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The Rough Set Method for Teacher Performance in Determining Achievement Assessment

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Abstract

Improving teacher performance is a must so that the quality of their performance increases. This research is Rough Set Method For Teacher Performance In Determining Achievement Assessment In Sdn Negeri 10 Koto Bungus Padang . This is done with data mining to find new knowledge in the form of rules using the rough set method in analyzing teacher performance to determine outstanding teachers at SDN 10 Koto Bungus Padang. The results of this study are in the form of a rule that will determine which teachers are highly achieving, achieving and not achieving. The process of finding a rule in the Rough Set method starts from the formation of a Decision System which is the initial data from several attributes, then formed the Equivalence Class, Discernibility Matrix, Discernibility Matrix Modulo D, then finally General Rules and using Rosetta Software. The results of the General Rules will then become new knowledge in this study.

Keywords: *Data Mining, Rough Set, Rule, Outstanding Teacher*

1. INTRODUCTION

Teachers are the backbone of educational activities, especially those related to the teaching and learning process [1]. Without the role of the teacher, the teaching and learning process will fail or even fail. Therefore, in the management of education, the role of teachers in education development efforts is always improved. Teacher performance or performance must always be improved considering the challenges of world education to produce quality human resources that are able to compete in the global era [2]. Performance or work performance (performance) can be interpreted as the result of work in accordance with the rules and standards that apply to each organization, in this case the school [3], [4].

To realize the spirit of teachers in improving the quality of education in the city of Padang, it can be done by selecting outstanding teachers so that they can become motivation, dedication, loyalty and professionalism of teachers, which are expected to increase positively in increasing teachers in producing the city of Padang. And this of course can improve school performance so that SDN 10 Koto Bungus Padang is able to compete with other best public SDNs in terms of quality of education.To analyze teacher performance in determining outstanding teachers, it is done using the rough set method. The results of this study are in the form of rules that will determine which teachers are highly achieving, achieving and not achieving. The process of finding the rules in the Rough Set method starts from the formation of a Decision System which is the initial data of several attributes, then formed the Equivalence Class, Discernibility

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Matrix, Modulo D Discernibility Matrix starting from the last General Rules and using Rosetta Software [5], [6]. The results of these General Rules will then become new knowledge in this study.

2. LITERATURE

Data Mining

Data mining is the process of finding interesting knowledge, patterns, and information from a large set of data through a process of descriptive, understanding and prediction using model or algorithm [7]. Data mining is a field that is growing rapidly in line with the development of information technology which involves the use of large and small scale databases. Information stored in databases becomes useless over time. Data mining can increase the added value of a database. We can dig up information stored in databases that have accumulated over a long period of time to obtain additional information. Many algorithms implement data mining. One algorithm that is quite simple and easy enough to implement is the Rough Set algorithm [8].

Rough Set

The Rough Set was built by Zdzislaw Pawlak in the early 1980s. The philosophy of this method is that information (knowledge, data) can be associated with objects. The stages in using the Rough Set algorithm are as follows: [9]

1. Data Selection used conditions and decision attributes.
2. The formation of a Decision system that contains attributes of conditions and attributes of decisions.
3. Equivalence Class formation, namely by eliminating repeated data.
4. The formation of the Discernibility Matrix Modulo D, a matrix that contains a comparison between different data attributes of conditions and attributes of decisions.
5. Generating reduct using boolean algebra.
6. Generating rules

3. RESEARCH METHOD

The stages taken in the data mining process begin with data selection from source data to target data, the preprocessing stage to improve data quality, transformation, data mining and interpretation and evaluation stages which produce output in the form of new knowledge which is expected to make a better contribution. The details are described as follows [10]:

