Extended Topical Classification of Hadith Arabic Text

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ABSTRACT

Applications of automatic text classification to one of many possible categories extend frequently in many information system and domain areas. Research on different methods of text classification evaluates the quality of this classification in terms of performance or accuracy metrics. In this paper we evaluated the automatic classification of Islam prophet sayings based on several possible categories. This study aims to evaluate the effectiveness of four well-known classification algorithms (Naïve Bayes (NB), Bagging, Support Vector Machine (SVM) and LogiBoost) to classify Prophet Mohammed (Peace and blessings of Allah be upon him (PBUH)) Arabic text sayings into one of five classes (books) ((Ablutions (Wudu'), Fasting, Almsgiving (Zakat), Prayers, and Call to Prayers (Adhaan))). This study is based on (Sahih Bukhari, "صحيح البخاري") collection that is considered the first of (The Two Authentic, "الصحيحين") collections. Evaluation results showed that (NB) algorithm is more effective than the other three classification algorithms used in this study.

***Keywords*: Data mining, Feature selection, Arabic text classification, Hadith text classification, Machine learning.**

1. INTRODUCTION

Arabic language is used in the Arab world and other Muslim countries. The Arabic language used in the Arab countries now is divided into two main versions: Modern Standard Arabic (MSA) and Colloquial (dialectal) Arabic. The MSA has no variant, while Colloquial Arabic has many regional variants. MSA is used mainly in education, media, official correspondence, etc. Colloquial Arabic represents the real native spoken language that used to communicate at homes, markets, offices, etc. Colloquial Arabic is known as spoken and not written before the Internet era. Arabic language is used mainly in the Middle East, North Africa, and horn of Africa by around 300 million people these days. Arabic language is the 5th most spoken language worldwide, and it is one of United Nations (UN) six official languages, since 1974 (Wikipedia®, Arabic language, 2015).

The two main pillars of Islam is the holy Quran & Sunnah (Prophet Mohammed (PBUH) sayings), where these two pillars use MSA. The holy Quran (Islamic sacred book) represents the verbatim word of God (Allah) and final revelation to humanity as dedicated to Prophet Mohammed (PBUH) by the archangel Gabriel. Holy Quran consists of 114 chapters (units) of varying lengths. This holy book is the principle source of every Muslim's faith and practice. Holy Quran is an exact record of words revealed by God through the archangel Gabriel to the Prophet Mohammed (PBUH), and there is only one version of Quran, sine its revelation before 1400 years. Holy Quran is originally written in Arabic without using diacritical marks (DiscoverIslam, What is the Quran?, 2014) (Wikipedia®, Quran, 2015) (Understanding Islam and Muslims, 2005) (DiscoverIslam, What is the Quran?).

