	2,008	1,517	1,586	1,552	1,709
5	Scarlett	2,008	1,310	1,400	1,552	1,441

The calculation to find the Distance Score value uses the formula below:

$$D_{a_j,c_j} = [\frac{1}{2} rcj^r + \frac{1}{2} rcj_{(rcj_{(a)}R}]^{\frac{1}{R}} \quad (5)$$

Description:

D (aj,cj) = Distance Score

R cj = Besson Rank Criteria j

R cj (a) = Besson Rank of Alternatives in Criteria

R = Coefficient (DefauIt = 3)

Distance Score for Price Criteria (C1)

$$D(a_1,c_1) = [(\frac{1}{2} \times 2)^3 + (\frac{1}{2} \times 1)^3]\frac{1}{3} = 1{,}040$$

$$D(a_2,c_1) = [(\frac{1}{2} \times 4)^3 + (\frac{1}{2} \times 1)^3]\frac{1}{3} = 2{,}008$$

$$D(a_3,c_1) = [(\frac{1}{2} \times 1)^3 + (\frac{1}{2} \times 1)^3]\frac{1}{3} = 0{,}855$$

$$D(a_4,c_1) = [(\frac{1}{2} \times 4)^3 + (\frac{1}{2} \times 1)^3]\frac{1}{3} = 2{,}008$$

$$D(a_5c_1) = [(\frac{1}{2} \times 4)^3 + (\frac{1}{2} \times 1)^3]\frac{1}{3} = 2{,}008$$

Table 14 is the result of recapitulating the distance score value for each pair of alternative criteria (C1-C5). For quality criteria (C2), brand criteria (C3), age criteria (C4), skin type suitability criteria (C5) the calculation is the same as the price criteria (C1).

9. Find Preference Score from Distance Score

Table 15. Recapitulation of Preference Value Calculation (A1-A5)

Number	Alternative	Criteria					Vi
		C1	C2	C3	C4	C5	
1	Wardah	0,110	0,277	0,298	0,406	0,328	1,419
2	Garnier	0,212	0,277	0,298	0,406	0,307	1,5
3	Ms Glow	0,090	0,277	0,298	0,355	0,328	1,348
4	Pond's	0,212	0,277	0,298	0,406	0,346	1,622
5	Scarlett	0,212	0,277	0,298	0,406	0,292	1,485

This calculation is carried out to determine the ranking of the ORESTE method To calculate the preference value, it is calculated using the equation:

$$V_i = \sum(Distance\ score^{*}Wj) \quad (6)$$

Description:

Vi = Preference Value

D (aj,cj) = Distance Score

Wj = Criteria Weight

Wardah Preference Score (A1)

$$V_i = (1{,}040 \times 0{,}106) + (1{,}310 \times 0{,}212) + (1{,}400 \times 0{,}213) + (1{,}552 \times 0{,}2 + (1{,}619 \times 0{,}203)$$

$$= 0{,}110 + 0{,}277 + 0{,}298 + 0{,}406 + 0{,}328$$

$$= 1{,}419$$

Table 15 is the recapitulation of the calculation of preference values (A1-A5). For the Garnier alternative (A2), MS Glow alternative (A3), Pond's alternative (A4), Scarlett alternative (A5) the calculation is the same as the Wardah alternative (A1).

10. Perform Ranking

Table 16. ORESTE Method Ranking

Number	Alternative	Vi	Ranking
1	Wardah	1,419	2
2	Garnier	1,5	4

Number	Alternative	Vi	Ranking
3	Ms Glow	1,348	1
4	Pond's	1,622	5
5	Scarlett	1,485	3

The next step is to find which alternative is the best choice of 5 analogy data, then rank the results of the reference value. Based on the results of the study, it shows that the best skincare falls on the Ms Glow alternative/brand. The alternative/brand was chosen based on the number of respondents who chose the Ms. Glow. The ranking results can be seen in table 16 above.

