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An Identification of Authentic Narrator's Name Features in Malay Hadith Texts

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Abstract - Name is regarded as important to human. A person's name can give impact to him/her either positively or negatively. It is important to recognize or match a person's name with the right person. To do this on the computer, we need to develop a rule so that the computer will be able to recognize the right name with the right person. Before developing the rule, the features about the person's name itself need to be identified. So far, there has been very little work on recognizing a person's name in the Malay texts. This research identifies features of authentic narrator's name in the Malay hadith texts. We extracted the authentic narrators' names manually from hadith texts in the purpose of identifying the features of the names. We extracted manually 455 narrator's name from 150 Malay hadith texts. From the extracted name, exist same person of narrator's name with different types of spelling. There are also many forms of the narrator's names which refers to one person. We also identify the name manner in the Malay hadith texts and added 3 more name manners. Then, we developed the rule to recognize the narrators' names in the Malay hadith texts based on the identified features.

Keywords – features; Malay text; rule-based; identification

I. INTRODUCTION

The Malay hadith texts are the translated version of the Arabic hadith texts. The Arabic hadith texts use the classical Arabic language which is the standard language of Islam from 1500 years ago [1]. The narrators' names in the Malay hadith texts involve the process of transliteration [2].

A person's name in the Arabic hadith texts could be translated into one or many forms [1]. For example, a narrator's name such as عائشة can be translated into the Malay texts as Aisyah, A'isyah or 'Aishah. As mentioned in [1], standard sets or corpora can be obtained if the research community always uses the corpora as it will produce standard data. For example, [13] used Sunan Tarmizi's book for his research. Therefore, it is difficult to get the standard spelling of a narrator's name in the Malay hadith texts because there is no standard Malay hadith corpus in the research community. In addition, identifying a narrator's name can also pose a problem because of the many forms of name and their similarities that exist in the corpora. Thus, it

will take a long time for researchers to determine the narrator's name accurately [4].

The purpose of identifying the characteristics of narrators' name is to develop rule-based to recognize the narrators' names in the Malay hadith texts. Moreover, the verification of a hadith narrator's name is very important because it is the first step in the process of checking the authentication of a hadith [1]. Furthermore, digitized Malay hadith texts came from the printed version and were converted into texts. Therefore, the verification of the hadith narrators' names will become important in the digitized version. Existing related works that recognize persons' names in texts include [8] which designs the algorithm for English-based personal names and [9] which is a design to handle the standard and Egyptian colloquial Arabic texts. In addition, [10] explores the mapping relation between English person names and Chinese translated names.

Named Entity Recognition implementation depends on domain of the reserach and type of language used. The NER developed to specific domain perform not well when it is used to other domain [14]. For example NER developed for recognition the political text only cannot be used for recognition in other domain [19]. Very little research work has been found on recognizing person names in Malay texts. Research on Malay NER done by [17], [14] used news artikel in Bernama and Mstar website, [7] used news artikel in Utusan Online website, [18] used old Malay manuscript Corpus with Jawi character. But, research on Malay NER used Malay hadith text not yet explore.

This paper has 4 sections. Section 1 is the introduction. Section 2 discusses the methodology of the research. Section 3 puts forward the results and discussions while Section 4 presents the conclusion of the paper.

II. METHODOLOGY

The process of selecting narrator's name features was done manually because it is the most widely used method [1]. This research will use [4] as reference in identifying the name manner of narrators in the Malay hadith texts as shown in Table I. Table I shows the name manner of narrators in the Arabic texts.

Usually, the authentic narrator's name in Malay hadith text is structured as in Table II.

From Table II, P refers to the narrator's name. The word "bin" refers to son-of someone (in this case, Q), while "binti" refers to daughter-of somebody (in this case, Q). Q is the father, R is the grandfather and S is the fourth grandfather of P. It is important to note that, P, Q, R and S may consist of more than one word. Structure 3 in Table II indicates that a narrator's name may be written until the fourth grandfather's name. Why is this so? According to the expert, it is very common for a Malay person to have the same name. Thus, to differentiate those with similar name is by adding the forefathers' names to their own name. Thus, by having their names written until the fourth grandfather would determine the genealogy of the family. This, in turn, will also determine the name with the right narrator. The Family and Luqob name manner is also used for the same reason. It is because there are 200 authentic narrator names only in Shahih Bukhari book.