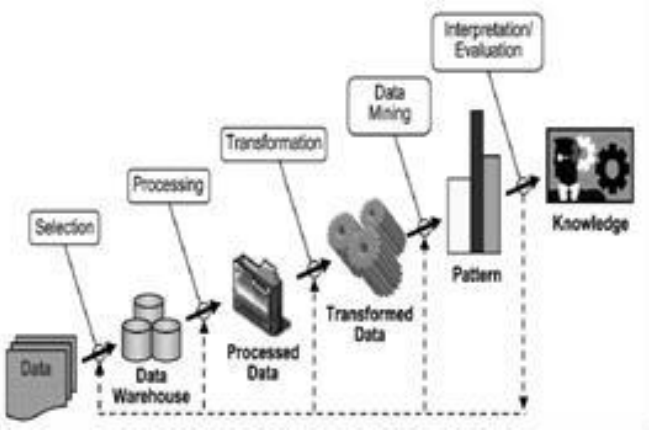

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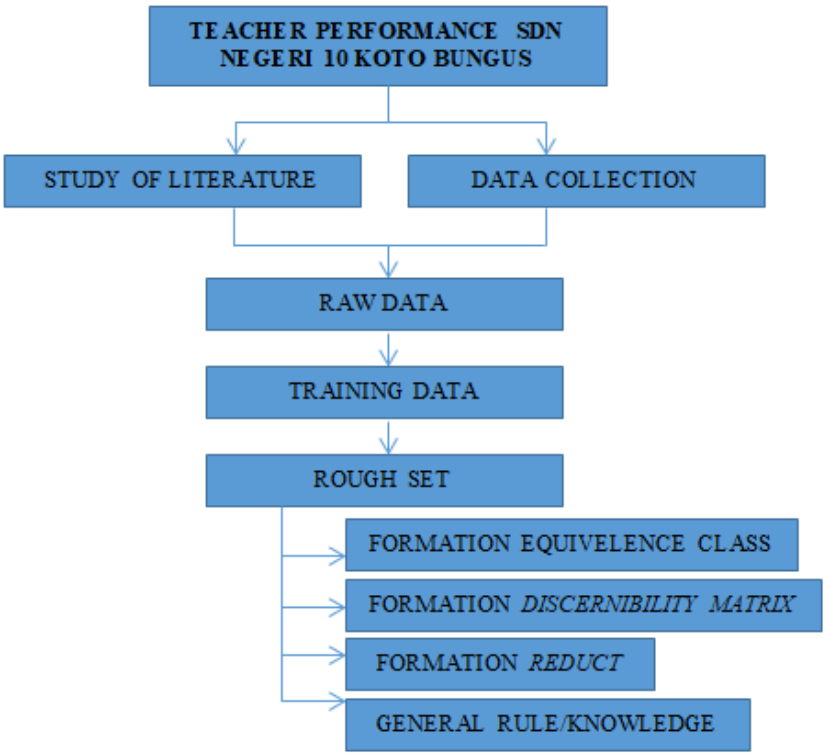
Figure 1. Stages of Data Mining

The framework used in this research can be seen in Figure 2:



4. DISCUSSI(

A. Data Selection

From the results of research and data collection of teacher performance at SDN 10 Koto Bungus Padang, the assessment component data obtained from each of the criteria for outstanding teachers at SDN 10 Koto Bungus Padang along with the attributes: Pedagogic, Personality, Social and Prefessional. In order to assess and analyze teacher performance based on a number of assessment components such as:

1. Pedagogic (Max 50%)
2. Personality (Max 20%)
3. Social (Max 10%)
4. Professional (Max 20%)

The criteria being scored	Weight
a. Mastering students.	5%
b. Mastering learning theory and learning principles which is educational.	10%
c. Curriculum Development.	10%
d. Learning activities that are Educating (Approaches / Learning Strategies).	10%
e. Potential Development of Students.	5%
f. Communication with Students.	5%
g. Assessment and Evaluation.	5%

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The attributes of the personality assessment components can be seen in table 2.

Table 2. Components of Personality Assessment

Assessed Criteria	weight
a. Acting in accordance with national religious, legal, social and cultural norms	10%
b. Shows a mature and exemplary person	5%
c. Work ethic, high responsibility	5%

The attributes of the social assessment component can be seen in table 3.

Table 3. Components of Social Assessment

Assessed Criteria	weight
a. Be inclusive, act objectively, and do not discriminate	5%
b. Communication with fellow teachers, education staff, parents, students and the community.	5%

The attributes of the Professional assessment component can be seen in table 4.

Table 4. Components of Professional Assessment

Assessed Criteria	weight
a. The use of material, structure, scientific mindset concepts supports the subjects being taught	10%
b. Developing professionalism through reflective action.	10%

B. **Establishment of a Decision System**

The Decision System for analyzing teacher performance in determining outstanding teachers consists of:

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1. Attribute Conditions include pedagogical values, personal values, social values and professional values.
2. Decision Attributes include teacher achievement.