CONCLUSION

In determining the ranking using preference values, where to determine the rank of one preference value used is the lowest preference value. So the results of the analysis and application of the ORESTE method, alternative A3, namely Ms Glow with a preference value of 1,348, is ranked first and produces an alternative as the best skincare product. Followed by alternative A1, namely Wardah with a preference value of 1,419, ranked second. Furthermore, A5, Scarlett with a preference value of 1,485, is ranked third. Garnier with a preference value of 1.5 is ranked fourth, and the last A4, Garnier with a preference value of 1.622, is ranked fifth. Therefore, the ORESTE method is able to solve the problem of selecting the best skincare product with the result that MS Glow is the best skincare product or rank one. However, the results of the ORESTE method are often difficult to interpret intuitively by users who do not have a strong mathematical or statistical background. This may reduce the practical usefulness of the resulting analysis. Therefore, it is expected that future researchers can estimate using methods other than ORESTE and improve the research by adding applications as well as criteria and alternatives to make the research results more interesting and easy to understand.

REFERENCES

Alwendi, & Aldo. D. (2020). Sistem Pendukung Keputusan Pemilihan Toko Handphone Terbaik Di Kota Padangsidimpuan Menggunakan Metode Oreste. *Jurnal Sistem Informasi Dan Manajemen*, *8*(1), 10–17. https://doi.org/10.47024/js.v8i1.190.

Aulia, T. (2024). *Taukah Kamu (TKK)?: Perbedaan Penelitian Dasar Dan Penelitian Terapan*. Unit Pengelola Jurnal Ilmiah.

Kusumawardani, R., & Solichin, A. (2019). Implementasi Metode Simple Additive Weighting (Saw) Pada Sistem Pendukung Keputusan Untuk Menyeleksi Saham Prima. *Jurnal Riset Informatika*, *1*(3), 118–118. Retrieved from https://ejournal.kresnamediapublisher.com/index.php/jri/article/view/15

Kussudyarsana & Rejeki, L. 2020. Pengaruh Sosial Media Online dan Media Promosi Offline Terhadap Pemilihan Merek Produk Skincare dan Klinik Kecantikan. *Jurnal Ekonomi Manajemen Sumber Daya*, 22(1), 1-11. https://journals.ums.ac.id/index.php/dayasaing/article/view/10701/5705

Lubis, M. (2020). Sistem Pendukung Keputusan Pemilihan Kader Kesehatan Puskesmas Mandala Kecamatan Medan Tembung dengan Menggunakan Metode Oreste. *Journal of Computer System and Informatics (JoSYC)*, 1(4), 246-253. https://ejurnal.seminar-id.com/index.php/josyc/article/view/170/259

Maarif, V., & Nur, H. M. (2019). Sistem Pendukung Keputusan Pemilihan Skincare Yang Sesuai Dengan Jenis Kulit Wajah Menggunakan Logika Fuzzy. *Jurnal Sains Dan Manajemen*, *7*(20), 73-80. https://ejournal.bsi.ac.id/ejurnal/index.php/evolusi/article/view/6755

Novita, S.. (2019). Sistem Pendukung Keputusan Pemilihan Produk Skincare Yang Sesuai Dengan Kulit Wajah Menggunakan Metode Saw. [*Skripsi*, Universitas Pembangunan Panca Budi]. https://repository.pancabudi.ac.id/website/detail/18332/penelitian/sistem-pendukung-keputusan-pemilihan-skincare-yang-sesuai-dengan-kulit-wajah-menggunakan-metode-saw-simple-additive-weighting

Nurjanna, & Rakhmawati, F. (2023). Optimization Of Sipirok Woven Fabric Production Using Fuzzy-Multi Objective Linear Program. *MATHLINE Jurnal Matematika Dan Pendidikan Matematika*, *8*(3), 1227–1238. https://doi.org/10.31943/mathline.v8i3.504

Octavia, A. (2019). Sistem Pendukung Keputusan Untuk Menentukan Mutasi Karyawan Dengan Menggunakan Metode Oreste (Studi Kasus: Pdam Tirta Deli Kab. Deli Serdang). *JURIKOM (Jurnal Riset Komputer)*. 7(1), http://dx.doi.org/10.30865/jurikom.v6i6.1739