A person's name in unstructured Malay texts has a sequence of capital letters [7][16] that we used as the first step to identify a name. By referring the name manner in Table I, Table III explains the methodology that we used to identify every component in the name manner in the Malay hadith texts.

TABLE I. NAME MANNER OF NARRATOR IN ARABIC TEXT

No.	Name Manners	Example
NM1	First Name	Safina
NM2	First Name + Father	Ismail Ibn Ibrahim
NM3	First name + Father + Grandfather	Bakr Ibn Yahya Ibn Zaban
NM4	First Name + Father + Family	Abdul Rahman Ibn Ibrahim Damashcky
NM5	First Name + Family	Khallad al-Saffar
NM6	First Name + Father nickname	Yazed Ibn Abu Zaid
NM7	First Name + Father nickname + Family	Said Ibn Abi Said Maqbari
NM8	First name + Father + Grandfather + Fourth Grandfather Nickname	Abdullah Ibn Mohammed Ibn Aqeel Ibn Abi Talib
NM9	Surname	Abu Zubair
NM10	Surname + Father	Umm Habiba bint Jahsh
NM11	Surname + Family	Abu Malik al-Ash'ari
NM12	Surname + Father Surname	Abu Bakr Ibn Abi Shaybah
NM13	Ibn + Father Name	Ibn Umar
NM14	Ibn + Father Nickname	Ibn Abi Mary
NM15	Family Relation	His father, his grandfather, his master, his uncle, his brother, my father... etc.
NM16	Luqab	Al Amash, Nubayshah al Khair
NM17	Family	Al Ouzaii

The Malay hadith texts as the data source were extracted from the Lidwa Pusaka website [3] manually. We copied every hadith in the website to individual text file for each of the hadiths. The website provides 62,000 hadiths that are

divided into 9 most popular hadith books. The software comes from Indonesia and, therefore, uses Bahasa Indonesia in the text. The reason we used the Lidwa Pusaka website was because there is no digitized Malay hadith texts available in Bahasa Malaysia with complete authentic narrator name chain (sanad). So far, there exists only the summary of authentic narrator name chain in digitized Malay hadith texts in Bahasa Malaysia [6], [5]. We only extracted the data from Shahih Bukhari's book only as it is the most authentic book in hadith [12].

TABLE II. AUTHENTIC NARRATOR'S NAME STRUCTURE IN MALAY HADITH TEXTS

Structure	Malay name
1	P bin/binti Q
2	P bin/binti Q bin/binti R
3	P bin/binti Q bin/binti R bin/binti S

TABLE III. METHODOLOGY TO IDENTIFY THE NAME MANNER IN MALAY HADITH TEXTS

Component of name manner	Explanation
First Name	Could be more than one word
Father	Appears after the first word "bin" in the name
Grandfather	Appears after the second word "bin" in the name
Fourth Grandfather Nickname	Appears after the third word "bin" in the name
Surname	<ul style="list-style-type: none"> Starts with the word "Abu / Ummu / Abi". "Abu / Abi" has the same meaning which is 'the father-of' somebody. The different spelling indicates the different use of the word according to Arabic grammar. "Abu" is used to show the subject in a sentence. "Abi" is used as a word that requires that another word in the sentence. "Ummu" means the 'mother-of' somebody.
Father Surname	<ul style="list-style-type: none"> Appears after the first word "bin" in the name Starts with the word "Abu / Abi".
Ibn	<ul style="list-style-type: none"> Starts with the word "Ibnu". "Ibnu" means the 'son-of' somebody
Family Relation	Starts with the word "Bapaknya / Kakeknya / pamannya / bapakku / "
Family	<ul style="list-style-type: none"> Starts with the word "Al" Needed as family name list for Arabic
Luqab / Appellation	<ul style="list-style-type: none"> Starts with the word "Al" Needs to refer to the meaning of word

However, this research used only 150 of hadith texts to extract the narrators' names from the texts. The narrators' names of the hadith were also extracted manually. We copied each of the narrator names in the Malay hadith texts into a list of narrator's names. This research will identify the name manner of narrators in the Malay hadith texts. Then,

we developed the rule-based using Python programming [11] based on the name manner identified for a single Malay hadith text. The overall step in this research is show in Figure 1.

III. RESULTS AND DISCUSSION

The extraction of narrators' names from the texts produced 455 names with different spelling. However, the data show that one person's name can be spelt differently. Table IV shows the different ways of spelling a person's name.