The Decision System used is 10 (ten) data which are used as examples can be seen in table 5 below;

Table 5. Decision System

TEACHER NAME	PENDAGOGIC VALUE	PERSONALITY VALUE	SOCIAL VALUE	PROFESSIONAL VALUE	TOTAL VALUE
AR	48	15	10	20	93
ID	43	18	6	18	85
NR	38	17	9	5	69
SM	40	10	5	17	72
DM	42	14	7	15	78
SD	40	20	5	12	77
AM	35	8	3	11	57
TN	41	15	8	15	79
IN	47	20	10	20	97
ST	35	12	8	5	60

C. Data Transformation

The total assessment results are then made into categories with the following conditions;

<50 is said to be less = 1

$51 \leq X \leq 70$ is said to be Enough = 2

$71 \leq X \leq 80$ is said to be Good = 3

81 $X \leq 100$ is said to be Very Good = 4

D. Equivalence Class

Equivalence Class is grouping the same objects for attribute A ∈ (U, A). Before we enter the steps to form an equivalence class, the first step is to transform back to attribute A (pedagogic value), attribute B (personality value), attribute C (social value) and attribute D (professional value).

Table 6. Decision System 2nd transformation

TEACHER NAME	PENDAGOGIC VALUE	PERSONALITY VALUE	SOCIAL VALUE	PROFESSIONAL VALUE	TOTAL VALUE	DECISION
AR	4	3	4	4	4	Very Good
ID	3	4	2	4	4	Very Good
NR	2	4	4	1	2	Enough
SM	2	3	2	4	3	Good

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DM	3	3	3	3	3	Good
SD	2	4	2	3	3	Good
AM	1	1	1	3	2	Enough
TN	3	3	3	3	3	Good
IN	4	4	4	4	4	Very Good
ST	1	2	3	1	2	Enough

The formation of an equivalence class is done by eliminating data that has similarities, so that the equivalence class data only remains 1 (one) record. The results of forming Class equivalence can be seen in table 7 as shown below:

Tabel 7. *Equivalence Class*

	A	B	C	D	K
EC1	4	3	4	4	4
EC2	3	4	2	4	4
EC3	2	4	4	1	2
EC4	2	3	2	4	3
EC5	3	3	3	3	3
EC6	2	4	2	3	3
EC7	1	1	1	3	2
EC8	4	4	4	4	4
EC9	1	2	3	1	2

Discernibility Matrix formation

To get the value of the Discernibility Matrix, it is by classifying the different attributes between the ith object and the jth object (what is seen is only the condition attribute). Based on the data above, the following is the Discernibility Matrix, it can be seen in table 8.

Table 8. Discernibility Matrix

	EC1	EC2	EC3	EC4	EC5	EC6	EC7	EC8	EC9
EC1	x	ABC	ABD	AC	ACD	ABCD	ABCD	B	ABCD
EC2	ABC	x	ACD	AB	BCD	AD	ABCD	AC	ABCD
EC3	ABD	ACD	x	BCD	ABCD	CD	ABCD	AD	ABC
EC4	AC	AB	BCD	x	ACD	BD	ABCD	ABC	ABCD
EC5	ACD	BCD	ABCD	ACD	x	ABC	ABC	ABCD	ABD
EC6	ABCD	AD	CD	BD	ABC	x	ABC	ACD	ABCD
EC7	ABCD	ABCD	ABCD	ABCD	ABC	ABC	x	ABCD	BCD
EC8	B	AC	AD	ABC	ABCD	ACD	ABCD	x	ABCD
EC9	ABCD	ABCD	ABC	ABCD	ABD	ABCD	BCD	ABCD	x

E. Formation of Discernibility Matrix Modulo D

Discernibility Matrix Modulo D is a matrix that contains comparisons between different data attributes, conditions and decision attributes. Data with different condition attributes, but the

same decision attributes are still considered the same. The Modulo D Discernibility Matrix can be seen in table 9.

Table 9. Discernibility Matrix Modulo D

	EC1	EC2	EC3	EC4	EC5	EC6	EC7	EC8	EC9
EC1	x	x	ABD	AC	ACD	ABCD	ABCD	x	ABCD
EC2	x	x	ACD	AB	BCD	AD	ABCD	x	ABCD
EC3	ABD	ACD	x	BCD	ABCD	CD	x	AD	x
EC4	AC	AB	BCD	x	x	x	ABCD	ABC	ABCD
EC5	ACD	BCD	ABCD	x	x	x	ABC	ABCD	ABD
EC6	ABCD	AD	CD	x	x	x	ABC	ACD	ABCD
EC7	ABCD	ABCD	x	ABCD	ABC	ABC	x	ABCD	x
EC8	x	x	AD	ABC	ABCD	ACD	ABCD	x	ABCD
EC9	ABCD	ABCD	x	ABCD	ABD	ABCD	x	ABCD	x

From the Moduleo D Discernibility Matrix table it produces Reducts using Boolean Algebra so that it can be seen in table 10 which is below.

