

Hadith Degree Classification for Shahih Hadith Identification Web Based

Ina Najiyah¹, Sari Susanti², Dwiza Riana³ and Mochammad Wahyudi⁴

^{1,2,3,4} STMIK Nusa Mandiri Jakarta

¹ina.iaj@bsi.ac.id, ²sari.srq@bsi.ac.id, ³dwiza@nusamandiri.ac.id, ⁴wahyudi@nusamandiri.ac.id

Abstract

Hadith is the second source of Islamic law after Qur'an and an explanation of verses of the Qur'an. Today, there are many hadiths that appear and that are doubtful of its authenticity. The number of hadiths that are doubtful of its authenticity or so-called *dhaif* and *maudhu* hadith can lead to errors in the determination of Islamic law for everyday life. The classification of hadith is required to know a hadith including *dhaif* (weak), *maudhu* (fabricated) or *sahih* (authentic) hadith. The *sahih* hadith identification is made to prevent the use of weak and fabricated hadiths in everyday life. This research classified and identified hadith using expert systems and simple algorithms with several stages of making a database of hadith, hadith level classification, implementation and test. Classification of hadith level used in this study consists of 19 hadith levels and 40 characteristics of hadith in terms of *matn* (content) and *sanad* (sequence of reporters) taken from the book of Hadith Science. Training data used for the classification consist of 274 hadiths, and data testing consist of 72 hadiths. The results of identification of the data testing resulted in 56 hadiths with the degree of Authentic Hadith, and 16 hadiths with the degree of unauthentic hadith, that are *maudhu* and *dhaif*. The result gave an error value of 0.00134%, ie less than 5%, which means the proposed classification model can be relied upon to identify degree of *sahih* hadith. This hadith degree identification can make it easier to determine *sahih*, *dhaif* and *maudhu* hadith.

Keywords: Classification, identification degrees of hadith, website of hadith.

I. INTRODUCTION

The law-making in Islam comes from one of them in the hadith. Therefore knowing the type of hadiths including *sahih* or non-*sahih* which is *dhaif* and *maudhu* is important. The hadith is all words, deeds and decrees and approval of the Prophet (s) which became the basis for the law-taking in Islam [1].

Hadiths can be broadly divided into *Mutawatir* (consecutive) and *Ahad* (single). *Mutawatir* hadith is a hadith whose authenticity is undoubt while *Ahad* hadith is a hadith that has not reached the level of *Mutawatir*. *Ahad* hadith is divided into two types, *sahih* and *dhaif* hadith.

Learning about hadith by Muslims is very important because it is used as a law source in everyday life. Some researchers have conducted research on the application of hadith in human life [2]. There are even some researchers who compare books on hadith published by *ulama* (scholars) [3]. The goal is to seek the truth of those hadiths and to apply them in everyday life.

The study of hadith has been done by researchers conventionally by comparing one hadith to another, or even

cross-comparison of existing hadiths using the source-critical method "[4]. Another study conducted an investigation in which researchers tried to research the differences between *al-Quran* (the holy words and statements of God in the Islamic religion) and hadiths (statements said by the prophet Muhammad) [5].

Classifying the hadith is very important to know the degree of the hadith whether or not it is a *sahih* hadith. The research that attempts to do literature on hadith has been done by applying sociological methods to examine the transmission of hadith and to document what made a hadith more prominent in its era. [6].

Classifying a hadith can be assisted by experts of hadith and can also use some theories or methods as described in previous research, but no research has classified the hadith by involving information technology as a convenience. This research proposed the use of information technology in the form of classification method to know the type of Hadith whether it is *sahih*, *dhaif*, or *maudhu* hadith by looking at its characteristics.