Sunnah / Hadith is the second main pillar of Islam. As mentioned before Sunnah / Hadith refers to Prophet Mohammed (PBUH) sayings. The literal meaning of the Arabic word "Hadith" or its plural (ʾAḥādīth, "**أحاديث**") is the speech of a person. The religious meaning of "Hadith" or "ʾAḥādīth" is a report of the teachings, deeds and sayings of the Prophet Mohammed (PBUH). Also the (Sunnah / Hadith) helps to interpret some of the verses of the holy Quran. These sayings are presented in the Six collection books (Kutub al-Sittah, "**الكتب الستة**"): (Sahih Bukhari, "**صحيح البخاري**"), (Sahih Muslim, "**صحيح مسلم**"), (Al-Sunan Al-Sughra/ Sunan an-Nasa', "**السُنن الصغرى**"), (Sunan Abu Dawood, "**سُنن أبي داود**"), (Sunan al-Tirmidhi, "**سُنن الترمذي**"), and (Sunan ibn Maja, "**سُنن ابن ماجه**"). Also these six books are known as (The Authentic Six, "**الصحاح الستة**") (Wikipedia®, Kutub al-Sittah, 2015). The first two are known by the name (The Two Authentic, "**الصحيحين**"). Unlike a unified holy book of Quran, these six books differ in size and content: (Sahih Bukhari, "**صحيح البخاري**") has 7275 sayings, (Sahih Muslim, "**صحيح مسلم**") has 9,200 sayings, (Al-Sunan Al-Sughra, "**السُنن الصغرى**") has 5270 sayings, (Sunan Abu Dawood, "**سُنن أبي داود**") has 4800 sayings, (Sunan al-Tirmidhi, "**سُنن الترمذي**") has 3956 sayings, and (Sunan ibn Maja, "**سُنن ابن ماجه**") has around 4000 sayings. These Arabic sayings were evaluated and gathered in collections 200 years after the death of Prophet Mohammed (PBUH). The differences in these books and other are due to late gathering of these sayings. These collections are later translated to other natural languages. Sunnah / Hadith is originally written in Arabic (Hadith, Sahih al-Bukhari, Kutub al-Sittah, 2014). Muslim scholars classify the reliability of each of the Prophet's saying mentioned in these books into one of four categories: (Ṣaḥīḥ/Correct, "**صحيح**"), (Ḥasan/Good, "**حسن**"), (Ḍaʿīf /Weak, "**ضعيف**"), (Mawḍūʿ /Fabricated, "**موضوع**") (Wikipedia®, Hadith, 2015) (Islahi, 2015).

Each of these Arabic sayings (ʾAḥādīth, "**أحاديث**") within any of the Six books (Kutub al-Sittah, "**الكتب الستة**") mentioned before is consists of two parts. The first part is called (Sanad, "**سند**") and refers to the chain of trusted narrators reporting the saying (Hadith), and the second part refers to the actual saying and called (Matn, "**متن**"). Therefore this study aims to identify the book (class) of each saying (Matn, "**متن**").

(Sahih Bukhari, "**صحيح البخاري**") collection of Prophet Mohammed (PBUH) sayings is classified by the author into 97 books (classes) (Wikipedia®, Sahih al-Bukhari, 2015). The first 32 books of (Sahih Bukhari, "**صحيح البخاري**") collection are shown in Table 1.

Table 1: Sahih Bukhari Books (Classes) (Bukhari, 2014)

I	English Book Name	Arabic Book Name	Number of Sayings
1	Revelation	**كتاب بدء الوحى**	7
2	Belief	**كتاب الإيمان**	51
3	Knowledge	**كتاب العلم**	76
4	Ablutions (Wudu')	**كتاب الوضوء**	113

5	Bathing (Ghusl)	كتاب الغُسل	46
6	Menstrual Periods	كتاب الحيض	40
7	Rubbing hands and feet with dust (Tayammum)	كتاب التيمم	15
8	Prayers	كتاب الصلاة	172
9	Times of the Prayers	كتاب مواقيت الصلاة	82
10	Call to Prayers (Adhaan)	كتاب الأذان	273
11	Friday Prayer	كتاب الجمعة	66
12	Fear Prayer	كتاب صلاة الخوف	6
13	The Two Festivals (Eids)	كتاب العيدين	42
14	Witr Prayer	كتاب الوتر	15
15	Invoking Allah for Rain (Istisqaa)	كتاب الاستسقاء	35
16	Eclipses	كتاب الكسوف	26
17	Prostration During Recital of Qur'an	كتاب سجود القرآن	13
18	Shortening the Prayers (At-Taqseer)	كتاب التقصير	40
19	Prayer at Night (Tahajjud)	كتاب التهجد	68
20	Virtues of Prayer at Masjid Makkah and Madinah	كتاب فضل الصلاة فى مسجد مكة والمدينة	10
21	Actions while Praying	كتاب العمل فى الصلاة	26
22	Forgetfulness in Prayer	كتاب السهو	13
23	Funerals (Al-Janaa'iz)	كتاب الجنائز	158
24	Almsgiving Charity Tax (Zakat)	كتاب الزكاة	118
25	Hajj (Pilgrimage)	كتاب الحج	259
26	`Umrah (Minor pilgrimage)	كتاب العمرة	33
27	Pilgrims Prevented from Completing the Pilgrimage	كتاب المحصر	15
28	Penalty of Hunting while on Pilgrimage	كتاب جزاء الصيد	46
29	Virtues of Madinah	كتاب فضائل المدينة	24
30	Fasting	كتاب الصوم	117
31	Praying at Night in Ramadaan (Taraweeh)	كتاب صلاة التراويح	
32	Virtues of the Night of Qadr	كتاب فضل ليلة القدر	15
…	…	…	…
97	Oneness, Uniqueness of Allah (Tawheed)	كتاب التوحيد	193