Table 10 Reducts generated

Class	CNF Of Boolean Function	Prime Implicant	Reduct
EC1	(A v B v D) ^ (A v C) ^ (A v C v D) ^ (A v B v C v D) ^ (A v B v C v D) ^ (A v B v C v D)	A ^ B	{A,B}
EC2	(A v C v D) ^ (A v B) ^ (B v C v D) ^ (A v D) ^ (A v B v C v D) ^ (A v B v C v D)	B ^ C ^ D	{B,C,D}
EC3	(A v B v D) ^ (A v C v D) ^ (B v C v D) ^(A v B v C v D) ^ (C v D) ^(A v D)	A^C	{A,C}
EC4	(A v C) ^ (A v B) ^ (B v C v D) ^ (A v B v C v D) ^ (A v B v C) ^ (A v B v C v D)	A^D	{A,D}
EC5	(A v C v D) ^ (B v C v D) ^ (A v B v C v D) ^ (A v B v C) ^ (A v B v C v D) ^ (A v B v D)	B^D	{B,D}
EC6	(A v B v C v D) ^ (A v D) ^ (C v D) ^ (A v B v C) ^ (A v C v D) ^ (A v B v C v D)	C ^ (D v B)	{C,D} {B,C}
EC7	(A v B v C v D) ^(A v B v C v D)^(A v B v C v D)^ (A v B v C)^(A v B v C) (A v B v C v D)	D	{D}
EC8	(A v D) ^ (A v B v C) ^ (A v B v C v D) ^ (A v C v D) ^ (A v B v C v D) ^ (A v B v C v D)	A v B	{A}. {B}
EC9	(A v B v C v D) ^(A v B v C v D)^(A v B v C v D)^ (A v B v D)^(A v B v C v D) (A v B v C v D)	C	{C}

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Based on the results of the reducts above, it can produce a rule consisting of a combination of the following attributes

1. {A, B} = Pedagogic and Personality
2. {B, C, D} = Personality, Social and Professional
3. {A, C} = Pedagogic and Social
4. {A, D} = Pedagogic and Professional
5. {B, D} = Personality and Professional
6. {C, D} = Social and Professional
7. {B, C} = Personality and Social
8. {D} = Professional
9. {A} = Pedagogic
10. {B} = Personality
11. {C} = Social

So that the resulting rule is based on the equivalence class by comparing it with a combination of existing attributes, so that the results can be seen in table 11 as follows;

Table 11. Results of the General Rule

	Reduct	General Rule
1	{A,B} {Personality Pedagogy)	If Pedagogic (4) and Personality(3) then Value Teacher Achievements (4) If Pedagogic (3) and Personality(4) then Value Teacher Achievements (4) If Pedagogic (2) and Personality(4) then Value Teacher Achievements (2) or Value Teacher Achievements (3) If Pedagogic (2) and Personality(3) then Value Teacher Achievements (3) If Pedagogic (3) and Personality(3) then Value Teacher Achievements (3) If Pedagogic (1) and Personality(1) then Value Teacher Achievements (2) If Pedagogic (4) and Personality(4) then Value Teacher Achievements (4) If Pedagogic (1) and Personality(2) then Value Teacher Achievements (2)
2	{B, C, D} { Personality, Social and Professional}	If Personality (3) and Social (4) and Professional (4) then Value Teacher Achievements (4) If Personality (4) and Social (2) and Professional (4) then Value Teacher Achievements (4) If Personality (4) and Social (4) and Professional (1) then Value Teacher Achievements (2) If Personality (3) and Social (2) and Professional (4) then Value Teacher Achievements (3) If Personality (3) and Social (3) and Professional (3) then Value Teacher Achievements (3) If Personality (4) and Social (2) and Professional (3) then Value Teacher Achievements (3) If Personality (1) and Social (1) and Professional (3) then Value Teacher Achievements (2) If Personality (4) and Social (4) and Professional (4) then Value Teacher Achievements (4) If Personality (2) and Social (3) and Professional (1) then Value Teacher Achievements (2)

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If the data processing has been completed manually, it is continued with processing using

the Rosetta 1.4.4.1 application. The decision system from Rosetta has been imported into the system through the data input procedure [11] which is shown in the following figure:

Figure 3

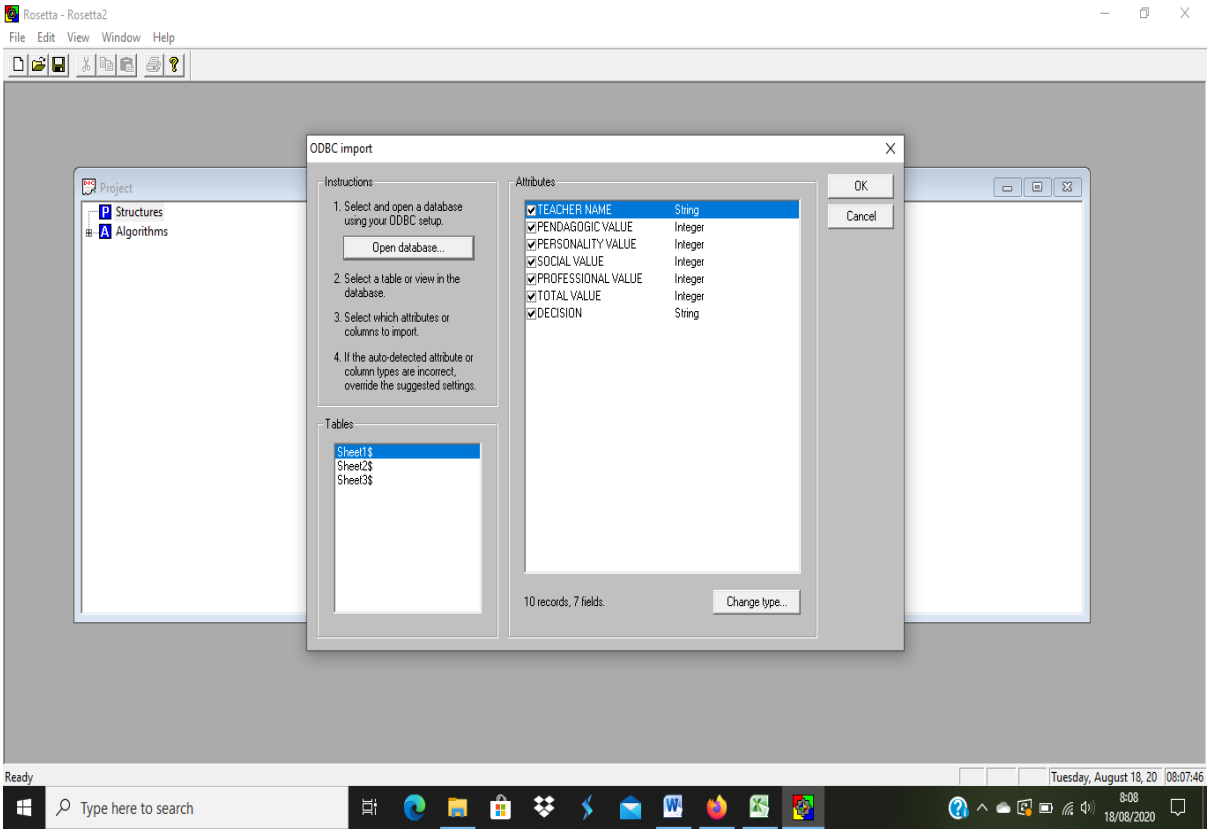
