

PERTEMUAN 18

PENYELESAIAN KASUS PADA METODE ELECTRE

3.1. Penyelesaian Kasus Dengan Metode Electre

Kasus yang diambil adalah tentang pemilihan untuk pembelian kartu SIM Card HP atau Kartu Seluler yang khusus digunakan untuk area kampus, dengan melakukan survei atau mengambil sampel data pada 7 mahasiswa di area kampus Politeknik Negeri Tanah Laut. Dimana beberapa mahasiswa ingin membeli kartu HP atau Kartu Seluler.

Dengan 4 alternatif yang ditawarkan oleh provider yaitu :

1. Telkomsel
2. Indosat
3. XL
4. 3 (Tri)

Dengan kriteria yang dimiliki dari setiap alternatif yaitu :

1. Jaringan = C1
2. Harga Kartu Seluler = C2
3. Paket Nelpon = C3
4. Paket SMS = C4
5. Paket Internet = C5

Dengan Bobot Yang kami berikan untuk setiap masing - masing kriteria yaitu :

1. Bobot Kriteria 1 = 5
2. Bobot Kriteria 2 = 2
3. Bobot Kriteria 3 = 4
4. Bobot Kriteria 4 = 2
5. Bobot Kriteria 5 = 5

Tabel Yang Menjadi Acuan Untuk Memecahkan Masalah pada Sebuah Kasus

Alternatif	Kriteria				
	C1	C2	C3	C4	C5
Telkomsel	5	3	3	3	2
Indosat	4	4	3	4	4

XL	4	4	3	3	4
3 (Tree)	2	4	3	3	4

Langkah 1 " Normalisasi Matriks Keputusan"

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^m x_{ij}^2}}, \text{ untuk } i=1,2,3,\dots,m \text{ dan } j=1,2,3,\dots,n.$$

$$R_{11} = \frac{x_{11}}{\sqrt{\sum_{i=1}^m x_{i1}^2}} = \frac{5}{\sqrt{5^2+4^2+4^2+2^2}} = \frac{5}{7,81025} = 0,64018$$

$$R_{21} = \frac{x_{21}}{\sqrt{\sum_{i=1}^m x_{i1}^2}} = \frac{4}{\sqrt{5^2+4^2+4^2+2^2}} = \frac{4}{7,81025} = 0,51215$$

$$R_{31} = \frac{x_{31}}{\sqrt{\sum_{i=1}^m x_{i1}^2}} = \frac{4}{\sqrt{5^2+4^2+4^2+2^2}} = \frac{4}{7,81025} = 0,51215$$

$$R_{41} = \frac{x_{41}}{\sqrt{\sum_{i=1}^m x_{i1}^2}} = \frac{2}{\sqrt{5^2+4^2+4^2+2^2}} = \frac{2}{7,81025} = 0,25607$$

$$R_{12} = \frac{x_{12}}{\sqrt{\sum_{i=1}^m x_{i2}^2}} = \frac{3}{\sqrt{3^2+4^2+4^2+4^2}} = \frac{3}{7,54983} = 0,39736$$

$$R_{22} = \frac{x_{22}}{\sqrt{\sum_{i=1}^m x_{i2}^2}} = \frac{4}{\sqrt{3^2+4^2+4^2+4^2}} = \frac{4}{7,54983} = 0,52981$$

$$R_{32} = \frac{x_{32}}{\sqrt{\sum_{i=1}^m x_{i2}^2}} = \frac{4}{\sqrt{3^2+4^2+4^2+4^2}} = \frac{4}{7,54983} = 0,52981$$

$$R_{42} = \frac{x_{42}}{\sqrt{\sum_{i=1}^m x_{i2}^2}} = \frac{4}{\sqrt{3^2+4^2+4^2+4^2}} = \frac{4}{7,54983} = 0,52981$$

$$R_{13} = \frac{x_{13}}{\sqrt{\sum_{i=1}^m x_{i3}^2}} = \frac{3}{\sqrt{3^2+3^2+3^2+3^2}} = \frac{3}{6} = 0,5$$