For the narrator's names 1 and 2, the difference is marked at the beginning of the name. Name 2 has apostrophe mark (') at the beginning of both first name and family name, unlike Name 1 which only has the apostrophe mark at the first name. However, both names refer to the same person. Such difference came about during the transliteration process. As a rule (linguistically), the character begins with apostrophe mark in 'Abdullah is used with the ع (ain) character in Arabic, while Abdullah with the ا (alif) character in Arabic carries no apostrophe mark. However, sometimes, transliterators tend to ignore this linguistic rule. Names 3 and 4 also have different spelling in which Name 4 contains double 'r' character in the spelling of the name. The extraction was done from only one hadith book, the Shahih Bukhari's book, available in the same website. However, the data produced different spelling names for the same meaning [1]. This is because there is no standard transliteration for narrators' names in the Malay hadith texts.

TABLE IV. DIFFERENT SPELLING OF THE SAME PERSON'S NAME

Name No.	Extract form Malay hadith text
1	'Ubaidullah bin Abdullah
2	'Ubaidullah bin 'Abdullah
3	Abdurrazaq
4	Abdurrazzaq

Table V shows the ambiguity in a person's name; Names 5 and 6 are spelt in the same name until the third word. Name 6 has another word, followed by his father's family name. This is similar to Names 7 and 8, where the latter also added the family name after the father's name. According to the expert, family or surname name manner is used to distinguish people with similar first or second name.

TABLE V. AMBIGUITY IN PERSON'S NAME WITH MANY FORMS

Name No.	Extract form Malay hadith text
5	Abu An Nu'man
6	Abu An Nu'man 'Arim bin Al Fadlal
7	Alqamah bin Waqash
8	Alqamah bin Waqash Al Laitsi

Based on [4], Table VI shows the name manner of narrators in the Malay hadith texts.