The Classification Method is a process of finding a model (or function) that describes and distinguishes a data class or concept in order to predict the class of objects whose class labels are unknown. Classification has been widely used in several research areas such as real-time traffic classification [7], text classification [8], algorithm classification on bio- medical datasets [9], air quality classification [10], hand motor motion classification [11] the classification of the distribution network [12], the classification of underground anchor technology [13], the classification of breast cancer [14], the classification of cervical cancer [15], the classification of solar radiation [16]. All of the research data has covered all areas of life but has not been used to solve religious problems. In addition, it can be seen that the classification with non-simplified algorithms in all fields has been extensively researched, but currently no one has specifically used algorithms to classify the degree of hadith especially using simple algorithms. Based on the problems described above, then this study proposed the utilization of web-based technology to facilitate the identification of the collection of hadith with a simple algorithm.

The writing of this paper consists of 3 stages. The first part is introduction, and the second part is methodology consisting of 1) the establishment of the hadith database; 2) the degree classification of hadith; And 3) implementation and test. The third part is the result and discussion, and the last is the conclusion. These phases are described in detail in the following paragraphs.

II. RESEARCH METHOD

The research method that is used in this study is described in the following picture:

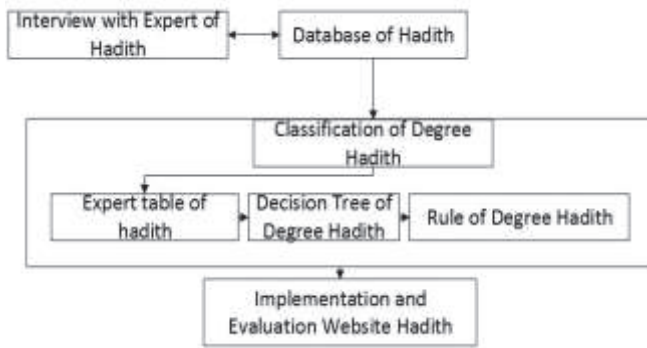


Fig 1. Research Method

A. Database of Hadiths

Hadith is something that is based on the Prophet Muhammad both words, deeds, statements (*taqrir*) etc. [15].

The degree of a hadith in general can be divided by 3: [15]

1. *Sahih* hadith is a hadith which is quoted (narrated) by a just *rawi* (narrator), perfect thought, continuous *sanad* (not having *'illat* and not odd).
2. *Dhaif* hadith is a hadith that does not meet the requirements as *hasan* hadith due to the loss of some conditions. Basically *dhaif* hadith is caused by two reasons:
 - A. The *sanad* is not *muttasil* (continued)
 - B. Other factors such as *matan*
3. *Maudhu* hadith is a false hadith or hadith created and made by a person (liar) whose creation was spelled out to the Prophet falsely whether it was intentional or not.

This study did the grouping of hadith to get the hadith database. The process of grouping hadith was under the supervision of hadith experts. According to the Hadith scholars, to know the degree of a hadith can be seen in terms of *sanad* and *matan*. If it is based on *sanad*, then the circumstance of the narrator or the hadith narrator is discussed, and if it is based on *matan*, then the content of the hadith is discussed. To determine the degree of hadith, basic knowledge of the hadith narrator is necessary, which can be learned from the science of *takhrij* (Indicating the place of hadith from the original source, and explaining the law). This research used 3 levels of hadith viewed from its quality that is *sahih*, *dhaif* and *maudhu*. *Dhaif* hadith itself is divided into 17 sub-degrees. The number of hadiths used in this study were 346 hadiths detailed in Table I.

TABLE I.
THE NUMBER OF HADITHS

No	Degrees	Sub-Degrees	Training	Testing
1	<i>Sahih</i>	-	212	56
2	<i>Maudhu</i>	-	24	3
3	<i>Dhaif</i>	17	38	13
Total			274	72

B. Classification of Hadith Degree

The process of classifying the hadith degree based on the data in Table 1. Classification of the hadith degree is described in 3 parts which are the expert table of hadith, decision tree of hadith, and the rule of hadith.