$$R_{23} = \frac{x_{23}}{\sqrt{\sum_{i=1}^m x_{i3}^2}} = \frac{3}{\sqrt{3^2+3^2+3^2+3^2}} = \frac{3}{6} = 0,5$$

$$R_{33} = \frac{x_{33}}{\sqrt{\sum_{i=1}^m x_{i3}^2}} = \frac{3}{\sqrt{3^2+3^2+3^2+3^2}} = \frac{3}{6} = 0,5$$

$$R_{43} = \frac{x_{43}}{\sqrt{\sum_{i=1}^m x_{i3}^2}} = \frac{3}{\sqrt{3^2+3^2+3^2+3^2}} = \frac{3}{6} = 0,5$$

$$R_{14} = \frac{x_{14}}{\sqrt{\sum_{i=1}^m x_{i4}^2}} = \frac{3}{\sqrt{3^2+4^2+3^2+3^2}} = \frac{3}{6,557} = 0,457$$

$$R_{24} = \frac{X_{24}}{\sqrt{\sum_{i=1}^m X_{2i4}}} = \frac{4}{\sqrt{3^2 + 4^2 + 3^2 + 3^2}} = \frac{4}{6,557} = 0,610$$

$$R_{34} = \frac{X_{34}}{\sqrt{\sum_{i=1}^m X_{2i4}}} = \frac{3}{\sqrt{3^2 + 4^2 + 3^2 + 3^2}} = \frac{3}{6,557} = 0,457$$

$$R_{44} = \frac{X_{44}}{\sqrt{\sum_{i=1}^m X_{2i4}}} = \frac{3}{\sqrt{3^2 + 4^2 + 3^2 + 3^2}} = \frac{3}{6,557} = 0,457$$

$$R_{15} = \frac{X_{15}}{\sqrt{\sum_{i=1}^m X_{2i5}}} = \frac{2}{\sqrt{2^2 + 4^2 + 4^2 + 4^2}} = \frac{2}{7,211} = 0,277$$

$$R_{25} = \frac{X_{25}}{\sqrt{\sum_{i=1}^m X_{2i5}}} = \frac{4}{\sqrt{2^2 + 4^2 + 4^2 + 4^2}} = \frac{4}{7,211} = 0,555$$

$$R_{35} = \frac{X_{35}}{\sqrt{\sum_{i=1}^m X_{2i5}}} = \frac{4}{\sqrt{2^2 + 4^2 + 4^2 + 4^2}} = \frac{4}{7,211} = 0,555$$

$$R_{45} = \frac{X_{45}}{\sqrt{\sum_{i=1}^m X_{2i5}}} = \frac{4}{\sqrt{2^2 + 4^2 + 4^2 + 4^2}} = \frac{4}{7,211} = 0,555$$

Dari perhitungan diatas diperoleh matriks sebagai berikut :

$$R = \begin{bmatrix} 0,640 & 0,397 & 0,5 & 0,457 & 0,277 \\ 0,512 & 0,530 & 0,5 & 0,610 & 0,555 \\ 0,512 & 0,530 & 0,5 & 0,457 & 0,555 \\ 0,256 & 0,530 & 0,5 & 0,457 & 0,555 \end{bmatrix}$$

Langkah 2 "Pembobotan Pada Matriks Yang Telah Dinormalisasi"

Diketahui Bobot yang dimiliki dari setiap masing - masing kriteria adalah :