Table 1 shows clearly that these books (classes) are variant in their sizes (number of Sayings), and this preliminary study is based on the five highlighted books (classes) shown in table 1. Many studies were conducted on Arabic text classification. Regardless of the challenges of the Arabic language. Most of these studies used (MSA) datasets, such as the studies of (Hadi, Salam, & Al-Widian, 2010), (Alwedyan, Hadi, Salam, & Mansour, 2011), (Duwairi R. M., 2006), (Duwairi, Al-Refai, & Khasawneh, 2007), (Duwairi, Al-Refai, &

Khasawneh, 2009), (Kanaan, Al-Shalabi, Ghwanmeh, & Al-Ma'adeed, 2009), etc. We found only few studies in the literature dedicated to the topical classification of Prophet Mohammed (PBUH) sayings.

This study is an extended study to a study conducted by (Al-Kabi, Wahsheh, & Alsmadi, 2014), where the authors in their previous study used a dataset that consists on only 227 Prophet Mohammed (PBUH) sayings and three classification algorithms. This study is based on a larger dataset that is 2 times larger than their previous dataset, and uses four classification algorithms instead of three algorithms used in (Al-Kabi, Wahsheh, & Alsmadi, 2014) study.

This study aims to identify the best classification algorithm to classify Arabic text of Prophet Mohammed (PBUH) sayings among four algorithms under study. Therefore (Bagging, LogiBoost, *SVM* and *NB*) classification algorithms were tested. Preliminary results show that *NB* is the best.

The rest of the paper organized as follows: Section 2 presents a summary to a number of studies related to Arabic text classification and in particular to the classification of Prophet Mohammed (PBUH) sayings. Section 3 presents the adopted methodology. Section 4 shows the results of testing these four classification algorithms (Bagging, LogiBoost, *SVM* and *NB*). Section 5 presents our conclusions and future plans to improve this study.

2. RELATED WORK

This section presents few studies on Arabic textual classification, and refers to three studies about the Arabic textual classification of Prophet Mohammed (PBUH) sayings.

A dataset consisting of 1,000 Arabic documents that vary in length and writing style is used by (Duwairi R. M., 2006) to test the effectiveness of distance-based classifier, where stemming is used to reduce feature dimensionality of the vectors of the 1,000 Arabic documents. She concludes that distance-based classifier is effective and a robust classifier.

Also (Duwairi, Al-Refai, & Khasawneh, 2007), and (Duwairi, Al-Refai, & Khasawneh, 2009) conducted another two studies in the field of Arabic text categorization. In the first (Duwairi, Al-Refai, & Khasawneh, 2007) study the effect of root-based stemming and light stemming to reduce feature dimensionality of Arabic documents. They noticed that root-based stemming leads to reduce a number of semantically different Arabic words to the same three consonants (Triliteral) verbs, and leads to flaws in the process of automatic classification. Arabic light stemming aims to reduce Arabic words to their stems, and that means to remove only prefixes and suffixes from the Arabic words. Therefore in most cases light stemming would not reduce a number of semantically different Arabic words to the same stem. The *K*-Nearest Neighbor (*K*-NN) classifier was used in their study using a dataset consisting of 15,000 Arabic documents which distributed equally on three classes. (Duwairi, Al-Refai, & Khasawneh, 2007) conclude that using light stemming yields more accurate classification results relative to the use of Arabic root-based stemming. (Duwairi, Al-Refai, & Khasawneh, 2009) improve their previous study (Duwairi, Al-Refai, & Khasawneh, 2007) by adding a new feature reduction technique (word clusters) in addition to the two feature reduction techniques (root-based stemming and light stemming) already tested before. They use the same classifier (*K*-NN), dataset and classes used in (Duwairi, Al-Refai, & Khasawneh, 2007). Also they conclude that light stemming technique as feature reduction technique leads to a more accurate classification results relative to the other two feature reduction techniques.

