Elimination Et Choix Traduisant la Réalité (ELECTRE) JOBSHEET 5

Arranged By:

Rajendra Rakha Arya Prabaswara

(1941720080/20)

PROGRAM STUDI D-IV TEKNIK INFORMATIKA

JURUSAN TEKNOLOGI INFORMASI

POLITEKNIK NEGERI MALANG

AN EXAMPLE OF NORMALIZATION OF A DECISION MATRIX

$$X = \begin{bmatrix} 4 & 4 & 5 & 3 & 3 \\ 3 & 3 & 4 & 2 & 3 \\ 5 & 4 & 2 & 2 & 2 \end{bmatrix}$$

1. **From the case study in the ELECTRE Handout/Material. Implement it in excel formulas!**

HITUNG ELECTRE FROM HANDOUT

Alternatif	kriteria				
	c1	c2	c3	c4	c5
a1	4	4	5	3	3
a2	3	3	4	2	3
a3	5	4	2	2	2

BOBOT KRITERIA

c1	c2	c3	c4	c5
5	0	0	0	0
0	3	0	0	0
0	0	4	0	0
0	0	0	4	0
0	0	0	0	2

Normalisasi

Alternatif	kriteria				
	c1	c2	c3	c4	c5
a1	0,565685	0,624695	0,745356	0,727607	0,639602
a2	0,424264	0,468521	0,596285	0,485071	0,639602
a3	0,707107	0,624695	0,298142	0,485071	0,426401

Pembobotan

Alternatif	kriteria				
	c1	c2	c3	c4	c5
a1	2,828427	1,874085	2,981424	2,910428	1,279204
a2	2,12132	1,405564	2,385139	1,940285	1,279204
a3	3,535534	1,874085	1,19257	1,940285	0,852803

MATRIX CALCULATION

BOBOT KRITERIA

	D1	D2	D3	D4	D5
a1	2,82842712	1,874085	2,981424	2,910428	1,279204
a2	2,12132034	1,405564	2,385139	1,940285	1,279204
a3	3,53553391	1,874085	1,19257	1,940285	0,852803

D23	1	2			
D31			3	4	5
D32			3		5

CONORDANCE MATRIX

	1	2	3
C1		18	13
C2	2		10
C3	8	12	

MATRIX CONORDANCE

C12	18
C13	13
C21	2
C23	10
C31	8
C32	12

MATRIX DISORDANCE

D12	0
D13	0,39528471
D21	1
D23	1
D31	1
D32	1

DOMINAN CONCOR & DISOR DANCE

THRESHOLD	
CONCORDANCE	DISORDANCE
10,5	0,73

DISORDANCE MATRIX

	1	2	3
D1		0	0,3952
D2	1		1
D3	1	1	

MATRIX F (CONORDANCE)

		1	1
0			0
0		1	

MATRIX G (DISORDANCE)

		0	0
1			1
1		1	

ELECTRE

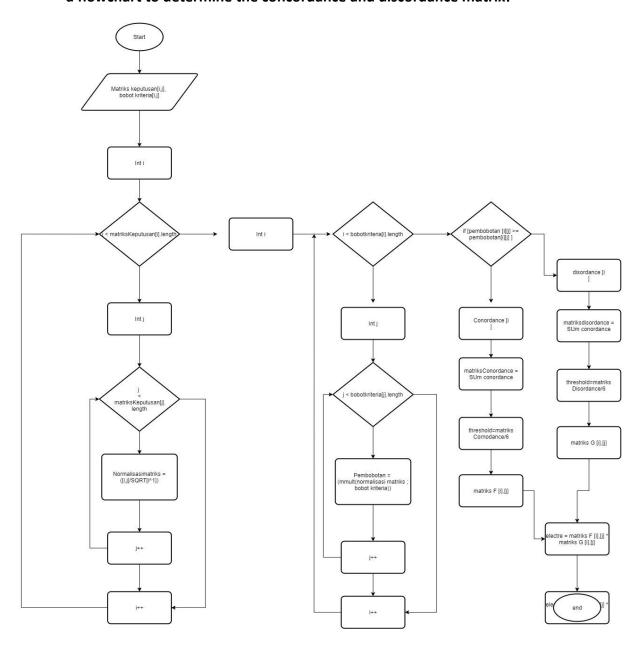|		0	0
0			0
0		1	

2. Consider the following questions:

There are 3 types of alternative determinants of cancer cells in the human body, namely: p53 inactivation, activation Rb, c-myc activation. Based on these alternatives, there are criteria derived from the mutated gene, namely p53 protein expression(in%), Rb expression(in%) , c-myc expression(in%).