$$W = (5, 2, 4, 2, 5)$$

$$V_{11} = R_{11} \times W_1 = 0,640 \times 5 = 3,201$$

$$V_{21} = R_{21} \times W_1 = 0,512 \times 5 = 2,561$$

$$V_{31} = R_{31} \times W_1 = 0,512 \times 5 = 2,561$$

$$V_{41} = R_{41} \times W_1 = 0,256 \times 5 = 1,280$$

$$V_{12} = R_{12} \times W_2 = 0,397 \times 2 = 0,795$$

$$V_{22} = R_{22} \times W_2 = 0,530 \times 2 = 1,060$$

$$V_{32} = R_{32} \times W_2 = 0,530 \times 2 = 1,060$$

$$V_{42} = R_{42} \times W_2 = 0,530 \times 2 = 1,060$$

$$V_{13} = R_{13} \times W_3 = 0,5 \times 4 = 2$$

$$V_{23} = R_{23} \times W_3 = 0,5 \times 4 = 2$$

$$\begin{aligned}
V_{33} &= R_{33} \times W_3 = 0,5 \times 4 = 2 \\
V_{43} &= R_{43} \times W_3 = 0,5 \times 4 = 2 \\
V_{14} &= R_{14} \times W_4 = 0,457 \times 2 = 0,915 \\
V_{24} &= R_{24} \times W_4 = 0,610 \times 2 = 1,220 \\
V_{34} &= R_{34} \times W_4 = 0,457 \times 2 = 0,915 \\
V_{54} &= R_{54} \times W_4 = 0,457 \times 2 = 0,915 \\
V_{15} &= R_{15} \times W_5 = 0,277 \times 5 = 1,387 \\
V_{25} &= R_{25} \times W_5 = 0,555 \times 5 = 2,774 \\
V_{35} &= R_{35} \times W_5 = 0,555 \times 5 = 2,774 \\
V_{45} &= R_{45} \times W_5 = 0,555 \times 5 = 2,774
\end{aligned}$$

Dari perhitungan diatas diperoleh matriks sebagai berikut :

$$V = \begin{bmatrix} 3,201 & 0,795 & 2 & 0,915 & 1,387 \\ 2,561 & 1,060 & 2 & 1,220 & 2,774 \\ 2,561 & 1,060 & 2 & 0,915 & 2,774 \\ 1,280 & 1,060 & 2 & 0,915 & 2,774 \end{bmatrix}$$

Langkah 3 "Menentukan Himpunan Concordance dan Discordance pada Index"

a. Concordance

Sebuah kriteria dalam suatu alternatif termasuk concordance jika :

$$C_{kl} = \{ j, v_{1j} \geq v_{2j} \} \text{ untuk } j = 1, 2, \dots, n$$

$$C_{12} = \{ j, v_{1j} \geq v_{2j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 1, 3 \}$$

$$C_{13} = \{ j, v_{1j} \geq v_{3j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 1, 3, 4 \}$$

$$C_{14} = \{ j, v_{1j} \geq v_{4j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 1, 3, 4 \}$$

$$C_{21} = \{ j, v_{2j} \geq v_{1j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 2, 3, 4, 5 \}$$

$$C_{23} = \{ j, v_{2j} \geq v_{3j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 1, 2, 3, 4, 5 \}$$

$$C_{24} = \{ j, v_{2j} \geq v_{4j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 1, 2, 3, 4, 5 \}$$

$$C_{31} = \{ j, v_{3j} \geq v_{1j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 3, 4, 5 \}$$

$$C_{32} = \{ j, v_{3j} \geq v_{2j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 1, 2, 3, 5 \}$$

$$C_{34} = \{ j, v_{3j} \geq v_{4j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 1, 2, 3, 4, 5 \}$$

$$C_{41} = \{ j, v_{4j} \geq v_{1j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 3, 4, 5 \}$$

$$C_{42} = \{ j, v_{4j} \geq v_{2j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 3, 5 \}$$

$$C_{43} = \{ j, v_{4j} \geq v_{3j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 3, 4, 5 \}$$

b. Discordance

Sebuah kriteria dalam suatu alternatif termasuk Discordance jika :

$$D_{kl} = \{ j, v_{kj} < v_{lj} \} \text{ untuk } j = 1, 2, \dots, n$$

$$D_{12} = \{ j, v_{1j} < v_{2j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 4, 5 \}$$

$$D_{13} = \{ j, v_{1j} < v_{3j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 5 \}$$

$$D_{14} = \{ j, v_{1j} < v_{4j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 2, 5 \}$$

$$D_{21} = \{ j, v_{2j} < v_{1j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 1 \}$$

$$D_{23} = \{ j, v_{2j} < v_{3j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 0 \}$$

$$D_{24} = \{ j, v_{2j} < v_{4j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 0 \}$$

$$D_{31} = \{ j, v_{3j} < v_{1j} \} \text{ untuk } j = 1, 2, \dots, 5 \\ = \{ 1 \}$$