Another study is conducted by (Kanaan, Al-Shalabi, Ghwanmeh, & Al-Ma'adeed, 2009) to test the effectiveness of three automatic text classification algorithms (*NB*, *K*-NN, and

Rocchio). A dataset consisting of 1,445 Arabic text documents that are not equally distributed on the nine categories was used in their study. They conclude that *NB* classifier is the best, followed by *K*-NN and Rocchio respectively.

Associative classification (AC) is tested in a study conducted by (Alwedyan, Hadi, Salam, & Mansour, 2011). A dataset consisting of 5,121 Arabic documents is partitioned equally into 7 categories is used in their study. They tested three algorithms Multi-class classification based on association rule (MCAR), *NB*, and *SVM*. (Alwedyan, Hadi, Salam, & Mansour, 2011) study concludes that MCAR is more effective to automatically classify Arabic documents than the other two classifiers used in their study.

(Al-Kabi, Kanaan, Al-Shalabi, Al-Sinjilawi, & Al-Mustafa, 2005) conducted a study to classify Arabic Prophet Mohammed (PBUH) sayings that have not used any of the well-known classification algorithms. A small sample of the Arabic sayings (Hadith/Hadeeth) of Prophet Mohammed (PBUH) is used by (Al-Kabi, Kanaan, Al-Shalabi, Al-Sinjilawi, & Al-Mustafa, 2005), as an Arabic dataset to find the best method that can be used to classify different Arabic sayings of the Prophet into their appropriate category. (Al-Kabi & Al-Sinjilawi, 2007) use 80 Sayings and 12 classes (Books). The six methods (*NB*, Inner product, Jaccard, Cosine, Dice, and Euclidean) were under test. (Al-Kabi & Al- Sinjilawi, 2007) conclude that *NB* is the best method that can be used to classify different sayings (Hadith/Hadeeth) of Prophet Mohammed (PBUH) into their appropriate class (book).

(Bilal & Mohsin, 2012) study presents a distributed, Cloud based expert system to classify Prophet Mohammed (PBUH) sayings. The capabilities of this system are not limited to classification, but it can identify fabricated and authentic sayings.

3. METHODOLOGY

This study is based on a larger dataset relative to the dataset used by (Al-Kabi, Wahsheh, & Alsmadi, 2014), so we use in this study a dataset that consists of 793 Prophet Mohammed (PBUH) sayings relative to 227 sayings in (Al-Kabi, Wahsheh, & Alsmadi, 2014) study. Therefore the dataset is enlarged by 3.5 folds relative to old one. The sayings in the new dataset are free from diacritics (Tashkil, تَشْكِيل) and distributed among five classes (books) as shown in Table 2.

Furthermore the number of classification algorithms is increased by adding one new algorithm, so the effectiveness of each of the four classification algorithms (*NB*, *SVM*, Bagging, and LogiBoost) is tested using the enlarged dataset.

These four algorithms failed completely to classify any of these Hadith/Sayings. Further investigations reveal that this failure was due to not filtering these sayings from (Sanad, "سند"/Chain of trusted narrators), and to the type of the sayings. There are three types of the Prophet Mohammed (PBUH) sayings: Quote, Action, and Report. Therefore we depends in this study on a dataset representing Prophet Mohammed (PBUH) quotes only as shown in the last column of table 2. Therefore the filtration leads to a smaller dataset consisting of 474 Prophet Mohammed (PBUH) sayings.