Prawiyogi, A. G., Sadiah, T. L., Purwanugraha, A., & Elisa, P. N. (2021). Penggunaan Media Big Book untuk Menumbuhkan Minat Membaca di Sekolah Dasar. *Jurnal Basicedu*, *5*(1), 446–452. https://doi.org/10.31004/basicedu.v5i1.787

Purnomo, D. C, Yanti, M., & Widyassari, A. P. (2021). Pemilihan Produk Skincare Remaja Milenial Dengan Metode Simple Additive Weighting (Saw) Selection Of Skincare Product For Milenial Adolescent Using Simple Additive Weighting Method. *Jurnal Ilmiah Intech: Information Technology Journal of UMUS*, 3(01), 32–41. https://doi.org/10.46772/intech.v3i01.415

Purwadi, W., Rista, M., & Calam, A. (2020). Sistem Pendukung Keputusan Untuk Menentukan Pemasangan Lokasi Strategis Wifi.Id Pada Telkom (Studi Kasus Pada Pemsangan Wifi.Id Di Beberapa Lokasi Medan Menggunakan Metode Oreste. *Jurnal Sains Manajemen Informatika Dan Komputer*, *19*(1), 110–121. https://ojs.trigunadharma.ac.id/

Rahayu, A. P., & Sulaiman, R. (2022). Aplikasi Intuitionistic Fuzzy Multi Sets (IFMS) Dalam Pemilihan Skincare Terbaik Dengan Menggunakan Ukuran Kesamaan Hamming Yang Dinormalisasi. *Mathunesa Jurnal Ilmiah Matematika*, *10*(1), 68–75. https://doi.org/10.26740/mathunesa.v10n1.p68-75

Safitri, D. A. N, Halilintar, R., & Wahyuniar, L. S. (2021). Sistem Rekomendasi Skincare Menggunakan Metode Content-Based Filtering dan Algoritma Apriori. *Prosiding SEMNAS INOTEK (Seminar Nasional Inovasi Teknologi)*, *5*(2), 242–248. https://doi.org/10.29407/inotek.v5i2.1136

Simanjuntak, P., Pangaribuan, S., & Syastra, M. T. (2021). Data Mining Rekomendasi Pemakaian Skincare. *MEANS (Media Informasi Analisa Dan Sistem)*, *6*(1), 80–83. http://ejournal.ust.ac.id/index.php/Jurnal_Means/

Syabaniah, R. N., Riyanto, A., Marsusanti, E., & Susilawati, S. (2020). Pemilihan Krim Wajah Terbaik Yang Mengandung Ceramide Menggunakan Metode Topsis. *SINTECH (Science and Information Technology) Journal*, *3*(2), 100-109. https://doi.org/10.31598/sintechjournal.v3i2.580

Widayanti, R., Husni, M., & Roviqoh, V. R. (2023). Sistem Sistem Pendukung Keputusan Pemilihan Skincare Yang Sesuai Dengan Jenis Kulit Wajah Menggunakan Metode Weighted Product. *Jurnal Ilmiah Komputasi*, *22*(2), 285–292. https://doi.org/10.32409/jikstik.22.2.3361

Yerlikaya, M. A. (2022). Bulanık karar verme problemlerinde ORESTE yöntemi ve bir çözüm önerisi. *Yerlikaya Journal of Optimization & Decision Making*, 1(2), 123-133. https://orcid.org/ 0000-0003-3084-0257

ZAP. (2019). *ZAP Beauty Index*. Diakses pada 22 Desember 2023, dari https://zapclinic.com/zapbeautyindex.

Zhang, C., Wu, X., Wu, D., Liao, H., Luo, L., & Herrera-Viedma, E. (2018). An intuitionistic multiplicative ORESTE method for patients' prioritization of hospitalization. *International Journal of Environmental Research and Public Health*, *15*(4), 777. https://doi.org/10.3390/ijerph15040777