$$D_{32} = \{ j, v_{3j} < v_{2j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 4 \}$$

$$D_{34} = \{ j, v_{3j} < v_{4j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 0 \}$$

$$D_{41} = \{ j, v_{4j} < v_{1j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 1 \}$$

$$D_{42} = \{ j, v_{4j} < v_{2j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 1, 4 \}$$

$$D_{43} = \{ j, v_{4j} < v_{3j} \} \text{ untuk } j = 1, 2, \dots, 5$$

$$= \{ 1 \}$$

Langkah 4 "Menghitung Matriks Concordance dan Discordance"

a. Menghitung Matriks Concordance

$$c_{kl} = \sum_{j \in C_w} w_j$$

$$C_{12} = w_1 + w_3$$

$$= 5 + 4 = 9$$

$$C_{13} = w_1 + w_3 + w_4$$

$$= 5 + 4 + 2 = 11$$

$$C_{14} = w_1 + w_3 + w_4$$

$$= 5 + 4 + 2 = 11$$

$$C_{21} = w_2 + w_3 + w_5$$

$$= 2 + 4 + 2 + 5 = 13$$

$$C_{23} = w_1 + w_2 + w_3 + w_4 + w_5$$

$$= 5 + 2 + 4 + 2 + 5 = 18$$

$$C_{24} = w_1 + w_2 + w_3 + w_4 + w_5$$

$$= 5 + 2 + 4 + 2 + 5 = 18$$

$$C_{31} = w_2 + w_3 + w_4 + w_5$$

$$= 2 + 4 + 2 + 5 = 13$$

$$C_{32} = w_1 + w_2 + w_3 + w_5$$

$$= 5 + 2 + 4 + 5 = 16$$

$$C_{34} = w_1 + w_2 + w_3 + w_4 + w_5$$

$$= 5 + 2 + 4 + 2 + 5 = 18$$

$$C_{41} = w2 + w3 + w4 + w5$$

$$= 2 + 4 + 2 + 5 = 13$$

$$C_{42} = w2 + w3 + w5$$

$$= 2 + 4 + 5 = 11$$

$$C_{43} = w2 + w3 + w4 + w5$$

$$= 2 + 4 + 2 + 5 = 13$$

Dari perhitungan diatas diperoleh matriks sebagai berikut :

$$C = \begin{bmatrix} - & 9 & 11 & 11 \\ 13 & - & 18 & 18 \\ 13 & 16 & - & 18 \\ 13 & 11 & 13 & - \end{bmatrix}$$

b. Menghitung Matriks Discordance

$$d_{kl} = \frac{\left\{ \max \left(v_{mn} - v_{mn-ln} \right) \right\}; m, n \in D_{kl}}{\left\{ \max \left(v_{mn} - v_{mn-ln} \right) \right\}; m, n = 1, 2, 3, \dots}$$

$$\begin{aligned} D_{12} &= \frac{\max \{ |v_{1j} - v_{2j}| \} j \in D_{12}}{\max \{ |v_{1j} - v_{2j}| \} \forall j} \\ &= \frac{\max \{ |0,795 - 1,060|; |0,915 - 1,220|; |1,387 - 2,774| \}}{\max \{ |3,201 - 2,561|; |0,795 - 1,060|; |2 - 2|; |0,915 - 1,220|; |1,387 - 2,774| \}} \\ &= 1 \end{aligned}$$

$$\begin{aligned} D_{13} &= \frac{\max \{ |v_{1j} - v_{3j}| \} j \in D_{13}}{\max \{ |v_{1j} - v_{3j}| \} \forall j} \\ &= \frac{\max \{ |0,795 - 1,060|; |1,387 - 2,774| \}}{\max \{ |3,201 - 2,561|; |0,795 - 1,060|; |2 - 2|; |0,915 - 0,915|; |1,387 - 2,774| \}} \\ &= 1 \end{aligned}$$