Alternative	Criteria		
	C1	C2	C3
A1	4	4	5
A2	4	5	4
A3	4	3	3

The weight of the criteria is (3,3,4)

2. Mention the step by step solution to problem no. 2 with the ELECTRE method using a flowchart to determine the concordance and discordance matrix!

3. Count using the ELECTRE method for question no. 2 to determine the best alternative!

Alternatif	kriteria		
	c1	c2	c3
a1	4	4	5
a2	4	5	4
a3	4	3	5

BOBOT KRITERIA

	c1	c2	c3
a1	3	0	0
a2	0	3	0
a3	0	0	4

Normalisasi

Alternatif	kriteria		
	c1	c2	c3
a1	0,57735	0,565685	0,615457
a2	0,57735	0,707107	0,492366
a3	0,57735	0,424264	0,615457

Pembobotan

Alternatif	kriteria		
	c1	c2	c3
a1	1,732050808	1,697056	2,46183
a2	1,732050808	2,12132	1,969464
a3	1,732050808	1,272792	2,46183

MATRIX DISORDANCE

	1	2	3
C1		0	0
C2	1		0
C3	1	1	

MATRIX CONORDANCE

	1	2	3
C1		7	10
C2	6		6
C3	7	7	

HIMPUNAN CONORDANCE & DISORDANCE

CONORDANCE

Alternatif	kriteria			Matriks Concordance
	c1	c2	c3	
C12	3		4	7
C13	3	3	4	10
C21	3	3		6
C23	3	3		6
C31	3		4	7
C32	3		4	7

DISORDANCE

Alternatif	kriteria			Matriks Disordance
	c1	c2	c3	
D12		2		0
D13				0
D21			3	1
D23			3	0
D31		2		1
D32		2		1

DOMINAN CONCOR & DISOR DANCE

THRESHOLD

CONCORDANCE	DISORDANCE
7,166666667	0,50

ELECTRE

	0	0
0		0
0	0	

MATRIX F (CONORDANCE)

	0	1
0		0
0	0	

MATRIX G (DISORDANCE)

	0	0
1		0
1	1	

QUESTION

1. **What is the difference between concordance and disordance matrices?**
   - **Concordance** adds up the weights" included in the concordance subset

   - **Disordance** divides the maximum difference between the criteria included in the disordance subset

2. **Write down the results of each step of the excel calculation on the page below!**

Alternatif	kriteria		
	c1	c2	c3
a1	4	4	5
a2	4	5	4
a3	4	3	5

BOBOT KRITERIA

	c1	c2	c3
a1	3	0	0
a2	0	3	0
a3	0	0	4

Normalisasi

Alternatif	kriteria		
	c1	c2	c3
a1	0,57735	0,565685	0,615457
a2	0,57735	0,707107	0,492366
a3	0,57735	0,424264	0,615457

Pembobotan

Alternatif	kriteria		
	c1	c2	c3
a1	1,732050808	1,697056	2,46183
a2	1,732050808	2,12132	1,969464
a3	1,732050808	1,272792	2,46183

MATRIX DISORDANCE

	1	2	3
C1		0	0
C2	1		0
C3	1	1	

MATRIX CONORDANCE

	1	2	3
C1		7	10
C2	6		6
C3	7	7	

HIMPUNAN CONORDANCE & DISORDANCE

CONORDANCE

Alternatif	kriteria			Matriks Concordance
	c1	c2	c3	
C12	3		4	7
C13	3	3	4	10
C21	3	3		6
C23	3	3		6
C31	3		4	7
C32	3		4	7

DISORDANCE

Alternatif	kriteria			Matriks Disordance
	c1	c2	c3	
D12		2		0
D13				0
D21			3	1
D23			3	0
D31		2		1
D32		2		1

DOMINAN CONCOR & DISOR DANCE

THRESHOLD

CONCORDANCE	DISORDANCE
7,166666667	0,50

ELECTRE

	0	0
0		0
0	0	

MATRIX F (CONORDANCE)

	0	1
0		0
0	0	

MATRIX G (DISORDANCE)

	0	0
1		0
1	1	

3. **What is the final result of the DSS calculation using the ELECTRE method in the above case?**

   There is no alternative in this case using the electre method