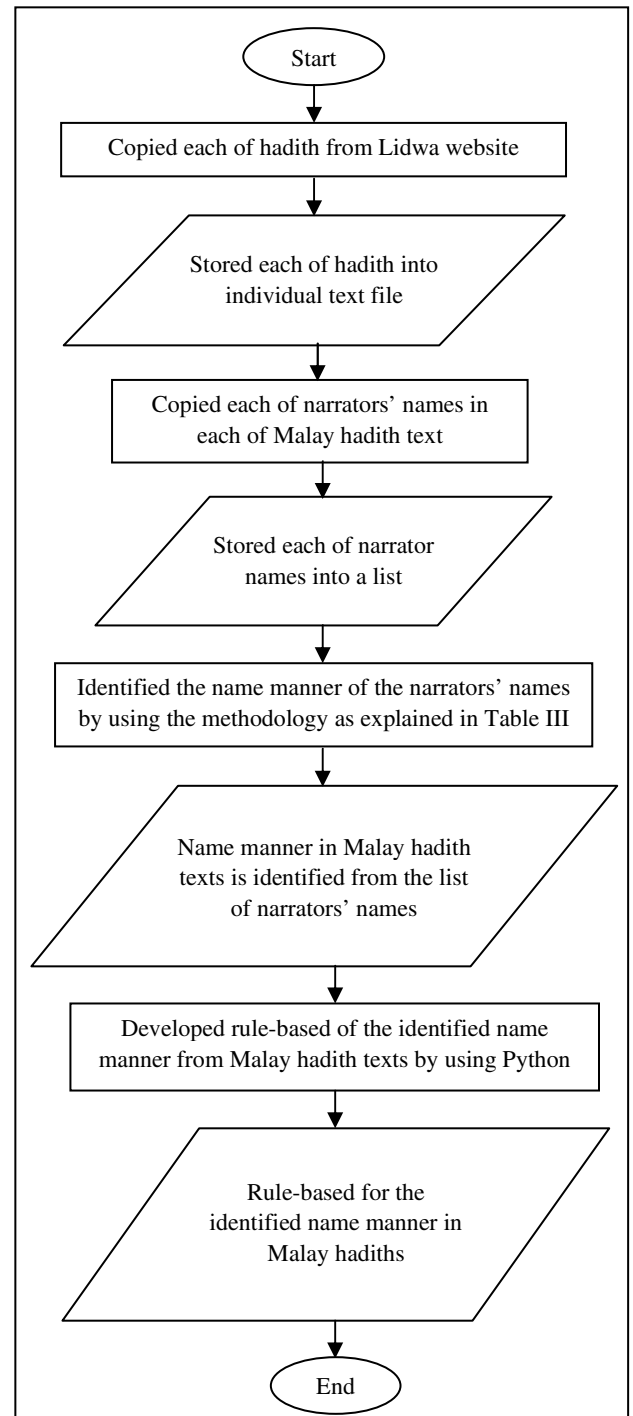


Fig. 1. Overall steps in this research

As shown in Table VI, in the Malay hadith texts, the word "Ibn" in Arabic is translated as "bin" or "Ibnu" to describe the son of somebody in Bahasa Malaysia. "Ibn" is translated to "bin" when it is used in the middle of the name and is translated to "Ibnu" when it is used at the beginning of the name. Ambiguity is also present between the name

manners for family and luqab/appellation because it begins with the word “Al”. As shown in Table VI, the word “Al Aswad” is categorized as luqab/appellation while “Al Humaidi” is categorized as family name manner. To differentiate these words, we refer to the experts to determine the meaning between them. It is described that “Al-Aswad” means “Black” while “Al Humaidi” refers to family name.

Family relation name manner also poses another issue in terms of vocabulary used since the Malay hadith texts are written in Bahasa Indonesia. For example, the word “Kakek” in Bahasa Indonesia, which means “grandfather”, should be translated to “datuk” in Bahasa Malaysia. Similarly, the word “paman” in Bahasa Indonesia, meaning “uncle”, should be translated to “bapa saudara” in Bahasa Malaysia.

TABLE VI. NAME MANNER OF NARRATORS IN THE MALAY HADITH TEXTS

Name Manner	Malay Text
First Name	Aisyah
First Name + Father	Bisyir bin Muhammad
First name + Father + Grandfather	Ishaq bin Abdullah bin Abu Thalhah
First Name + Father + Family	Alqamah bin Waqash Al Laitsi
First Name + Family	Washil Al Ahdab
First Name + Father nickname	Utsman bin Abu Syaibah
First Name + Father nickname + Family	Sa'id bin Abu Sa'id Al Maqburi
Surname	Abu Az Zana'd
Surname + Father	Abu Suhail bin Malik
Surname + Family	Abu Said Al Khudri
Ibn + Father Name	Ibnu Sirin
Ibn + Father Nickname	Ibnu Abu Bakrah
Family Relation	Bapaknya, Kakeknya, pamannya, Bapakku
Luqab / Appellation	Al Aswad
Family	Al Humaidi

In this study, we found additional three name manners in the Malay hadith texts as shown in Table VII.

TABLE VII. ADDITIONAL NAME MANNERS IN THE MALAY HADITH TEXTS

Name Manner	Malay Text
First Name + Father + Grandfather + Fourth Grandfather + Family	'Amru bin Yahya bin Sa'id bin 'Amru Al Makki
Surname + Relation + Lord Name + Father Lord Name	Abu Murrâh -mantan budak Uqail bin Abu Thalib
First Name + Relation + Lord Name + Father Lord Name	Nafi' mantan budak 'Abdullah bin 'Umar bin Al Khaththab

Table VII shows the presence of a name, “Abu Murrâh -mantan budak Uqail bin Abu Thalib”, as authentic narrator name in a Malay hadith text. The question is, which one of the narrator’s names should we store for the hadith? Should it be “Abu Murrâh” and “Uqail bin Abu Thalib” or “Abu Murrâh -mantan budak Uqail bin Abu Thalib”? According

to the experts, the name “Abu Murrâh” only is sufficient to be stored as narrator name for the hadith.

Then, we developed the rule-based in Python programming to recognize the narrators’ names for a single Malay hadith text. In this paper, we are not able to show the full hadith text because of the space limitation. The full hadith text can be accessed from the Lidwa Pusaka website [3] in Sahih Bukahri Book based on the number of hadith shown in Table VIII. Table VIII also shows the rule-based and outputs.

Rules No. 1 and No. 2 in Table VIII used a part of the following Malay hadith text as an input:

Telah menceritakan kepada kami 'Abdullah bin Yusuf berkata, telah mengabarkan kepada kami Malik dari Ishaq bin 'Abdullah bin Abu Thalhah dari Anas bin Malik berkata,...