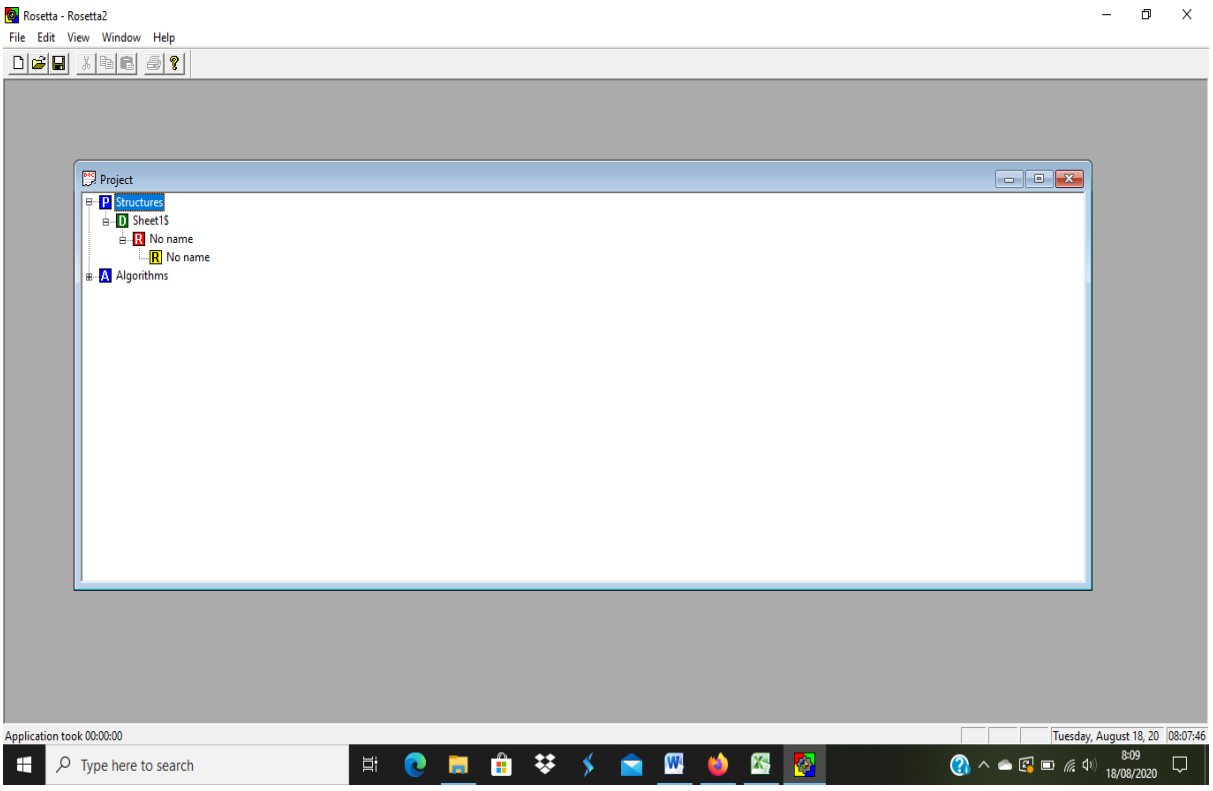
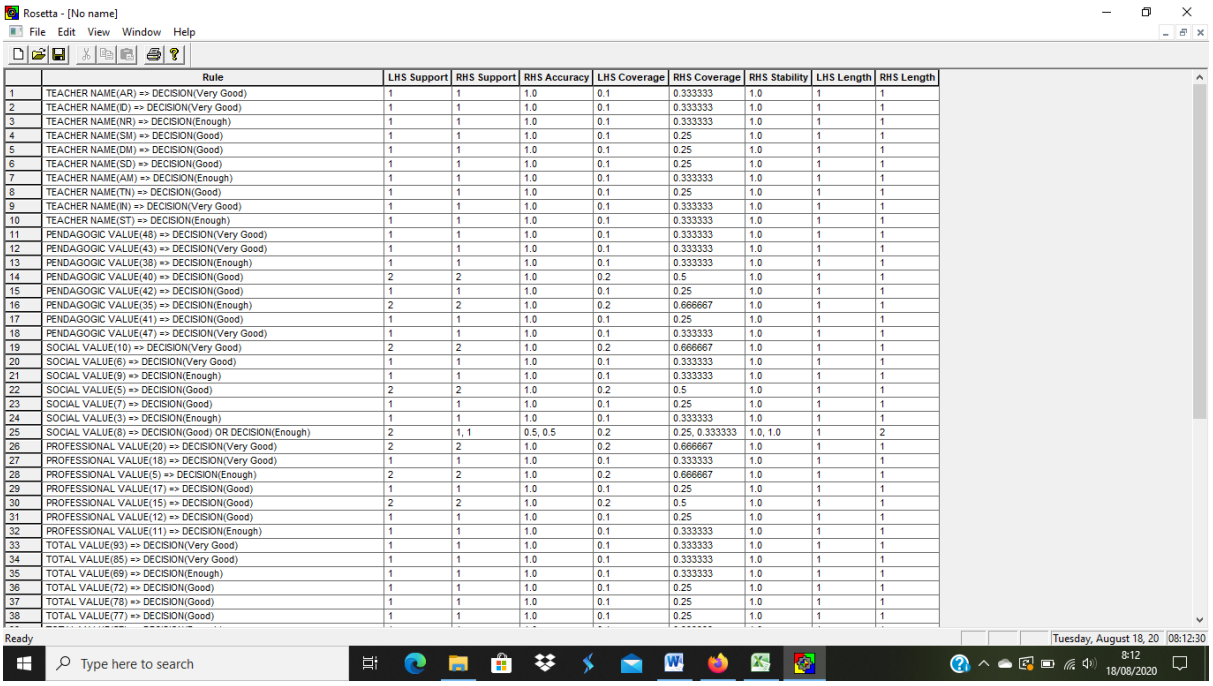