1. Expert Table of Hadith

This study proposed an expert table of hadith consisting of 19 codes of hadith degrees of and 40 characteristics. The number of 19 degree codes of hadith and 40 such characteristics resulted from an analysis of conventional determinations involving interviews with hadith experts and supported by the literature on hadith [17] [18] [19]. The codes and characteristics of the classification of hadith degrees can completely be seen in Table II and III, which will then be used to create a decision tree and a rule degree of hadith.

TABLE II. HADITH DEGREES

Code	Degree of Hadiths	Code	Degree of Hadiths	Code	Degree of Hadiths
D01	<i>Sahih</i>	D08	<i>Dhaif Mudhtarib</i>	D15	<i>Dhaif Mursal</i>
D02	<i>Maudhu</i>	D09	<i>Dhaif Mushahhaf</i>	D16	<i>Dhaif Mu'dhal</i>
		D10	<i>Dhaif Mubham</i>	D17	<i>Dhaif Munqathi</i>
D03	<i>Dhaif Matruk</i>	D11	<i>Dhaif Mardud</i>	D18	<i>Dhaif Maquf</i>
D04	<i>Dhaif Munkar</i>	D12	<i>Dhaif Muhktalit</i>	D19	<i>Dhaif Maqthu</i>
D05	<i>Dhaif Mu'allal</i>	D13	<i>Dhaif Mu'allaq</i>		
D06	<i>Dhaif Mudraj</i>	D14	<i>Dhaif Mursal</i>		
D07	<i>Dhaif Maqlub</i>				

TABLE III. HADITH CHARACTERISTIC

Code	Features	Code	Features	Code	Features
C01	Continuous <i>rawi</i>	C16	Distorting the hadith content	C31	Aborted by more than 2 people non consecutively
C02	The <i>rawi</i> was fair	C17	Exchanging the <i>rawi</i>	C32	There were words "he said"
C03	Perfect though	C18	Changing the letters	C33	There were words "hearing / seeing / watching"
C04	The hadith doesn't have <i>'illat</i> (trouble)	C19	Changing a point mark or a word	C34	The <i>sanad</i> from the same hadith has differences
C05	The hadith was not ambiguous	C20	Changing a point mark or a word	C35	Rely on the companions of the prophet
C06	Rely on the Messenger of Allah	C21	The gender was not explained	C36	Contrary to the Qur'an or <i>sahih</i>

					hadith
C07	The <i>sanad</i> was disconnected	C22	The things mentioned were only the name of his family (his clan)	C37	The hadith contents were ambiguous
C08	The <i>rawi</i> was falsehood	C23	Adherents of <i>bid'ah</i> (heresy)	C38	The contents of the hadith were illogical
C09	The <i>rawi</i> is accused of lying	C24	The <i>rawi</i> has poor recitation	C39	There was no reference to Prophet Muhammad
C10	The <i>rawi</i> was wicked	C25	The <i>rawi</i> was old, often forgot many times	C40	Rely on <i>tabi'in</i>
C11	The <i>rawi</i> made many mistakes	C26	The <i>rawi</i> was dropped out		
C12	He was	C27	The first <i>sanad</i>		

	careless in memorizing		was eliminated		
C13	The <i>rawi</i> misunderstood	C28	The last <i>sanad</i> was eliminated		
C14	<i>Rawi</i> violated the history of trust	C29	<i>Rawi</i> who was aborted was not a contemporary of the prophet Muhammad		
C15	Adding an insert to the hadith	C30	Dropped by 2 people consecutively		

2. Decision Tree of Hadith Degrees
Formation the decision tree of degree hadits using forward chaining algorithm is in Figure II.