Table 2: Dataset of five Books (Classes) (Bukhari, 2014)

I	English Book Name	Arabic Book Name	Number of Sayings	Net Saying Total
1	Ablutions (Wudu')	كتاب الوضوء	113	95
2	Prayers	كتاب الصلاة	172	62
3	Almsgiving Charity Tax (Zakat)	كتاب الزكاة	118	98

4	Fasting	كتاب الصوم	117	68
5	Call to Prayers (Adhaan)	كتاب الأذان	273	151
Total			793	474

The following steps show the framework used to conduct this study

1. Collect 793 Prophet Mohammed (PBUH) sayings that distributed among five classes (books).
2. Removal of Arabic Diacritics (tashkil, تَشْكِيل).
3. Removal of (Sanad, "سند"/Chain of trusted narrators) from each of the 474 sayings.
4. Extract manually Prophet's quotes only.
5. Use the resulted 474 Prophet Mohammed (PBUH) sayings from step 4 to train the four classifiers under consideration.
6. Evaluate the four classifiers under consideration.

4. EXPERIMENTS

The filtration of the saying dataset from the diacritics (Tashkil, تَشْكِيل) and (Sanad, "سند"), and extracting the quotes from Prophet Mohammed (PBUH) helps to get reasonable classification results, since we depends on Prophet's quotes only, but there are quotes that could not be classified by any human expert and machine due to the extraction of these quotes from their contexts.

The failure of the classification algorithms used in this study to classify some of the sayings, lead us to check for the reasons that lies behind this failure. So we found the following Hadith/Saying (May Allah be Merciful to `Ammar, he will be killed by oppressive group. He will be inviting them (i.e. his murderers, the rebellious group) to Paradise and they will invite him to Hell-fire.",ويح عمار، تقتله الفئة الباغية، يدعوهم إلى الجنة، ويدعونه إلى النار). This Hadith/Saying is classified by (Sahih Bukhari, "صحيح البخاري") as a prayer Hadith/Saying, but if any human expert read this Hadith/Saying carefully he/she will not class it as classified in the collection of (Sahih Bukhari, "صحيح البخاري"). This does not mean that this Hadith/Saying is misclassified by (Sahih Bukhari, "صحيح البخاري"), but this Hadith/Saying is said when Companion `Ammar was working hard to build a mosque. So one of the main problems facing different classification algorithms to classify (ʾAḥādīth, "أحاديث"/Sayings) when these sayings are extracted from their contexts, or the Hadith/Saying itself describe an act of the Prophet Mohammed (PBUH) or it is a report of an event. Another example of extracting Hadith/Saying out of its context make the classification of Hadith by a human or a machine an impossible task, let us consider the following Hadith/Saying: (Hold the arrow heads , أمسك بنصالها), where Prophet Mohammed (PBUH) instruct the worshipers how to behave in a mosque if they carry arrows with them. Another Hadith/Saying (Shall I tell you about these three persons? One of them betook himself to Allah and so Allah accepted him and accommodated him; the second felt shy before Allah so Allah did the same for him and sheltered him in His Mercy (and did not punish him), while the third turned his face from Allah, and went away, so Allah turned his face from him likewise, ألا أخبركم عن النفر الثلاثة؟ أما أحدهم: فأوى إلى الله، فآواه الله، وأما الآخر: فاستحيا فاستحيا الله منه، وأما الآخر: فأعرض فأعرض الله عنه) within Prayer's book. Also the place of this Hadith/Saying was the mosque.

In this study we used the Receiver Operating Characteristic (*ROC*) prediction quality metrics: True Positive (*TP*) rate, False Positive (*FP*) rate, Precision (*P*), Recall (*R*), *F*-measure (*F*1) which combines the previous two measures *P* and *R*.