Figure 4




Rosetta - [No name]

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	Rule	LHS Support	RHS Support	RHS Accuracy	LHS Coverage	RHS Coverage	RHS Stability	LHS Length	RHS Length
1	TEACHER NAME(AR) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
2	TEACHER NAME(ID) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
3	TEACHER NAME(NR) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
4	TEACHER NAME(SM) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
5	TEACHER NAME(DM) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
6	TEACHER NAME(SD) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
7	TEACHER NAME(AM) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
8	TEACHER NAME(TN) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
9	TEACHER NAME(IN) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
10	TEACHER NAME(ST) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
11	PENDAGOGIC VALUE(48) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
12	PENDAGOGIC VALUE(43) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
13	PENDAGOGIC VALUE(38) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
14	PENDAGOGIC VALUE(40) => DECISION(Good)	2	2	1.0	0.2	0.5	1.0	1	1
15	PENDAGOGIC VALUE(42) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
16	PENDAGOGIC VALUE(35) => DECISION(Enough)	2	2	1.0	0.2	0.666667	1.0	1	1
17	PENDAGOGIC VALUE(41) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
18	PENDAGOGIC VALUE(47) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
19	SOCIAL VALUE(10) => DECISION(Very Good)	2	2	1.0	0.2	0.666667	1.0	1	1
20	SOCIAL VALUE(6) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
21	SOCIAL VALUE(9) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
22	SOCIAL VALUE(5) => DECISION(Good)	2	2	1.0	0.2	0.5	1.0	1	1
23	SOCIAL VALUE(7) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
24	SOCIAL VALUE(3) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
25	SOCIAL VALUE(8) => DECISION(Good) OR DECISION(Enough)	2	1, 1	0.5, 0.5	0.2	0.25, 0.333333	1.0, 1.0	1	2
26	PROFESSIONAL VALUE(20) => DECISION(Very Good)	2	2	1.0	0.2	0.666667	1.0	1	1
27	PROFESSIONAL VALUE(18) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
28	PROFESSIONAL VALUE(5) => DECISION(Enough)	2	2	1.0	0.2	0.666667	1.0	1	1
29	PROFESSIONAL VALUE(17) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
30	PROFESSIONAL VALUE(15) => DECISION(Good)	2	2	1.0	0.2	0.5	1.0	1	1
31	PROFESSIONAL VALUE(12) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
32	PROFESSIONAL VALUE(11) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
33	TOTAL VALUE(93) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
34	TOTAL VALUE(85) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
35	TOTAL VALUE(69) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
36	TOTAL VALUE(72) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
37	TOTAL VALUE(78) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
38	TOTAL VALUE(77) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1

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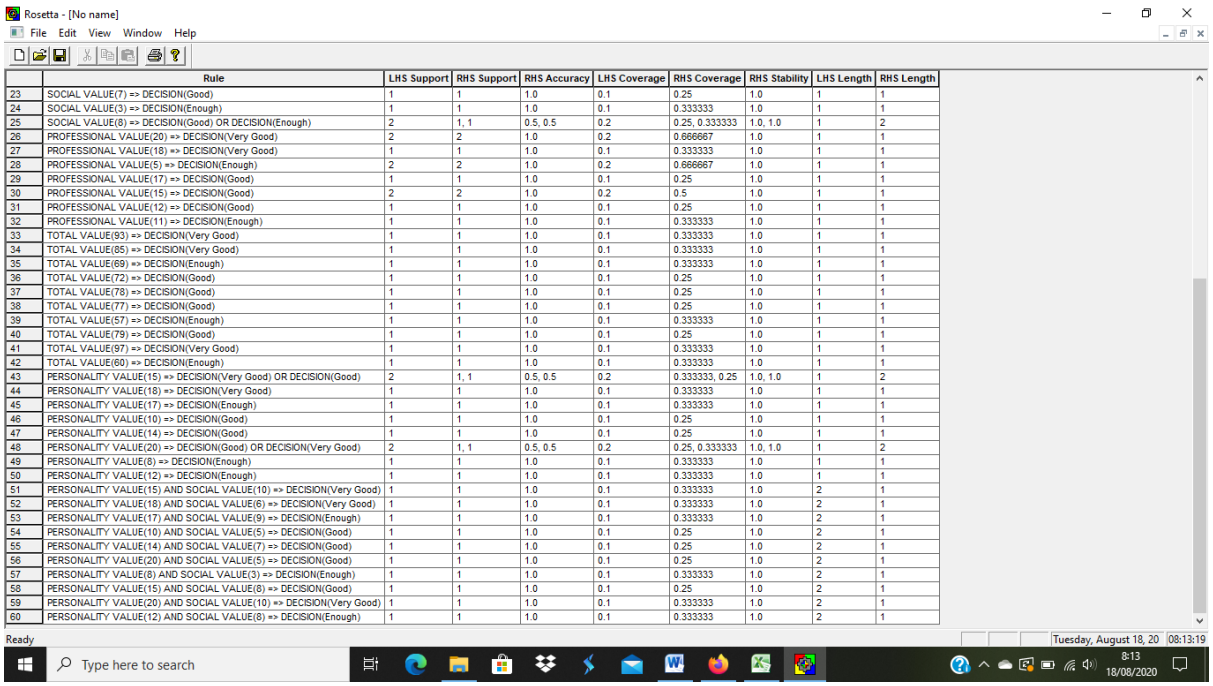
Rosetta - [No name]