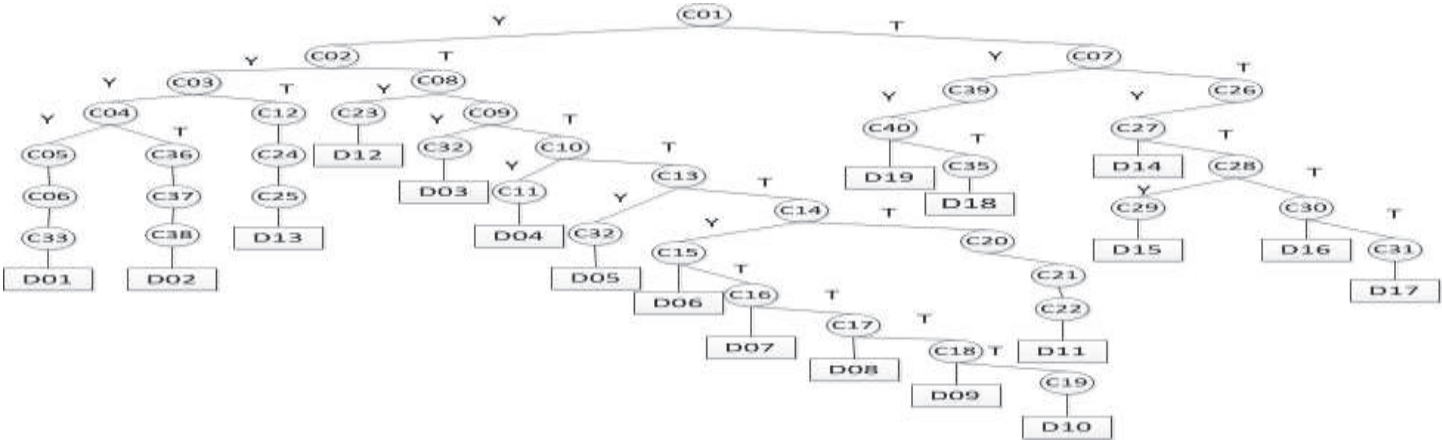


Fig II. Decision Tree

A. Implementation and Evaluation of Web Hadith
The utilization of web technology in the identification of hadith degree was done by implementing classification method of hadith degree. Web design consists of input menu which is user data, expert data, hadith data, data of hadith traits. The process menu was a characteristic data processing that was inputed by user, and the output was the result of identification of the hadith degree. The proposed web of hadith can be seen in figures II and III. Furthermore, this study conducted an evaluation of the classification of hadith degree that had been implemented into the web.



Fig IV. Web Hadits

IV. RESULT

Evaluation of classification system of hadith degree was done to find out how accurate the website system for the classification of the hadith degree is. To do the evaluation, a new hadith database which was different from the hadith data used in the formation of rule was taken, that was 72 hadiths consisting of 1 degree of *sahih* hadith as many as 56 hadiths and 11 hadith degrees which was not *sahih* as many as 16 hadiths. Testing was done by involving 72 users, and each user tried 1 type of hadith. The results of the trials were summarized in Table IV. Table IV consists of the type of hadith and the scope of hadith discussion. The degree of hadith is the ground truth data, and the result is

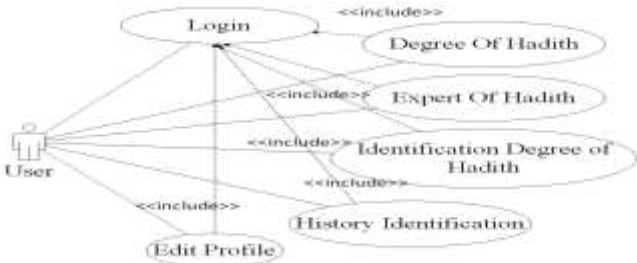


Fig III. UML

the comparison of ground truth data with the result of classification using web hadith.