$$\begin{aligned} D_{14} &= \frac{\max \{ |v_{1j} - v_{4j}| \} j \in D_{14}}{\max \{ |v_{1j} - v_{4j}| \} \forall j} \\ &= \frac{\max \{ |0,795 - 1,060|; |1,387 - 2,774| \}}{\max \{ |3,201 - 1,280|; |0,795 - 1,060|; |2 - 2|; |0,915 - 0,915|; |1,387 - 2,774| \}} \\ &= 0,722 \end{aligned}$$

$$\begin{aligned} D_{21} &= \frac{\max \{ |v_{2j} - v_{1j}| \} j \in D_{21}}{\max \{ |v_{2j} - v_{1j}| \} \forall j} \\ &= \frac{\max \{ |2,561 - 3,201| \}}{\max \{ |2,561 - 3,201|; |1,060 - 0,795|; |2 - 2|; |1,220 - 0,915|; |2,774 - 1,387| \}} \end{aligned}$$

$$= 0,462$$

$$\begin{aligned} D_{23} &= \frac{\max \{|v2j - v3j|\} j \in D23}{\max \{|v2j - v3j|\} \forall j} \\ &= \frac{\max \{0\}}{\max \{|2,561 - 2,561|; |1,060 - 1,060|; |2 - 2|; |1,220 - 0,915|; |2,774 - 2,774|\}} \\ &= 0 \end{aligned}$$

$$\begin{aligned} D_{24} &= \frac{\max \{|v2j - v4j|\} j \in D24}{\max \{|v2j - v4j|\} \forall j} \\ &= \frac{\max \{0\}}{\max \{|2,561 - 1,280|; |1,060 - 1,060|; |2 - 2|; |1,220 - 0,915|; |2,774 - 2,774|\}} \\ &= 0 \end{aligned}$$

$$\begin{aligned} D_{31} &= \frac{\max \{|v3j - v1j|\} j \in D31}{\max \{|v3j - v1j|\} \forall j} \\ &= \frac{\max \{2,561 - 3,201\}}{\max \{|2,561 - 3,201|; |1,060 - 0,795|; |2 - 2|; |0,915 - 0,915|; |2,774 - 1,387|\}} \\ &= 0,462 \end{aligned}$$

$$\begin{aligned} D_{32} &= \frac{\max \{|v3j - v2j|\} j \in D32}{\max \{|v3j - v2j|\} \forall j} \\ &= \frac{\max \{0,915 - 1,220\}}{\max \{|2,561 - 2,561|; |1,060 - 1,060|; |2 - 2|; |0,915 - 1,220|; |2,774 - 2,774|\}} \\ &= 1 \end{aligned}$$

$$\begin{aligned} D_{34} &= \frac{\max \{|v3j - v4j|\} j \in D34}{\max \{|v3j - v4j|\} \forall j} \\ &= \frac{\max \{0\}}{\max \{|2,561 - 1,280|; |1,060 - 1,060|; |2 - 2|; |0,915 - 0,915|; |2,774 - 2,774|\}} \\ &= 0 \end{aligned}$$

$$\begin{aligned} D_{41} &= \frac{\max \{|v4j - v1j|\} j \in D41}{\max \{|v4j - v1j|\} \forall j} \\ &= \frac{\max \{1,280 - 3,201\}}{\max \{|1,280 - 3,201|; |1,060 - 0,795|; |2 - 2|; |0,915 - 0,915|; |2,774 - 1,387|\}} \\ &= 1 \end{aligned}$$

$$\begin{aligned} D_{42} &= \frac{\max \{|v4j - v2j|\} j \in D42}{\max \{|v4j - v2j|\} \forall j} \\ &= \frac{\max \{1,280 - 2,561\}; |0,915 - 1,220\}}{\max \{|1,280 - 2,561|; |1,060 - 1,060|; |2 - 2|; |0,915 - 1,220|; |2,774 - 2,774|\}} \\ &= 1 \end{aligned}$$

$$\begin{aligned} D_{43} &= \frac{\max \{|v4j - v3j|\} j \in D43}{\max \{|v4j - v3j|\} \forall j} \\ &= \frac{\max \{1,280 - 2,561\}}{\max \{|1,280 - 2,561|; |1,060 - 1,060|; |2 - 2|; |0,915 - 0,915|; |2,774 - 2,774|\}} \\ &= 1 \end{aligned}$$