TABLE VIII. RULE-BASED AND OUTPUTS

Rule No.	Rule-based	Hadith No.	Output
1.	b='bin' r"(?P<Name1>[A-Z]{1}[a-z]{2,})s(?P<Name2>%s)s (?P<Name3>[A-Z]{1}[a-z]{2,})" % b	164	{'Name2': 'bin', 'Name3': 'Malik', 'Name1': 'Anas'} Anas bin Malik
2.	a="" r"(?P<Name1>%s[A-Z]{1}[a-z]{2,})" % a	164	{'Name1': "Abdullah"} 'Abdullah
3.	a="" b='bin' r"(?P<Name1>[A-Z]{1}[a-z]{2,})s(?P<Name2>%s)s (?P<Name3>[A-Z]{1}[a-z]{2,})s(?P<Name4>[A-Z]{1}[a-z]{2,})" % (b,a)	212	{'Name2': 'bin', 'Name3': 'Isma'il', 'Name1': 'Musa'} Musa bin Isma'il
4.	r"(?P<Name1>[A-Z]{1}[a-z]{2,})s(?P<Name2>[A-Z]{1}[a-z]{2,})s(?P<Name3>[A-Z]{1}[a-z]{2,})" %	379	{'Name2': 'Ath', 'Name3': 'Thawil', 'Name1': 'Humaid'} Humaid Ath Thawil
5.	r"(?P<Name1>[A-Z]{1}[a-z]{2,})s(?P<Name2>%s)s (?P<Name3>[A-Z]{1}[a-z]{2,})" % a	379	{'Name2': 'Al', 'Name3': 'Mubarak', 'Name1': 'Ibnu'} Ibnu Al Mubarak

Rule No. 1 is to identify narrator name with *First Name + Father* in the name manner with only 1 word for *First Name* and *Father*. Table IX explains the details of the rule.

Until this paper is written, we found that character ‘ (aspostrophe) was not recognized as a part of narrator’s name. Therefore, Rule No. 2 is developed to recognize the ‘ (aspostrophe) in front of the narrator’s name. Rule No. 3 is developed to recognize the ‘ (aspostrophe) in the middle of a narrator’s name beginning with index 4 in a word. We still need to explore the ‘ (aspostrophe) to be recognized as a part of narrator’s name where it exists.

Rules No. 4 and No. 5 in Table IX used a part of the following Malay hadith text as an input:

Telah menceritakan kepada kami Nu'aim berkata, telah menceritakan kepada kami Ibnu Al Mubarak dari Humaid Ath Thawil dari Anas bin Malik berkata, "Rasulullah shallallahu 'alaihi wasallam bersabda:...

Rule No. 4 is developed to recognize the *First Name + Family* name manner. When we began developing Rule No. 4, we wished that the rule would recognize the *Ibnu Al Mubarak* name. However, instead, it recognized *Humaid Ath Thawil* name in the text. The Name2 pattern in Rule No.4 did not recognize a name that only has 2 characters such as *Al*. Therefore, we developed Rule No.5 to solve the problem.

TABLE IX. EXPLANATION OF RULE NO.1

Statement	Explanation
b='bin'	A variable named b with value bin
r"(?P<Name1>[A-Z]{1}[a-z]{2,})	Name1 pattern begins with a capital letter for index 1 and the following letter begins with a small letter with index 2 until the end
\s	White space
(?P<Name2>%s)	Name2 pattern is a string
\s	White space
(?P<Name3>[A-Z]{1}[a-z]{2,})"	Name1 Pattern begins with a capital letter for index 1 and the following letter begins with a small letter with index 2 until the end
% b	Variable b refers to string that declares in the Name2 pattern

IV. CONCLUSION

This research has shown the name manner for authentic narrators’ names in the Malay hadith texts. The narrators’ names were transliterated from the Arabic texts to Malay texts in Bahasa Indonesia. We extracted manually 455 narrator’s name from 150 Malay hadith texts. From the extracted name, exists same person of narrator’s name with different types of spelling. There are also many forms of the narrator’s names which is refers to one person. We also identified the name manner adapted from [4] and added 3 more name manners that we found in the Malay hadith texts. Then, we developed the rule-based in Phyton regarding the name manner that we had identified. This is the first research contribute to identify person name entity in specific domain which is Malay hadith text. Next, we will combine all the rule-based to recognize name manner for authentic narators in the Malay hadith texts and develop the indexer for authentic narrator name for the hadith texts in the Bahasa

Malaysia. For the future work, we will develop an algorithm to recognize the authentic narrator chain in the Malay hadith texts and evaluate the algorithm.

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