TABLE V.
RECAPITULATION OF CLASSIFICATION EVALUATION RESULT OF HADITH
DEGREE

N o	Hadits	Ground truth date	Hasil Identifikasi i Web	Keterangan
1	No Prayers Are Received Without Wudu (Ablution)	Sahih	Sahih	Valid
2	No Need Of Wudu Just Because of Doubt Until He Is Sure That his Wudu is void	Sahih	Sahih	Valid
3	The virtues of Ablution and The Shining White People on their Face, His Hands, and His Fingers for Former Wudu	Sahih	Sahih	Valid
4	Relieve in Doing Wudu	Sahih	Sahih	Valid
5	Perfect Wudu	Sahih	Sahih	Valid
6	Breathing Water Into Your Nose and Blowing It Back	Sahih	Sahih	Valid
7	Gargle in Wudu	Sahih	Sahih	Valid
8	Put the Right One Ahead in Wudu and Bath	Sahih	Sahih	Valid
9	If A Dog Drinks in One of Your Vessels, You Must Wash It Seven Times	Sahih	Sahih	Valid
10	Using the rest of Others' Wudu Water	Sahih	Sahih	Valid
11	People Who Gargle After Eating Flour Rod do not need to Perform Wudu again.	Sahih	Sahih	Valid
12	Fasting Is <i>Kafarat</i> (Sinners)	Sahih	Sahih	Valid
13	<i>Rayyan</i> Heaven's Door is Special for Fasting People	Sahih	Sahih	Valid
14	Fasting for people who are Afraid of Falling in Adultery If Being Single	Sahih	Sahih	Valid
15	Predawn Meal's Blessing, But Not Required	Sahih	Sahih	Valid
16	If Intending Fasting during the Day	Sahih	Sahih	Valid
17	A Fasting Person If Eating or Drinking due to Forgetting	Sahih	Sahih	Valid
18	Using a Wet and Dry <i>Siwak</i> (bundle of young twigs or roots used to clean teeth) for a Fasting Person	Sahih	Sahih	Valid
19	Cupping and Vomiting for the Fasting Man	Sahih	Sahih	Valid
20	Fasting and Breaking the Fast on Traveling Time	Sahih	Sahih	Valid
21	Doing Umrah Before Doing Hajj	Sahih	Sahih	Valid
22	Umrah's reward depends on the Body Fatigue	Hadits Dhaif Mudraj	Hadits Dhaif Matruk	Tidak valid
23	People who are doing <i>i'tikaf</i> (a period of staying in a mosque for a certain number of days) are not allowed to enter the house unless there is a need	Sahih	Sahih	Valid
24	A Woman's Visit To Her Husband Who Is Doing <i>i'tikaf</i>	Sahih	Sahih	Valid
25	Doing <i>I'tikaf</i> in Shawwal Month	Dhaif Mushahhaf	Dhaif	Valid
26	The virtue of the One who does	Sahih	Sahih	Valid