Dari perhitungan diatas diperoleh matriks sebagai berikut :

$$D = \begin{bmatrix} - & 1 & 1 & 0,722 \\ 0,462 & - & 0 & 0 \\ 0,462 & 1 & - & 0 \\ 1 & 1 & 1 & - \end{bmatrix}$$

Langkah 5 "Menghitung Matriks Dominan Concordance dan Discordance"

a. Menghitung Matriks Dominan Concordance

$$C_{ij} \geq \underline{c}$$

Rumus 5.1

Nilai Threshold (\underline{c}) adalah :

$$\underline{c} = \frac{9 + 11 + 11 + 13 + 18 + 18 + 13 + 16 + 18 + 13 + 11 + 13}{4(4-1)} = \frac{117}{12} = 13,7$$

Sehingga diperoleh matriks sebagai berikut :

$$F = \begin{bmatrix} - & 0 & 0 & 0 \\ 0 & - & 1 & 1 \\ 0 & 1 & - & 1 \\ 0 & 0 & 0 & - \end{bmatrix}$$

b. Menghitung Matriks Dominan Discordance

$$G_{ij} = \begin{cases} 1 & \text{jika } G_{ij} \geq \underline{c} \\ 0 & \text{jika } G_{ij} \leq \underline{c} \end{cases}$$

Sehingga diperoleh matriks sebagai berikut :

$$\underline{d} = \frac{1 + 1 + 1 + 0,722 + 0,462 + 0 + 0 + 0,462 + 1 + 0 + 1 + 1 + 1}{4(4-1)} = \frac{7,645}{12} = 0,637$$

Sehingga diperoleh matriks sebagai berikut :

$$G = \begin{bmatrix} - & 1 & 1 & 1 \\ 0 & - & 0 & 0 \\ 0 & 1 & - & 0 \\ 1 & 1 & 1 & - \end{bmatrix}$$

Langkah 6 "Menentukan Agregate Dominance Matrix"

Rumus Umum untuk anggota matriks agregate dominan adalah

$$e_{kl} = f_{kl} \times g_{kl}$$

$$E_{12} = f_{12} \times g_{12} = 0 \times 1 = 0$$

$$E_{13} = f_{13} \times g_{13} = 0 \times 1 = 0$$

$$E_{14} = f_{14} \times g_{14} = 0 \times 1 = 0$$

$$E_{21} = f_{21} \times g_{21} = 0 \times 0 = 0$$

$$E_{23} = f_{23} \times g_{23} = 1 \times 0 = 0$$

$$E_{24} = f_{24} \times g_{24} = 1 \times 0 = 0$$

$$E_{31} = f_{31} \times g_{31} = 0 \times 0 = 0$$

$$E_{32} = f_{32} \times g_{32} = 1 \times 1 = 1$$

$$E_{34} = f_{34} \times g_{34} = 1 \times 0 = 0$$

$$E_{41} = f_{41} \times g_{41} = 0 \times 1 = 0$$

$$E_{42} = f_{42} \times g_{42} = 0 \times 1 = 0$$

$$E_{43} = f_{43} \times g_{43} = 0 \times 1 = 0$$

Sehingga diperoleh matriks agregate dominan

$$E = \begin{bmatrix} - & 0 & 0 & 0 \\ 0 & - & 0 & 0 \\ 0 & 1 & - & 0 \\ 0 & 0 & 0 & - \end{bmatrix}$$

Langkah 7 "Eliminasi Alternatif yang *Less Favourable*"

Matriks E memberikan urutan pilihan dari setiap alternatif , yaitu bila $E_{kl} = 1$ maka alternatif A_k merupakan alternatif yang lebih baik daripada A_l . Sehingga , baris dalam

matriks E yang memiliki jumlah $E_{k1} = 1$ paling sedikit dapat di eliminasi. Dengan demikian baris pertama, kedua, dan keempat dapat dieleminasi dan tersisa baris ketiga. Nilai $E_{32} = 1$ menunjukkan bahwa alternatif ketiga lebih baik dari alternatif kesatu, kedua, dan keempat. Sehingga pengambil keputusan akan mengambil alternatif ketiga (3).