Formula 1 represents the Accuracy formula (Witten, Frank, & Hall, 2011).

$$Accuracy_i = \frac{TP + TN}{TP + FP + TN + FN} \quad (1)$$

Formula 2 represents the Recall formula (Witten, Frank, & Hall, 2011).

$$Recall_i(R_i) = \frac{TP}{TP + FN} \quad (2)$$

Formula 3 shows the Precision formula (Witten, Frank, & Hall, 2011).

$$Precision_i(P_i) = \frac{TP}{TP + FP} \quad (3)$$

Formula 4 shows the *F*-Measure formula (Witten, Frank, & Hall, 2011).

$$F - measure = \frac{(2TP)}{(2TP) + FP + FN} \quad (4)$$

Where *TP* is the number of (ʾAḥādīth, "أحاديث"/Sayings) correctly classified as belonging to a class *i* ("true positive"), *FP* is the number of (ʾAḥādīth, "أحاديث"/Sayings) falsely classified as belonging to a class *i* ("false positive") and *FN* is the number of (ʾAḥādīth, "أحاديث"/Sayings) falsely classified as not belonging to a class *i* ("false negative") (Witten, Frank, & Hall, 2011).

LogiBoost classifier yields an accuracy of 53.0997 %, and an error rate of 46.9003 % for the dataset used in this study. Table 3 presents the values of different measurements that are used to evaluate the effectiveness of LogiBoost classifier to classify (ʾAḥādīth, "أحاديث"/Sayings) of the dataset into the five selected classes (books).

Table 3: Evaluation Results of the LogiBoost classifier

Class	*TP*	*FP*	*P*	*R*	*F*1	*ROC*
Ablutions (Wudu').	0.029	0.015	0.167	0.029	0.049	0.643
Fasting.	0.328	0.066	0.524	0.328	0.404	0.724
Almsgiving (Zakat).	0.481	0.062	0.684	0.481	0.565	0.752
Prayers.	0.182	0.037	0.4	0.182	0.25	0.643
Call to Prayers (Adhaan)	0.882	0.524	0.516	0.882	0.651	0.736
Weighted Avg.	0.531	0.235	0.508	0.531	0.483	0.717

Table 3 shows that LogiBoost classifier yields good accuracy rates, where the True Positive accuracy rate of Call to Prayers (Adhaan) is high (0.882), while the accuracy rates for the other four classes were very low especially the accuracy rate of Prayers class (0.182).

Table 4 shows the six measurements used to evaluate the effectiveness of Bagging classifier to classify (ʾAḥādīth, "أحاديث"/Sayings) of the dataset into the five selected topical classes (books). Bagging classifier yields True Positive Accuracy of 48.248%, and an error rate of 51.752%.

Table 4: Evaluation Results of the Bagging classifier

Class	*TP*	*FP*	*P*	*R*	*F*1	*ROC*
Ablutions (Wudu').	0.029	0.009	0.25	0.029	0.051	0.627
Fasting.	0.254	0.059	0.486	0.254	0.333	0.748
Almsgiving (Zakat).	0.407	0.086	0.569	0.407	0.475	0.804
Prayers.	0.114	0.006	0.714	0.114	0.196	0.646
Call to Prayers (Adhaan)	0.854	0.634	0.461	0.854	0.599	0.699
Weighted Avg.	0.482	0.277	0.499	0.482	0.424	0.718

Table 4 shows that the effectiveness of Bagging classifier is higher than the effectiveness of LogiBoost classifier, but generally the results of Bagging classifier still lower than 50%. The results of Bagging classifier in table 4 showed that the True Positive Accuracy rate of the following four classes out of five classes are lower than 50%: Ablutions (Wudu'), Fasting, Almsgiving (Zakat), and Prayers.), are (0.029), (0.254), (0.407), and (0.114). Table 4 has only one exceptional high accuracy rate (0.854) for the Call to Prayers (Adhaan) class, and this led to higher overall accuracy percentage for the Bagging classifier over the accuracy of 4 classes.