	the Sunnah Prayer in Ramadan			
27	Looking for <i>Lailatul Qadar</i> (Night of Power) on odd Night in the Last Ten Nights	Sahih	Sahih	Valid
28	Practice on the Last Ten Days of Ramadan	Sahih	Sahih	Valid
29	The Virtue of Doing Azan	Sahih	Sahih	Valid
30	Lift Up Voice at the Time of Azan	Sahih	Sahih	Valid
31	Stop War When Hearing Azan	Dhaif Matruk	Dhaif Matruk	Valid
32	Praying After Azan	Sahih	Sahih	Valid
33	Holding a Lottery in azan	Sahih	Sahih	Valid
34	Azan After Dawn	Sahih	Sahih	Valid
35	Between Each Azan And Iqama, There is a Prayer (Sunnah) for People Who Want	Sahih	Sahih	Valid
36	Is A Must that <i>Muadzin</i> Overlooks and Looks toward (Right and Left) At the Time of the Azan?	Sahih	Sahih	Valid
37	Not Rushing to come to Prayers, Come Calmly and Slowly	Sahih	Sahih	Valid
38	Speaking After <i>Iqamah</i> of Prayers	Sahih	Sahih	Valid
39	Obligation to pray in congregation	Dhaif Muallal	Dhaif Muallal	Valid
40	Two or More Than Two Persons Are Considered a Congregation	Sahih	Sahih	Valid
41	Boundaries of the Sick person to Visit the Congregation prayer	Sahih	Sahih	Valid
42	People who are Experts in Religion have More Right to Become a Priest	Sahih	Sahih	Valid
43	Someone chosen to be a Priest is Just To Be Followed	Sahih	Sahih	Valid
44	The Sin of the One Who Raises His Head Before the Priest (Raising the Head)	Sahih	Sahih	Valid
45	A Slave or Slave Former Becomes a Priest		Sahih	Valid
46	Washing the Head of Husband and Combing his Hair by a Wife who is Menstruating	Sahih	Sahih	Valid
47	Man is Reading the Qur'an in the lap of his wife while his wife is in the state of menstruation	Sahih	Sahih	Valid
48	Hugging Women Who Are Menstruating	Sahih	Sahih	Valid
49	Menopause People Should Break Their Fasting	Sahih	Sahih	Valid
50	Women Menstruation May Implement All Rituals of Hajj Except <i>Tawaf</i> in Masjidil Haram	Sahih	Sahih	Valid
51	Washing Menstrual Blood	Sahih	Sahih	Valid
52	Bath After Menstruation	Sahih	Sahih	Valid
53	Menstruants Do not replace Prayers	Sahih	Sahih	Valid
54	The presence of menstruants in the two-day prayers and <i>da'wah</i> (religious proselytizing) of the Muslims, but they keep away from the place of prayer	Sahih	Sahih	Valid
55	Yellow and Snappy Color On Days Other Than The Days Of Menstruation	Sahih	Sahih	Valid

56	The Virtue of Bath On Friday. Are the Children or Women Compulsory to Attend Friday Prayers?	Sahih	Sahih	Valid
57	Wearing Fragrances for Friday Prayers	Sahih	Sahih	Valid
58	The virtue of Friday Prayers	Sahih	Sahih	Valid
59	Do People Not Attending Prayers Friday, That are from Women, Children, and Others Group Also Have to Bathe?	Sahih	Sahih	Valid
60	Relief Not Attending Friday Prayers At Rain Time	Dhaif Muallaq	Dhaif	Valid
61	If the Priest Sees the Person Coming and He Is Presenting a Sermon, and Then the Priest Order Him to Pray Two <i>Rakaat</i>	Dhaif Muallaq	Dhaif	Valid
62	Listening to the sermon on Friday Prayers when the priest is on his sermon, and says to his friend, "Be quiet!" (At That Time), So That Has Been Wasted	Sahih	Sahih	Valid
63	"Charity for your world as if you live forever and think for your hereafter as if you will die tomorrow."	Dhaif Munqathi	Dhaif Muharraf	Tidak Valid
64	"Learn, even in China".	DHaif Muallaq	Dhaif Matruk	Tidak Valid
65	"All things have heart, and the heart of the Qur'an is <i>Yasin</i> . Whoever reads it is like that he has read Al-Qu'a'an 10 times".	Hadits Maudhu	Dhaif Matruk	Tidak Valid
66	"A man has asked Prophet Muhammad (may peace be upon him), he said:" What is the best deed in Islam? "The Prophet replied:" You are feeding and greeting people you know and people you do not know. " (Bukhary-Muslim)	Dhaif Mubham	Dhaif Mubham	Valid
67	"Prophet sallallahu 'alahi wa sallam read qunut at dawn prayer, did <i>takbir</i> on the day of <i>Arafah</i> from dawn prayer and stopped at the time of afternoon	Dhaif Matruk	Dhaif Matruk	Valid