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	Rule	LHS Support	RHS Support	RHS Accuracy	LHS Coverage	RHS Coverage	RHS Stability	LHS Length	RHS Length
23	SOCIAL VALUE(7) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
24	SOCIAL VALUE(3) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
25	SOCIAL VALUE(8) => DECISION(Good) OR DECISION(Enough)	2	1, 1	0.5, 0.5	0.2	0.25, 0.333333	1.0, 1.0	1	2
26	PROFESSIONAL VALUE(20) => DECISION(Very Good)	2	2	1.0	0.2	0.666667	1.0	1	1
27	PROFESSIONAL VALUE(18) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
28	PROFESSIONAL VALUE(5) => DECISION(Enough)	2	2	1.0	0.2	0.666667	1.0	1	1
29	PROFESSIONAL VALUE(17) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
30	PROFESSIONAL VALUE(15) => DECISION(Good)	2	2	1.0	0.2	0.5	1.0	1	1
31	PROFESSIONAL VALUE(12) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
32	PROFESSIONAL VALUE(11) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
33	TOTAL VALUE(93) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
34	TOTAL VALUE(85) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
35	TOTAL VALUE(69) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
36	TOTAL VALUE(72) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
37	TOTAL VALUE(78) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
38	TOTAL VALUE(77) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
39	TOTAL VALUE(57) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
40	TOTAL VALUE(79) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
41	TOTAL VALUE(97) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
42	TOTAL VALUE(60) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
43	PERSONALITY VALUE(15) => DECISION(Very Good) OR DECISION(Good)	2	1, 1	0.5, 0.5	0.2	0.333333, 0.25	1.0, 1.0	1	2
44	PERSONALITY VALUE(18) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	1	1
45	PERSONALITY VALUE(17) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
46	PERSONALITY VALUE(10) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
47	PERSONALITY VALUE(14) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	1	1
48	PERSONALITY VALUE(20) => DECISION(Good) OR DECISION(Very Good)	2	1, 1	0.5, 0.5	0.2	0.25, 0.333333	1.0, 1.0	1	2
49	PERSONALITY VALUE(8) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
50	PERSONALITY VALUE(12) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	1	1
51	PERSONALITY VALUE(15) AND SOCIAL VALUE(10) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	2	1
52	PERSONALITY VALUE(18) AND SOCIAL VALUE(6) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	2	1
53	PERSONALITY VALUE(17) AND SOCIAL VALUE(9) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	2	1
54	PERSONALITY VALUE(10) AND SOCIAL VALUE(5) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	2	1
55	PERSONALITY VALUE(14) AND SOCIAL VALUE(7) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	2	1
56	PERSONALITY VALUE(20) AND SOCIAL VALUE(5) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	2	1
57	PERSONALITY VALUE(8) AND SOCIAL VALUE(3) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	2	1
58	PERSONALITY VALUE(15) AND SOCIAL VALUE(8) => DECISION(Good)	1	1	1.0	0.1	0.25	1.0	2	1
59	PERSONALITY VALUE(20) AND SOCIAL VALUE(10) => DECISION(Very Good)	1	1	1.0	0.1	0.333333	1.0	2	1
60	PERSONALITY VALUE(12) AND SOCIAL VALUE(8) => DECISION(Enough)	1	1	1.0	0.1	0.333333	1.0	2	1

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GENERATE RULE ROSETTA

5. CONCLUTION

The following conclusions from the explanations and summaries in the previous chapters:

1. Roughset, which is the simplest data mining method, can be used in the analysis of teacher performance in determining outstanding teachers at SDN 10 Koto Bungus Padang.
2. The attributes used for the process of analyzing teacher performance include the Pedagogic component, the Personality component, the Social component and the Professional

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component.

3. Rough Set application in this study can run well where data processing manually is in line with processing through the Rosetta application 1.4.4.1.
4. Future research should add other attributes that are used so that the results are better.

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