Table 5 shows that the effectiveness of Naïve Bayes (*NB*) classifier that yields True Positive Accuracy of 56.6038%, and an error rate of 43.3962% on the dataset used in this study. The detailed results of (*NB*) classifier are shown in table 5.

Table 5: Evaluation Results of the Naïve Bayes (*NB*) classifier

Class	*TP*	*FP*	*P*	*R*	*F*1	*ROC*
Ablutions (Wudu').	0.736	0.367	0.314	0.44	0.042	0.314
Fasting.	0.828	0.523	0.507	0.54	0.095	0.507
Almsgiving (Zakat).	0.836	0.592	0.617	0.568	0.131	0.617
Prayers.	0.718	0.364	0.318	0.424	0.058	0.318
Call to Prayers (Adhaan)	0.802	0.66	0.701	0.623	0.269	0.701
Weighted Avg.	0.566	0.161	0.555	0.566	0.558	0.798

The results of (*NB*) classifier showed that the accuracy rate of all classes are high, and these rates Led to higher overall percentage for the (*NB*) classifier.

Finally the Support Vector Machine (*SVM*) classification algorithm is tested. Table 6 shows that *SVM* yields True Positive Accuracy of 59.2992%, and an error rate of 40.7008% on the dataset used in this study. The detailed results of *SVM* classifier are shown in table 6.

Table 6: Evaluation Results of the *SVM* classifier

Class	*TP*	*FP*	*P*	*R*	*F*1	*ROC*
Ablutions (Wudu').	0.257	0.036	0.429	0.257	0.321	0.648
Fasting.	0.567	0.056	0.691	0.567	0.623	0.804
Almsgiving (Zakat).	0.568	0.1	0.613	0.568	0.59	0.807
Prayers.	0.409	0.067	0.45	0.409	0.429	0.72
Call to Prayers (Adhaan)	0.757	0.313	0.606	0.757	0.673	0.753
Weighted Avg.	0.593	0.165	0.588	0.593	0.584	0.76

Although the average True Positive Accuracy of *SVM* is better than the average True Positive Accuracy of *NB* classifier, due to high accuracy results to classify Hadith/Sayings correctly to Call to Prayers (Adhaan) and Almsgiving (Zakat) classes as shown in table 6 and table 7. Table 6 exhibits low True Positive Accuracy results of *SVM* to classify the Hadith/Sayings under consideration correctly to both Prayers, and Ablutions (Wudu') classes. Table 7 exhibits the evaluation results of *SVM* and *NB* classifiers to classify the Hadith/Sayings in the dataset under consideration, where the True Positive Accuracy results of *NB* to classify different Hadith/Sayings in the dataset to their appropriate classes is better than their *SVM* counterparts.

Table 7: Evaluation Results of *SVM* and *NB* classifier

Class	*SVM*	*NB*
Ablutions (Wudu').	0.257	0.736
Fasting.	0.567	0.828
Almsgiving (Zakat).	0.568	0.836
Prayers.	0.409	0.718
Call to Prayers (Adhaan)	0.757	0.802
Overall result	59.2992%	56.6038%

5. CONCLUSION AND FUTURE WORKS

In this paper, we evaluated the process of automatic text classification of Islam prophet sayings. One apparent challenge in this domain is that those sayings classification is not deterministic. This is due to the nature of these sayings, where each Hadith/Saying consists of two parts: (Sanad, "سند") and (Matn, "متن"). Additionally filtering these sayings from (Sanad, "سند“) do not lead necessarily to a quote of the Prophet, since not all sayings include quotes. This leads us to selecting manually the quotes within five classes (books) to test the effectiveness of four selected classification algorithms (Bagging, LogiBoost, (SVM), and (NB)). This study shows that the effectiveness of NB classifier is better than the others. We plan in the future to use a larger dataset, besides using additional classification algorithms and check the effect of preprocessing (stop word removal and stemming) on the classification results.

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