	prayer on the last day of <i>tasyriq</i> days."			
68	Eat fruit (raw dates) with <i>tamr</i> (mature dates) because shaitan will be angry if the son of Adam eats it. "	Dhaif Munkar	Dhaif Munkar	Valid
69	"Looking at the face of a beautiful woman and a green thing adds the visual acuity".	Hadits Maudhu	Dhaif Matruk	Tidak Valid
70	Yahya bin Habib bin Arabiy told us, he said; Hammad told us, he said; Atha 'bin as-Sa'ib told us, from his father, he said; Ammar bin Yasir once did a prayer with us with a light prayer (short) then one asked him, you have relieved or shortened your prayer, and Then Ammar replied; As for that I have prayed in it with a prayer that I heard from the Messenger of Allah (peace and blessings of Allah be upon him), and when he stood, one of the people followed him	Dhaif Mukhtalit	Dhaif Muharraf	Tidak Valid
71	"Ubay (bin Ka'ab) has been showered with heat on the war of ahzab on his arm, and then the Prophet treated him with a warm iron"	Dhaif Muharraf	Dhaif Muharraf	Valid
72	"Praying two <i>rakaat</i> with a turban is better than a prayer of 70 <i>rakaat</i> without a turban".	Hadits Maudhu	Hadits Maudhu	Valid

The evaluation results in Table V performed the percentage of prediction on the data testing in Table I in detail the results of the prediction process prediction of the classification method for the identification of the degree of hadith as in Table V.

TABLE VI.
HASIL PENGUJIAN

	D01	D02	D06	D09	D03	D05	D13	D17	D10	D04	Mukhtalit	Muharraf
D01	100%	0	0	0	0	0	0	0	0	0	0	0
D02	0%	33%	0	0	0	0	0	0	0	0	0	0
D06	0%	0	0	0	0	0	0	0	0	0	0	0
D09	0%	0	0	100%	0	0	0	0	0	0	0	0
D03	0%	67%	100%	0	100%	0	33%	0	0	0	0	0
D05	0%	0	0	0	0	100%	0	0	0	0	0	0
D13	0%	0	0	0	0	0	67%	0	0	0	0	0
D17	0%	0	0	0	0	0	0	0	0	0	0	0
D10	0%	0	0	0	0	0	0	0	100%	0	0	0
D04	0%	0	0	0	0	0	0	0	0	100%	0	0
D12	0%	0	0	0	0	0	0	0	0	0	0	0
D08	0%	0	0	0	0	0	0	100%	0	0	100%	100%

Value calculation of Overall Error (OE) was performed in this research. The value of OE is calculated based on the formula $OE\% = 100\% * ((FN + FP) / ALL)$ where $FN\% = 100\% * (FP + FP)$, $FP\% = 100\% * ((FP / TN) + FP)$, and $ALL = TP + FN + TN + FP$.

The value of False Negative (FN) in this research is the predictive error value for the degree of *sahih* hadith. The value of False Positive (FP) is the error prediction value for the degree of non-*sahih* hadith, the value of True Negative (TN) is the correct prediction value for the *sahih* hadith degree, and True

Positive (TP) is the correct prediction value for the degree of non-*sahih* hadith.

The calculation results obtained the value of FP = 6, TN = 56, TP = 10, FN = 0, so it obtained the percentage value for FN% = 0%, FP% = 0.097%, and the value of OE% = 0.00134%. The OE value is less than 5%, so it can be assumed that the proposed identification classification model is sufficiently reliable to classify *sahih* hadiths.

I. CONCLUSION

This study resulted the best performance at the time of identification of *sahih* hadith degree, *dhaif mushahhaf* hadith, *dhaif matruk* hadith, *dhaif muallal* hadith, *dhaif mubham* hadith, *dhaif munkar* hadith and *dhaif muharraf* hadith who got value of 100%. This means that for the degrees of hadith from the testing sample, 63 hadiths are precisely predicted on the degree of correct hadith. As for the degree of hadith, which is *mudraj* hadith, *mukqathi* hadith and *mukhtalit* hadith are still difficult to identify while *maudhu* and *muallaq* hadith have reached the predictions of 33% to 67% but have not been good. Further research in the identification of the hadith degree will be performed by testing the proposed classification algorithm for 19 degrees of hadith completely because this study only performed 12 hadith degrees. In addition, further research can be done to find a classification method that can identify the degree of hadith that is still difficult to identify.

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